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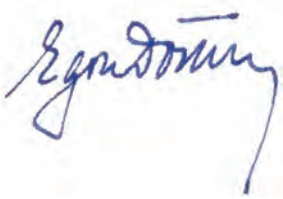
Contents

This volume is dedicated to the memory of Egon Dörner (1925–1993)



The Latest Findings of the Research of Avar Age Settlements in the Region of Hajdúság[1]

Rozália Bajkai

Abstract: In my paper I intend to describe and compare two settlement sections (Hajdúnánás-Mácsi-dűlő and Hajdúnánás-Fekete-halom) from the Late Avar Age that are situated in the region of Hajdúság in Eastern Hungary, 9 km away from each other. During the excavations preceding the construction of Motorway M3 two settlement sections were excavated covering almost 1 hectare each dating back to the Late Avar Age. Whereas the settlement of Fekete-halom can be dated to the 8th century, in the case of the settlement excavated in Mácsi-dűlő two chronological phases were separated by way of the ceramics: the first phase can be dated to the 8th century, the second phase to the late 8th century and the 9th century.

Keywords: Late Avar Age, settlement, ceramic, chronology, interdisciplinary researches.

1. Introduction

Hajdú-Bihar County is situated in Eastern Hungary comprising the region of Hajdúság, which covers 1600 km[2]. This alluvial plain covered by loess and loess silt is bordered to the west by the plain of Hortobágy with its salty infertile soil and to the east by Nyírség, which is covered by sand and quicksand[2]. In the Avar Age the climate turned wetter and the western and southern parts of the county were either temporarily or continuously covered by water. The chernozem soil formed in the area of steppe with forest patches was favourable for cultivating land the flooded areas provided opportunities for fishing and hunting while the unflooded areas were good for keeping animals[3].

The Avar Age (7–9th centuries) remains in Hajdú-Bihar County first became widely known due to the researches carried out by Károly Mesterházy, who managed to identify some remains of settlements dating from the 9th–13th centuries based upon ceramics from field researches[4]. Following the same lines, in his thesis Antal Krisztián Szilágyi gave an outline of the history of settlements in the southern part of the county in the Avar Age and the Árpád Era, collecting the materials found in field researches and the data gleaned from the few excavations[5]. In this county there huge progress has been made by the excavations preceding the construction of motorways and other development projects covering vast areas and more and more traces of Avar Age settlements have been uncovered not only in the region of Hajdúság treated so far as an 'empty' area, but in the whole area of the county: ranging from single graves to cemeteries with hundreds of them and from one settlement object to big settlements.

In 2003 in Excavation Site No. I, Ebes-Zsong-völgy an Avar Age settlement was excavated in an area of 3.6 hectares beside settlement objects and graves dating from the early iron age, the Sarmatian Age and the Árpád era[6]. In 2003–2004 in the site called Debrecen-Bellegelő, Bordás-tanya (M35–11) at least 85 or maximum 143 remains with a cemetery section made up of more than 200 graves of an Avar Age settlement have been excavated in an area of approximately 5 hectares beside some settlement remains from the Sarmatian era[7]. In 2004–2005 in Berettyóújfalu-Nagy-Bócs-dűlő in an area

[1] It was supported by the OTKA-grant No. 104533 called „Centuries of Transformation. Settlement Structures, Settlement Strategies in the Central Parts of the Carpathian Basin in the 8th–11th Century". English translation: László Olah.

[2] Marosi, Somogyi 1990, 268–275.

[3] Lóki 2002, 21–22.

[4] Mesterházy 1975a; Mesterházy 1975b.

[5] Szilágyi 2004.

[6] Dani 2004, 205–209.

[7] Kolozsi, Szabó 2005, 175; Kolozsi, Szabó2012, 93. The cemetery section of the site is analysed by Barbara Kolozsi while the settlement is analysed by the writer of this paper.

covering approximately 6.9 hectares an Avar Age settlement and a cemetery (presumably belonging to it) were found beside some phenomena dated to the Early and Middle Neolithic, Middle and Late Copper Age, Early and Late Bronze Age, Late Iron Age and the Sarmatian Age[8]. In 2008–2009 in the excavation site of several ages in Debrecen, Tócó-part, Erdőalja in an area covering approximately 4 hectares an Avar Age settlement was excavated with a cemetery section. Phenomena dating from the Middle Neolithic, the Copper Age, the Bronze Age, the Late Iron Age, the time of the Roman Empire, the Árpádian Age, the late Middle Ages, the Ottoman Period and the Modern Age were found beside those dating from the Avar Age[9]. In three sites out of the four presumably the cemetery of the settlement was found, which provides opportunity for their complex analysis focussing mainly on the ceramic found in the graves[10].

Apart from these excavations numerous other small but not less important Avar Age sites were excavated. In my paper I intend to describe two late Avar Age settlement sections lying approximately 9 km away from each other (Hajdúnánás-Mácsi-dűlő and Hajdúnánás-Fekete-halom), which are considered small sized excavations. It is important to note that since the material collection carried out by Károly Mesterházy in the 1970's, materials from the Avar Age settlements in Hajdú-Bihar County have scarcely been published, only concise summaries have been written[11]. The sites to be described show a number of resemblances both at the level of finds and the level of objects and concerning their geographical location not surprisingly they also provide data for the Avar Age settlement history of the neighbouring Szabolcs-Szatmár-Bereg County.

2. Hajdúnánás – Mácsi-dűlő (M3–47)

Site Number 47 Hajdúnánás – Mácsi-dűlő was excavated during the rescue excavations preceding the construction of Motorway M3 by the Institute of Archaeological Sciences of the Eötvös Loránd University, Faculty of Humanities led by archaeologists Katalin Sebők and Gábor V. Szabó[12]. The excavations were carried out between 19 July and 2 September 2005 on two neighbouring hills lying in a north-south direction, in an area covering 9415 m^2 [13]. The 63 excavated archaeological objects can be classified into two periods: 4–5th centuries (Late Sarmatian Age) and 8–9th centuries (Late Avar Age) (Plate 1). The Late Avar Age settlement section and the finds from it were analysed in my thesis in 2011[14], a comprehensive summary of it was published in 2014[15]. Besides the deep analysis of the ceramics that the dating is based on, I also tried to draw attention to the importance of the analysis of the stones, slags, daub and plastering pieces as the sources of raw materials necessary for everyday life in the settlement and the interconnections within the region and with other regions cannot be interpreted without them[16].

2.1. Settlement features

Among the excavated objects there were twenty-three that did not contain ceramics which could have helped us with dating, so relying on the surrounding phenomena they have been dated possibly to the Late Avar Age by me. There were 34 settlement objects that could firmly be dated by Late Avar Age ceramics. So maximum 60 objects can be connected to the Late Avar Age settlement, among which 27 sunken huts (so called pit houses), 28 (storage) pits, 4 outdoor ovens and 1 well could be identified (Plate 1).

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8 Dani et al. 2006, 5, 15–19; Dani, Szilágyi 2006, 7, 22–25.

9 Hajdú, Nagy 2010, 182–183.

10 In Debrecen-Bellegelő, Bordás-tanya 243 graves were excavated altogether and 7 of them contained pottery furnishings and another item was found in the humus. The preliminary analyses seem to show that the one that cannot be connected to any grave is a slow wheel-turned one made of a grainy substance with a wide mouth, tapering towards its bottom and it is the only one that shows any connection with the ceramics found in the settlement (Kolozsi, Szabó 2005, pl. IV, 186).

11 Kolozsi, Szabó 2005; Dani, Szilágyi 2006; Kolozsi, Szabó 2012; Szelekovszky 2012.

12 I, hereby, express acknowledgements for the excavating experts for providing me with the opportunity to analyse the site.

13 The site is situated on a loess soil: it is an eolic (windblown) sediment containing considerable amount of lime and in some places lime formations are formed due to a mass (Gyalog 2005, 145–146).

14 Bajkai 2011.

15 Bajkai 2014.

16 Bajkai 2012.

The only object in the settlement that can be identified as a well can be found in the eastern end of the excavated area, its diameter is 4 m, its exact depth is unknown: due to the seeping ground water it was dug only to a depth of 2.1 m. The finds found in the filling (two ceramic shards, 76 bones mostly the bones of goats and sheep, 10 daubs and 14 shards of silicate slag) seem to show that the well was filled with litter in the Late Avar Age, so it was used as a rubbish pit in its secondary function[17].

The pits that were presumably used as storage pits are strung along 2 or 3 imaginary lines orientated N/NW-S/SE in the eastern edge of the excavated area, to the west of the well. Altogether we can count with 19 pits of various shapes and sizes and in most of them (15) no ceramics have been found, which would make the dating easier. To the west of the pits, in the rest of the excavated area some clusters of pit-houses, pits and outdoor ovens were found. Here in two cases a round-shaped pit was attached to the house (House No. 50 and Pit No. 51, and House No. 40 and Pit No. 20).

Pit-houses

All in all 27 pit-houses can be dated to the Late Avar Age, one of them is a shallow building that has an irregular rectangular shape without a fire place (Feature No. 21) and according to the finds excavated in it, it can be dated to the 4th–5th centuries. Late Avar Age houses were half sunk in the ground with square or rectangular shape and straight perpendicular walls (Plate 3, 6–9). Their sides were 2.5–5 m long, their basic area was 12 m^2 on average. The pit of the largest house covered 22 m^2, whereas that of the smallest one was 8 m^2. Their relative depth varied between 0.37–0.85 m. The common orientation of the pit-houses was NE-SW and NW-SE, only House No. 32 was oriented N-S.

The buildings generally had hard and tamped floors (House No. 36) but there was a poorly daubed one (House No. 37) and a pit-house with uneven foot-trodden floor (House No. 54). In some cases no trace of floor could be noticed (House No 16). Usually, there are no archaeological remains of an entrance to the pit-houses (except for the entrance steps to House 16), mostly we can infer its original location from the lack of the posts supporting the roofs or the position of the fire place.

In all the Avar Age buildings there was at least one fire place and therefore they can be considered houses. According to their structure and construction, they can be classified into three types: built fire places (oven) inside the pit-house (Plate 3,1–4), open fire places and inside fire places carved in the wall of the pit-house, projecting from its pit (Plate 3, 5). The ovens were built either of shapeless stones or broken quern-stones or clay.

Places of posts that used to support the roof were found in all the objects that can be identified as houses and in many cases it can be proved that they were structures of the fire place (such as House No. 41). Mostly the postholes are rectangular or square-shaped, rarely they are round or oval. Mostly they were located along the walls with corner posts instead of the more common 2-post construction (Plate 3, 6–9). Depending on the shape of the pit-house and the length of its side wall there were 3 or 4 postholes on one side in a fairly regular order. There were only three pit-houses with a posthole at the middle point of the shorter walls (House No. 32, 54, 55).

2.2. Ceramics

Most of the finds excavated in the settlement are ceramics[18]. Among the excavated metal finds there is a tin plated bronze belt fitting, which is suitable for dating and according to the analogies of its shape and technology, it can be dated to the 8th century[19] (Plate 8, 9). Nothing similar is known from

[17] Nevertheless, relying on the material available for us, it cannot be decided whether the well was dug in the Avar Age or in the 4th–5th centuries.

[18] The animal bones were identified by László Daróczi-Szabó and hereby I would like to express my acknowledgements. The stone materials were analysed by me and Dr. György Szakmány (Institute of Geography and Earth Sciences of Eötvös Lorand University, Department of Petrology and Geochemistry) within the framework of Research Project No. 104533 of OTKA, our aim is to draw up a catalogue of the stone materials, to identify the rocks and their places of origin and to achieve this the petrographic analysis of thin sections is in progress. Dr. Tünde Horváth and Katalin T. Bíró helped me with the exact classification of the stone tools, hereby, I would like to express acknowledgements to them. A study in English is being written on the possible interpretations of the quern-stones and grinding stones found in Hajdúnánás (Bajkai (in press-a)). The petrographic and X-ray diffraction analyses of the slag is being carried out by dr. Gabriella Kiss and Dr. István Dódony (Institute of Geography and Earth Sciences of Eötvös Lorand University, Department of Mineralogy) within the frames of Research Project No. 104533 of OTKA, the evaluation of the researches is in progress.

[19] Bajkai 2012, 24–26, fig. 9, 7.

the inner territories of the Avar Khaganate, its only exact counterpart was found near Belgrade in the site of Stubline, Opština Obrenovac (Serbia) in the grave of a young man from the Avar Age. The ornament is the same length, 2.3 cm, and its ring has two projections like the one found in Hajdúnánás[20]. Ivan Bugarski dated the grave to the time of the fall of the Khaganate or to the early 9th century[21].

Altogether 695 ceramic shards dated to the Late Avar period have been registered by me in the whole area of the Avar Age settlement,[22] which does not seem to differ from the other Avar Age settlements in the region but represents a relatively low number compared to the number of excavated objects. The items were very fragmentary, I could only use 5 completed earthenware pots and in some lucky cases with some profiles that could be completed easily. I described the ceramics focussing on their shape, ornamentation and the technology used, and by carrying out a comprehensive analysis of them I managed to draw some chronological conclusions.

Technology

From a technological aspect I divided the ceramics into three categories: handmade, slow-wheel-turned and secondary turned ceramics[23]. Taking into consideration the surface coating, the firing, the colour of the ceramics and the thickness of the wall, I classified them into seven technological groups[24] with three sub-categories in each, where K stands for handmade and L stands for slow wheel-turned[25] (in the abbreviations the initials of the Hungarian equivalents of these terms have been retained as I originally created this classification in Hungarian):

K1: tempered with sand and fine or crude broken pottery, handmade, mixed firing, ceramic fired to light brown-grey

K2: tempered with sand and broken pottery; handmade, smooth, coated in clay; light brown-gray, mixed firing

K2a: tempered with sand and fine broken pottery; secondary turned with smooth surface; mixed firing, light brown-grey ceramics due to the firing process

K3: tempered with sand and crude broken pottery and plant fibers; handmade, poorly fired, light brown, orange or light grey baking bell

L1: tempered with sand and finely ground pebbles; slow wheel-turned, with rough and grainy surface, mixed firing, light brown-grey fired ceramics

L1a: a variety with thin walls, fired 'solid'

L2: tempered with sand and finely ground pebbles; slow wheel-turned with rough and grainy surface, reduced? firing; ceramics fired to light grey, dark grey or black

L2a: a variety fired dark grey-black, with rough and grainy surface

L3: tempered with sand and finely ground pebbles; slow wheel-turned with rough and grainy surface; oxidised? firing; ceramics fired to reddish-brown or orange

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20 Bugarski *et al*. 2013, fig. 6, 292.

21 Bugarski *et al*. 2013, 301.

22 A study in German is being written on the detailed analysis of the ceramics: Bajkai (n.d.).

23 By secondary turned ceramic pots I mean those that are between handmade and fast-wheel-turned ceramic: basically, they are similar to the handmade ones, but their design is smoother with thinner walls, their surface can be coated with clay. It is similar to hand-wheeled ceramics because probably they are placed on the wheel after being shaped, smoothing e. g. the rim and in many cases the surface of the pottery is decorated with wavy lines scratched finely on it (Vida 1999, 28; Skriba 2010, 231).

24 Technological categories were first distinguished by Tivadar Vida after his analysis of the settlement in Gyoma, where he distinguished 9 groups (Vida 1996, 329). This approach was championed by Hajnalka Herold in her analyses, who separated categories based upon the following points of view: the method of tempering and the quantity of the tempering material, the technique of manufacturing the pot, the thickness of the wall, the technique of surface coating, firing and the colour of the ceramics. The researcher starts off from the proposition that the technological categories may also indicate chronological differences (Herold 2004, 20–39, 61–63; Herold 2006, 10–13, 21–28, 43–46, 57–60, 66–67).

25 The adjectives 'reduced' and 'oxidised' are written with a question mark because without any further analyses it cannot be stated that the fragments fired to grey or dark grey underwent a perfect reduction firing process or the orange or red ones underwent a perfect oxidising firing process created deliberately. In some cases we have to count with the eventualities caused by the firing conditions resulting from the lack of kiln or the possibility of secondary burning. The name 'mixed firing' means that the pots were fired under uncontrolled conditions and that is why they received their characteristic light brown-grey dotted colour and their surface became layered or sandwich-like (Herold 2004, 20).

L4: tempered with sand and finely ground pebbles; slow wheel-turned with smooth and even surface; mixed firing, fired to light brown-grey

Shape

Concerning their shapes, pots and their small-sized variety, mugs were the most common cooking tools. Most pots were slow wheel-turned, but there were some handmade ones among them. By conducting a deep analysis of the shapes of rims and taking into consideration the completed pots, I managed to distinguish 5 pot shapes. Cask-shaped pots form Type 1, where the widest part of the pots was their middle part (Plate 5, 1). One secondary turned pot belongs here. Pots with funnel-shaped mouth and elongated body constitute the next group, whose common feature is that their mouth widens to some extent with a slightly arched neck and shoulders (Plate 5, 2–3). Some hand-shaped pots belong here. In the third group there are elongated, egg-shaped pots whose widest part is their shoulder but it is not so emphatic (Plate 5, 4). There are slow wheel-turned pots in this category. Pots with wide shoulder parts and tapering towards the bottom make up the fourth group. They are characterised by an outward-turning rim which joins the widening and emphatic shoulder part with a strongly arched neck (Plate 6, 1). Only slow wheel-turned pots fall in this category. Pots with a spherical body form the fifth group where the rim turning outward is attached to the shoulder with a sharp turn, which is arched like a sphere; their widest part is at their body (Plate 5, 7). Only slow wheel-turned pots belong here.

I identified the parameters of the group of small pots or mugs relying on the only pot completed: diameter of the rim is 9 cm, widest measurable part: 13 cm, diameter of the bottom: 7.3 cm. The 16 small pots show fewer varieties of shape than the group of pots: three categories of shape can be distinguished, the egg-shaped ones (Plate 7, 6, 10), the ones with spherical body (Plate 7, 3) and those with arched biconical body (Plate 7, 2). Among the egg-shaped pots there are some handmade ones, but the other groups are made up of only slow wheel-turned ones.

No shards of a handmade clay cauldron have been found.

The handmade baking bell was represented by 44 shards in the settlement in Hajdúnánás (Plate 8, 5–7). They were mainly found in fillings of pit-houses, but one was found daubed in the heat preserving layer under the baking surface of an outdoor oven (Object No. 61). Researchers connect them to the open fires that appear on the floors of the pit-houses as spots baked red: in the settlement in Hajdúnánás House No. 35 was the only place where 2 little fragments of baking bells were found near an open fire. The diameter of the rims of baking bells is 26–56 cm, but due to the fact that they are fragmentary, their shapes cannot be defined. On the inner surface of several pots we can find the imprints of plants (Plate 8, 6), which may be in connection with the production of baking bells: they must have been shaped on a core covered in plant parts (stems, leaves) or straw[26]. The baking bells were certainly not fired in kilns, but in pits or open-air fire[27], but it was also suggested that they were baked when they were first used[28]. Due to their low quality and poor durability, they must have been fast moving consumer goods in the households, where it was the task of women to manufacture them according to modern age folklore researches[29].

I have recently managed to identify the fragments of a so called clay tray[30] among the finds excavated in House No. 38/38: it was made of clay mixed with lots of plant parts, slightly fired with straight wall, smoothed both inside and outside[31] (Plate 8, 8).

Bowls are considered table pots, the fragments of three have been excavated. We have limited possibilities to make observations concerning their shapes as the fragments found are very tiny. One of them could have been a conical bowl, secondary turned, decorated with horizontal bunches of lines scratched in finely (Plate 8, 2). The other was the fragment of a rim with a similar shape (Plate 8, 3).

[26] Fusek, Zábojník 2006, 19–22; Bajkai 2012, fig. 8, 1.

[27] Takács, Vaday 2004, 36; Vida 2011, 709.

[28] Herold 2004, 40.

[29] Takács, Vaday 2004, 36; Vida 2011, 707.

[30] Clay trays are very rare items among the finds of an Avar Age settlement and they are hard to identify. Generally, they have rectangular or rounded rectangular shapes with crude thick walls. They must have been baked when it was first used. It must have had a special function (drying/roasting) connected to the structure of the oven (Rappoport 1975, 55; Herrmann 1986, 267, 272; Tomka 2004, 423–425; Herold 2006, 10).

[31] Bajkai (in press-c).

The third must be the fragment of the rim of a deep bowl with arched walls without any ornamentation (Plate 8, 4). Another interesting bowl-shaped pot was found in House No. 42: its substance is fine and sandy mixed with a little ground pottery, sand or light grey coloured (Plate 8, 1). It is basically handmade but much smoother; it had a truncated cone shape, its side walls are extant, the rest of the pot is completion. Its handle was not found, but its body was pierced in two places. It goes to show that maybe it was not used as a pot or it was re-used and therefore one might suppose that it could have been an embers cover[32].

Decoration

Besides the pots and mugs there was only one bowl with a truncated-conical shape that was ornamented: a bunch of horizontal lines were scratched on it. The patterns and types of ornamentation on the mugs and bowls can be distinguished according to their technologies. The handmade mugs are not decorated, whereas the rims and the sides of the handmade pots are decorated. The rim was indented by fingers or it was incised, whereas on the two side fragments vertical lines can be seen that are similar to the imprinted grid pattern (Plate 5, 5–6; Plate 6, 7–8).

On the slow-wheel-turned ceramics the most common ornamentations are the bunches of horizontal or wavy lines scratched with a comb-like tool on the surface of the pot (Plate 6, 1, 6). They appear in different combinations and as the material is quite fragmentary, various patterns are possible. Nonetheless, it seems quite sure that the lower third or lower half of the pot was seldom if ever decorated (and even then by a bunch of straight lines). Besides these, simple wavy lines with wide gaps and horizontal lines scratched in with wide gaps can also be observed (Plate 6, 5). The bunches of lines and the lines with wide gaps are patterns that are never combined. The motif of garland is a rarer example of the patterns scratched in with a comb-like tool, which can be observed on several places on the shoulder of the pots found in Hajdúnánás (Plate 6, 4).

The scratched comb-like decoration can also be observed on the inside of the rims, where the rim sharply or horizontally turns outward (Plate 7, 1, 4–5, 7–9). The decoration of the inner side of the rim can often be observed among the Avar Age ceramics, but it is different from those excavated in Tiszafüred-Majoros because the decoration was scratched on the inner surface of the rim and the neck, as opposed to our site, where it was scratched directly on the wide inner side of the rim[33]. The scratched decoration on the rims or the inner side of the rims sharply or horizontally turning outward can be observed on the ceramic pots found in several settlements in the regions of Hajdúság and Nyírség: I could observe them in Debrecen – Bordás-tanya, Nyíregyháza – Rozsrétszőlő, Szelkódűlő[34], Nyíregyháza – Polyákbokor-Bogártanya and Nyíregyháza – Mandabokor[35]. The pot placed in Grave 102 in Ártánd – Kapitány-dűlő closely resembles the above mentioned ceramic pottery in terms of its shape and form: its short rim turning outward horizontally is decorated with a bunch of wavy lines scratched on it[36]. As pots with scratched decorations on the inner side of the rim and the neck were found both in the cemetery in Ártánd and in the site in Debrecen – Bordás-tanya, in my opinion, we can talk about a different rim shaping technique, which resulted the decoration on it.

2.3. Chronological connections and the underlying connections of the settlement structure

Looking at the ground plan of the settlement excavated so far the lack of ditches as objects is conspicuous and on the eastern edge of the settlement, pits can be found in two lines. The only well has been excavated here and clusters of pit dwellings can be observed in some places. Concerning the structure of the settlement, although only a small part of it has been excavated so far, it can be supposed that the area with the clusters of dwellings had a function different from the one with the pits.

[32] Miklós Béla Szőke drew my attention to the fact that basically any pot can be used to cover the embers. It differs from baking bells because it is worked out more evenly and finely. In the settlement in Hajdúnánás several fragments were found that are thinner and elaborated more finely than the fragments that can be defined as 'baking bells', but their material shows more similarities to them, therefore it is doubtful to identify them as bowls.

[33] Garam 1981, fig. 2, 1–4.

[34] In her thesis, Melinda Takács discussed Section 148/B of the site, where a pot decorated on the inner side of its rim was found in Object 113. I, hereby, express my appreciation for the useful information. On the 10th–11th century ceramic pottery of the settlement, see: Takács 2013.

[35] Unpublished finds, the writer of this paper is working on the Avar Age phenomena excavated in both sites.

[36] Kralovánszky 1996, fig. 27,102.

The objects themselves can only reflect a part of everyday life in those long gone times in the settlement, the area of a family/small community could have been much bigger. This unit can be called a dwelling or economic unit: buildings and objects of the same age with different or sometimes the same function appeared in a small enclosed area comprising dwelling, storing and producing functions[37]. A pit-house and the pit next to it in the settlement in Hajdúnánás can be considered such a unit, five such units can be observed here. A pit-house with an outdoor oven next to it could be observed in two cases, it can be considered a similar phenomenon. A cluster of pit-houses can also be considered a dwelling unit because probably they were the buildings of several generations following one another, where a family/small community lived and built dwellings in the same place.

The proportion of handmade and slow-wheel-turned ceramic pottery is considered chronologically important by the researchers: the dominance of handmade ceramic pots (8th century) is followed by the period characterised overwhelmingly by slow-wheel-turned ceramic pottery (9th century)[38]. In the objects in the settlement in Hajdúnánás it can be observed that the proportion of handmade and slow-wheel-turned ceramic earthenware is changing. In most objects slow-wheel-turned ceramic has a much higher proportion than handmade ceramic concerning both the number of items and the number of pots. However, in the filling of House No. 32 the proportion of handmade and slow-wheel-turned pots was the opposite with a greater number of the first ones.

Apart from the technological differences, the ceramic pots in House No. 32 are of high importance because it can be considered the earliest finds: handmade pots with funnel rims, pottery fragments with inclined incisions, finger imprints and fragments of sides with vertical sealed decorations were found (Plate 5, 2–3, 5–6; Plate 6, 7–8). None of them were found in any other object in the settlement, although several fragments of handmade pottery were found in the fillings of several objects. Their early dating is supported by the fact that based upon the analysis of the Avar Age grave ceramic the pots with funnel shaped mouths can be dated to the second half of the 7th century, but they can be observed even in the 8th century[39]. Taking into account the differences in the ceramic material (in terms of their technology, shape and decoration) combined with my observations concerning the structure of the settlement, I drew the conclusion that in the excavated part of the settlement a shift of importance can be observed going from the east to the west. The object with the earliest ceramic would indicate the beginning of the settlement, whereas the objects with more and more slow-wheel-turned ceramic material (and within them Technological Category L1a would mean a change) in their fillings or in the daubing on the baking surface would indicate the later periods.

The other end is represented by those pots that have the same technological, shape and decoration design: they are tempered with sand mixed with quartz or ground pebbles, they are slow-wheel-turned; their rims turns outward horizontally with decoration on the inner side of the rim; there is a sharp turn on their neck and their shoulders are widening; on the shoulders there are garland or arcade patterns scratched (Plate 7, 1, 4–5, 7–9). If we could describe anything as ceramic goods among the Late Avar Age finds excavated in the settlement, then these pots would be those, apart from the yellow ceramic pots. Their counterparts were excavated in the sites near Nyíregyháza (Nyíregyháza – Rozsrétszőlő, Szelkó-dűlő; Nyíregyháza – Polyákbokor-Bogártanya; Nyíregyháza – Mandabokor), in Örménykút Site 54, House No. A12 and in the Ártánd cemetery too. The item in Örménykút was found in an object dating from Phase III of the settlement, which was dated to the 10th century by Hajnalka Herold[40]. In my opinion, dating it to the 9th century is more plausible.

Based upon these, I managed to define at least two horizons supported by ceramic in the settlement: a phase dating to the 8th century and another phase dating to the end of the 8th and the 9th century (Plate 1). The structural changes in the pit-houses, the diggings and the renewals and the two superpositions are testimony to at least two if not more phases, but at the present stage of our knowledge, the ceramic found in settlements is not suitable for a more exact relative chronological classification. The finds excavated in House 32 may indicate the earlier phase together with some objects containing both handmade and slow-wheel-turned ceramic (in relatively equal numbers), where elongated, egg-shaped pots were found. The later phase is indicated by the objects with the aforementioned

[37] Griebl 2004, 131.
[38] Herold 2006, 71.
[39] Vida 1999, 120.
[40] Herold 2004, 63, Pl. 53, 2.

slow-wheel-turned 'goods' with short rims turning outward horizontally and decorated inside with a sharp turn in their necks and the slow-wheel-turned ceramic pots with sharply broken necks and rims turning sharply outward with a spherical body and the ceramic pots of Type L1a. Although two matching fragments of a pot with a rim turning sharply outward and a spherical body were found in House 16, the whole ceramic material can rather be dated to the 8th century. However, there is a number of objects that cannot be dated more exactly within the 8th–9th centuries.

3. Hajdúnánás – Fekete-halom (M3–41)

Site Number 41 is situated to the northwest of Hajdúnánás, west of the Keleti–főcsatorna (Easter Main Channel), on the southern side of the kurgan (mound) called Fekete–halom. (Plate 4, 1). The site was excavated before the construction of Motorway M3, between 25 August and 21 October 2003, led by Pál Raczky, Alexandra Anders (Institute of Archaeological Sciences of the Eötvös Loránd University, Faculty of Humanities) and Gyöngyvér Emese Nagy (Déri Museum, Debrecen)[41]. 79 objects were excavated in an area of 9600 m^2 and 69 of them proved to be of archaeological age: graves of the Nyírség culture dating from the Early Bronze Age[42], Sarmatian and Late Avar Age settlement objects were found[43] (Plate 2). The fragments of bricks and chinaware seem to indicate that the site was disturbed in the modern age. So far a study has been written on the Avar Age settlement in Hungarian[44].

3.1. Settlement features

The pits from the Sarmatian Age are at the south-western end of the excavated surface, a little deeper than the Early Bronze Age graves, which lie in the middle of the area. The Avar Age buildings also lay on a higher level, whereas the wells in the southern section were situated on the lower level (Plate 2).

18 phenomena that can be dated well with ceramic can be connected to the Late Avar Age layer of the settlement. Other 14 phenomena can possibly be connected to that age but without any dating finds. These were mainly situated in the middle and the north-eastern parts of the area: the buildings were clustered in two groups like the wells were separated from the other phenomena (Plate 2).

A system of trenches consisting of two trenches running in a north-south and an east-west direction respectively, forming a right angle is an interesting feature of the settlement: this system separates the two clusters of buildings and the wells from a cluster of objects where buildings and outdoor ovens can be found. The trench in north-south direction (Feature No. 29/30) can be traced for 43 metres in the excavated area, its width (0.5–2 m) and depth (0,07–0,72 m) varies. A more than 41-metre long section of the trench oriented west-east (Feature No. 43/77) has been excavated, its depth varied between 0.14 and 0.93 metres, and it was 0.5–1.7 m wide. The two trenches probably meet outside the excavated area: either they cross each other and run further or they converge at one point. In several places the trenches are sunk like posts in the shape of a circle, their cross-sections have been documented several times: they must have been the places of posts, which may indicate a palisade-like separating wall. Trench No. 43 could not be followed for 2 metres, here the trench became wider, deeper and was separated by the places of posts: a fortified entrance must have been here. In my opinion, although animals must have been kept in the settlement in Hajdúnánás, the excavated trenches must have been the remains of a wall separating community and living areas[45], fortified with posts, they could have been defence walls[46] (Plate 2).

In the place where some pits from the Sarmatian Age are situated, ceramic shards dating from the Avar Age were found in the filling of two pits and a fire place (Plate 4, 6), so this section of the

[41] I, hereby, express acknowledgements for the excavating experts for providing me with the opportunity to analyse the site.

[42] Dani 2004, 27–39.

[43] Based upon the observations made in the site, the settlement was dated to the 9th–10th centuries (Anders 2004, 225).

[44] Bajkai (in press-b).

[45] In the Avar Age settlement of Berettyóújfalu–Nagy Bócs–dűlő, the central 'living unit' and the 'animal breeding unit' were separated by a system of trenches with two channels and a V-shaped cross-section, the entrance was also found; a system of several trenches with a U-shaped cross-section separated the graveyard from the settlement (Dani, Szilágyi 2006, 23).

[46] Trenches with the places of posts were found in the early medieval excavation site in Bajcs-Csatornák köze/Bajč-Medzi-Kanálmi (Slovakia) in the layer dated to the 8th–9th centuries. These were trenches whose profile had a gradual shape, in some places they were deeper than 1 metre crossing one another (Ruttkay 2002, 268).

excavated area was also included in the Avar Age settlement to some extent. The possibility arose that the hardly definable Pit No. 26/26 with uneven bottom could be the continuation of Pit No. 29/30, which is oriented approximately north-south.

The clay constructions of most outdoor ovens have not been preserved, in many cases only the baking surface remained, in a bad condition (Plate 4, 6). Therefore it may be possible that they used to be constructions with clay domes towering over the walking level of that time. In the site of Bajcs-Csatornák köze/Bajč-Medzi-Kanálmi (Slovakia) besides the outdoor ovens sunk in the ground with ash pits and clay domes, ovens with clay domes also appeared on the ground level, but only their baked surface remained with some remnants of the constructions[47]. To the best of my knowledge, this interpretation has not been mentioned by the Hungarian researchers so far. Their function is unclear yet, it is not clear whether their function was different from that of the ovens with ash pits dug in the earth.

Buildings

Altogether five buildings (pit-houses?) with fire places, five constructions and a pit-shaped phenomenon which may be considered a building were excavated in the Late Avar Age settlement section. They are distinguished by the fact whether or not they had a fire place. There was one case (House No. 35/61) when the excavators observed the 2–3 mm thick traces of something that might have been the floor, in another cases a hard trodden floor (House No. 60/142) was observed, but in the other buildings no such things were registered. The fundamental pits of the houses and constructions are quadrangle, in most cases rectangular, in some cases they tend to form a square-shape. The length of their sides is varied between 1.7 and 3.3 m, their basic area is between 4.4 and 9.6 m^2 with an average of 7.3 m^2. The relative depth of the constructions that can be considered buildings and houses was quite little: Building No. 41/67 remained the shallowest where the level of stripping the topsoil indicated the bottom of the object (0–18 cm). The relative depths of Buildings No. 40/66 and No. 72/169 were 36 cm[48], the average depth of the houses and buildings was around 16 cm.

The number of post-holes was low and they were located unevenly. One cannot discover a system: in most cases one or two post-holes were found, but in Building No. 41/67 five.

The fire places were found in very bad condition, destroyed and this cannot be caused by the machines stripping the topsoil, at most to a small extent. The fire places that presumably used to be furnished with constructions were situated in the north-eastern and the north-western corners: they were partly carved in the clay cubes that were left in the corners of the buildings (39/103), others were constructed farther from the walls of the pit (35/96) (Plate 4, 4–5). On top of the oven in House No. 42/68 an intact quern-stone was lying and on its lower side the sooty imprint of the vent of the oven can be made out clearly. There were black traces of soot around the middle hole, the smoke must have departed here (Plate 4, 2–3). There is only one case where the traces of an open fire place could be detected: it was indicated by a red and grey spot of 40×40 cm in the middle of House No. 35/61.

Wells

Two wells containing Avar Age ceramic were excavated in the Avar Age settlement with two well-like features that can possibly be connected here. Well No. 54/132 could be excavated to a depth of 1.5 m, using machines they could reach a depth of 4.5 m. Approximately 2 metres deep in the middle of the well, the remains of a wooden construction were found: around the wooden construction a grey, slightly mixed solid layer was found with iron residues, which could be followed from a depth of 70 cm. A beam, a board and a fragment were found in the well, the tree was an oak tree (*Quercus robur L.*)[49] (Plate 4, 7–8).

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[47] Ruttkay 2002, 263, fig. 13.

[48] There might be some connection between the depth the top soil was tripped to and the interpretations of the objects. Feature No. 41/67 was identified as a building without a fire place, but it was preserved the shallowest where the fire place can be supposed (in the northern or north-eastern corner) – therefore it can be supposed that originally the building had a fire place. It can happen that the reason why most ceramic materials were preserved in the filling of Building No. 40/66 with a fire place because it was one of those objects that were excavated the deepest.

[49] Hereby, I would like to express acknowledgements to dr. András Grynaeus for identifying the tree species (Grynaeus András: Vizsgálati eredmény a Hajdúnánás, Fekete–halom lelőhelyen feltárt 54. számú kút famaradványainak elemzéséről/ Findings of the analysis of the wooden remains of Well No. 54 excavated in the site of Fekete-halom in Hajdúnánás. Budapest, 2014. október 11).

The dendrochronological analyses showed a unified row of data covering 114 years, which can be compared to two other rows of data from this region[50], however, it cannot define an absolute age[51]. To my mind, the wooden supports of the wells are in close connection with the type of the soil: the wells bored in solid clay did not require wooden or stone supports, whereas the ones bored in loose loess soil needed them[52].

3.2. Ceramic materials

Concerning the technology, ceramics can be divided into three categories: fast-wheel-turned (G), slow-wheel-turned (L) and handmade (K) quality. Only one fragment of a fast-wheel-turned bottom was found which can be dated to the Avar Age with certainty. It is greatly tempered with sand mixed with mica and quartz, with light brown and dark grey spots both inside and outside, it is layered. Its surface is rough and grainy, on its inner side there are traces showing that it was drawn up on the wheel, outside concentric circles can be seen indicating where it was cut (Plate 11, 3). Concerning its material, it fits in the Avar Age slow-wheel-turned fragments. There are hardly any fast-wheel-turned pot shards in the Great Plain in a Late Avar Age site. In Object 37 (a pit-house) in the 8–11th century site in Nyíregyháza–Rozsrétszőlő, Szelkó–dűlő (M3–214) the fragment of the lower half of a fast-wheel-turned pot was found: it was tempered with sand mixed with quartz and tiny white pebbles, it was baked orange outside and light brown-dark grey inside, its surface is slightly rough.[53] On its inner surface there are traces that show where it was pulled up on the wheel (its inside surface is slightly wavy), on its bottom there are traces showing where it was cut off the wheel (concentric circles). Next to the pot the fragment of a baking bell, the fragment of a clay tray and a slow-wheel-turned ceramic with scratched decoration dating from the Late Avar Age was found. In the filling of one pit-house in the Avar Age settlement in Nagykálló–Harangod the fragment of the bottom of a fast-wheel-turned pot tempered with sand and tiny pebbles was found with signs showing where it was pulled up on the wheel and where it was cut off it. Next to it slow-wheel-turned ceramic fragments were found in good condition with a handmade clay tray in the object[54]. In the case of Fekete–halom it is more difficult because it was daubed under the baking surface and there was the fragment of a Sarmatian Age rim fragment among the Late Avar Age fragments. However, in my opinion, this fast-wheel-turned fragment can be considered to date from the Avar Age.

Apart from this, 270 ceramic fragments surely dating from the Avar Age were found in the objects of the settlement, 61% of which were hand-made as opposed to the 38% of wheel-turned. The estimated number of pots together with the fast-wheel-turned fragment was 98, but here their proportion is completely different: it is the slow-wheel-turned pots that are dominating the picture with 59%, whereas the handmade ones constitute 38%. There were two fragments whose technology could not be identified.

When creating the technological categories, I took the tempering materials and the degree of tempering as the starting point. In this fashion eight combinations were to be observed among the hand-built pots and 17 combinations among the slow-wheel-turned pots in a macroscopic way[55]. Almost all the hand-built ones are characterised by sand with mica, fine or crude ground pottery and it may be combined with crudely mashed white rock, crude ground rock (with iron?) or remains of plants. In the case of more than 80% of the slow-wheel-turned pots the clay was mixed with quartz or

[50] One of them came from Object 43 of Tiszabura-Bónishát, the other was found in Object 803 in Hajdúböszörmény, Háromhalmi–iskola. Both were excavated by the Institute of Archaeological Sciences of the Eötvös Loránd University, Faculty of Humanities in 2005 and 2009 (http://regeszet.elte.hu/nagykunsag).

[51] This year with András Grynaeus and Mihály Molnár (Institute for Nuclear Research of the Hungarian Academy of Sciences, Hertelendi Laboratory of Environmental Studies) we aim to conduct the C–14 analysis of the wood of the well to establish the time when the well was constructed and the settlement existed. The row of data covering more than 100 years makes it possible to place the findings on a C–14 calibration curve and this way we can reveal the exact date when the tree was cut. The analyses are in progress.

[52] Bajkai (in press-b).

[53] Acknowledgements to Gábor Pintye excavating archaeologist and dr. Eszter Istvánovits (Jósa András Museum, Nyíregyháza) for the opportunity they provided for me to analyse the site.

[54] Acknowledgements to Katalin Gergely (Research Centre for the Humanities, Institute of Archaeology, Hungarian Academy of Sciences) for the invaluable information she provided orally about the finds excavated in the site which are soon to be published.

[55] Bajkai (in press-b).

quartz mixed with mica, which were mixed with either tiny pebbles or tiny pebbles with sharp edges or finely ground pebbles or fine or crude ground pottery or quite often crudely mashed rock. This last added material was present in 20% of the pots tempered with quartz or quartz mixed with mica[56]. The proportions of the pots tempered with sand containing quartz and mica (19%) and those tempered with sand containing quartz and mica and tiny pebbles (21%) are also around 20%. Tempering with finely or crudely ground pottery constitutes a small proportion of the added materials, only 5 %. In two cases the shards of pots were so full of mica that we should suppose that they used mica deliberately as an added material.

Among the clay-coated hand-built fragments there is one decorated with a bunch of straight lines scratched horizontally (Plate 10, 4), and concerning its quality it resembles the one I managed to observe among the finds excavated in the Late Avar Age settlement in Hajdúnánás–Mácsi–dűlő. (Technological Category K2a)[57].

Shape

The pots are varied like in any other Avar Age settlement in the Great Plain: mostly there are small or big cooking pots, the fragment of a handmade clay cauldron and the fragments of several hand-built baking bells and perhaps a bowl.

The clay cauldron was made of clay tempered with sand mixed with mica and crudely ground white rock, there are light brown and grey spots on it both outside and inside, it has a sandwich-like structure with a dark grey core; its surface is smoothed without any decoration (Plate 9, 5). It has a perpendicular rim, cut horizontally, under the rim there was an inside handle with two holes[58]. The estimated diameter of the rim of the clay cauldron could have been 25 cm [59].

Altogether 101 fragments of baking bells were found in the whole area of the settlement, which could have been parts of approximately 13 baking bells (Plate 10, 1, 6, 8). They were made of clay mixed with sand with mica, crude or fine ground pottery and parts of plants, in two pots it also contained crudely ground white rock. Their colours range from light grey to sand colour. One of the baking bells (Feature No. 49/123) is decorated with bunches of lines running slightly slanting, scratched horizontally and vertically on top of one another. On its inner surface, 2 cm above the rim the imprint of some textile can be seen (Plate 10, 1). There is another fragment with textile imprints on it (Feature No. 51/126)[60], and on several other fragments (Feature No. 72/169; No. 73/181) imprints of plants can be observed on the inner surface[61]. Their edges are rounded, in one case it is cut vertically, their walls are thicker than 1.5 cm. According to those fragments that can be measured, the diameters of their rims could have ranged between 24–30 cm. In the Late Avar Age settlement in Hajdúnánás, Mácsi-dűlő the diameters of the measured rims ranged between 26–56 cm, but inside the same plant imprints can be observed as in the site of Fekete-halom[62].

The fragment of a rim whose material was similar to the baking bells (tempered with sand mixed with mica, crude broken pottery and parts of plants) was defined by me as the fragment of a bowl

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56 This kind of additive was not present in the ceramics found in Hajdúnánás – Mácsi-dűlő.

57 I call the quality secondary wheel-turned that is between the hand-built and the slow wheel-turned: basically, it is similar to the handmade ones, but it is more elaborated than those are, its surface is smoother and finer, coated with a thin layer of clay. The decorating lines scratched on their surface makes them similar to the slow wheel-turned pots: presumably they were smoothed and decorated on the wheel (Bajkai 2014, 38–39).

58 Unfortunately, the design of the handle gives us no hint as to the shape of the pot, whether it was shaped like a bowl, a bucket, a pot or it had a spherical bottom like a metal cauldron (Takács, Vaday 2012, 749, 751).

59 The diameter of the rim of the clay cauldron is much bigger than that of the pots found in the settlement (9.5–20.5 cm). This diameter of the mouth of the clay cauldron fits in the size range of the mouth of the pot-like cauldrons found in Kompolt. However, according to the items published so far, it also fits in the size range of the bucket-shaped pots and those imitating the shape of a metal cauldron, the bowl-shaped ones could have been somewhat bigger. (Takács, Vaday 2012, 752, fig. 4).

60 The textile imprints can be connected to the shaping process of the baking bells: a clay core was covered with textile, the baking bell was built on it and then it was separated with the help of the textile. During the baking process the imprint of the textile remained in the clay. It is also possible that the textile was not removed but burned during the firing process (Herold 2004, 40).

61 The imprints of plants observable on the inner surface can also be connected to the shaping process: here the remains of the plants formed a separating layer instead of the textile (Fusek, Zábojník 2006, 19–22).

62 Bajkai 2014, 40.

(Feature No. 52/128) as its surface, design and the thickness of its walls (1–1.3 cm) was different from theirs (Plate 10, 7). The diameter of its rim was at least 22 cm. Among the ceramic pots found in the settlement in Mácsi-dűlő three fragments could be identified as the fragments of bowls, but none of them resembles the one found in Fekete-halom. On the other hand, the completed pot with a cone-shaped body, which may be considered an embers-cover too, seems to show a much closer resemblance to it: although its material is much finer, but their smoothed surfaces, the horizontally cut rims and the relatively thin walls (0.8 cm) seem to connect the two pots[63].

Due to the fragmentary state of the ceramic items, most fragments that can be considered the fragments of pots were not suitable for conducting shape analyses on them. According to some profiles that could be drawn and according to some big shards, the following shape categories have been set up:

1. Pots with a short indented rim slightly turning outward and cut horizontally; its neck is broken (Plate 10, 2).

2. Pots with tapering rims turning outward moderately; with short neck and wide shoulder (Plate 12, 1).

3. Pots with rounded rims turning outward moderately and long slightly arched necks (Plate 11, 5).

Among the slow-wheel-turned pots the following categories can be set up:

1. Pots with short rounded rims turning outward moderately; with short slightly bent necks; rounded shoulders and egg-shaped or round body (Plate 12, 3).

2. Pots with rounded rims turning outward moderately; with short slightly bent necks and round shoulders (Plate 9, 1).

3. Pots with rounded rims turning outward moderately; with necks bending slightly in a long arch like a funnel (Plate 11, 8).

4. Pots with rims that are rounded or cut askew turning outward moderately; they are broken at their necks and widening towards their shoulders (Plate 12, 2).

5. Pots whose shoulders are wide and broken in a slightly biconical shape, tapering towards the bottom (Plate 12, 4).

Concerning the measurable rim diameters the size of the pots range between 9.5–20.5 cm, taking into account the average size (A = 14.54 cm), one can distinguish smaller and bigger pots: the category of small pots (mugs) is characterised by rim diameters of 9.5–14 cm, whereas the diameters of the rims of large pots range between 16–20.5 cm.

Decoration

More than 62% of the excavated ceramic items were not decorated, it means 42% of the slow-wheel-turned pots and 92% of the hand-built ones. One of the handmade pots was decorated with bunches of wavy lines scratched both on the inside of the rim and on its shoulder, whereas the side fragment of another pot was decorated with a bunch of straight lines scratched on it horizontally (Plate 10, 2, 4). The surface of this latter one was coated with clay slip and shows a close resemblance to the category of K2a secondary turned pots found in Mácsi-dűlő[64]. One of the baking bells was decorated with bunches of straight lines running horizontally and vertically, scratched above the rim (Plate 10, 1).

Among the slow-wheel-turned pots 13 types and combinations of decorations could be observed that are usually represented on one pot with few exceptions[65]. The bunch of horizontal straight lines, the scratched bunch of wavy lines; the combination of a scratched bunch of wavy lines with a bunch of horizontal straight lines below it are the most common (Plate 12, 2–4). The inside of the rim was decorated with scratched wavy lines in 4 cases (Plate 9, 2; Plate 11, 8; Plate 12, 3).

3.3. Chronological connections and the underlying connections of the settlement structure

It is conspicuous that in the settlement the objects were separated according to their functions: separate clusters of wells, pits, outdoor ovens and buildings with different functions (Plate 2). There is a cluster of four buildings (pit-houses?), three with a square-shaped ground plan furnished with ovens built in their north-eastern or north-western corners and one without an oven; to the south of them

[63] Bajkai 2014, 40.
[64] Bajkai 2014, 39.
[65] Bajkai (in press-b).

there is a 'lonely' building, further to the south there are four irregular-shaped buildings (workshops?) and only one of them had a fire place. The assumption that the two groups of buildings may have had different functions is supported by the distribution of the stone materials and the slag: stones that can be considered work tools in a secondary function (like the building material of ovens) with remains of slag were found in the southern group of buildings.

The buildings with fire places had the same design and orientation, either they existed at the same time or they were very close to one another in time. House No. 60/142 in the southern group had the same orientation as the northern buildings. Therefore we suppose that the two clusters of buildings were built and used approximately at the same time. The ceramic materials help us to some extent as they show unity and the pots characteristic of the second phase in Mácsi-dűlő that were dated to the end of the 8th century and to the 9th century cannot be found here: neither technology group L1a, nor the slow-wheel-turned 'goods' with short rims turning horizontally outward with a sharp turn in their necks and decoration on the inner side of the rim; nor the slow-wheel-turned ceramic items with their rims turning sharply outward, their necks broken and with a spherical body[66].

Among the handmade pots Shape Variant 2 with its tapering rim turning outward, its short neck and widening shoulder shows similarities to the so called Prague-type pots[67]. The items without any decoration can be dated from the late 6th century – 7th century, the latest limit of this type of ceramic is the late 7th – early 8th century when it can only rarely be found next to the mainly slow-wheel-turned ceramic materials[68]. Among the ceramic materials found in Fekete-halom it is the only one that might be dated to the 7th century.

Single layered baking surfaces in the outdoor ovens do not testify to a long period of settlement and it may also be indicated by the lack of superpositions. The scanty finds from the wells seem to show that they were not used in a secondary function as a dump pit and there was no trace of it among the layers in their cross-section. The wells could have been used in their original function during the whole period the settlement existed.

Taking everything into consideration, one should imagine the settlement with one layer, it must have been inhabited by a small community and it existed for a short period of time in the eighth century.

4. Conclusions

The two settlements that were excavated in the same region[69] showed differences both in terms of their structure and the finds excavated in them. In the settlement in Mácsi-dűlő there were a lot more buildings in smaller or bigger clusters, they seem to constitute a dwelling unit with a pit and an outdoor oven. In the settlement in Fekete-halom there were four buildings in two clusters, one of which could have functioned as a living place and the other as a workshop. The wells as well as the outside ovens were separated, the quantity of secondary litter in the wells was minimal. Part of the settlement was separated by a ditch with an entrance.

The settlement section in Mácsi-dűlő must have existed for a longer period of time and based upon the ceramic materials two chronological phases could have been distinguished (8th century, late 8th century – 9th century). The settlement section in Fekete-halom has one layer, it must have been inhabited by a small community for a short period. The ceramic material found there seem to be unified and it can be dated to the 8th century. It seems that it is not the chronological difference that is important but we can count with two different types of settlement[70]. Mácsi-dűlő appears to have been

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66 Bajkai 2014, 47.

67 This is a type of handmade ceramic that is connected to the Slavonic material culture in the 6th–7th century Central-Eastern Europe (Vida 1999, 147; Samu (in press). In contrast with its name it does not constitute a unified group, it has several variants concerning its shape: one of them is the group of 'vase-like pots' with vertical rims or rims slightly turning outward (Pleinerová, Zeman 1970, 729; Samu 2012; with reference to: Borkovský 1940).

68 Fusek 1994, 65–76, 306–307; Vida 1999, 149–150, 153.

69 Based upon the excavated areas covering areas of fairly the same size, the two settlement sections can be compared, although the real size of the settlement is not known.

70 According to László Madaras, besides the large settlements there could have been functional settlements with different structures. (Madaras 1991, 279) In connection with the Avar settlement in Zillingtal, Hajnalka Herold set up four categories of the Avar Age settlements: dispersed settlements, street-like settlements made up of rows of pit-houses, settlements made up of mainly pit-houses and those made up of mainly pits. (Herold 2010, 164) Peter Šalkovský distinguished

a clustered/nucleated settlement[71], whereas Fekete-halom seems to have been a dispersed settlement with separate farmsteads[72].

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clustered/nucleated settlements, dispersed settlements, settlements with streets and rows, round villages, riverside settlements, and settlements made up of groups of independent farmsteads (Šalkovský 2011, 419–420, fig. 1–3).

[71] The term 'clustered settlement' used in Hungarian literature means a settlement with irregular ground plan with houses and plots standing in disorder and randomly. (Eperjessy 1966, 57–58)

[72] This small settlement type that was characterised by units comprising objects functioning as living places and those with economic functions can also be found among the settlements in the Great Plain and the Small Plain in the Árpád era (Takács 2000, 240–243, 248).

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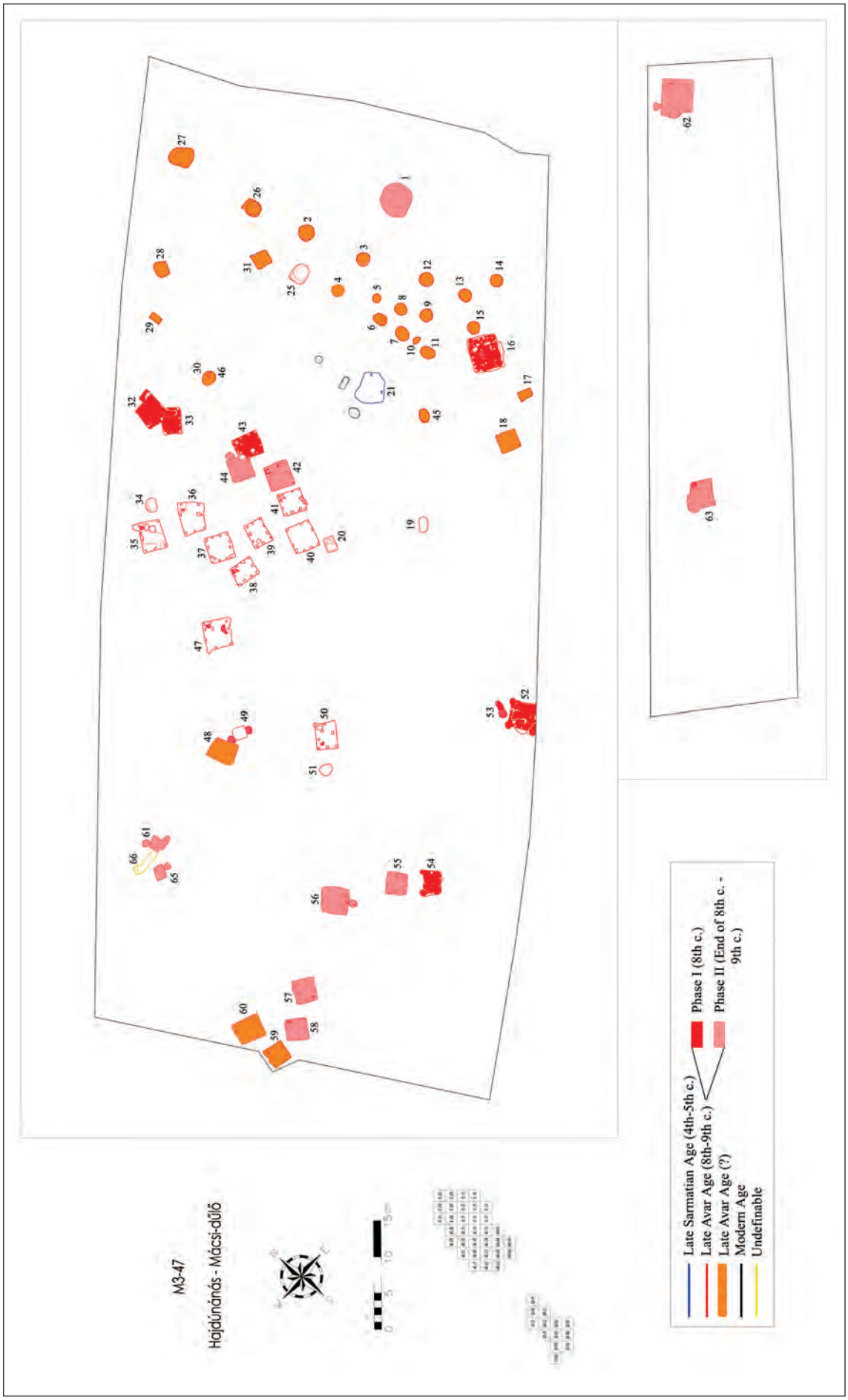

Plate 1. The excavated features from Hajdúnánás-Mácsi-dűlő (site no. M3-47) with chronological phases. The map was constructed by the author, based on the map of Archeodata 1998 Bt.

Plate 2. The excavated Late Avar Age (8th century) features from Hajdúnánás-Fekete-halom (site no. M3-41). The map was constructed by Bence Vágvölgyi (Hungarian Academy of Sciences Research Centre for the Humanities, Archaeological Institute).

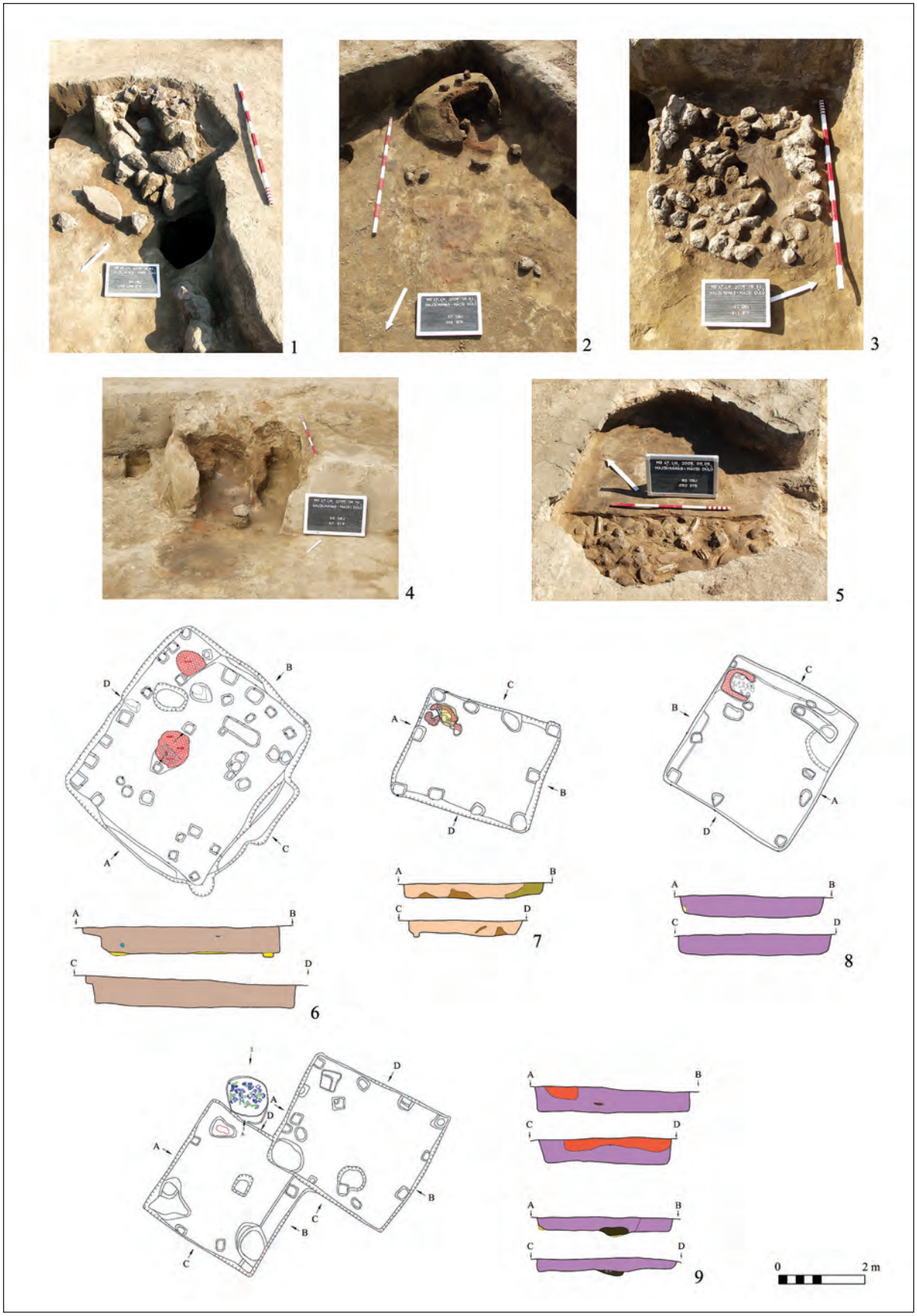

Plate 3. Hajdúnánás-Mácsi-dűlő.1: Stone oven offeature no. 54 (building); 2: Clay oven offeature no. 57 (building); 3: Hearth with stone fragments offeature no. 60 (building); 4: Clay oven offeature no. 36 (building) with a hollow; 5: Oven offeature no. 62 (building), connecting from outside to the wall; 6: Feature no. 16 (building) with sections; 7: Featureno. 38 (building) with sections; 8: Featureno. 42 (building) with sections; 9: Featureno. 44 and 43 (buildings) with sections.

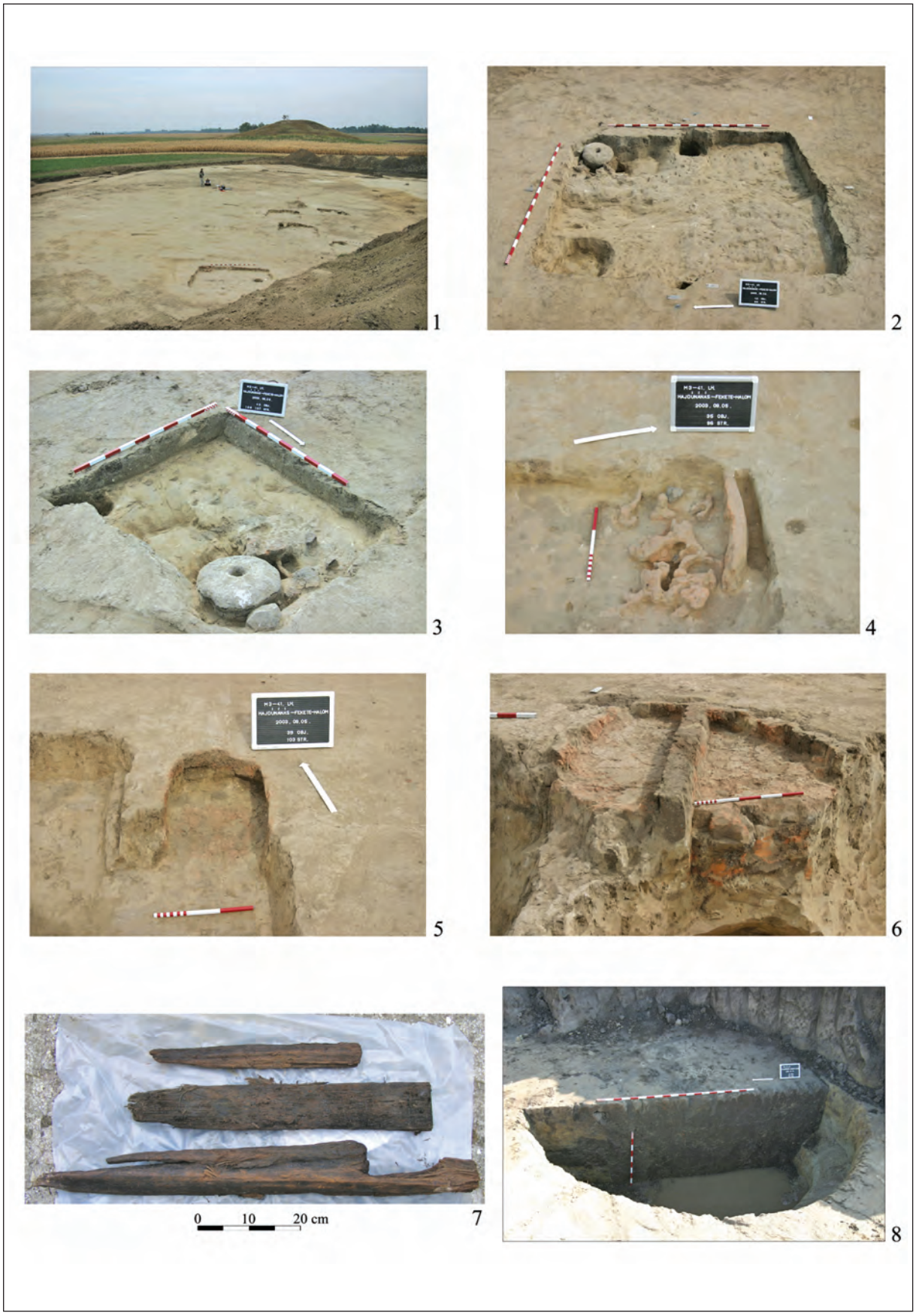

Plate 4. Hajdúnánás-Fekete-halom. 1: The excavation site; 2–3: Feature no. 42 (building) with millstone on the top of the oven; 4: Oven of feature no. 35 (building); 5: Oven of feature no. 39 (building); 6: Feature no. 28 (hearth); 7: Wooden structure of feature no. 54 (well); 8: Feature no. 54 (well).

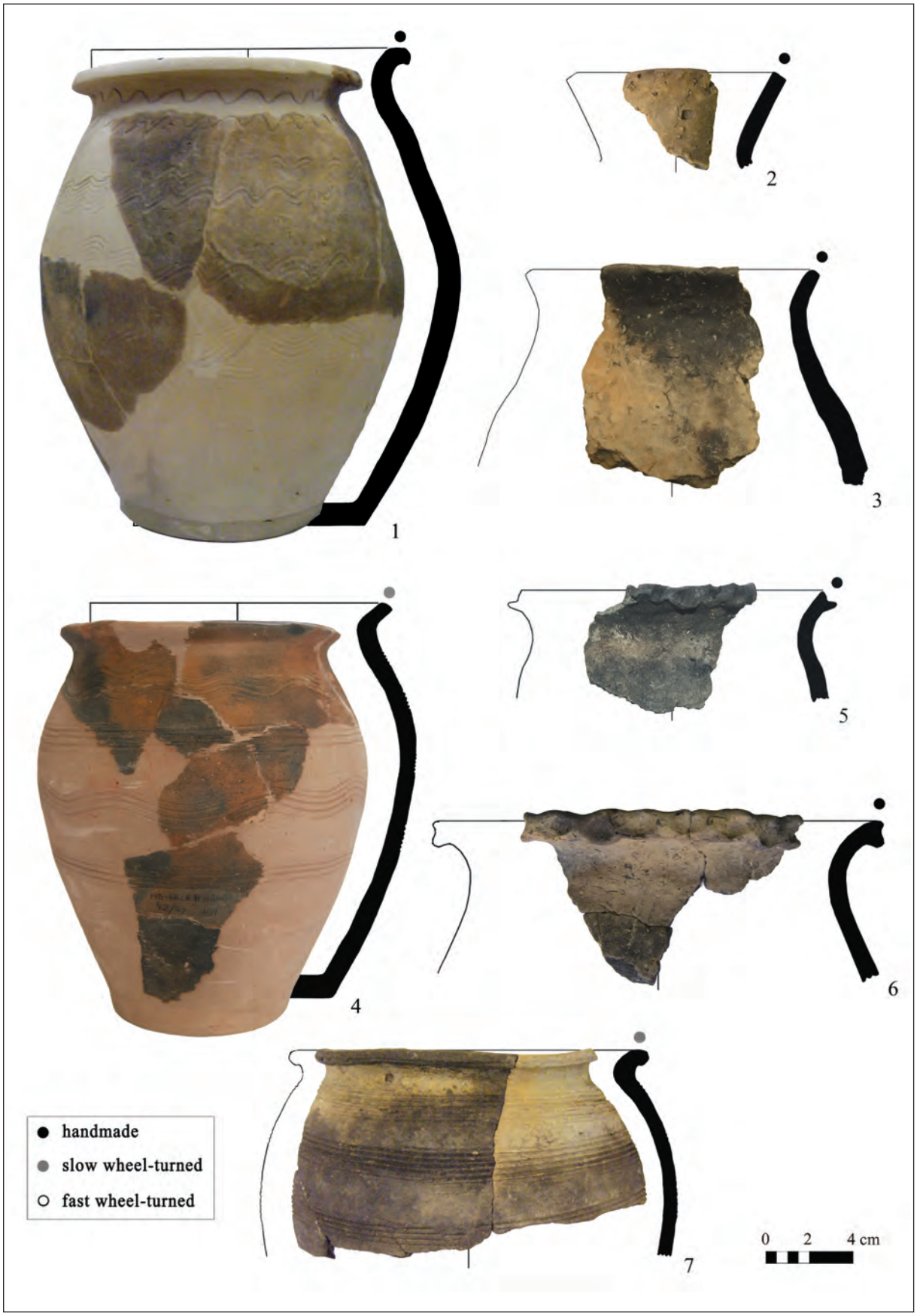

Plate 5. Cooking vessels from Hajdúnánás-Mácsi-dűlő. 1. Feature no. 44 (pit-house); 2-3: Feature no. 32 (pit-house); 4: Feature no. 42 (pit-house); 5–6: Feature no. 32 (pit-house); 7: Feature no. 42 (pit-house).

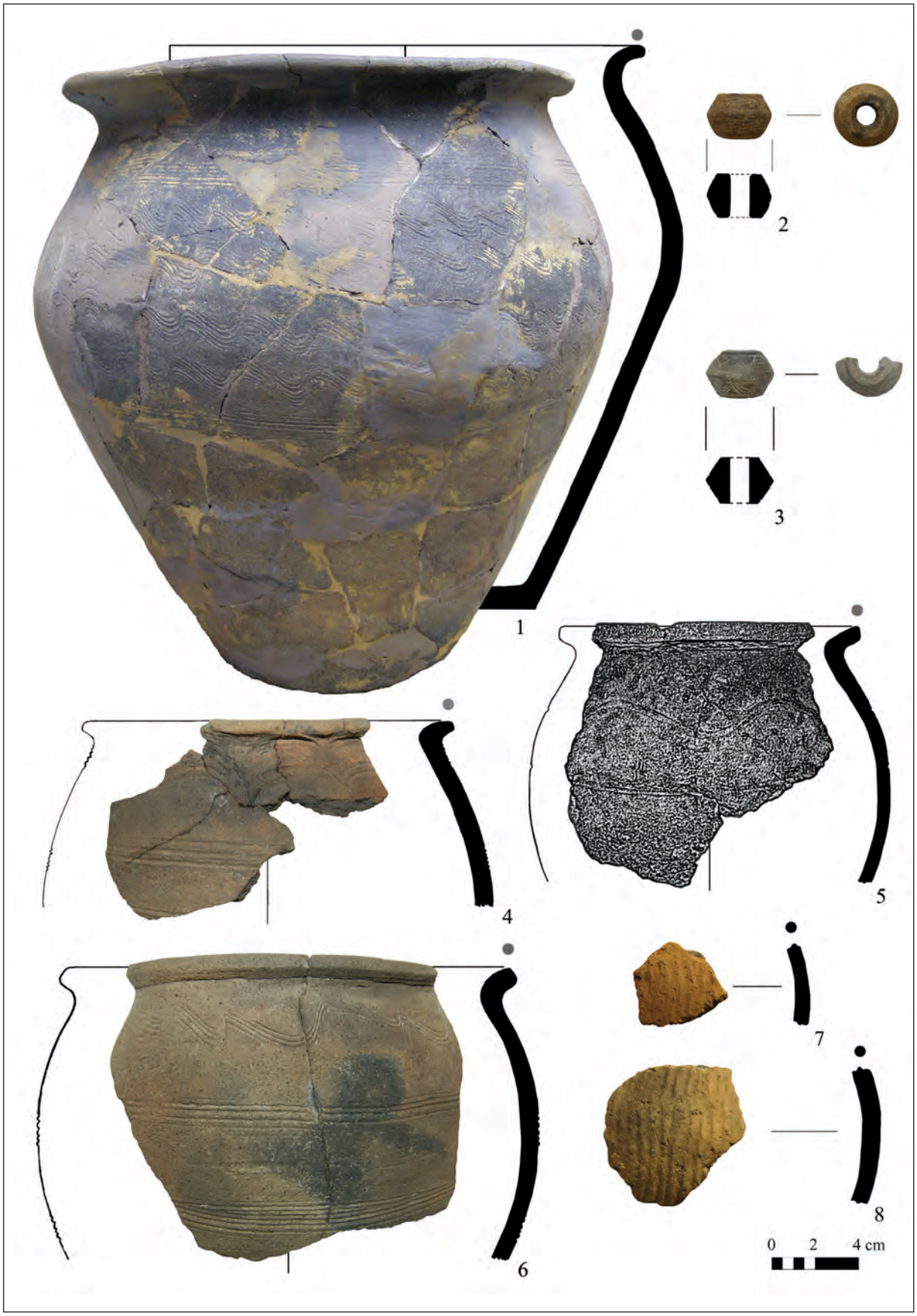

Plate 6. Cooking vessels and spindle whorls from Hajdúnánás-Mácsi-dűlő. 1: Feature no. 65 (outdoor oven); 2: Feature no. 44 (pit-house); 3: Feature no. 58 (pit-house); 4: Feature no. 1 (well); 5: Feature no. 42 (pit-house); 6: Feature no. 16 (pit-house); 7–8: Feature no. 32 (pit-house).

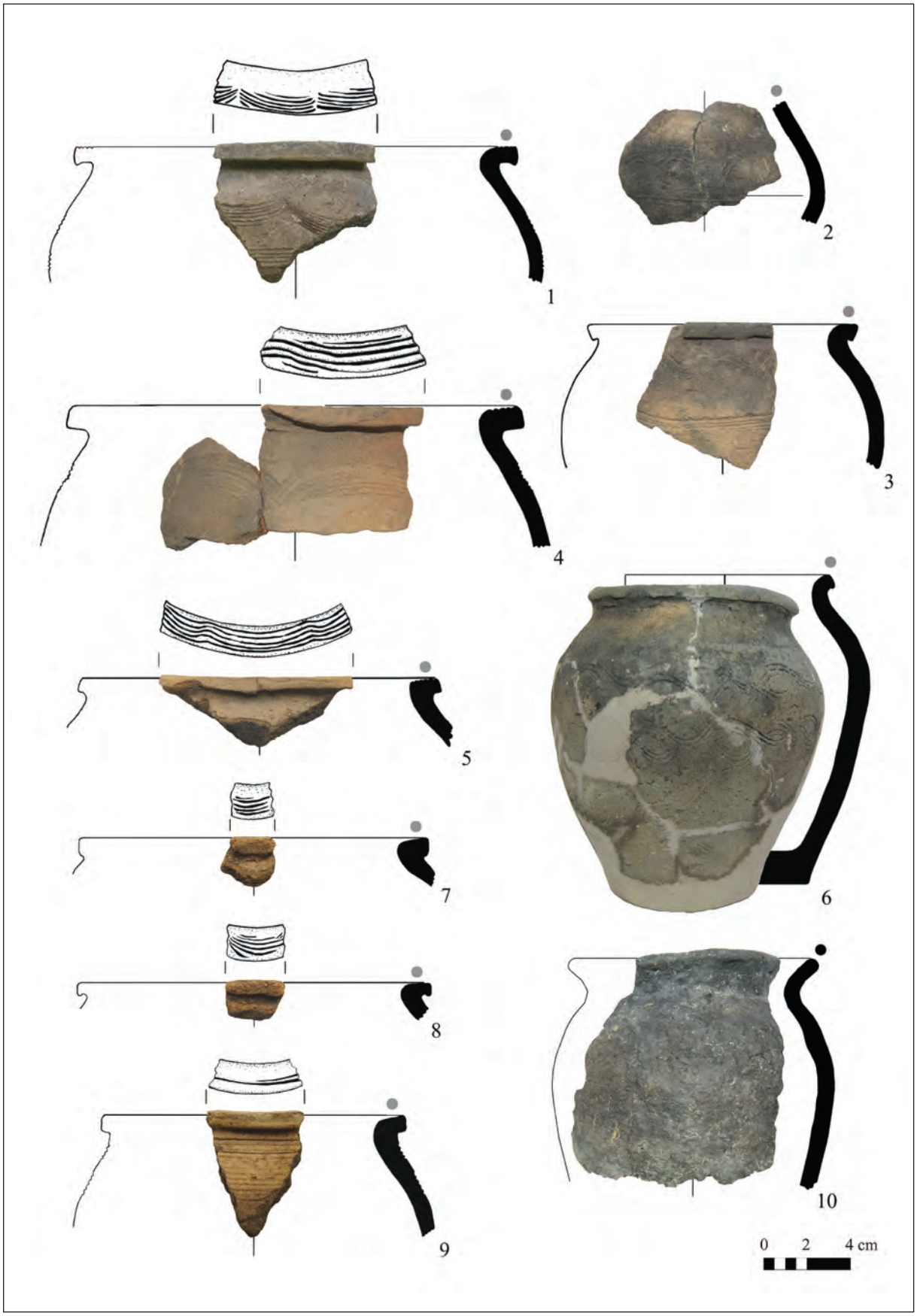

Plate 7. Cooking vessels from Hajdúnánás-Mácsi-dűlő. 1: Feature no. 63 (pit-house); 2: Feature no. 61 (outdoor oven); 3: Feature no. 62 (pit-house); 4: Feature no. 1 (well); 5: Feature no. 62 (pit-house); 6: Feature no. 55 (pit-house); 7–8: Feature no. 62 (pit-house); 9: Feature no. 44 (pit-house); 10: Feature no. 32 (pit-house).

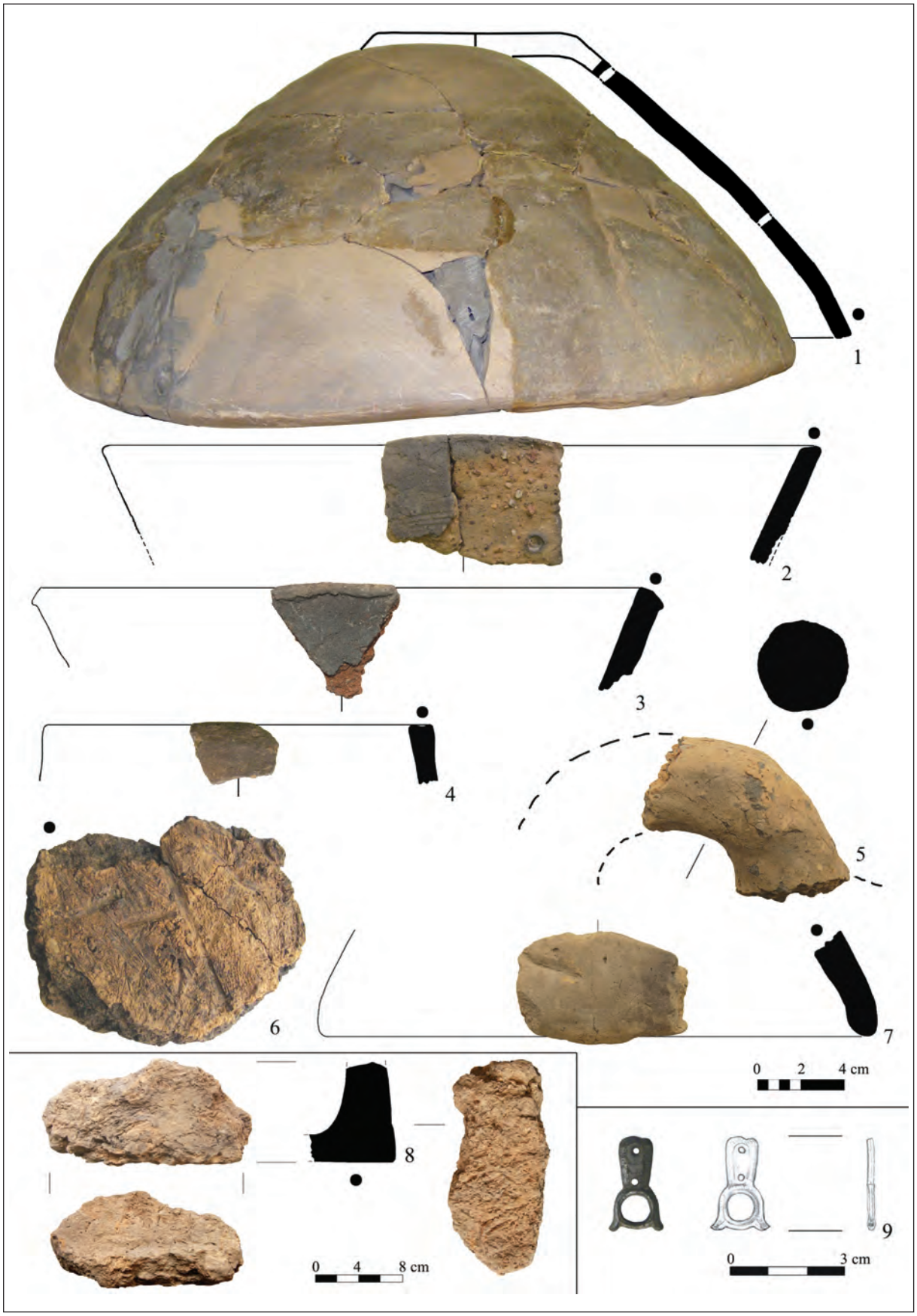

Plate 8. Bowls, baking bells, clay pan and belt fitting from Hajdúnánás-Mácsi-dűlő. 1: Feature no. 42 (pit-house); 2: Feature no. 44 (pit-house); 3: Feature no. 62 (pit-house); 4: Feature no. 57 (pit-house); 5: Feature no. 38 (pit-house); 6: Feature no. 32 (pit-house); 7–8: Featureno. 38 (pit-house); 9: Bronze belt fitting from feature no. 16 (pit-house).

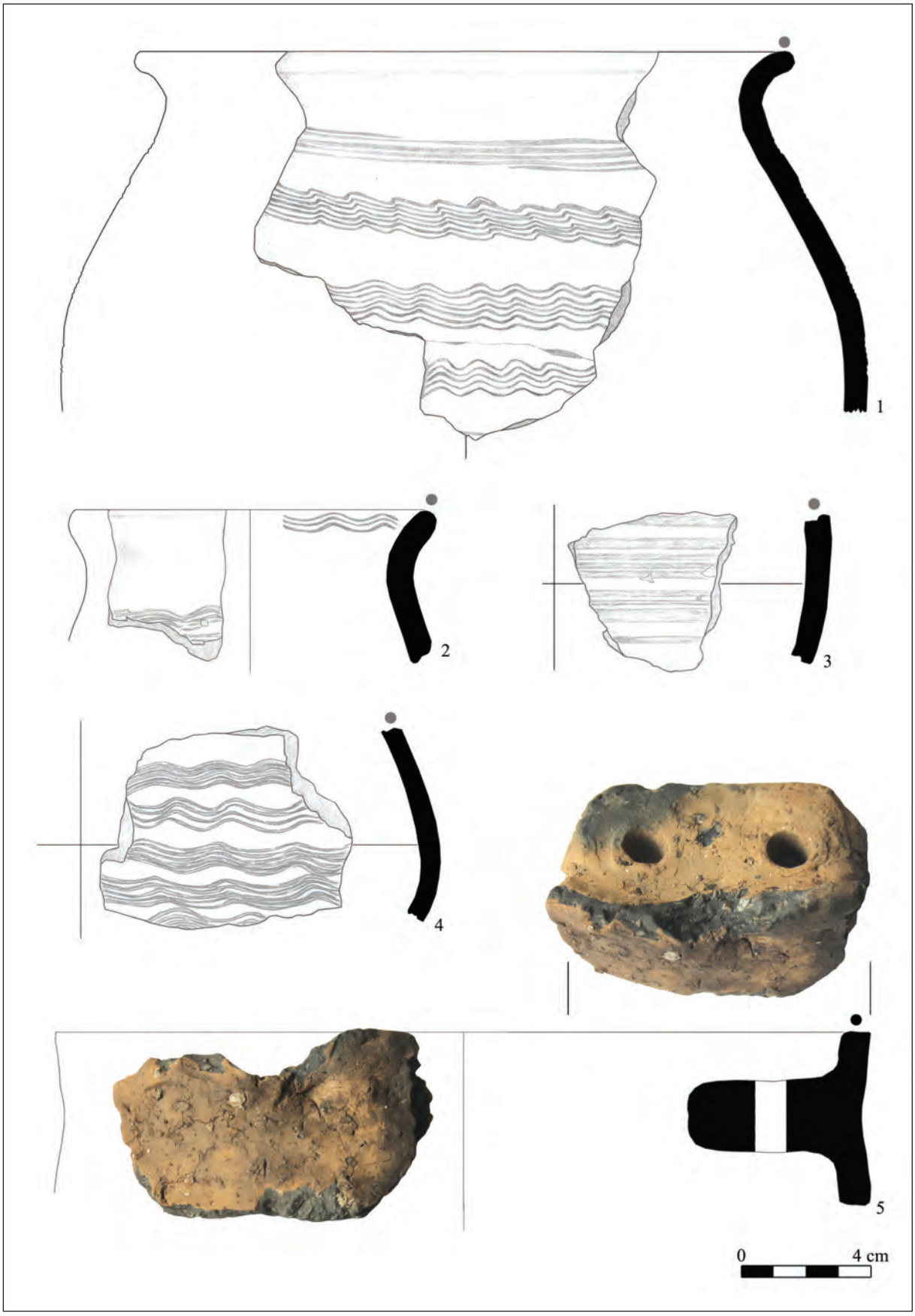

Plate 9. Cooking vessels and clay cauldron from Hajdúnánás-Fekete-halom. 1: Featureno. 40 (building); 2–4: Feature no. 49 (hearth); 5: Feature no. 40 (building).

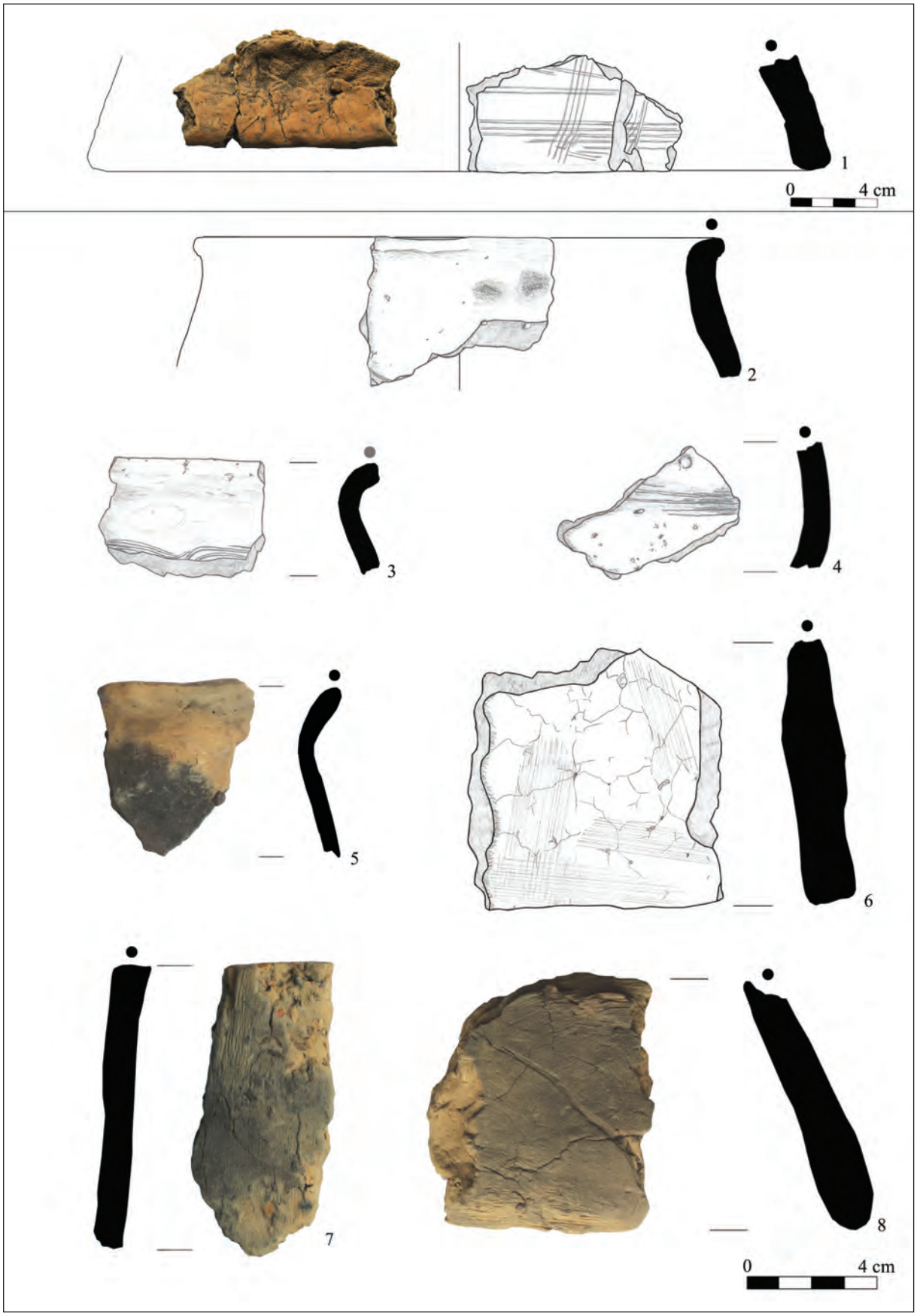

Plate 10. Cooking vessels, baking bells and bowl from Hajdúnánás-Fekete-halom. 1: Feature no. 49 (hearth); 2–4: Feature no. 51 (outdoor oven); 5–6: Feature no. 51 (outdoor oven); 7: Feature no. 52 (outdoor oven); 8: Feature no. 51 (outdoor oven).

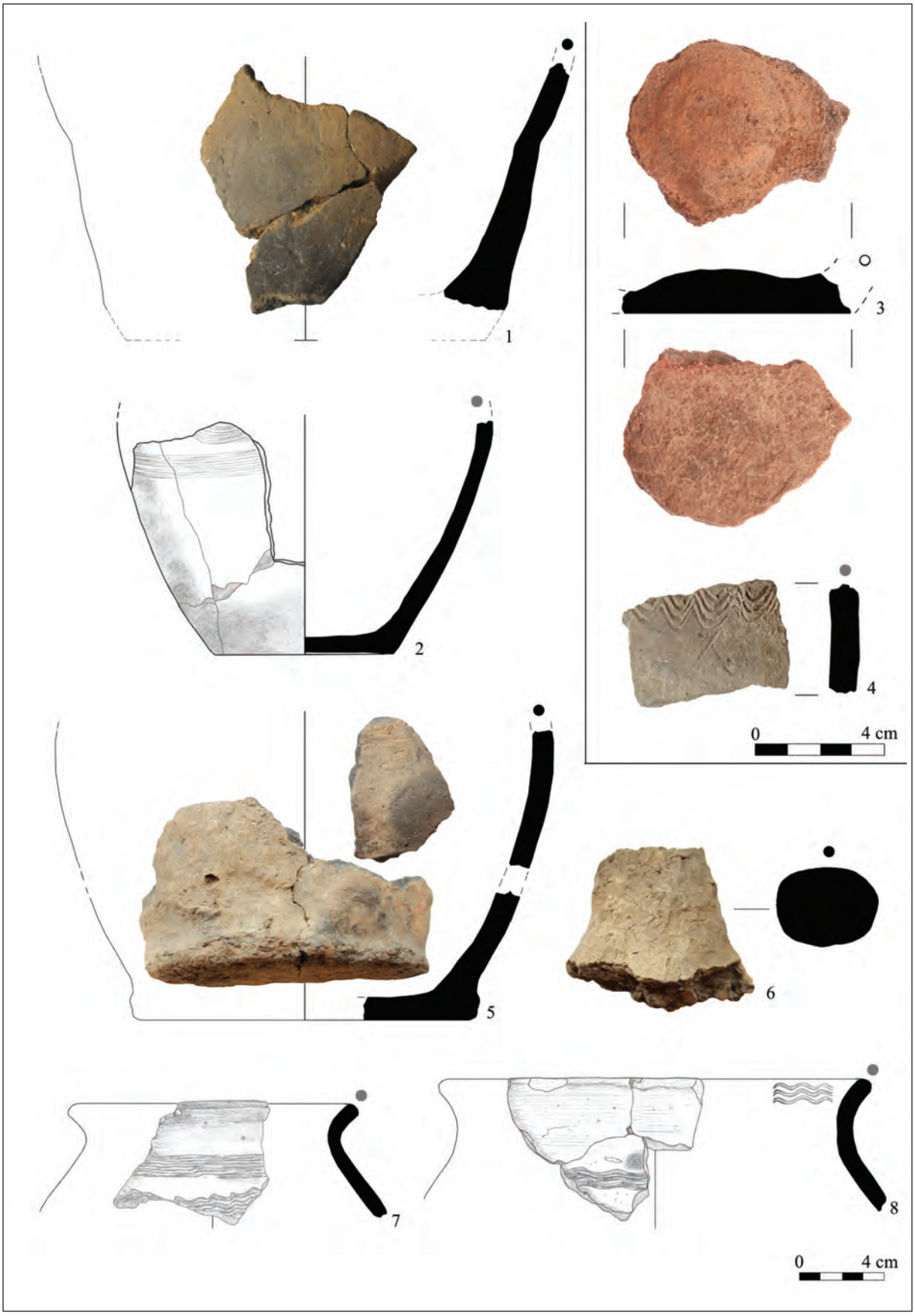

Plate 11. Cooking vessels and baking bell from Hajdúnánás-Fekete-halom. 1: Feature no. 53 (well); 2: Feature no. 59 (building); 3–8: Feature no. 73 (outdoor oven).

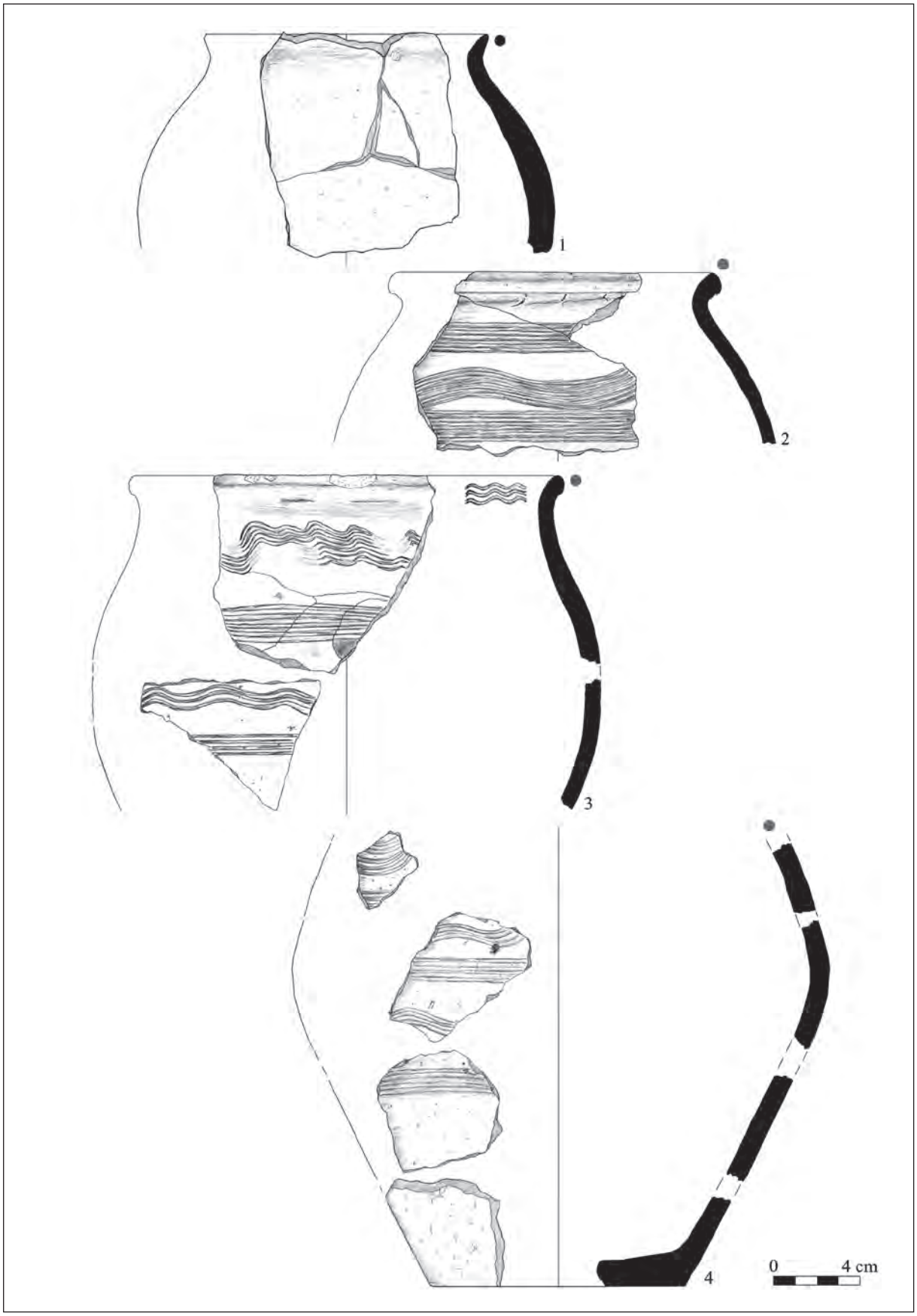

Plate 12. Cooking vessels from Hajdúnánás-Fekete-halom. 1: Feature no. 52 (outdoor oven); 2: Feature no. 74 (pit); 3-4: Feature no. 73 (outdoor oven).

Abbreviations

Acta Ant et Arch Suppl	Acta Antiqua et Archaeologica Supplementum. Szeged.
AAC	Acta Archaeologica Carpathica. Krakow.
ACMIT	Anuarul Comisiunii monumentelor istorice. Secţia pentru Transilvania. Cluj.
ActaArchHung	ActaArchHung Acta Archaeologica Academiae Scientiarum Hungaricae. Budapest.
AEM	Archäologische Epigraphische Mitteilungen aus Österreich-Ungarn.
AIIA Cluj	Anuarul Institutului de Istorie şi Arheologie. Cluj.
AMP	Acta Musei Porolissensis. Zalău.
ATF	Acta Terrae Fogarasiensis. Făgăraş.
ATS	Acta Terrae Septemcastrenses. Sibiu.
Agria	*Agria. Annales Musei Agriensis*. Az egri Dobó István Vármúzeum évkönyve. Eger.
AnB S.N.	Analele Banatului. Timişoara.
ArchÉrt	Archaelogiai Értesítő. A Magyar Régészeti és Művészettörténeti Társulat tudományos folyóirata. Budapest.
Arh. Pregled	Arheološki Pregled. Arheološko Društvo Jugoslavije. Beograd.
AM	Arheologia Moldovei. Iaşi.
AMN	Acta Musei Napocensis. Cluj-Napoca.
ArchRozhl	Archeologické Rozhledy. Praga.
ASMB	Arheologia Satului Medieval din Banat. Reşiţa 1996.
BAM	Brvkenthal Acta Mvsei. Sibiu.
BAR Int. Ser.	British Archaeological Reports. International Series. Oxford.
BCMI	Buletinul Comisiunii Monumentelor Istorice.
BerRGK	Bericht der RömischGermanischen Kommission, Frankfurt a. Main.
BHAB	Bibliotheca Historica et Archaeologica Banatica. Timişoara.
BMB. SH	Biblioteca Muzeului Bistriţa. Seria Historica. Bistriţa Năsăud.
BMI	Buletinul Monumentelor Istorice, Bucureşti.
BMN	Bibliotheca Musei Napocensis. Cluj-Napoca.
BMMK	A Békés Megyei Múzeumok Közleményei. Békéscsaba.
BMMN	Buletinul Muzeului Militar Naţional, Bucureşti.
BThr	Bibliotheca Thracologica. Institutul Român de Tracologie, Bucureşti.
CAB	
CAH	Communicationes Archaeologicae Hungariae. Budapest.
Carpica	Carpica. Muzeul Judeţean de Istorie şi Arheologie Bacău. Bacău.
CAMNI	Cercetări Arheologice. Muzeul de Istorie al R. S. România/Muzeul Naţional de Istorie. Bucureşti.
CCA	*Cronica cercetărilor arheologice* (*din România*), 1983–1992 *sqq*. (şi în variantă electronică pe *http://www.cimec.ro/scripts/arh/cronica/cercetariarh.asp*).
CCA 1995 [1996]	C. Stoica (red. şi coord.), *CCA. Campania 1995. A XXX-a sesiune naţională de rapoarte arheologice, Brăila, 2–5 mai 1996*. [Bucureşti] [1996].
CCA 1996 [1997]	C. Stoica (red. şi coord.), *CCA. Campania 1996. A XXXI-a sesiune naţională de rapoarte arheologice, Bucureşti, 12–15 iunie 1997*. [Bucureşti] [1997].
CCA 1997 [1998]	C. Stoica (red. şi coord.), *CCA. Campania 1997. A XXXII-a sesiune naţională de rapoarte arheologice, Călăraşi, 20–24 mai 1998*. [Bucureşti] [1998].
CCA 1998 [1999]	C. Stoica (red. şi coord.), *CCA. Campania 1998. A XXXIII-a sesiune naţională de rapoarte arheologice, Vaslui, 30 iunie–4 iulie 1999*. [Bucureşti] [1999].
CCA 2000 (2001)	M. V. Angelescu, C. Borş, I. Oberländer-Târnoveanu (Ed.), *CCA. Campania 2000. A XXXV-a sesiune naţională de rapoarte arheologice, Suceava, 23–27 mai 2001*. Bucureşti 2001.

CCA 2001 (2002)	M. V. Angelescu, C. Borş, I. Oberländer-Târnoveanu, F. Vasilescu (Ed.), *CCA. Campania 2001. A XXXVI-a sesiune naţională de rapoarte arheologice, Buziaş, 28 mai–1 iunie 2001*. Bucureşti 2002.
CCA 2003 (2004)	M. V. Angelescu, I. Oberländer-Târnoveanu, F. Vasilescu (Ed.), *CCA. Campania 2003. A XXXVIII-a sesiune naţională de rapoarte arheologice, Cluj-Napoca, 26–29 mai 2004*. Bucureşti 2004.
CCA 2006 (2007)	M. V. Angelescu, F. Vasilescu (Ed.), *CCA. Campania 2006. A XLI-a sesiune naţională de rapoarte arheologice, Tulcea, 29 mai – 1 iunie 2006*. Bucureşti 2007.
CCA 2008 (2009)	M. V. Angelescu, I. Oberländer-Târnoveanu, F. Vasilescu, O. Cîrstina, G. Olteanu (Ed.), *CCA. Campania 2008. A XLIII-a sesiune naţională de rapoarte arheologice, Târgovişte, 27–30 mai 2009* (= *Valachica* 21–22, 2008–2009). Târgovişte 2009.
CCA 2013 (2014)	Institutul Naţional al Patrimoniului (Ed.), *CCA. Campania 2013. A XLVIII-a sesiune naţională de rapoarte arheologice, Oradea, 5–7 iunie 2014*. [Bucureşti] 2014.
CCA 2014 (2015)	Institutul Naţional al Patrimoniului (Ed.), *CCA 2015. Campania 2014. A XLIX-a sesiune naţională de rapoarte arheologice, Piteşti, 28–30 mai 2015, Muzeul judeţean Argeş*. [Bucureşti] 2015.
CRSCRCR	Coins from Roman sites and collections of Roman coins from Romania. Cluj-Napoca.
Dacia N.S.	Dacia. Revue d'archéologie et d'histoire ancienne. Nouvelle serie. Bucureşti.
Danubius	Danubius – Revista Muzeului de Istorie Galati. Galaţi.
DDME	A Debreceni Déri Múzeum Évkönyve. Debrecen.
DolgCluj	Dolgozatok az Erdélyi Nemzeti Érem- és Régiségtárából, Klozsvár (Cluj).
DolgSzeg	Dolgozatok. Arbeiten des Archäologischen Instituts der Universität. Szeged.
EphNap	Ephemeris Napocensis. Cluj-Napoca.
FADDP/GMADP	Führer zu archäologischen Denkmälern in Dacia Porolissensis/Ghid al monumentelor arheologice din Dacia Porolissensis.
FolArch	Folia Archaeologica. Budapest.
Forsch. u. Ber. z. Vor- u. Frühgesch. BW	Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg.
GPSKV	Gradja za proučavanje spomenika kulture Vojvodine. Novi Sad.
GSAD	Glasnik Srpskog Arheološkog Društva. Beograd.
HOMÉ	A Herman Ottó Múzeum Évkönyve. Miskolc.
JAMÉ	A nyíregyházi Jósa András Múzeum Évkönyve. Nyíregyháza.
JahrbuchRGZM	Jahrbuch des RömischGermanischen Zentralmuseums Mainz.
Lohanul	Lohanul. Revistă cultutal ştiinţifică. Huşi.
MCA	Materiale şi Cercetări Arheologice. Bucureşti.
MCA-S.N.	Materiale şi Cercetări Arheologice-Serie Nouă. Bucureşti.
MA	Memoria Antiqvitatis. Complexul Muzeal Judeţean Neamţ. Piatra Neamţ.
MFMÉ	A Móra Ferenc Múz. Évkönyve. Szeged.
MFMÉ StudArch	A Móra Ferenc Múzeum Évkönyve, Studia Archaelogica. Szeged.
MN	Muzeul Naţional. Bucureşti.
Opuscula Hungarica	Opuscula Hungarica. Budapest.
PamArch	*Památky Archeologické. Praha.*
Past and Present	*Past and Present. Oxford.*
PIKS/PISC	Die Publikationen des Institutes für klassische Studien/ Publicaţiile Institutului de studii clasice. Cluj-Napoca.
PBF	Praehistorische Bronzefunde. Berlin.
PZ	Prähistorische Zeitschrift. Berlin.
Rev. Muz.	Revista Muzeelor, Bucureşti.
RIR	Revista Istorică Română.
RMM-MIA	Revista Muzeelor şi Monumentelor. seria Monumente istorice şi de artă. Bucureşti.
RMMN	Revista Muzeului Militar Naţional. Bucureşti.
Ruralia	Ruralia. Památky Archeologické – Supplementum. Praha.
RVM	Rad Vojvodjanskih Muzeja, Novi Sad.
SCIV(A)	Studii şi Cercetări de Istorie Veche. Bucureşti.

SCN	Studii şi Cercetări Numismatice. Bucureşti.
SlovArch	Slovenská Archeológia. Nitra.
SIA	Studii de Istoria Artei. Cluj Napoca.
SIB	Studii de istorie a Banatului. Timişoara.
SKMÉ	A Szántó Kovács János Múzeum Évkönyve, Orosháza.
SMIM	Studii şi Materiale de Istorie Medie. Bucureşti.
SMMA	Szolnok Megyei Múzeumi Adattár. Szolnok.
SMMIM	Studii şi Materiale de Muzeografie şi Istorie Militară. Bucureşti.
Starinar	Starinar. Arheološki Institut. Beograd.
StCl	Studii Clasice, Bucureşti.
StComBrukenthal	*Studii şi comunicări*. Sibiu.
StudArch	Studia Archaeologica. *Budapest*.
StudCom	Studia Comitatensia. *Szentendre*.
StudUnivCib	Studia Universitatis Cibiniensis. Sibiu.
StudCom – Vrancea	Studii și Comunicări. Muzeul Județean de Istorie și Etnografie Vrancea. Focșani.
StudŽvest	Študijne Zvesti Arheologického Ústavu Slovenskej Akademie Vied. Nitra.
Symp. Thrac.	Symposia Thracologica. Bucureşti.
Tempora Obscura	Tempora Obscura. Békéscsaba 2012.
Tibiscus	Tibiscus. Timişoara.
VAH	Varia Archaeologica Hungarica. *Budapest*.
Ziridava	Ziridava. Arad.
ZSA	Ziridava Studia Archaeologica. Arad.