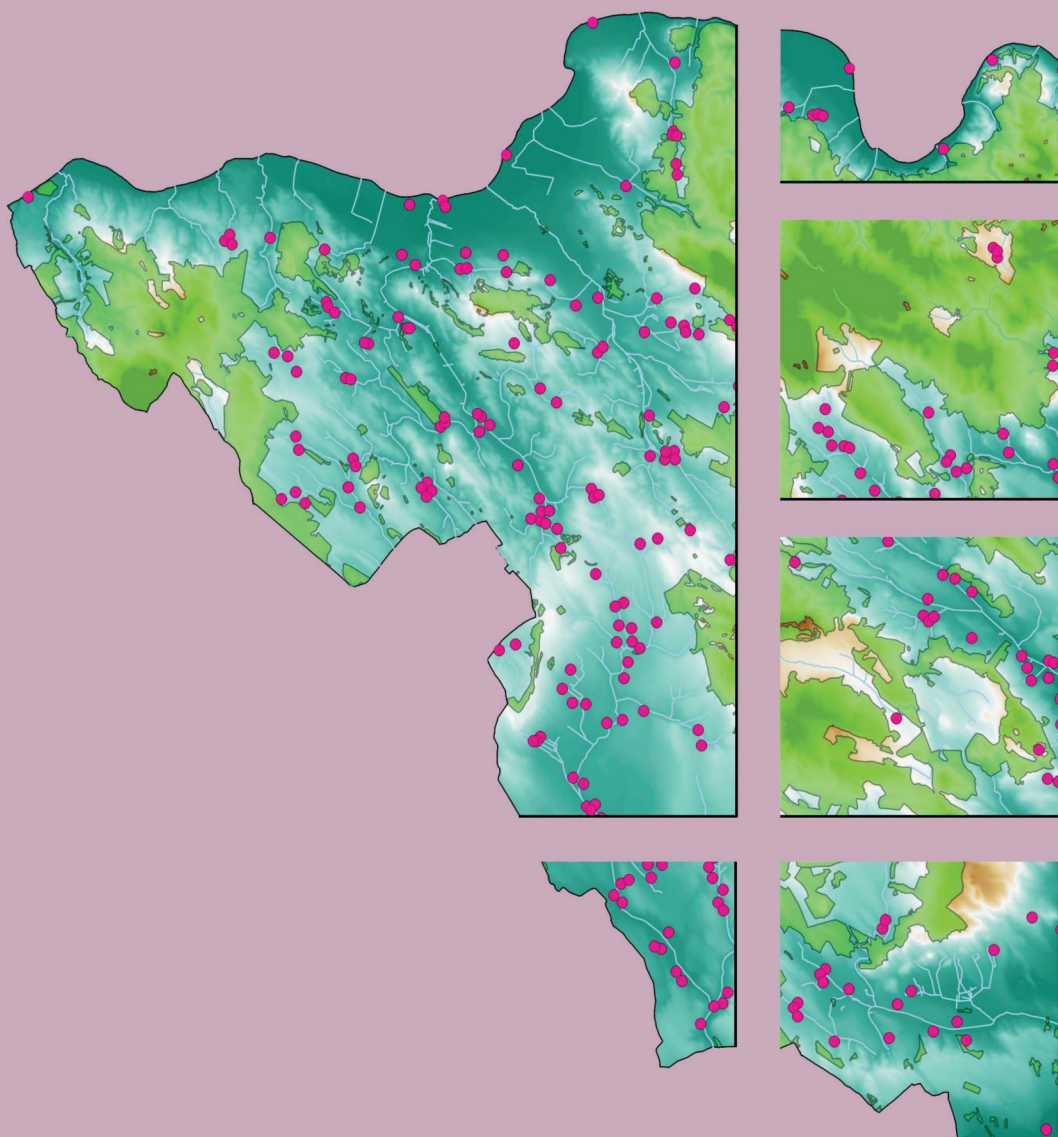


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Tiszaug-Railway-station. An archaic Middle Neolithic community on the Great Hungarian Plain

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Abstract

The Tiszazug landscape lies in the heartland of the Great Hungarian Plain (Alföld) in the middle of the Carpathian Basin. The region enclosed by the Tisza and Körös rivers has a diverse geography. The Tiszaug-Railway-Station site was identified as representing the Middle Neolithic ALP-Szakálhát assemblages in the first publication of the site and its finds. During the 1980 floods, the railway embankment at the western edge of the site was damaged and was reconstructed with earth extracted from the archaeological site. The extraction disturbed a 100 by 50 m large area with Neolithic features, leading to a salvage excavation in May 1980, during which parts of seven archaeological features preserved in the north-eastern wall of the mine pit were uncovered. Particular attention was accorded to the chronology and cultural connections of the finds already in the first publication. Besides the discussion of the face pots, the blend of Szakálhát and late ALP elements in the ceramic inventory was duly noted. The re-assessment and re-publication of the finds was necessitated by the new absolute chronological dates: the radical change in the site's chronological position sets the formerly known contexts of the pottery and other artefact types (lithics and special clay objects) into a wholly new contextual framework.

Research in the Tiszazug micro-region

The Tiszazug landscape lies in the heartland of the Great Hungarian Plain (Alföld) in the middle of the Carpathian Basin. Covering 546 km², the micro-region has thirteen settlements, the westernmost among them being Tiszaug (*Fig. 1*).¹ The region enclosed by the Tisza and Körös rivers has a diverse geography. The landscape is dominated by the wide floodplains and oxbows of these two rivers, and the loess-covered high buffs criss-crossed by their channels. These buffs offered ideal locations for settlement to local communities.²

Although archaeological interest in the micro-region began already in the 19th century, systematic fieldwork only started in earnest in July 1952, when Nándor Kalicz conducted field surveys.³ The detailed publication of his findings made the micro-region known to

1 KOVÁCS et al. 2017, 243, Fig. 4.

2 KALICZ 1957, 81–82, maps; KOVÁCS et al. 2017, 239; MALI 2016, 287–288, Figs 1, 3.

3 KALICZ 1957, 5–15.

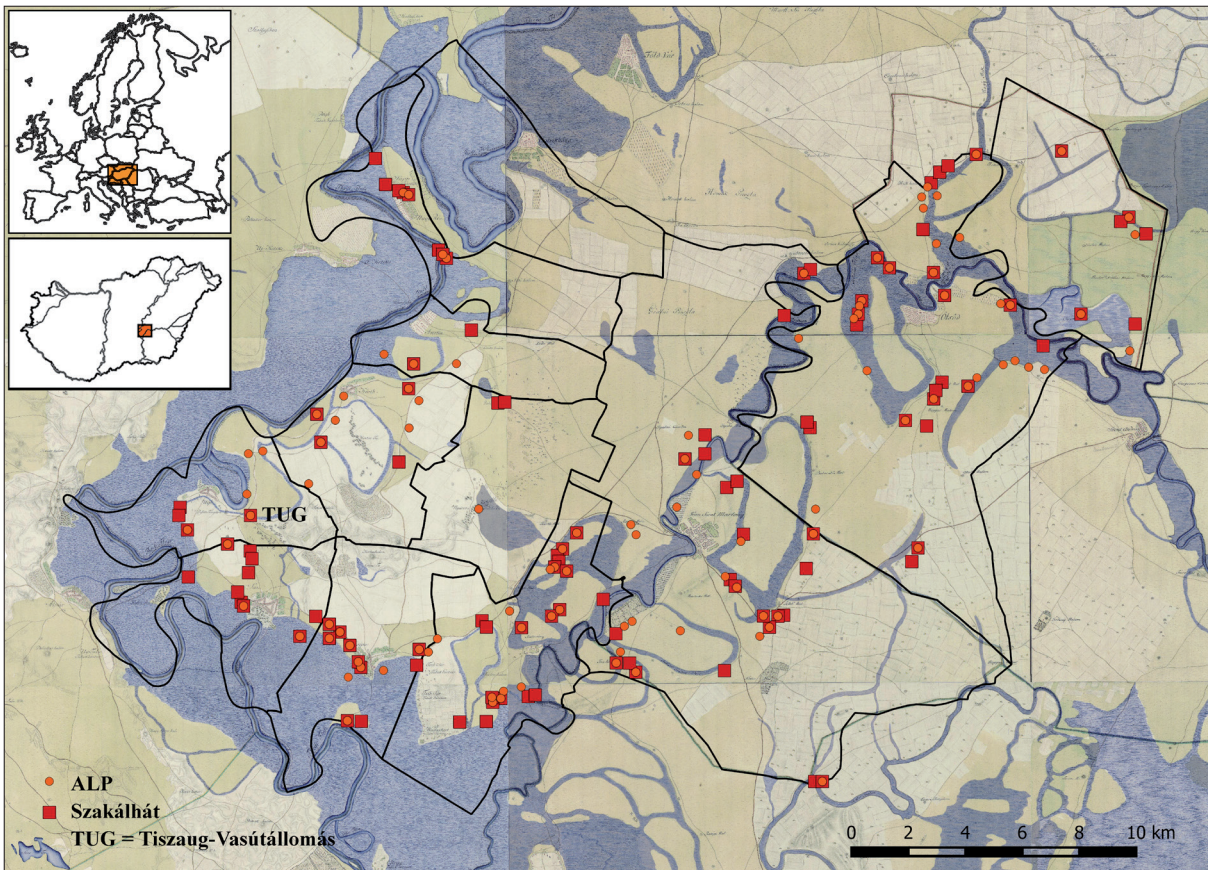


Fig. 1. Middle Neolithic settlements of the Tiszazug micro-region known from fieldwalking surveys, on the map of the First Military Ordnance Survey (1783–1784).

international archaeological scholarship. The regional results of Neolithic research were summarised by Nándor Kalicz and János Makkay in a model constructed on an eastern Hungarian scale.⁴ Among others, the archaeological record of the Tiszazug region provided a basis for A. Sherratt's analyses on settlement history,⁵ as well as for the study by M. R. Jarman and his colleagues on Neolithic food production on a European scale.⁶ The plans for the construction of the Tisza III barrage gave a fresh impetus to research. Investigations in the affected areas started in 1979, with systematic surveys and salvage excavations. The investigations undertaken in the early 1980s and 1990s eventually grew into an independent regional project that was fitted into the Archaeological Topography of Hungary (MRT) project.⁷

Decades of field walkings resulted in the identification and documentation of 759 archaeological sites, of which 314 could be assigned to the Neolithic.⁸ The ceramics of 384 occupations from different phases were recovered from the Neolithic sites (Fig. 1). Conforming to the state of research in the 1980s, the Neolithic era was divided into four chronological phases.⁹ The Early Neolithic phase was equated with the Körös culture (48 sites), the first

4 KALICZ – MAKKAY 1977, Tabelle 2, Orientierungskarte zu Tabelle 2 on page 95.

5 SHERRATT 1982, Fig. 8.

6 JARMAN et al. 1982, 3.

7 KOVÁCS et al. 2017, 240–244; MALI 2016, 287; RACZKY 1982, 223.

8 KOVÁCS et al. 2017, 247–248, Fig. 8; RACZKY – FÜZESI 2016, 15–21, Figs 4–6.

9 MAKKAY 1982a, Maps 4–7.

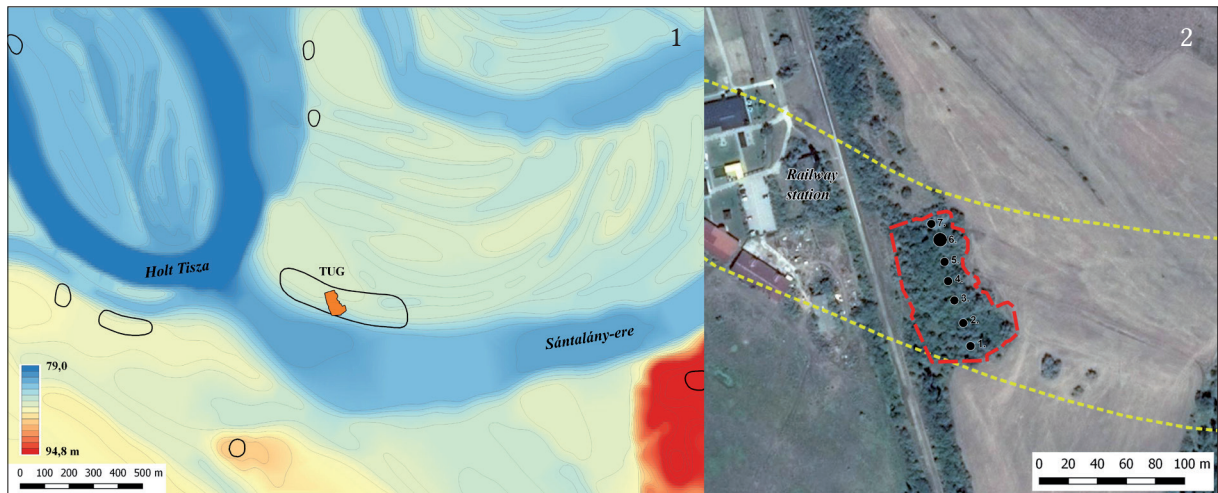


Fig. 2. 1 – The environment of the Tiszaug-Railway-Station site with former meanders of the River Tisza. Black-lined polygons mark known archaeological sites, 2 – The central-western portion of the Tiszaug site on a GoogleMaps image. The red dashed line frames the disturbed section, with the assumed locations of the features excavated in 1980 marked in black.

half of the Middle Neolithic with the Alföld Linear Pottery (ALP) (106 sites), the second half with the Szakálhát culture (115 sites), and the Late Neolithic with the Tisza culture (11 sites). The discrepancy between the number of sites and occupations was caused by the multi-period sites; ALP and Szakálhát was found together in 50 cases, while ALP, Szakálhát and Tisza in four cases. The complete Neolithic sequence of the region was attested only at the Öcsöd-Kováshalom and Csépa-Csipsárpart sites.

We consider the frequent joint presence of the ALP and Szakálhát ceramic styles an intrinsic feature of Middle Neolithic development. The Körös communities of southern origin had a distinctive settlement network in this region. The early ALP assemblages spread from the northern Hungarian Plain to the southerly regions along the River Tisza, where these communities created a new settlement network.¹⁰ This is amply illustrated by the low number (7 sites) of the joint occurrences of the Körös culture and the ALP! It was earlier believed that the Szakálhát group, incorporating several stylistic elements of southern origin, evolved on an ALP substrate in the central and southerly regions of the Great Hungarian Plain, mainly south of the River Körös,¹¹ which provided an explanation for the continuity and gradual transformation of the settlement network in a unilinear development model.¹² János Makkay introduced the “Furugy type” for describing this transitional process.¹³ In his development model, M. Strobel treated the Furugy type as an independent period (Phase III), which preceded the final period (Phase IV).¹⁴ Conforming to these models, the Tiszaug-Railway-Station site was identified as representing the transitional period by Pál Raczky in the first publication of the site and its finds.¹⁵

10 MAKKAY 1987, 23, Karte 1; WHITTLE et al. 2013, 50–52.

11 KALICZ – MAKKAY 1977, 83–91.

12 RACZKY 1989, 235, Figs 8–9.

13 MAKKAY 1982a, 57–59.

14 STROBEL 1997, Abb. 40.

15 RACZKY 1982, 226.

The Tiszaug-Railway-Station site and Middle Neolithic research in Hungary

During the 1980 floods, the railway embankment at the western edge of the site was damaged and was reconstructed with earth extracted from the archaeological site. The extraction disturbed a 100 by 50 m large area with Neolithic features (*Fig. 2*), leading to a salvage excavation in May 1980, during which parts of seven archaeological features preserved in the north-eastern wall of the mine pit were uncovered. These features were numbered south to north. Technical conditions and local circumstances did not allow accurate geodetic measurement. Since then, the mine pit was expanded through illegal clay extraction. In 2017, we measured the abandoned and overgrown pit. Among the small and average-sized pits, Features 1 and 6 stood out by their dimensions, form and the quantity of their finds.¹⁶ Only small portions of Features 2–5 and 7 fell into the area of the extraction pit. They yielded but sporadic archaeological finds, providing little in the way of archaeological information.

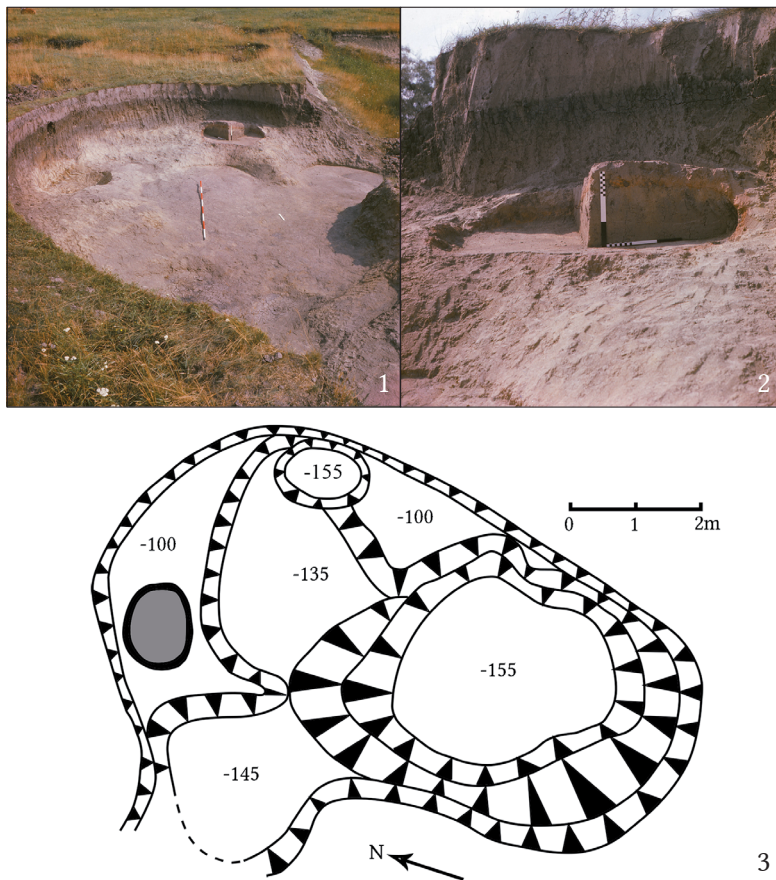


Fig. 3. Plan of Feature 6 with depth data. The burnt oven floor is marked in grey.

The southernmost feature of the site (Feature 1) was a cylindrical pit that contained the neck part of a Szakálhát-style face pot decorated with an incised M motif. A small cup with incised decoration was found beside it; this vessel also bore incised motifs on its base,¹⁷ linking thereby this obviously symbolic assemblage to the broader group of South-East European signs.¹⁸

¹⁶ RACZKY 1982, 223–226.

¹⁷ RACZKY 1982, Abb. 2, Abb. 3. 1–3.

¹⁸ RACZKY 1992, 150–151, Pls 1–2.

Feature 6 (Fig. 3) was an oval, 9.4 m long by 4.2 m wide pit with an approximately north-south aligned longitudinal axis. Its middle part reached a depth of 155 cm and it had a shallower, 100 cm deep northern section. A strongly burnt oval oven with a clay platform and a partially preserved domed superstructure lay at the edge of this latter part. In the first publication, Pál Raczky interpreted this feature as a pit-house, conforming to the period's research paradigm.¹⁹ The issue of sunken dwellings had been the subject of a decades-long debate in Hungarian and international archaeological scholarship.

The small-scale, trench-based excavations before the 1990s meant that above-ground buildings were not known from certain Neolithic periods and that pit houses were regarded as the norm.²⁰ This type was characterised by a more-or-less regular plan, an often uneven floor and the presence of an oven, just as at Tiszaug. One of the most intact "pit houses" came to light at Bicske-Galagonyás, a site published by János Makkay, who also proposed a set of criteria for identifying these structures in 1982.²¹ This publication delayed the paradigm shift, even though several partial or complete plans of timber-framed buildings had been uncovered by this time.²² The real breakthrough came with the extensive motorway excavations in the mid-1990s. Settlements with a similar layout and timber-framed buildings as the Central European Linear Pottery sites were uncovered in both the ALP territory (Füzesabony-Gubakút) and the TLP territory (Mosonszentmiklós-Egyéni földek).²³

The pit house debate was finally laid to rest in Hungary,²⁴ but continued in international scholarship with a focus on the functional interpretation of the features formerly identified as pit houses. Some scholars suggested non-residential functions,²⁵ while others claimed that these structures had been the temporary dwellings of pioneer communities.²⁶ A few well-documented cases indicated that the features interpreted as pit houses were the archaeological imprints of a considerably long process, as was proven in the case of a complex feature excavated at the Tiszalök-Hajnalos site.²⁷ The micro-histories of these pit complexes represented a sequence of functions from clay extraction through storage, workshop and burial to refuse pit, all of which influenced the feature's dimensions and functions.²⁸ In our opinion, Feature 6 at Tiszaug had a similarly rich micro-history with an activity area phase as testified by the oven. The observed and recorded state of the excavated feature condenses the different phases of its entire life-cycle into a single snapshot, from which its former history has to be painstakingly unravelled and interpreted by the archaeologist, alongside the reconstruction of various activities once conducted in different areas of the one-time ALP settlement.

19 RACZKY 1982, 224.

20 KALICZ – MAKKAY 1977, 64–73; KURUCZ 1989, 20–23, 96–98.

21 MAKKAY 1978, 12–16, Fig. 1; MAKKAY 1982b, 158, 161–165.

22 Krasznokvajda (LOSITS 1980, Abb. 10), Csanytelek–Újhalastó (HEGEDŰS 1985, Fig. 3), Tiszafüred–Téglagyár (HORVÁTH 1989, 24–25).

23 DOMBORÓCZKI 1997, 19–20, Fig. 3; DOMBORÓCZKI 2001, Pls 3–4; DOMBORÓCZKI 2009, 80–90; EGRY 2003, Fig. 4.

24 HORVÁTH 1989; RACZKY 2006.

25 LICHARDUS-ITTEN – LICHARDUS 2004, 49–50.

26 CHAPMAN 2008; HORVÁTH 1989, 21.

27 FÜZESI 2018. For a comprehensive overview of this issue, see ORAVECZ 2018.

28 FÜZESI 2016, 383, Fig. 13.

Tiszaug-Railway-Station and the Furugy type

Particular attention was accorded to the chronology and cultural connections of the finds already in the first publication. Besides the discussion of the face pots, the blend of Szakálhát and late ALP elements in the ceramic inventory was duly noted.²⁹ The pottery finds from Békésszentandrás-Furugy found from 1976 onward reflected a similar combination of stylistic traits.³⁰ The Furugy type was introduced by János Makkay in 1978, who discussed its chronological position and interpreted it as a transitional type or phase between ALP and Szakálhát.³¹ Later, he outlined the chronological and cultural significance of the Furugy type in the emergence of the Szakálhát group, which he derived from the ALP.³² In Makkay's model, the ceramic assemblage from Tiszaug-Railway-Station marked the presence of the Furugy type north of the River Körös.³³ The finds from Tiszaug-Railway-Station were defined as a typical assemblage of the early, formative Szakálhát group.³⁴ The present stylistic and statistical study of the ceramic material yielded a more detailed, but essentially similar conclusion: the ceramic finds reflect the blend of late ALP and early Szakálhát pottery traditions. The paradigm shift in ceramic studies offered the possibility to expand our observations and investigations. The re-assessment and re-publication of the finds was necessitated by the new absolute chronological dates: the radical change in the site's chronological position sets the formerly known contexts of the pottery and other artefact types (lithics and special clay objects) into a wholly new contextual framework.

Analysis of the Tiszaug-Railway-Station ceramic material

The artefacts recovered from the excavated archaeological features are almost exclusively ceramics. The 4846 sherds came from 4570 vessels and eight other ceramic objects. These finds were distributed rather unevenly among the seven archaeological features (*Fig. 4*). Feature 4 contained only 12 sherds. Although a large amount of pottery was found in Feature 1 (360 pieces), this is far below the 3813 sherds recovered from Feature 6. There seemed no good reason to analyse the material separately according to features, and we therefore treated the finds as a uniform assemblage.

We recorded the data in an object-based binary system, which thus contains all the relationships between the recorded variables. We strove to record a wide spectrum of macroscopically observable traits, making our dataset suitable for technological, functional and stylistic analyses. The statistically significant relations highlight the technical, stylistic and functional attributes of the ceramic inventory grounded in pottery production. Therefore, our observations primarily relate to potting as a craft activity that has to be re-interpreted before they can be used for the study of the community that created the objects.

We analysed our data not only with statistical, but also with “traditional” methods; the two approaches complemented each other. Besides quantitative data, we made every effort to doc-

29 RACZKY 1982, 224, 226.

30 GOLDMAN 1983, 33.

31 MAKKAY 1978, chronological chart.

32 MAKKAY 1982a, 57–59.

33 RACZKY 1982, 226.

34 HORVÁTH 1989, 24; HORVÁTH 1995, 15; SZÉNÁSZKY 1988, 16.

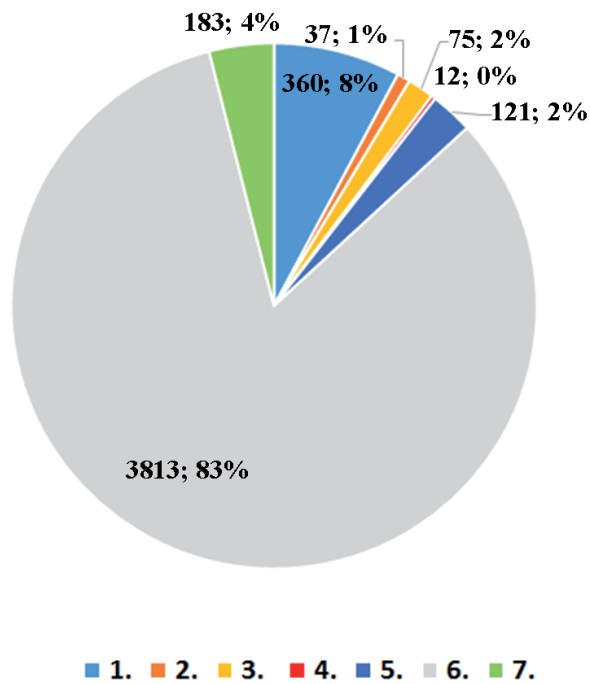


Fig. 4. Distribution of ceramic fragments among the excavated features.

ument the ceramic assemblage in its entirety with drawings and photographs; we present an abundant selection in the form of colour plates accompanying this paper.

Observations on ceramic technology

Although our data collection was quite broad, most of our analyses concern ceramic styles because our knowledge of vessel forms and, consequently, of the composition of vessel sets was constrained by the highly fragmented state of the assemblage. Nevertheless, we present our qualitative assessments, too, because these can be useful for future analyses of other assemblages. It is our conviction that datasets of this type are an important component of ceramic studies.

The study of ceramic technology is still in its infancy in Hungarian archaeological scholarship.³⁵ No more than a handful of sherds in the Tiszaug assemblage yielded information on how vessels had been built. Fingertip impressions could be noted at regular intervals on the vertical fracture surface of a large vessel, an attempt to fit together two elements (*Fig. 27.2*). Traces of fitting two elements together could be observed on a base fragment: the lower part of a vessel was reinforced with another layer of clay (*Fig. 27.4*) in the region where the body of a still wet clay vessel is under the greatest tension before firing.³⁶ The larger knobs were simply fitted to the vessel surface (*Fig. 33.6,9*); in one case, a semicircular depression was made to ensure the better adherence of an unusually large squat knob (*Fig. 33.10*). These examples only highlight the potentials in more systematic technological studies.

The tempering agents of the ceramic wares were identified macroscopically, with the naked eye, a widespread method despite its inaccuracy.³⁷ We defined three basic components:

35 FÜZESI IN PRESS; GOMART 2014; GUCSI 2000; KREITER 2007.

36 GANDON et al. 2011, 1081–1083, Fig. 2.

37 CSENGERI 2001, 74; 2011, 77–78; HORVÁTH 2002, 16; JAKUCS – VOICSEK 2017, 148; PALUCH 2011, 48–49.

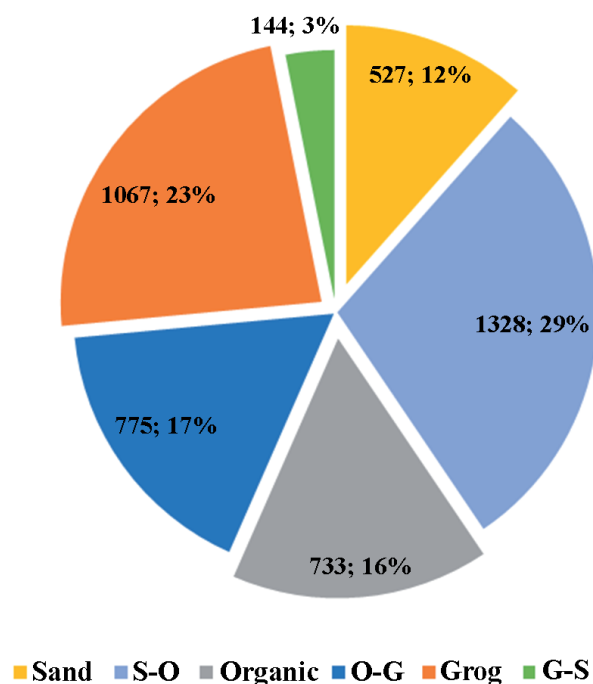


Fig. 5. Percentage of characteristic ceramic tempering agents.

organic (chaff), inorganic (grog) and sand. The clays used for pottery manufacture can contain sand in different proportions, hence this temper was not necessarily an added one.³⁸ Nevertheless, the use of clay with high silica content also could have been the potter's deliberate choice.³⁹ Sherds with only one type of tempering agent accounted for 51% (Fig. 5). Remarkably, chaff-tempered wares dominated the assemblage (62%),⁴⁰ while the combination of chaff and grog was 17%. The joint use of sand and grog as tempering agents (43–44%) is a general trait of Szakálhát assemblages.⁴¹ The early appearance of grog as a tempering agent is an established chronological fact, although its functional or symbolic significance is the subject of an ongoing debate.⁴²

We could not demonstrate a correlation between specific tempering agents and vessel types. According to the current record, there is no evidence for a specific composition in the case of particular vessel types during the Neolithic of the Carpathian Basin.⁴³ However, the Tiszaug record reveals a definite tendency in the case of vessels with thicker walls, namely a gradual shift in the use of tempering agents from pure sand to chaff and finally to grog (Fig. 6), indicating the dependency of vessel size categories on the available raw material.

Reconstruction of vessel forms

Form is one of the main characteristics of pottery. The range of vessel forms of the Tiszaug ceramic inventory can be reconstructed only partially due to the fragmented condition of the assemblage.

38 SZAKMÁNY 2001, 107.

39 READ 2009, 49.

40 For the Neolithic traditions of chaff tempering, see KREITER et al. 2011, 314–316.

41 HEGEDŰS 1985, 35; HORVÁTH 1995, 10.

42 KREITER 2007, 151–156, 161.

43 KREITER et al. 2011, 315.

We created a coding system for sherds based on the following vessel parts: rim, rim-shoulder, belly, base and pedestal (Fig. 7).⁴⁴ Vessel shapes were determined according to geometric forms.⁴⁵ 206 sherds represented the greater part or the entire vessel profile. Interestingly enough, we could only reconstruct six complete vessel profiles from the huge quantity of sherds. The distribution of form categories is presented in Fig. 8. Rims are much more common than bases. Vessels with cylindrical upper parts (R3) are the most frequent. Among open vessels, flat bowls (R5) occur less frequently than others. Among the body fragments, strongly curved sherds are rare, meaning that individual sherds represent only small portions of the vessels and that flattened globular and biconical types are underrepresented in the assemblage. Only three exemplars of the latter are attested. The modest presence of pedestals is also striking: the twelve sherds assigned to this category are far below the number usually encountered on ALP sites.⁴⁶ This vessel base type is not characteristic of Szakálhát assemblages. At the same time, necked vessels are present in greater number, mostly varieties with sloping shoulders or slightly raised shoulders. The size of cylindrical necks suggests moderately high-necked types. The proportion of the main vessel forms types are as follows: closed vessels (R1-2-3): 63%, necked vessels: 13%, open vessels (R4-5): 23%, pedestalled vessels: less than 1%.

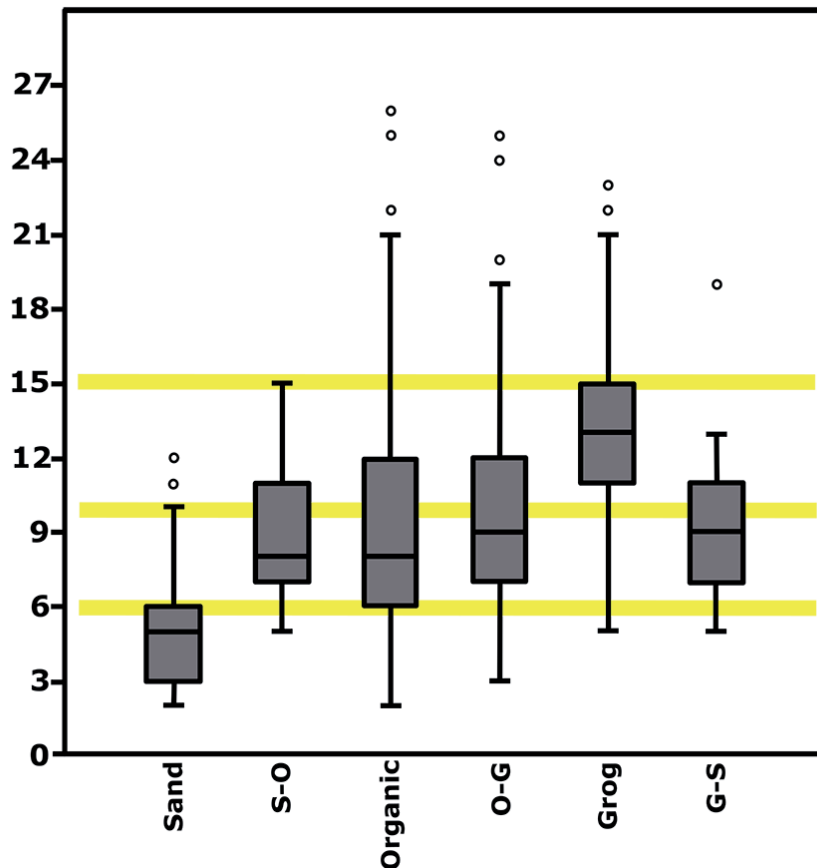


Fig. 6. Relationship between size and techniques of pottery manufacture on a boxplot diagram. Tempering agents are listed on the x axis, the wall thickness in mm is shown on the y axis. Boundaries of the main size classes are marked with yellow lines.

44 KERIG – SHENNAN 2012, 108–109, Abb. 1; ORTON et al. 1995, 153–154, Fig. 12.1.

45 RICE 1987, 219–221, Fig. 7.6; SHEPARD 1995, 226–227, Figs 20–21.

46 KALICZ – MAKKAY 1977, 88.

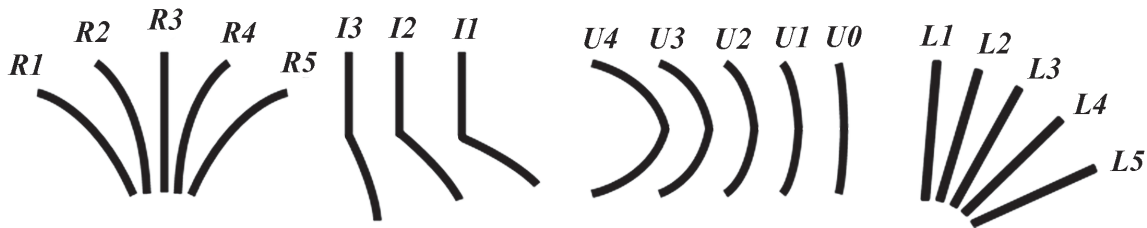


Fig. 7. Recorded form categories according to different sections of the vessels: R – rim, I – inflection point, U – upper body, L – lower body.

We made every effort to assign the sherds to basic vessel types during data recording, using the main categories of mugs, cups, bowls, pots, jugs and storage jars.⁴⁷ The classification was based on the rim form and other attributes of the sherds such as fabric, surface treatment, decoration, formal characteristics, etc. We recorded 6254 items, of which over 1500 sherds were assigned to different transitional categories (cup-mug; Fig. 9). Among the closed vessel types, storage jars could be easily identified by their size and coarseness (15%). Pots represented a larger and more heterogeneous group than storage jars; 2390 sherds from medium or poor quality closed vessels were assigned to this category. There was a considerable overlap between the forms of pots and cups, and they could be distinguished based on their sizes and quality. 531 of the 1932 recorded cup sherds were classified both as cups and pots, attesting to

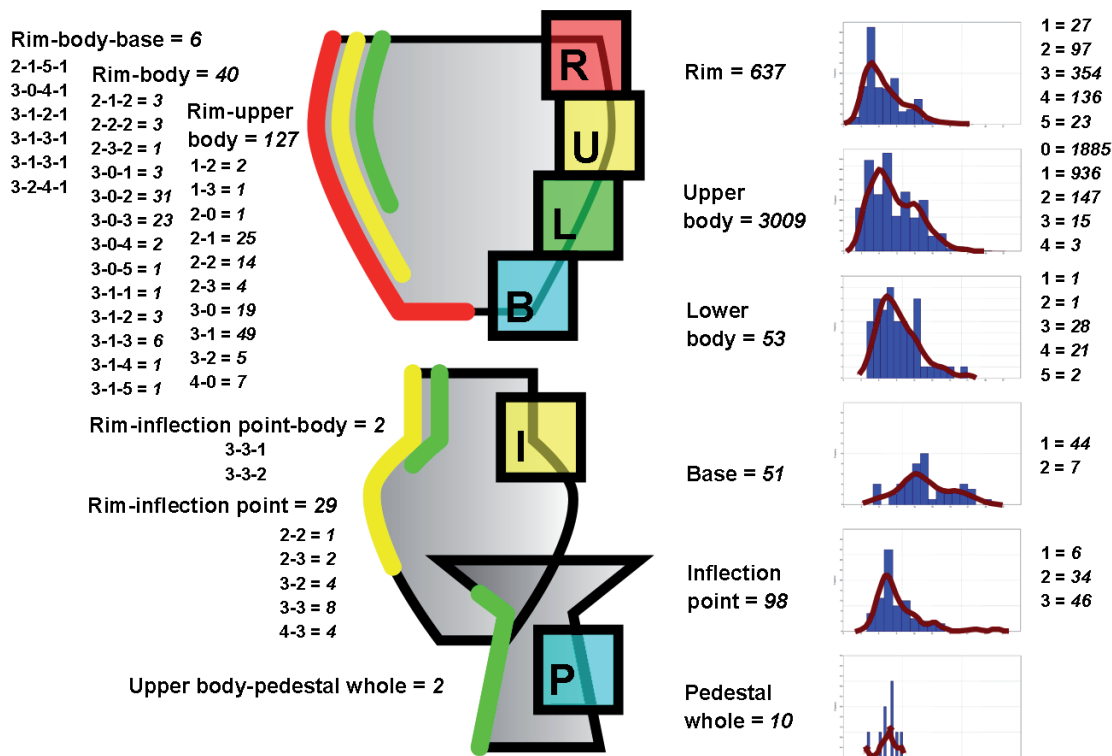


Fig. 8. Form data of the Tiszaug ceramic inventory. Centre: a graphic representation of vessel sections which served as variables for data recording. Left: form data of the identified vessel types. For the explanation of the codes (inverse font), See Fig. 7. Right: distribution of formal characteristics in the fragmented assemblage. Blue histograms represent the wall thickness data of the respective vessel parts.

47 MARTON 2013, Fig. 4; ORTON et al. 1995, 80; SEBŐK 2007; SHEPARD 1995, Fig. 21; STROBEL 1997.

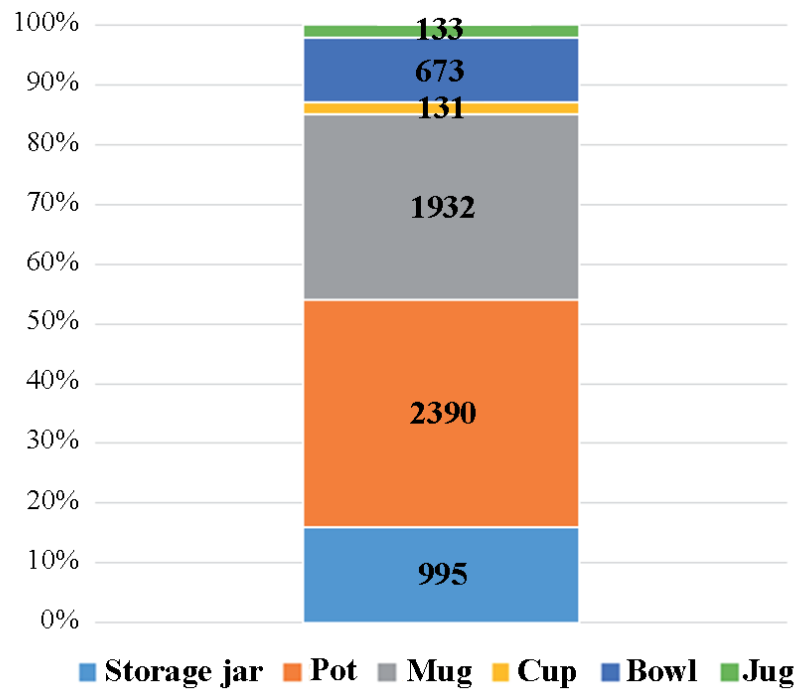


Fig. 9. Distribution of vessel types in the ceramic inventory.

the similarity of these two vessel types and the difficulty of their identification. Open vessels were represented by the smaller cups (131 sherds) and by the larger, more open bowls (673 sherds). Jugs formed a characteristic, distinct group (133 sherds).

A comparison of the two classifications revealed certain correlations between the two classes: closed forms with pot and cup types, necked forms with storage jars and jugs, open forms with cups and bowls. Nevertheless, differences were also detected: 10% in the closed vessel category, 44% in the open vessel category. These results would imply that closed forms can be identified with a higher degree of accuracy from their rim sherds than the more diverse open group.

Surface treatment as technology and as decoration

The surface treatment of the vessel after it has been built can be performed with various techniques, which sometimes served diverse purposes. These techniques are in part linked to the vessel building process, in part to functional considerations, and in part to decorative purposes. The Tiszaug assemblage attests to three main varieties: smoothing (2000 pieces), burnishing (133 pieces) and coarsening (677 pieces). We recorded this variable on both the inner and the outer surfaces of sherds. Burnishing occurred almost equally on both surfaces, smoothing was applied more on the inner surfaces, while coarsening was definitely restricted to the outer surfaces of the sherds.

Burnishing extended to the whole surface of the pots. Sherds with incised and painted band motifs had a burnished background to the decoration (Fig. 20.8). Burnished motifs created with this technique (impressed motifs or stroke burnishing),⁴⁸ one of the period's distinctive decorative types, were lacking.

48 For the technology, see MAKKAY 1978, 23–24.

The most typical coarsening procedure applied to vessel surfaces in this assemblage is the so-called *Schlickwurf*, a decorative technique that can be derived from the Early Neolithic and southern impacts of Balkanic origin from the Starčevo culture.⁴⁹ One characteristic variant is *Schlickwurf* arranged into patterns, which was noted on twenty sherds from Tiszaug.⁵⁰ Another variant of *Schlickwurf* involves applying a layer of clay heavily tempered with chaff (Fig. 20.1) evenly over the vessel surface after building, sometimes after firing. 117 sherds were treated in this way at Tiszaug, and other Middle Neolithic assemblages too contain similar fragments.⁵¹ We regard this *Schlickwurf* variant, which often survives in patches on vessel surfaces, a technical-functional element intended to protect the vessel surfaces coming into direct contact with fire. Although traces of secondary burning could rarely be detected on the coarse pottery owing to its yellowish-reddish colour, the fragmentation and peeling off of these layers support our interpretation.

The third type of coarsening is similar to scoring.⁵² According to Nándor Kalicz and Judit Koós, this surface treatment is intended to enhance adhesion to the vessel surface; however, ceramic technological observations suggest that it might be part of the process of building the vessel body. With the so-called scraping technique, the potter peels layers of thin clay off the vessel's inner and outer surface with a sharp tool, usually with a shell, reducing the wall thickness. The traces of scraping are sometimes obliterated, but sometimes not. The traces on ethnographic vessels made using a similar technique match the ones on the Tiszaug vessels (32 sherds).⁵³

Elements of the ceramic inventory

One special field of ceramic studies is functional analysis,⁵⁴ which involves the examination of the entire ceramic inventory and the identification of intrinsic relationships between its elements.⁵⁵ Several proposals have been made for distinguishing functional groups in assemblages.⁵⁶ Prudence M. Rice elaborated a multi-level classification, in which the basic categories of storage, processing and transfer were subdivided along further variables: duration of use, use in fire, handling and storage of dry/liquid as well as cold/warm substances.⁵⁷ Joachim Pechtl's system for LBK vessel inventories distinguishes vessels for serving and consumption.⁵⁸ The latter are smaller, made for one person, and their decoration refers to the owner rather than to the community. This category can prove tricky in cases when groups with different cultural backgrounds were living together.⁵⁹

The Tiszaug-Railway-Station ceramic inventory is here presented according to the above-mentioned vessel types (Fig. 9). Sherds of *storage jars* that abound in the assemblage can be easily identified, but owing to the degree of fragmentation, few formal variants could be

49 KALICZ – MAKAY 1972, 94–95.

50 HORVÁTH 1994, 101.

51 Boldogkőváralja–Tekerespatak (KALICZ – MAKAY 1977, Taf. 99. 39), Tiszavasvári–Paptelehát (KALICZ – MAKAY 1977, Taf. 81. 4–5).

52 KALICZ – KOÓS 2014, 54–55.

53 RICE 1987, 137.

54 ORTON et al 1995, 20–21.

55 RICE 1987, 210–211.

56 CARR – NEITZEL 1995, 6; PAVLŮ 2013, 33, Fig. 2; PECHTL 2015.

57 RICE 1987, 208–210, Fig. 7.1.

58 PECHTL 2015, 564–565, Fig. 29.4.

59 CARR – NEITZEL 1995, 11, Fig. 1.1.

determined. Most of the sherds represent necked storage jars (Strobel's Type a6g).⁶⁰ Based on the neck sizes (Fig. 26.3,9–10), we may assume the presence of a variant with more sloping shoulders (Strobel's Type a6c). A considerable portion of the sherds can be assigned to coarse ware tempered with chaff and, to a larger extent, with grog. Over one-half have an eroded surface and most are coarsened. Among the latter, 89 pieces are covered with *Schlickwurf*, and only one sherd is burnished. One better-quality sherd is a neck fragment decorated with incised parallel lines set in divided panels (Fig. 28.6). The decoration of storage jars is visibly more simple than customary and definitely archaic in nature in a typo-chronological sense (Fig. 20.3; Fig. 29.5). This formal group contains some special vessels of the ceramic inventory, namely the face pots (Fig. 17.1; Fig. 18.2; Fig. 26.1–7,9–10). The metric data of the group are as follows: rim diameter (n=10): 12–38 cm, 25 cm average; base diameter (n=57): 9–34 cm, 20 cm average; average wall thickness: 1.4 cm. The unusually large bases were probably parts of flat bowls and not of storage jars.

Pots constitute a group with greater formal variability, ranging from vessels with strongly indrawn to slightly outturned rims. Despite their huge quantity, only two profiles could be reconstructed, both representing Strobel's Type a5a1: a slightly outturned rim, a curved profile and a tall, conical body (Fig. 27.1,3). Several fragments can be assigned to this type (Fig. 23.5,7, 9; Fig. 24.14). Conical pots with slightly indrawn rim and curved profiles are represented by a single exemplar (Strobel's Type a5a2; Fig. 25.1). Another vessel is a more graceful, decorated variant of this type (Fig. 19.1), illustrating the divide between formal and functional groupings. A globular pot with indrawn rim (Strobel's Type a5c) is coarsened (Fig. 20.1), while a similar but smaller vessel has knobs set on its belly (Fig. 20.2). A smaller-sized variant with less thick walls was also recovered (Fig. 23.4). This type is definitely the most diverse and frequent in the ceramic inventory (Fig. 25.3–5,8). Fragments of barrel-shaped pots represent Strobel's Type a5g (Fig. 23.1–2; Fig. 25.2,7). These pots are usually plain or have but applied decorations: plain knobs (Fig. 20.2; Fig. 25.7), flat lugs (Fig. 23.1,3), Szilmeg-type knobs (Fig. 23.2,6–7,9) and fingertip-impressed ribs (Fig. 23.5), the latter sometimes arranged into decorative patterns (Fig. 23.9). Thirteen pot fragments bear fingertip impressions (Fig. 25.9; Fig. 33.5). The metric data of the group are as follows: rim diameter (n=194): 7–45 cm, 17 cm average; base diameter (n=180): 4–30 cm, 11 cm average; average wall thickness: 1.2 cm. The unusually large bases (over 24 cm according to the box-plot analysis) probably come from flat bowls or storage jars.

Cups (953 sherds) have a strong formal connection with pots. The reconstructed forms represent Strobel's Type a5a1. The majority of the fragments are undecorated; a few have small knobs on their belly (Fig. 21.9; Fig. 24.6–8). Rim diameter (n=128): 4–22 cm, 11 cm average; base diameter (n=31): 2–8 cm, 4 cm average; average wall thickness: 0.4 cm.

Eight pieces represent *mugs*. These are fragments of vessels with cylindrical upper part and slightly everted rim (Fig. 24.1,5,11). Rim diameter (n=6): 4–15 cm, 8 cm average; base fragments were not identified, hence several cup bases could actually have been mug bases. Average wall thickness: 0.6 cm.

60 For the sake of simplicity and to contribute to the consistency of future typological studies, we employed the formal and ornamental categories created by Michael Strobel for the analysis of the entire ALP territory (STROBEL 1997).

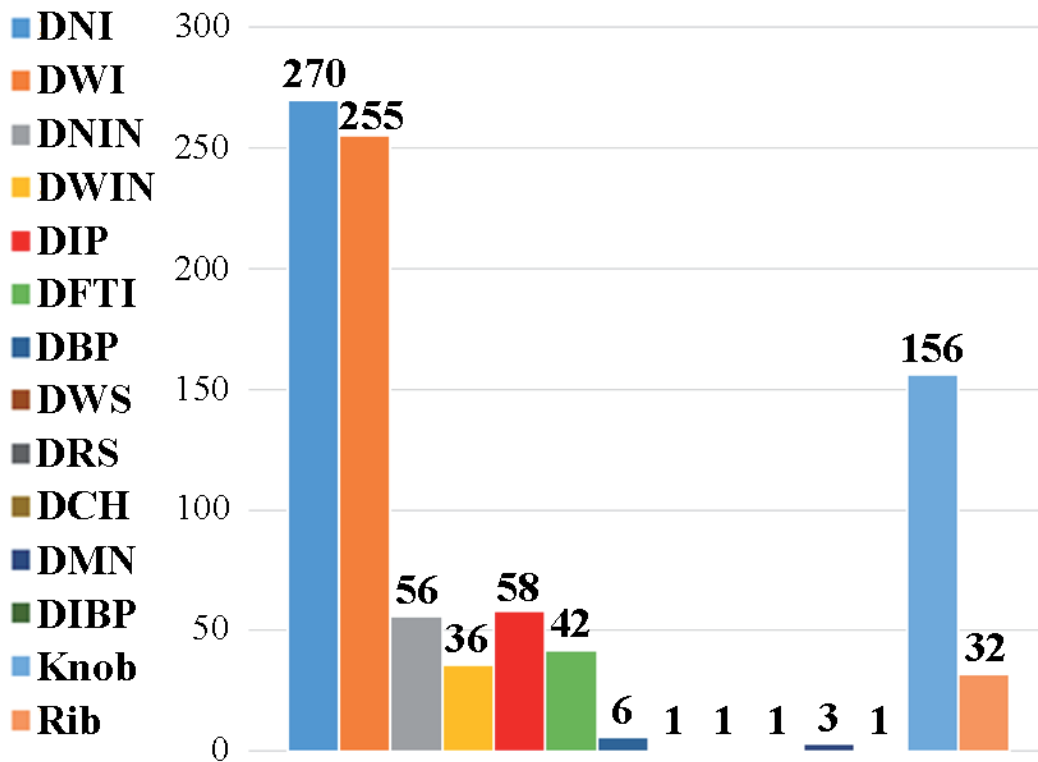


Fig. 10. Distribution of decoration techniques in the ceramic inventory. For the explanation of the letter codes, see Fig. 11.

Bowls constitute an extremely varied vessel group both in terms of form and quality, ranging from coarse, thick-walled sherds to thin-walled fine ware. The finer varieties are primarily slightly curved conical bowls (Strobel's Types a1a and a2a; Fig. 22.4,6) or hemispherical ones (Strobel's Type a4b; Fig. 22.8) with varying depths. An indrawn rim was identified in one case only (Strobel's Type a2c; Fig. 28.1). The coarser wares include both large conical types (Strobel's Type a1a; Fig. 22.1–3) and flat varieties (Strobel's Types a1c, a3a; Fig. 21.7; Fig. 22.5,7). Bowl decoration is quite varied regarding its size and execution. The larger coarse vessels often bear large, usually divided knobs (Fig. 22.1) and their rims too have finger-impressions (Fig. 22.3). Fine wares, especially the deeper varieties, are frequently decorated with incised designs (Fig. 22.8; Fig. 28.7). Rim diameter (n=22): 9–35 cm, 20 cm average; base diameter (n=36): 5–15 cm, 8 cm average; wall thickness: 0.4–1.8 cm, 0.8 cm average.

90 sherds could be securely identified as *jugs*: these are all neck fragments with a characteristic form. Most of these represent the plain variant with cylindrical upper part and sloping shoulders (Fig. 34.1,3–4); only two specimens have applied knobs. Vertical handles as well as elbow handles (the latter attested on 34 sherds) represent one distinctive element of the type (Fig. 34.1–4). Rim diameter (n=10): 7–13 cm, 10 cm average; base fragments are not known; average wall thickness: 0.7 cm.

Most studies on the Szakálhát group were first and foremost qualitative analyses, focusing on the identification of vessel forms and the determination of the sites' cultural connections in space and time based on analogies.⁶¹ However, little attention has been accorded to the group's

61 HEGEDŰS 1985, 37–39; HORVÁTH 1995, 11–13; KALICZ – MAKKAY 1977, 88–89; SZÉNÁSZKY 1988, 7–11.

<i>Ceramic types</i>		DCH	Chanelling
Cup; Bowl; Mug; Pot		DIBP	Incision with black painting
Stor	Storage jar	Knob	
<i>Formal elements</i>		KL	Long knob
Neck		KR	Rounded knob
Ped	Pedestal	KSil	Szilmeg-type knob
R1-R5	see Fig. 7	<i>Decoration motives</i>	
<i>Surface techniques</i>		RFI	Rim decorated with finger impressions
Err	Eroded surface	RPerf	Perforated rim
Pol	Polished surface	VBS	Vertical division with simple bands
Burn	Burnished surface	VBC	Vertical division with composite bands
Rough	Roughed surface	PCS	Interlocking S
<i>Decoration techniques</i>		PZZ	Zig-zag
DNI	Narrow incision	PSP	Spiral
DWI	Wide incision	PF	Decoration panels
DNIN	Narrow incision unsmoothed	PSL	Short lines
DWIN	Wide incision unsmoothed	PDL	Dashed lines
DIP	Incision with red painting	PCH	Cross-hatching
DFTI	Finger-tip impression	PGir	Garland
DBP	Black painting	PRS	Running spiral
DWS	White slip	PRim	Decoration on rim
DRS	Red slip		

Fig. 11. List of variables used in the correspondence analyses. Codes used in Figs 10, 12–13.

ceramic material as coherent vessel sets used by their past owners. Our analysis, based on the recorded attributes as part of the site assessment, enabled the identification of functional and formal types, even if with certain constraints, offering another perspective on the vessel sets used by the Tiszaug community,⁶² whose main characteristics can be described through the distribution of functional groups (Fig. 9). The overwhelming majority, almost one-third of the vessels, are pots used for food preparation, followed by large storage jars accounting for about a quarter of the ceramic inventory. The joint proportion of serving and consumption vessels also comes to about one-third, among which cups are the most numerous, followed by bowls, jugs and mugs, respectively. Compared to the Middle Neolithic ceramic inventories from the northern Hungarian Plain that were analysed using the same methods,⁶³ the Tiszaug vessels resemble the vessel sets dated to the second half and the end of the Middle Neolithic. Those inventories also abound in serving and consumption vessels that, judging from their lavish decoration, could simultaneously have functioned as mediums of social display.

Decorative techniques

The Middle Neolithic saw a proliferation of decorative techniques that outline interesting spatial and temporal patterns. Hence, the different proportions of decorative techniques in one ceramic inventory provide important clues about their users' cultural connections in space

62 FÜZESI 2016, 380–381, Figs 10, 12; PECHTL 2015, 563–565, Fig. 29.4.

63 FÜZESI 2016.

and time.⁶⁴ At Tiszaug, we could identify the use of one particular segment of the range of Middle Neolithic decorative techniques (*Fig. 10*).

The incision technique dominated the assemblage, which has several varieties both in the ALP and LBK cultural spheres. The attributes of incised lines are determined by their technique: studies in this field usually work with incision width, the shape of the cross-section and edge smoothness as variables for classification.⁶⁵ We distinguished four varieties based on width and edge smoothness in the Tiszaug material. None of the incised lines were wider than 0.5 cm (*Fig. 36.4*); we identified a group of delicate thin lines (0.5 mm), a group of medium wide incised lines, and their smoothed (*Fig. 38.1*) and unsmoothed (*Fig. 38.2*) variants. Edge smoothness turned out to be an important attribute in ALP contexts. The distribution of the different incised line types was uneven: 270 cases of delicate thin lines (DNI), 255 cases of medium wide lines (DWI), 56 cases of unsmoothed thin lines (DNIN) and 36 cases of unsmoothed medium lines (DWIN). The smoothing of incised lines, especially of medium wide lines, is a technique distinctive to the classical ALP, and thus its preponderance attests to the strong ties between the Tiszaug inventory and the ALP (*Fig. 20.5,9; Fig. 21.4; Fig. 29.6,9,10; Fig. 32.1–2*). Unsmoothed lines were usually applied on coarse wares, while their presence on fine wares is a typical trait of Szakálhát ceramics (*Fig. 20.4,6–7; Fig. 26.1–2,4,9; Fig. 31.2–12*).⁶⁶

The so-called Notenkopf decoration of the Transdanubia Linear Pottery (TLP) appears on three sherds. The motif was created from a bundle of three finely incised lines interrupted by a larger incisions with pointed ends (*Fig. 36.1–3*). Although we did not conduct petrographic examinations, these sherds also differ regarding their fabric and colour from the rest of the ceramic inventory, hence they can be regarded as imports.⁶⁷

Various painted designs appear on fine wares, usually combined with incisions. In most cases, red crusted painting was added to closed incised motifs (*Fig. 21.3,6,10; Fig. 28.8; Fig. 30.12; Fig. 38.3*). Red and yellow crusted painting occurred jointly on one vessel (*Fig. 19.1*). The incised lines are generally unsmoothed because they only served for framing for the design. The vivid red/yellow painted motifs diverted attention from the smaller errors (*Fig. 20.4,8; Fig. 21.10*). One particular element of the decoration was the roughening of the surface between the incised lines in order to ensure the adhesion of the crusted paint applied after firing (*Fig. 38.4–5*). This technique is especially spectacular in cases where the background of the motif was burnished, while the bands between the incisions were roughened for adhesion (*Fig. 20.4,8*).⁶⁸ Black painting occurred but once, in combination with smoothed incised lines and served to highlight the incised motif (*Fig. 29.8*).⁶⁹ Painting without other decoration was attested on a handful of sherds. Six fragments were decorated with black-painted wide bands; however, the design itself could not be reconstructed.⁷⁰ Red and white slip covering the entire surface occurred on one sherd each.

64 FÜZESI 2016, 372, *Fig. 2*; KALICZ – MAKKAY 1977, 33–37, *Taf. 169–173, Taf. 179–180, Taf. 185, Taf. 187–189; VIZDAL 1997, Tab. IV. 4.*

65 ŠIŠKA 1989, 51–52, *Tab. 3*; STROBEL 1997, 41, VIZDAL et al. 2015, 89.

66 KALICZ – MAKKAY 1977, 89; STROBEL 1997, 79.

67 VIRÁG 2009, 13, 24, *Fig. 2*.

68 HORVÁTH 1995, 14; KALICZ – MAKKAY 1977, 91; SZÉNÁSZKY 1988, 11.

69 CSENGERI 2015, 132; KALICZ – MAKKAY 1977, 36.

70 CSENGERI 2015, 131; KALICZ – MAKKAY 1977, 36; STROBEL 1997, 53–55.

Among impression techniques, finger impression was encountered both on coarse and fine wares (42 sherds). It occurs mostly on rims (*Fig. 22.3; Fig. 23.5; Fig. 37.6*), but also under the rims arranged in a row (*Fig. 25.9; Fig. 33.5; Fig. 37.5*) and on the shoulders, forming arcs (*Fig. 33.3*). Two sherds were covered with finger impressions over their entire surface (*Fig. 21.8; Fig. 33.1*).

Applied decoration comes in many forms at Tiszaug, although in modest numbers; we identified 36 knob types on 156 fragments, which were assigned to three main groups: round (KR), elongated (KL), and knobs that were not attached to the vessels, but pushed out from the vessel interior, representing the so-called Szilmeg knobs (KSil).⁷¹ We did not sub-divide them further, for example by size or other details (flat, pointed, divided, etc). Small flattened round knobs are frequently combined with incised decoration (*Fig. 20.4,8; Fig. 21.10; Fig. 28.11; Fig. 31.1,3*). The pointed variety occurs on its own, usually set on the carination of small and medium-sized vessels (*Fig. 20.2; Fig. 21.9; Fig. 22.2,13; Fig. 23.3*). One fragment has knobs of this type under the rim, arranged in two rows (*Fig. 37.9*). Elongated knobs appear on storage jars as large lugs (*Fig. 22.1; Fig. 23.3*) that are frequently divided with finger impressions (*Fig. 33.6,9*). Szilmeg knobs mostly occur on pots: their sizes differ, depending on the size of the vessel. Smaller knobs are undecorated, while larger ones usually have a circular impressions in their centre (*Fig. 23.6–9; Fig. 33.4,8*).

There are 32 fingertip-impressed applied ribs in the ceramic inventory. In one case, the decoration was made by double finger-impression (*Fig. 20.3*). In the majority of cases, they are actually cordons encircling the vessel shoulders. Seven sherds are decorated with short ribs; on one sherd, the rib has an arched form (*Fig. 33.2*), three ribs have a 90° break (*Fig. 23.5,9*), while on three vessels, the ribs are arranged into vertical bundles.

Design structures

Design structure is the arrangements of the overall vessel decoration, which conforms both to the potter's intentions and to the vessel form and its morphological traits.⁷² Design structures are particular reflections of human communities and their physical and cultural milieu, as has been convincingly demonstrated by studies in cultural anthropology and archaeology. Dean Arnold has shown in his studies on Peruvian pottery that design structure is more closely associated with social structure on artefacts with a communal function (e.g. water supply – water jugs) because ceramic decoration and communal spaces are both governed by the same principles.⁷³ Studies on LBK pottery in the Rhineland have confirmed that primary and secondary design elements had different functions, with the former reflecting local traditions and the latter (the peripheral elements) expressing personal/group identity, the implication being that complex design structures were able to express complex social patterns and interactions.⁷⁴

Undivided, horizontally or vertically divided, and panelled arrangements are equally attested in the ALP cultural sphere.⁷⁵ In the case of an undivided arrangement, decorative bands and their elements encircle the available vessel surface without frames.⁷⁶ The horizontal and ver-

71 KALICZ – MAKKAY 1977, 51; KOREK 1960, 45.

72 SHEPARD 1995, 261–262.

73 ARNOLD 2010, 71–72, Tab. 5.8.

74 HOYER 2005, Abb. 2; PECHTL 2015, 567.

75 FÜZESI 2016, 379, Fig. 8.

76 CSALOG 1941, 5.

tical division of the surface was achieved by simple bundles of lines or fields that can themselves be considered decorative motifs.⁷⁷ The multiple division of the surface primarily occurs on vessels with complex forms (types with necks or pedestals). Dividing the surface into separate fields allows the application of complex motifs. If the dividing bands are also treated as separate fields, a panelled design structure is formed. Certain chronological and regional patterns can be discerned in the use of these different design structures.⁷⁸

Undivided design structures are remarkably popular in the Tiszaug material: the 400 registered cases represent almost one-half of the decorated sherds (excluding applied decoration), to which we assigned fragments lacking decorative bands under the rim, but displaying certain motif types (spirals, running spirals, garlands). A decorative band under the rim appears on 41 fragments or 35% of all decorated rims (118 pieces). We identified two types of dividing bands, a reliable indication of vertically divided design structures. Simple dividing bands (9 fragments) consist of identical or slightly different continuous lines, in some cases complemented with short lines or stabs (*Fig. 32.7,10–11*). Compound dividing zones (8 fragments) are composed of combinations of several motifs and their derivatives. These patterns can occur as separate filling motifs as well. The ceramic inventory contains patterns of concentric lozenges (*Fig. 35.3*), hatched triangles fitted to each other (*Fig. 35.6*) and angular S motifs (*Fig. 35.5*).

Panelled design structures are exceedingly rare at Tiszaug. The most sophisticated example is an incised and red-and-yellow painted pot. Its upper two-thirds are covered with a vertically divided panelled structure, filled with meander patterns (angular S motifs), its lower third is decorated with interlocking recumbent S motifs (*Fig. 19.1*).⁷⁹ Nine other fragments bear partially identifiable panelled design structures (*Fig. 20.6; Fig. 35.1,3–7,9–10*).

Style

Style is a mode of expression, a usually purposeful visually structured representation bounded in space and time. The creation of an artefact is a sequential act of decision-making:⁸⁰ these decisions enable the creators to convey their message, which is embodied by the object they created.⁸¹ In archaeology, style is manifested in the recurrent and regular combinations of physical traits in archaeological assemblages. In the case of ceramic vessels, style is embodied by correlations of form, decorative technique, design, and design structure.⁸²

Style analysis can be of immense aid in the reconstruction of social organisation and interactions.⁸³ Design structure analysis involves the study of three components: the spatial organisation of vessel surfaces (design spaces), the determination of decorative elements and formations (design elements), and the appearance of unique elements in formations.⁸⁴ Style analysis enables an in-depth examination of meaningful relations within the extensive ALP

77 KALICZ – MAKKAY 1977, 30–34.

78 KALICZ – MAKKAY 1977, 93–96; STROBEL 1997, 82–84.

79 Csanyitelek–Újhalastó (HEGEDŰS 1981, Fig. 4), Vinča (KALICZ – MAKKAY 1977, Taf. 188, 9).

80 READ 2009, 49, Fig. 2.1.

81 CONKEY – HASTORF 1993; DARVILL 2008, 84; HEITZ 2017, 258–262.

82 SEBŐK 2009.

83 PARKINSON 2006, 36; WHITTLE 2009, 104.

84 RICE 1987, 264–266.

complex.⁸⁵ In order to evaluate these relations, we classified the ceramic traits according to their regional and temporal appearance and use: newly introduced (innovative) and earlier (archaic) traits, culturally local and intrusive traits, regionally delimited and widely distributed traits. Comparable case studies using a similar approach have been undertaken for the Central European LBK.⁸⁶

Despite the high number of sherds in the pottery assemblage, the number of fragments suitable for stylistic studies was low. Only 20% of the sherds are decorated; we could identify less than 500 design structures and the number of reconstructed designs is also low. We distinguished three styles based on the archaeological literature: late ALP (ALP III), a preponderance of Szakálhát, and Bükk in a handful of cases.

The *late ALP style*⁸⁷ represents the archaic portion of the ceramic inventory, with some traits harking back to the early and classical ALP phases (ALP 1–2). Vessel surfaces covered with finger impressions (*Fig. 21.8; Fig. 33.1*)⁸⁸ and the so-called rain-pattern, a filling pattern of short incised lines, are similarly archaic elements. The latter was only securely identified on four sherds (*Fig. 32.4*).⁸⁹ One characteristic method of pattern building with short incised lines in the Middle Neolithic is the so-called road motif: a dashed line of short incisions set between continuous lines (*Fig. 20.9; Fig. 21.4; Fig. 32.8–11*). Short incised lines appear in a variety of patterns: forming rows (*Fig. 32.6*), bundles of three (*Fig. 21.5*), or irregular compositions (*Fig. 32.3,5*). In most cases, they are incorporated into patterns of continuous incised lines (*Fig. 21.4; Fig. 32.7*). Short lines often appear as stabs of various shapes, a distinctive ceramic trait of the Szarvas-Érpart type appearing in the late ALP phase.⁹⁰ The punctuations arranged in rows or groups between incised lines form bands, an arrangement resembling the bands with punctuated and painted backgrounds of the Szakálhát group. The incision combined with broad black-painted bands and frames of wavy lines are further examples of the classical ALP style. The latter technique and pattern occur on a single sherd (*Fig. 29.8*).⁹¹

The *Szakálhát style* is represented mainly by the combination of incision and crusted painting as well as several characteristic motifs. Among incised motifs, interlocking recumbent S motifs occur on 11 sherds (*Fig. 26.5; Fig. 30.1,7,11*). One variant of this pattern is made by a combination of incisions and red and yellow crusted painting (*Fig. 19.1*). Its angular variant appears on a bowl fragment (*Fig. 28.2*). The running spiral is a characteristic Szakálhát motif, although it is occasionally also attested on late ALP and Bükk vessels.⁹² On Szakálhát vessels, the background to the pattern is red crusted, punctuated or hatched, as shown by

85 CSENGERI 2013.

86 STRIEN 2005.

87 We use the less loaded term “style” instead of the former designations of “culture”, “group” and “period” (FÜZESI 2016, 379–380).

88 At Körös culture (KUTZIÁN 1944, 72; PALUCH 2011, 56) and early ALP sites: Mezökövesd–Mocsolyás (KALICZ – KOÓS 2014, Pl. 52. 1, 3, 9; Pl. 56. 1, 3, 5), Rétközberencs–Paromdomb (KALICZ – MAKKAY 1977, Taf. 13. 4–5, 8).

89 In Körös culture assemblages: Ószentiván, Tápé–Lebő, Csóka (KUTZIÁN 1944, 72). At early ALP sites: Kőtelek–Huszársarok (RACZKY 1988, Fig. 15. 6), Mezökövesd–Mocsolyás (KALICZ – KOÓS 2014, Pl. 52. 4–5, 11), Polgár–Király-érpart (NAGY 1998, Pl. 40. 12), Rétközberencs–Paromdomb (KALICZ – MAKKAY 1977, Taf. 13. 11–12, 16–18), Tiszaszőlős–Aszópart (KOVÁCS 2007, Fig. 10. 8–9, Fig. 11. 4), etc.

90 KALICZ – MAKKAY 1977, 56; GOLDMAN 1983.

91 CSENGERI 2015, 132; KALICZ – MAKKAY 1977, 36.

92 Lichardus’ Style $\alpha 2$ (LICHARDUS 1974, 31, Abb. 2); Strobel’s “schwarz c”, “braun” and “rot” groups (STROBEL 1997, 52–54, 79–80, Abb. 28, 31, 39).

the examples from Tarnabod–Nagykert,⁹³ Kompolt–Kistér⁹⁴ and Mezőkövesd–Nagy-fertő.⁹⁵ At Tiszaug, only the painted variety is attested. One particular pattern (35 fragments; *Fig. 30.4,8–9,12*) is combined with short lines in one case (*Fig. 21.10*). Finger-impressed ribs arranged into various formations are typical elements of coarse ware decorations; formerly, this was considered a distinctive trait of the Szilmeg group (*Fig. 23.9*).⁹⁶

The third stylistic group, represented by a handful of sherds, is made up of *Bükk*, *late Szakálhát* and *early Tisza* elements. Panelled design structures with concentric patterns (*Fig. 35.2–3*), various meanders (*Fig. 35.4,6*), and lozenge filling patterns (*Fig. 20.7; Fig. 35.10*) can be confidently assigned to this group (*Fig. 29; Fig. 34.1,3,5,7,10*).⁹⁷ Patterns composed of bundles of delicate lines combined with stabs point towards the *Bükk* style distributed in the northern part of the Carpathian Basin (*Fig. 35.9*).⁹⁸

The Tiszaug assemblage reflects three ceramic styles. The late ALP elements can be correlated with Strobel's "schwarz c" group, while the *Szakálhát* elements with his "rot" group. On several vessels, combinations of different stylistic elements can be noted. The origins of the rudimentary meander pattern of irregular zigzag lines on a deep bowl from Feature 1 (*Fig. 17.2*) can be traced to the early-classical ALP times.⁹⁹ Michael Strobel assigned this pattern (Strobel c2j3) to the classical ALP stylistic traits ("schwarz a/b" group); however, the decorative technique of broad, unsmoothed, incised lines is quite clearly a *Szakálhát* stylistic element. The pattern on the base of the bowl recurs during the entire span of the Neolithic, but only a few occurrences have been documented within the ALP complex.¹⁰⁰

The pot with red and yellow crusted painting occupies a special place in the assemblage (*Fig. 21.1*) not only because of its unique decoration technique, but also because the design can be fully reconstructed. The vessel's lower third is covered with a pattern of recumbent S motifs, a *Szakálhát* trait, but the overall design structure mirrors the late *Szakálhát*–early Tisza transitional period. The vessel blends the characteristic stylistic traits of the ceramic inventory: archaic, early-classical ALP elements as well as the innovative, early Tisza elements. However, the dominant traits are the late ALP and *Szakálhát* styles.

Statistical analysis of the ceramics

We created a categories system of 12 variables during the assessment of the ceramic material as analytical units in a binary system, which incorporated all the traits we observed macroscopically. These variable groups are types (7 variables), formal characteristics (28 variables), fabric (3 variables), surface treatment (12 variables), decoration techniques (12 variables), patterns (14 variables), applied elements (9 variables) and their metric attributes (4 variables). The list of the variables is presented in *Fig. 11*.

93 KALICZ – MAKAY 1977, Taf. 128. 14.

94 BÁNFFY 1999, Pl. 9. 18.

95 CSENGERI 2010, Fig. 9. 4.

96 KALICZ – MAKAY 1977, 51; KOREK 1960, 45–46.

97 STROBEL 1997, 81, Abb. 39.

98 KALICZ – MAKAY 1977, 48; LICHARDUS 1974, 30.

99 Mezőkövesd–Mocsolyás (KALICZ – KOÓS 2014, Pl. 35. 7); Hortobágy–Faluvégfalom (KALICZ – MAKAY 1977, Taf. 17. 17); Szarvas 102 (MAKAY 1982b, Fig. 3.1–2, 4).

100 FÜZESI 2018, Fig. 3, 8; KALICZ – MAKAY 1977, Taf. 76, 17.

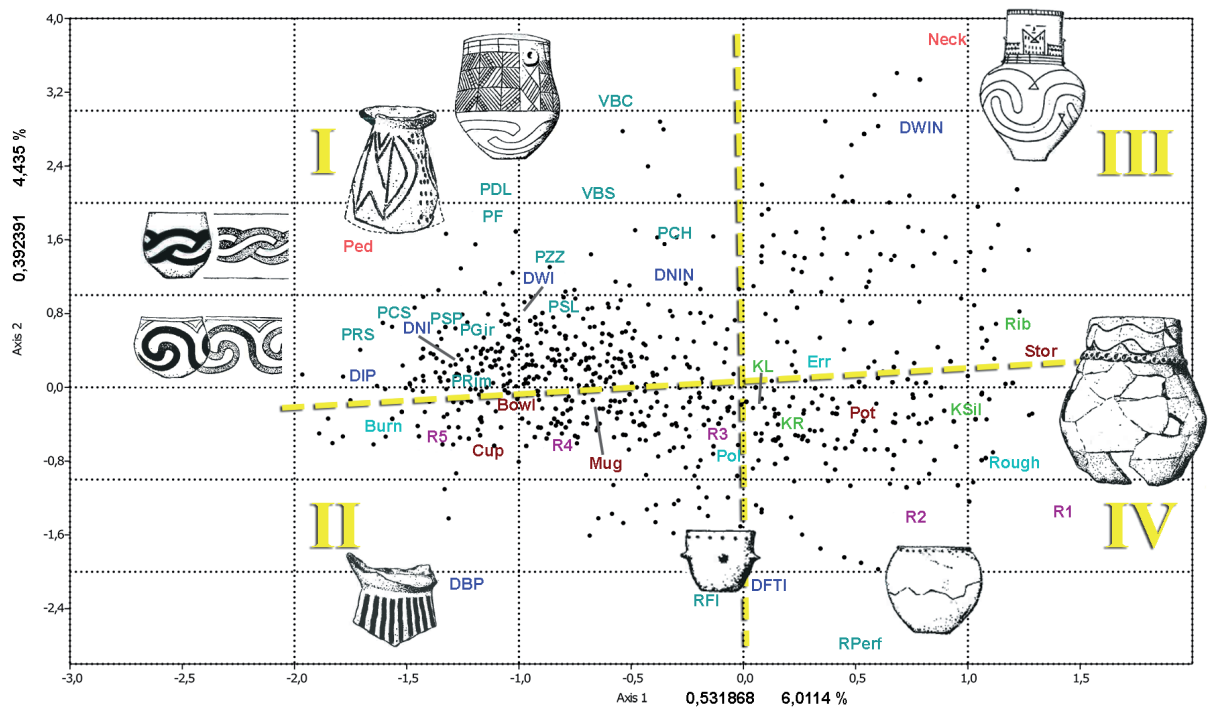


Fig. 12. Second correspondence analysis of the ceramic material. For the variables, see Fig. 11. I – late ALP and Szakálhát fine ware, II – archaic fine ware, III – innovative coarse ware, IV – archaic coarse ware.

Correspondence analysis is one of the most effective methods for the evaluation of archaeological datasets because it can reveal various intrinsic relations between the artefacts of a particular assemblage.¹⁰¹ We present here three statistical analyses of the Tiszaug ceramics. In our assessment of the results, we focused on the clusters of the variables, while constellations of individual cases played a secondary role. In order to ease interpretation, we marked the variables within one given variable-group with the same colour on the plots, while the eigenvalues are indicated along the axes.

In the first statistical study, we analysed 47 of the 89 variables that were selected from each variable groups. We excluded the low-frequency cases only, and thus the results are valid for the entire assemblage. The variables and the cases were aligned along the x axis forming a coherent line, except for one distinct cluster representing elements related to jugs: necks, vertical handles (HV) and elbow handles (HE). It would appear that this type was at variance with the traditional ALP vessel sets, and thus its presence has a special significance. This vessel type appeared in Szakálhát and it also played an important role in Late Neolithic ceramic inventories.¹⁰² The statistical analysis indicated that this vessel type, which later became widespread, was not an organic element of the Tiszaug assemblage.

The second analysis involved 41 variables. We excluded the variables of the distinct cluster described above and tempering variables in order to examine local vessels by their formal and stylistic traits. We divided the plot into four quadrants along two axes according to the distribution of the variables and cases (Fig. 12). Quadrants I–II represent the fine wares, quadrants III–IV the coarse wares. Another organising principle could be discerned that can best be described

101 SIKLÓSI 2013, STROBEL 1997, PAVÚK 2010.

102 HEGEDŰS 1985, 38; HORVÁTH 1995, 13; KALICZ – MAKKAY 1977, 88; SZÉNÁSZKY 1988, 8.

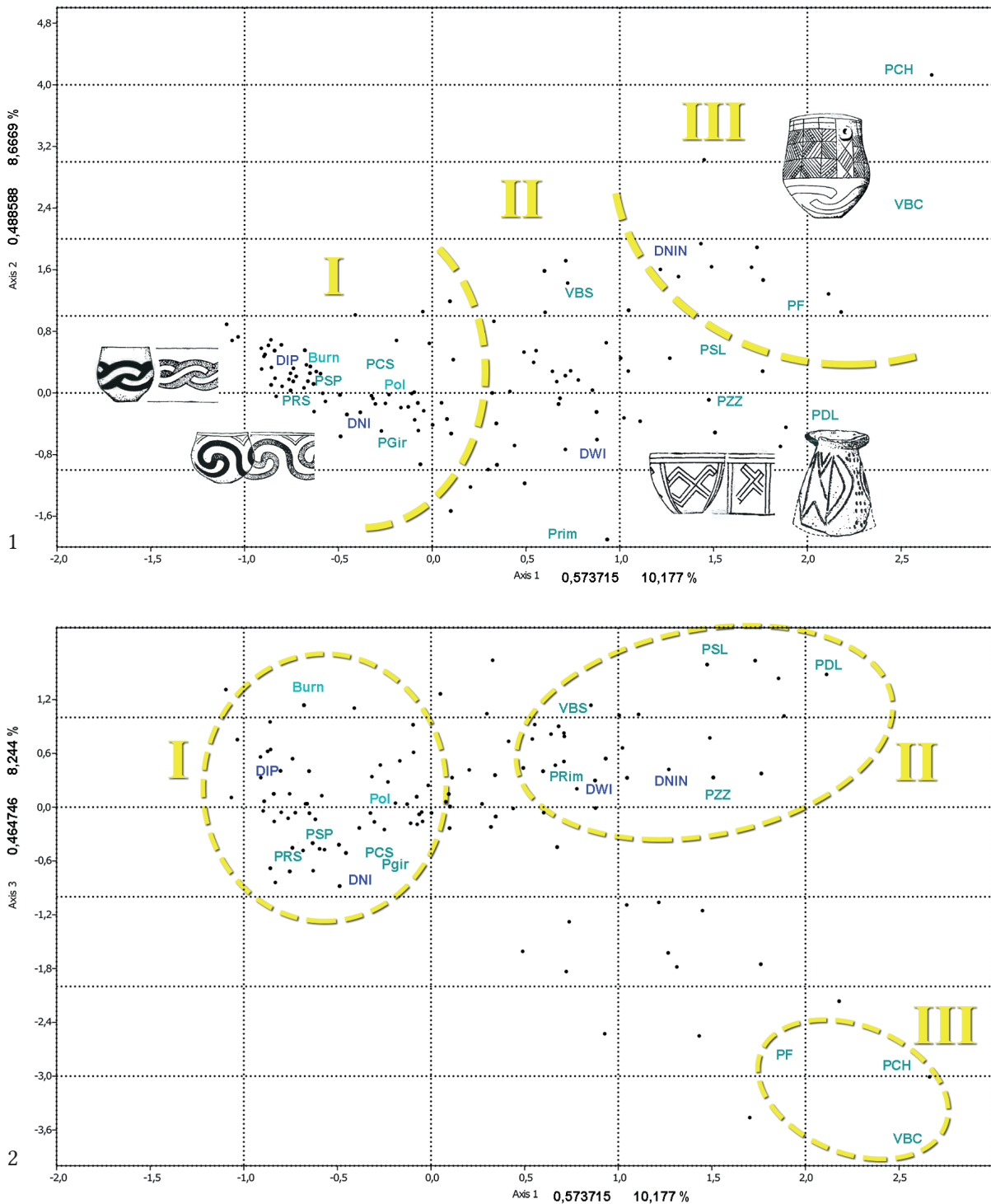


Fig. 13. Third correspondence analysis of the ceramic material. For the variables, see Fig. 11. I – Szakálhát design elements, II – late ALP elements, III – Bükk and early Tisza stylistic elements. 1 – The figure of the first and second axes, 2 – The figure of the first and third axes.

as archaic vs. innovative. Archaic elements are black painting (DBP) among the fine wares, and fingertip impressions (DFTI), rims with fingertip impressions (RFI) and perforated rims (RPerf) among coarse ware, since these traits echo early-classical ALP traditions. Broad, unsmoothed incised decoration (DWIN) and the presence of a neck appear as innovative traits among coarse wares. This technique characterises the coarse ware of Szakálhát sites. The innovative fine ware

quadrant contains the majority of the variables, the late ALP (DWI, PSL, PZZ, PF, PDL, VBS, VBC, PCH) and Szakálhát (DIP, PRS, PCS, PSP, PGir) elements. Thus, innovative elements dominate the fine wares, while coarse wares show a concentration in the archaic quadrant. Studies of other Middle Neolithic ceramic inventories also confirm that innovations – either technical or stylistic – usually appear among fine ware vessels of consumption and social display. At the same time, coarse wares tended to preserve archaic traits for long periods of time.¹⁰³

The third analysis involved 18 variables of decoration, enabling a more detailed examination of style. This plot shows a reverse bell curve with a broad middle section (*Fig. 13.1*). We distinguished three clusters of variables that represent the Szakálhát (I), the late ALP (II), and the Bükk (III) styles. The Szakálhát stylistic traits are incised lines combined with red crusted painting (DIP), running spirals (PRS), spirals (PSP), interlocking recumbent S motifs (PCS) and garlands (PGir). Late ALP traits are simple dividing zones (VBS), decorative zones under the rim (PRim), short lines (PSL), meanders (PZZ), panelled design structures (PF) and road motifs (PDL). Bükk traits are dividing zones with complex motifs (VBC) and grid patterns (PCH). Clusters II and III seem to blend into each other, but the third axis justifies their separation (*Fig. 13.2*). On the second plot, there are obvious cases located between the late ALP (II) and Bükk/Tisza (III) variables. These fragments display both late ALP and Bükk/Tisza traits.

Anthropomorphic representations

Face pots represent a special element of Middle Neolithic ceramic inventories (*Fig. 17.1; Fig. 18.1; Fig. 19.2*), which have always enjoyed immense scholarly attention as shown by the many studies devoted to them,¹⁰⁴ which discussed their typology, their regional-temporal distribution, and a host of other relevant issues. The Tiszaug specimens can be assigned to storage jars with cylindrical neck. Their most distinctive traits are the so-called M motif (*Fig. 17.1; Fig. 19.2; Fig. 26.2*) and the columnar handles set on two sides of the neck (*Fig. 26.7,9*). According to Katalin Sebők and Katalin Kovács's analysis, the fragments represent an earlier face pot type.¹⁰⁵ A unique anthropomorphic representation appears on a necked quadrangular vessel (*Fig. 26.2*) on which only the prominent M motif overshadowing the incised decoration refers to the face. Anthropomorphic representations in similar symbolic "shorthand" occur in other Middle Neolithic contexts as well.¹⁰⁶ One flat artefact fragment, presumably a lid (*Fig. 36.4*), bears incised motifs that can be interpreted as parts of an anthropomorphic representation. The symbolic signs appearing on face pots and other anthropomorphic representations embody relations in a dimension beyond, and differing from, ceramic ornamental styles, and thus their study offers a glimpse into the symbolic universe of past communities.¹⁰⁷

Chipped stone artefacts

Altogether 26 lithic finds were unearthed during the excavation at Tiszaug-Railway-Station. All came from Feature 6. Of these, eight were made on obsidian and one on limnosilicite from the Tokaj Mountains, 14 originated from Transdanubia, from the Bakony Mountains, while

103 FÜZESI 2016, 381–382, Fig. 12.

104 CSENGERI 2011; 2014; GOLDMAN 1978; GOLDMAN – SZÉNÁSZKY 2002; KALICZ – KOÓS 2000; RACZKY 2000; RACZKY – ANDERS 2003; SEBŐK 2017; SEBŐK – KOVÁCS 2009.

105 SEBŐK – KOVÁCS 2009, 82.

106 CSENGERI 2011, Fig. 1, Fig. 3, Fig. 8, 1–4; CSENGERI 2014, Fig. 3. 2.

107 RACZKY – ANDERS 2003.

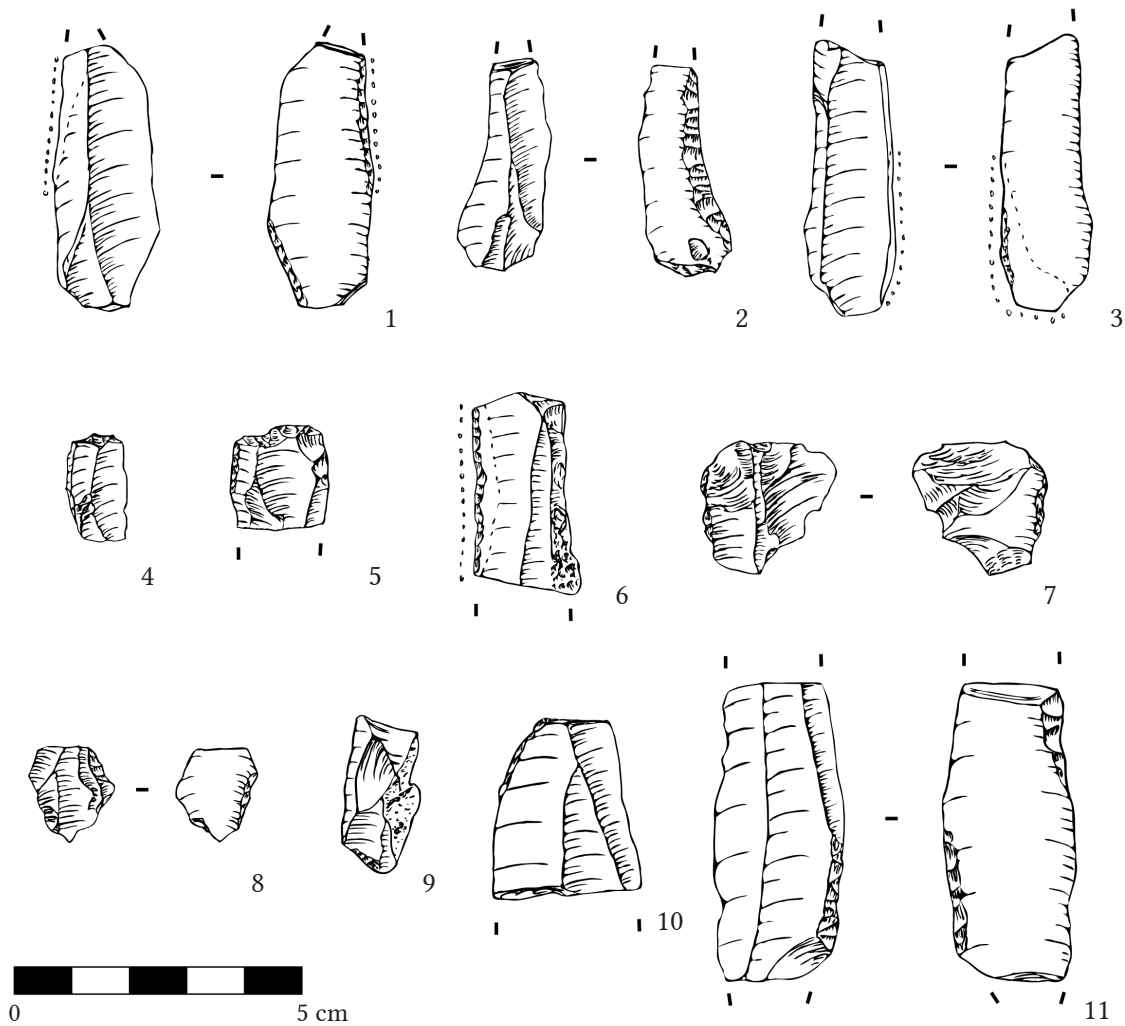


Fig. 14. Retouched tools from Tiszaug-Railway-Station.

three pieces of Felnémet-type opalite came from the Bükk Mountains. Among the obsidian pieces, only the Carpathian 1, Slovakian subtype could be distinguished, a classification confirmed by three cortical pieces (Fig. 39.1–6). The chipped stones made on radiolarite are all liver-brown coloured, which assigns them to the subtype known as the Szentgál type in the literature (Fig. 39.7–9,13–19). Two are cortical and two show traces of heat shock. Three pieces are from a special raw material from the Bükk Mountains known as Felnémet-type opalite (Fig. 39.10–12). The last chipped stone is made on limnosilicite, a raw material widely known from the territory of the Northern Mountain Range, although this piece possibly originates from its Tokaj Mountain section.

The more frequent a raw material, the more varied the main technological categories made from a particular material. Accordingly, the only type that includes cores, flakes, blades and retouched tools is radiolarite: two cores, six flakes, one blade and five tools could be assigned here. Obsidian cores are missing, but two flakes, three blades and three retouched pieces are made of this rock type. All the Felnémet-type opalite artefacts are formal tools, and the only limnosilicite piece is a blade fragment. Both radiolarite cores are fragments: one is a remnant of a formerly orthogonal piece, the other is one-half of a prismatic type. Three flakes of the eight pieces have visible talons, all of them are plain, but they show wide angles of detach-

ment, between 60 and 90 degrees. The assemblage lacks unbroken blades, only proximal (3 pieces) and distal (2 pieces) fragments were attested; moreover, they are evenly distributed among the different raw material types. The narrowest blade fragment is a 13 mm broad radiolarite, the broadest is a 20 mm obsidian piece. Talons were discernible on only three exemplars of two raw materials (obsidian, limnosilicite): two were plain and one was faceted. The detachment angles fall between 80 and 90 degrees, which can indicate punch or pressure techniques. Two of the five unretouched blade fragments showed *languette* breakages, which can be directly associated with a knapping accident during the detachment.

Retouched pieces are present in relatively high numbers (11 pieces), especially considering the modest size of the assemblage. Laterally retouched blades are the most numerous with four pieces. Three are made on radiolarite (Fig. 14.2–3) and one piece on Felnémet-type opalite (Fig. 14.1–11). All are retouched on the dorsal side, two pieces are retouched on both edges, of which one piece is retouched on both sides on both edges with alternating detachments. Sickie gloss was present on three of the four pieces, always parallel to the retouched edges of the tools. The rest of the tool types have an even distribution: two end-scrapers (Fig. 14.4–5), two combined tools (Fig. 14.6–10) and two retouched flakes (Fig. 14.7–8) formed the remainder of the tool-kit. End-scrapers are exclusively made of radiolarite, with both made on the distal part of a blade fragment. The two combined tools bear retouch on their left edges, both have end-scrapers on their distal ends, while one of them is from radiolarite, the other from Felnémet-type opalite. Both retouched flakes are made of obsidian: one is retouched on one side, the other on two opposed sides. The last retouched piece is a truncated blade fragment, which was also made on obsidian (Fig. 14.9). Traces of retouching can be made out on its proximal end, the talon part was truncated.

To sum up the results and set them into context, the raw material spectrum of the lithic finds from Tiszaug-Railway-Station fits into the broad picture already known from the literature (Fig. 15). The presence of Transdanubian radiolarite, especially from the Bakony Mountains, is a well-documented phenomenon in the southern part of the Great Hungarian Plain, particularly from the Szakálhát period onward.¹⁰⁸ Together with the obsidian and limnosilicite pieces, the Tiszaug assemblage resembles the ones from Battonya-Gödrösök, Battonya-Parázstanya, Déványa-Sártó, Gerla-Kázmán, Kunszentmiklós-Középszentmás, Mezőberény-Bódishát and Tiszaföldvár-Téglagyár.¹⁰⁹ The appearance of Felnémet-type opalite is a novelty because this raw material was generally considered more abundant in the Palaeolithic, although more recent data indicates its use in later periods too.¹¹⁰ Concerning technology and typology, the cited analogies are hardly known in these respects: nearly all contained but a low number of pieces, similarly to the assemblage from Tiszaug. Moreover, no conjoins were detected among the mentioned pieces, despite refitting efforts. The *chaîne opératoire* seems incomplete, although cores, flakes, blades and retouched pieces were mentioned. In general, the blade technology fits well into the broad picture drawn by previous scholarship on the Linear Pottery lithic industry.¹¹¹ The half-broken cores are either prismatic, with one striking and one debitage platform, or orthogonal, with several striking and debitage platforms perpendicular to each other. On the testimony of the proximal parts and talons of the debitage products, di-

108 BIRÓ – REGENYE 1991; BIRÓ 1991, 34; BIRÓ 1998, 35.

109 BIRÓ 1998.

110 FARAGÓ et al. 2016.

111 KACZANOWSKA 1985; 2001; KOZŁOWSKI 2001.

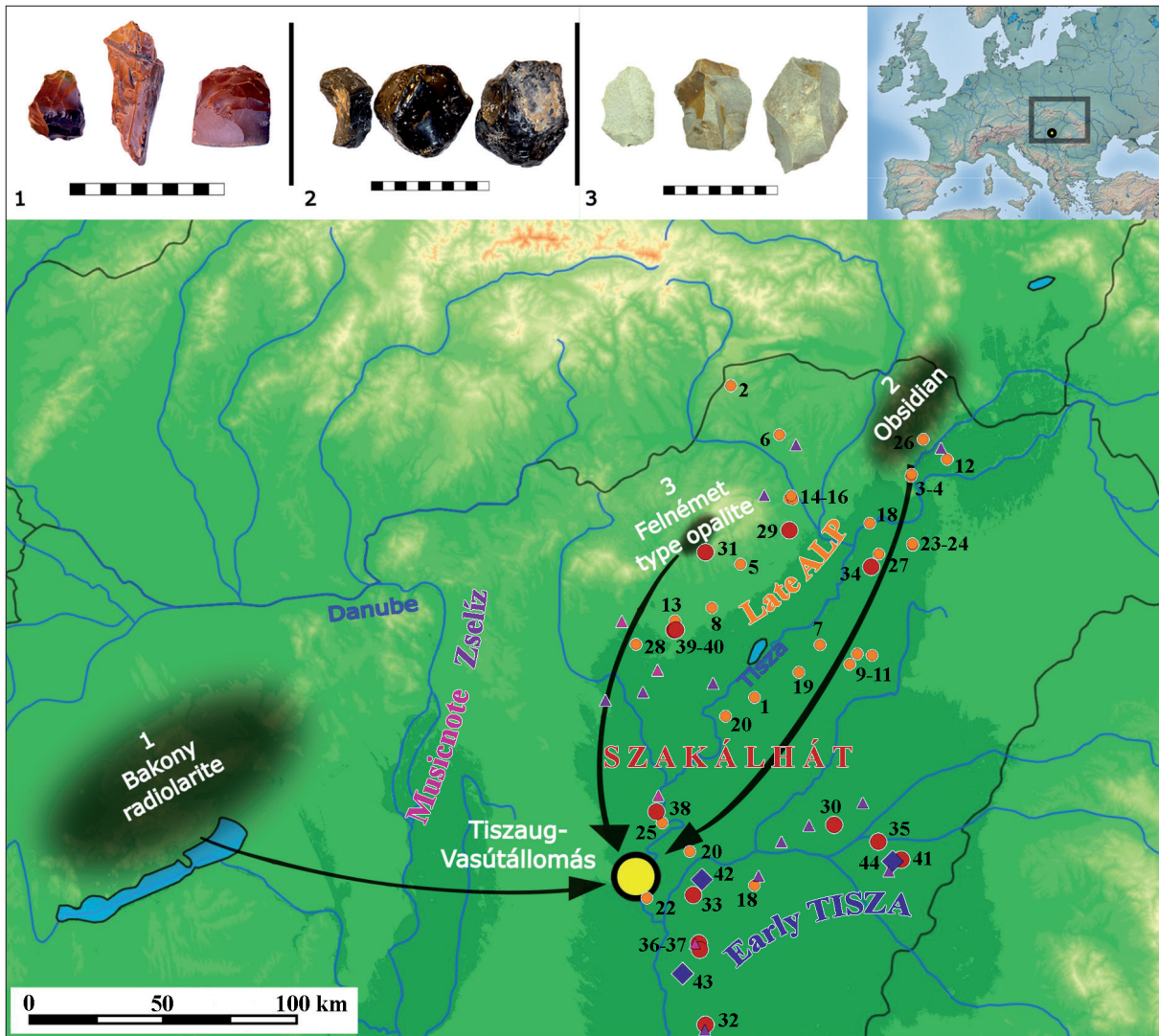


Fig. 15. Raw material sources of chipped stones at Tiszaug (dark patches) and possible directions of their acquisition (arrows). 1–3: characteristic examples of the raw material types. Ceramic analogies of the Tiszaug inventory are marked: late ALP (orange dot), Szakálhát (red circle), early Tisza (blue lozenge), Notenkopf style (pink triangle), Zseléz (mauve triangle) (after VIRÁG 2009). For the site numbers, see Fig. 16.

rect percussion and punch techniques could have been equally employed, as the angles of the detachments vary between 60 and 90 degrees. Most of the times the talons show no further preparation, with the exception of three pieces which can be assigned to the faceted or *dièdre* types. The relatively high ratio and typological variability of the retouched pieces both confirm the general impression of Linear Pottery assemblages. The greater part of the tool-kit was made on blades; it mainly consists of laterally retouched blades with sickle gloss, followed by end-scrapers, a combined tool, and a truncated blade.

Absolute chronology

The first absolute chronological dates of the Hungarian Neolithic were published in 1995 and led to the construction of a new model of Neolithic development in eastern Hungary.¹¹² Despite

112 HORVÁTH – HERTELENDI 1995.

Late ALP (after KALICZ – MAKKAY 1977)	25	Tiszavárkony-Szőlőhegy
1 Abádszalók-Berei rév	26	Tolcsva-Pénzásópart
2 Aggtelek-Baradla barlang	27	Újtikos-Demeterkút
3 Bodrogkeresztúr	28	Visznek-Kecske-domb
4 Bodrogkeresztúr-Téglagyár		
5 Bogács-Pázsagpuszta		Szakálhát (after KALICZ – MAKKAY 1977)
6 Edelény-Borsod	29	Bükkaranyos-Földvár
7 Egyek-Rózsástelek	30	Dévaványa-Sártó
8 Füzesabony-Kettőshalom	31	Eger-Kiseged
9 Hortobágy-Faluvég-halom	32	Hódmezővásárhely-Szakálhát
10 Hortobágy-Kandrahalom	33	Kunszentmárton-Bohonya
11 Hortobágy-Pipáshalmok	34	Polgár-Kenderföld
12 Kenézlő	35	Szeghalom-Kovácsdomb
13 Kompolt-Kistér	36	Szentes-Ilonapart
14 Miskolc-Fűtőház	37	Szentes-Megyeháza
15 Miskolc-Indóház	38	Tószeg-Telek
16 Miskolc-Repülőtér	39	Tarnabod-Nagykert
17 Szarvas 102	40	Tarnabod-Templomföld
18 Tiszadob-Ókenéz	41	Vésztő-Hidashát
19 Tiszaföldvár-Sziget		
20 Tiszaigar-Csikóstantya		Early Tisza (after KALICZ – RACZKY 1987)
21 Tiszaroff-Szabadipart	42	Öcsöd-Kováshalom
22 Tiszásas-Rév	43	Szegvár-Tűzköves
23 Tiszavasvári-Keresztfal	44	Vésztő-Mágor
24 Tiszavasvári-Paptelekhát		

Fig. 16. Important analogies of the ceramic styles identified in the Tiszaug ceramic inventory (late ALP, Szakálhát, Tisza) (after KALICZ – MAKKAY 1977 and KALICZ – RACZKY 1987).

the proliferation of radiocarbon data since then, new dates can still cause surprises, particularly at the local, micro-regional level.¹¹³ In other words, the reconstructed macro-regional processes possibly took place at different paces at different sites or in various micro-regions. The multi-scalar and asynchronous nature of Neolithic development has been repeatedly pointed out.¹¹⁴

Two samples from Tiszaug were submitted to the Poznań Radiocarbon Laboratory for absolute dating in 2017. Neither came from Feature 6 yielding the highest amount of pottery because it did not contain animal bones suitable for sampling. The first sample came from Feature 1, the second from Feature 7; both pits contained over a hundred ceramic fragments (Fig. 4). The first sample gave a date of 6010±40 BP (4950–4841 BC, 1σ), the second a date of 6060±40 BP (5023–4909 BC, 1σ). A comparison of the two pottery assemblages from the two features reveals that there is significantly less Szakálhát material in Feature 7, dated slightly earlier than Feature 1, which contained late Szakálhát-early Tisza sherds (Fig. 20.7). Two large-sized sherds tempered with chaff from Feature 6 were also submitted to the Poznań Radiocarbon Laboratory, but the measurements yielded inaccurate results (5890±210 BP, 5233–4352 calBC) because this dating procedure is still in its experimental phase. The pottery from Feature 6 is practically identical with the material of Feature 1, and thus the obtained dates are valid for the entire assemblage.

113 DOMBORÓCZKI 2003; OROSS – SIKLÓSI 2012; RACZKY – ANDERS 2009; 2010; CSENGERI 2015.

114 HOFMANN et al. 2016; MEIER-ARENDETT 1994; PARKINSON – GYUCHA 2012; YERKES et al. 2009.

Compared to other measurements, the Tiszaug dates seems very late in the regional Middle Neolithic framework. Based on former sporadic data, classical Szakálhát assemblages (ALP IV) were dated to 5293–5068 calBC, the implication being that early Szakálhát sites (ALP III) represented the preceding period, before 5300 calBC.¹¹⁵ One radiocarbon-dated late Szakálhát-early Tisza site in the region is Öcsöd-Kováshalom. The dates for the late Szakálhát-early Tisza (I) layer of the Öcsöd A phase fall between 5181–4931 BC (1 σ),¹¹⁶ which more or less coincides with the dates for Tiszaug. Together with the Tiszaug samples, we also submitted samples from Öcsöd to the Poznań Radiocarbon Laboratory. These measurements confirmed the similar age of Tiszaug and the Öcsöd A phase, corresponding to the Tisza I period.

Our stylistic studies indicated that the Tiszaug-Railway-Station material attests to a blend of the late ALP and Szakálhát stylistic traits, and that it thus conforms to the Furugy type representing the transitional period between late ALP and Szakálhát ceramics. Nevertheless, the radiocarbon measurements suggested a considerably later age. This chronological conundrum can be resolved by a critical re-assessment of the find material and by creating a new regional and chronological development model for the ALP.

Discussion and conclusions

In our study, we treated the ceramic inventory from Tiszaug-Railway-Station as a single assemblage. Our theoretical approach was the multivariate assemblage theory, which contends that an assemblage is more than the sum of its parts.¹¹⁷ We evaluated the ceramic inventory as the archaeological imprint of the vessel sets once used by the Tiszaug community. The assemblage displayed a distinctive blend of late ALP, Szakálhát, Bükk and early Tisza traits. The regional distributions of the individual styles outline three main cultural trajectories and three main regions (*Fig. 15*).¹¹⁸ The late ALP elements spread along the River Tisza up to the Bodroghöz region in its upper reaches. The Szakálhát elements can be detected partly in the south, in the region enclosed by the Körös and Maros rivers, and partly in the Middle Tisza region. There are also good analogies in the piedmont of the Northern Mountain Range, in the region of the Zagyva and Tarna rivers. The Bükk fragments at Tiszaug have a special significance. In the wake of Piroska Csengeri's research, numerous Szakálhát sites were identified in County Borsod-Abaúj-Zemplén, north of the formerly known boundary of the group's distribution,¹¹⁹ and we now have conclusive evidence for the intensive relations between the two cultural groups (Bükk and Szakálhát) from the core distributions of both.¹²⁰ The early Tisza elements identified at Tiszaug point towards the area of the Körös rivers and the lower reaches of the River Tisza.

Artefacts and their cultural traits are inextricably intertwined with the persons and communities who created and used them. These objects are not merely passive elements of the

115 RACZKY – ANDERS 2009, 44–45, Fig. 8.

116 RACZKY 2009, 103, Fig. 8.

117 CHAPMAN 2009.

118 STROBEL 1997, Abb. 35, 38.

119 CSENGERI 2010.

120 CSENGERI 2010, 12; KALICZ – MAKKAY 1977, 90; LICHARDUS 1974, 103.

system, but agents that have an impact on people.¹²¹ One excellent illustration is an imitation *Spondylus* pendant found at Tiszaug. Made of clay, this object is a copy of the intact *Spondylus* shell pendants with two perforations at their shorter ends (Fig. 36.6). This shell was the highly prized raw material of prestige items in the Neolithic of the Carpathian Basin.¹²²

One of the distinctive object types of the Middle Neolithic was the large pendant which was translated into various other materials such as limestone, marble and clay.¹²³ These copies can be explained by the temporary or constant scarcity of the original *Spondylus* raw material. Trade in raw materials was conducted according to well-established mechanisms and along long-established routes, the latter outlining the networks of contacts between various communities.¹²⁴ Changes in the network could lead to certain groups being “dropped” from the exchange. The clay pendant perhaps reflects an event of this type in the life of the Tiszaug community: the pendant takes the form of the prestige article, but it is an imitation made from a more modest raw material.

A similar network of relations unfolds in relation to the chipped stone artefacts. The three lithic raw materials have their sources in the Zemplén Mountains (obsidian), the Mátra Mountains (Felnémet-type) and in Transdanubia (radiolarite). A comparison of the ceramic and lithic networks would suggest that the three Notenkopf-Zselíz fragments coincide with Transdanubian radiolarite. These ceramics and lithic raw materials have been attested at numerous archaeological sites between the Danube and the Tisza rivers as well as along the middle and lower reaches of the River Tisza.¹²⁵ Felnémet-type opalite can be correlated with the spread of Szakálhát pottery and Bükk elements, while obsidian definitely corresponds to the distribution of the late ALP stylistic traits (Fig. 15).

We can hardly neglect the early Tisza elements that appear to be isolated in the Tiszaug inventory. Tell settlements and their material culture emerged south of the Körös rivers in the late Szakálhát-early Tisza phase.¹²⁶ The earliest assemblages of this type come from Öcsöd-Kováshalom, Szegvár-Tűzköves and Vésztő-Mágor. Certain ceramic traits of the Tiszaug inventory (concentric circles, lozenges as filling motifs) are distinctive to these early Tisza assemblages.¹²⁷ This relationship is further underpinned by the overlapping absolute dates of Tiszaug and the early layers at Öcsöd-Kováshalom. If we consider the emergence and spread of material assemblages, and particularly of distinctive ceramic styles, as products of human communication (interaction), the rules of network analysis can be employed in their study.¹²⁸ Consequently, we can weight the strength of certain relationships (links) by the proportional presence of certain ceramic traits. Our stylistic study revealed that the Szakálhát style appeared as a distinct stylistic group at Tiszaug-Railway-Station. Late ALP elements were attested in high numbers and showed a rich diversity. Several Bükk fragments and three imported Notenkopf-decorated Zselíz fragments point to long-distance contacts. Early Tisza elements were definitely present, although in low number.

121 HODDER 2012.

122 KALICZ – SZÉNÁSZKY 2001.

123 SIKLÓSI 2004, 15–18, 36–37, Figs 3, 8.

124 KOVÁCS 2013.

125 BIRÓ 1998; VIRÁG 2009.

126 KALICZ – RACZKY 1987, 12–13, chronological chart; MAKKAY 1982a, chronological chart.

127 LINK 2006, 29–31, Abb. 15.

128 HERZOG 2009.

Based on our observations, we modelled a complex network which actually represents the hub of two interconnected networks. The Tiszaug site was occupied by a Szakálhát community with strong late ALP traditions lying directly north of the Körös rivers, on the left Tisza bank. The site occupied a strategic location, indicated by stone raw materials arriving from the Mátra and Zemplén Mountains as well as from Transdanubia. However, the analysis of ceramic styles presented an unusual situation. It would appear that a new settlement network began to form in the site's immediate vicinity during the study period, a network conventionally identified with the Tisza culture in archaeological scholarship. At the same time, the former late ALP network was in part still prospering and in part undergoing certain transformations. To use Caroline Heitz's expression, what we are witnessing in the ceramic material is a stylistic plurality.¹²⁹

At present, much of transformation during the terminal Middle Neolithic still eludes us at the regional scales of the Hungarian Plain and its northerly areas. The changes and shifts in settlement patterns in a few micro-regions, for example in the Füzesabony, Polgár and Tiszaszvári areas, nevertheless outline the basic framework of these historical developments on the scale of the Great Hungarian Plain.¹³⁰ The Tiszaug assemblage would suggest that the local community failed to become part of the network (probably centred on Ócsöd-Kováshalom) emerging in the wake of the changes during the terminal Middle Neolithic. At the same time, their former relationships were to some extent still active, prompting the community to preserve its own ALP traditions as a means of group cohesion.

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¹²⁹ HEITZ 2017, 258.

¹³⁰ DOMBORÓCZKI 2009; FÜZESI 2016; FÜZESI et al. 2016; RACZKY – ANDERS 2009.

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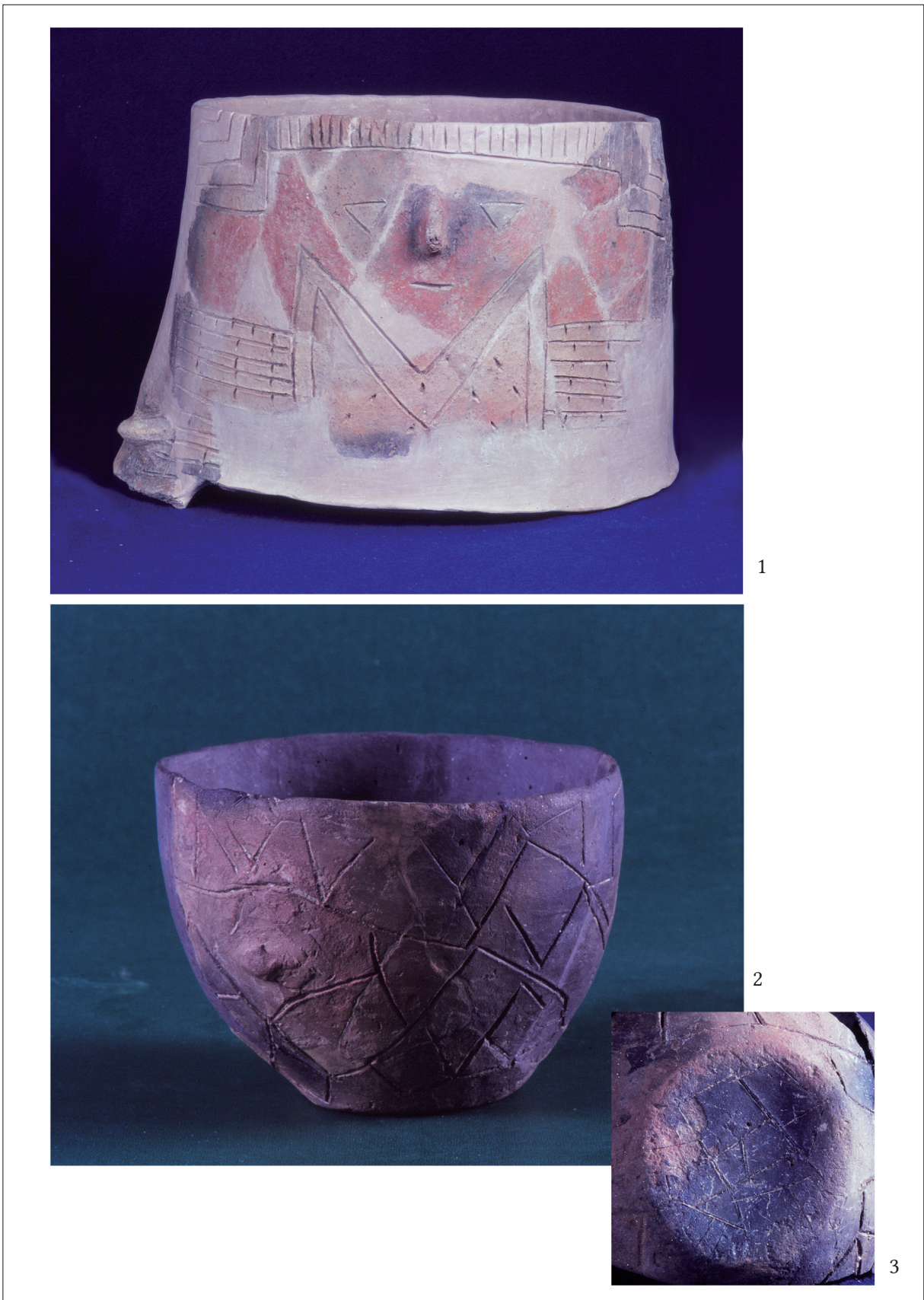


Fig. 17. Reconstructed vessels from Feature 1.

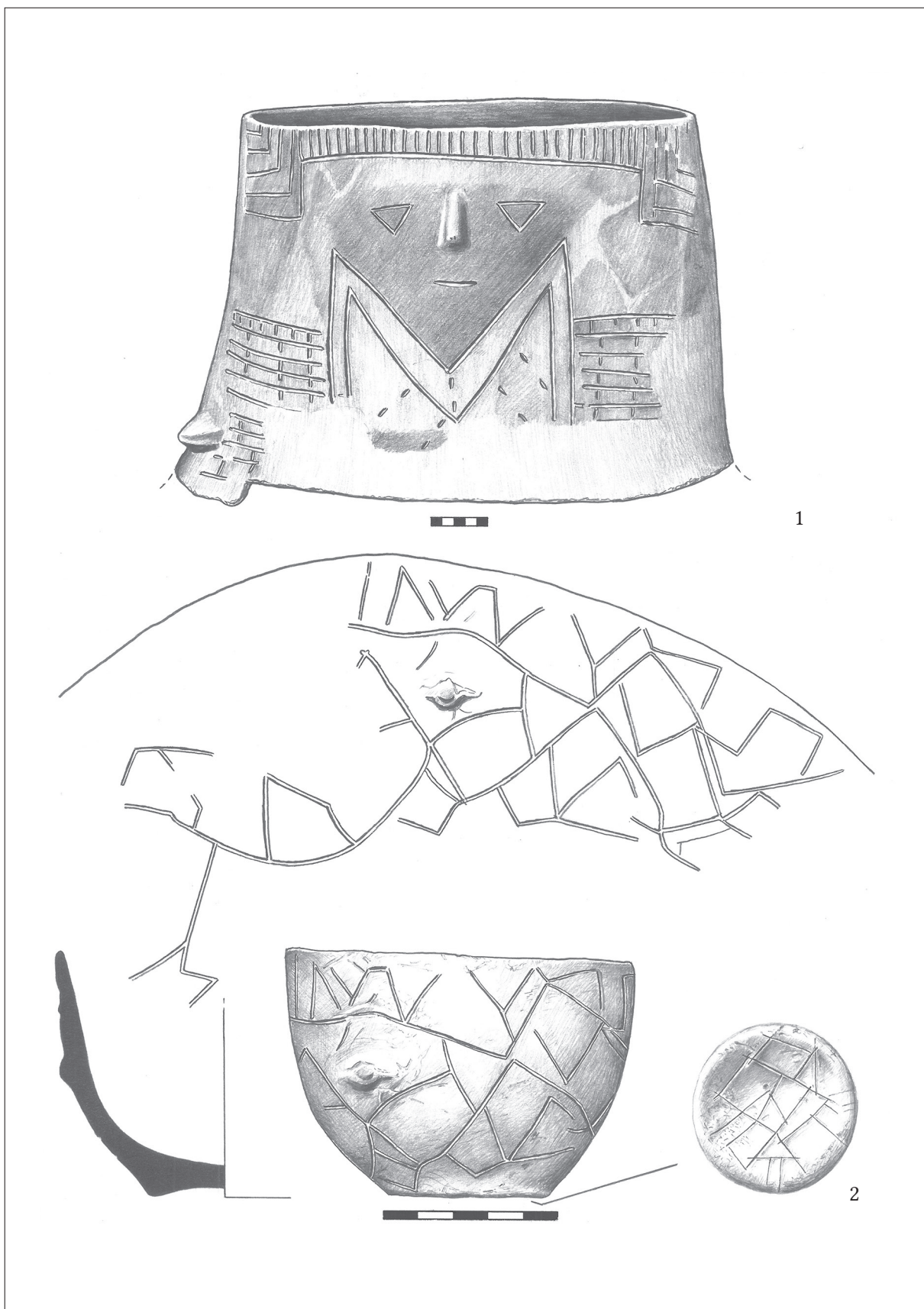


Fig. 18. Reconstructed vessels from Feature 1.

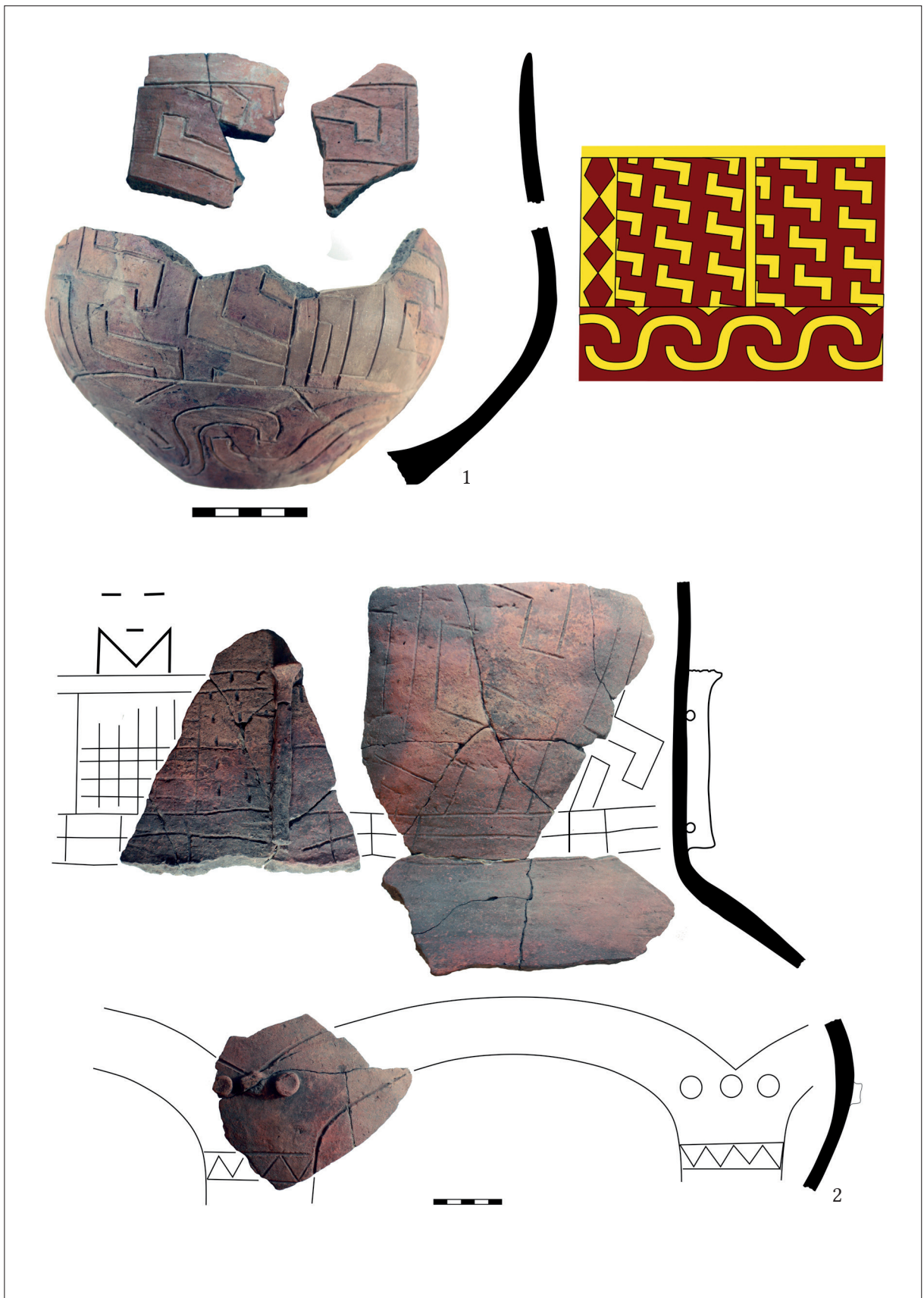


Fig. 19. Reconstructed vessels from Feature 6.



Fig. 20. 1-7 – ceramic fragments from Feature 1, 8-9 – ceramic fragments from Feature 2.

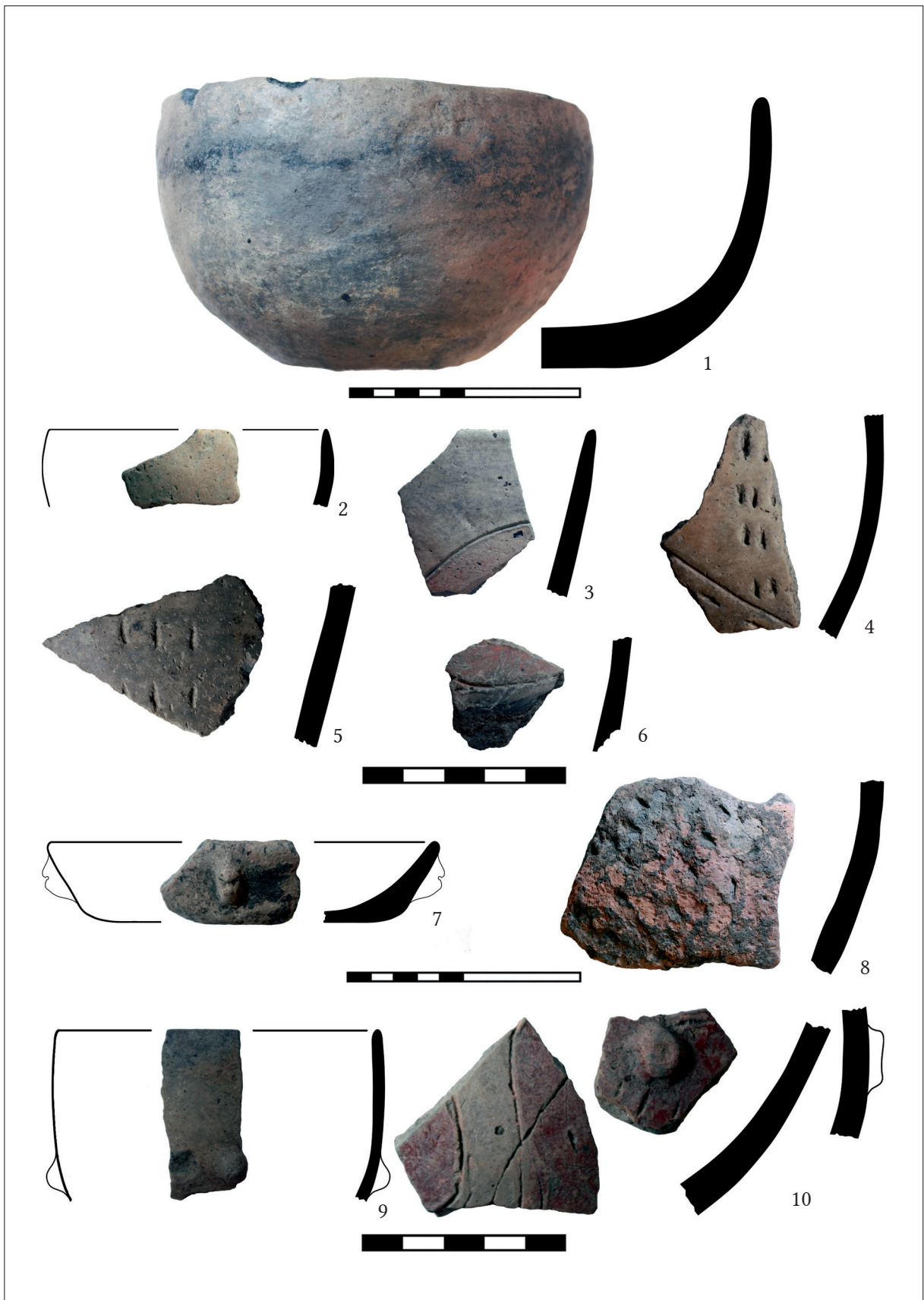


Fig. 21. 1-6 – ceramic fragments from Feature 3, 8 – ceramic fragments from Feature 4, 7, 9-10 – ceramic fragments from Feature 5.

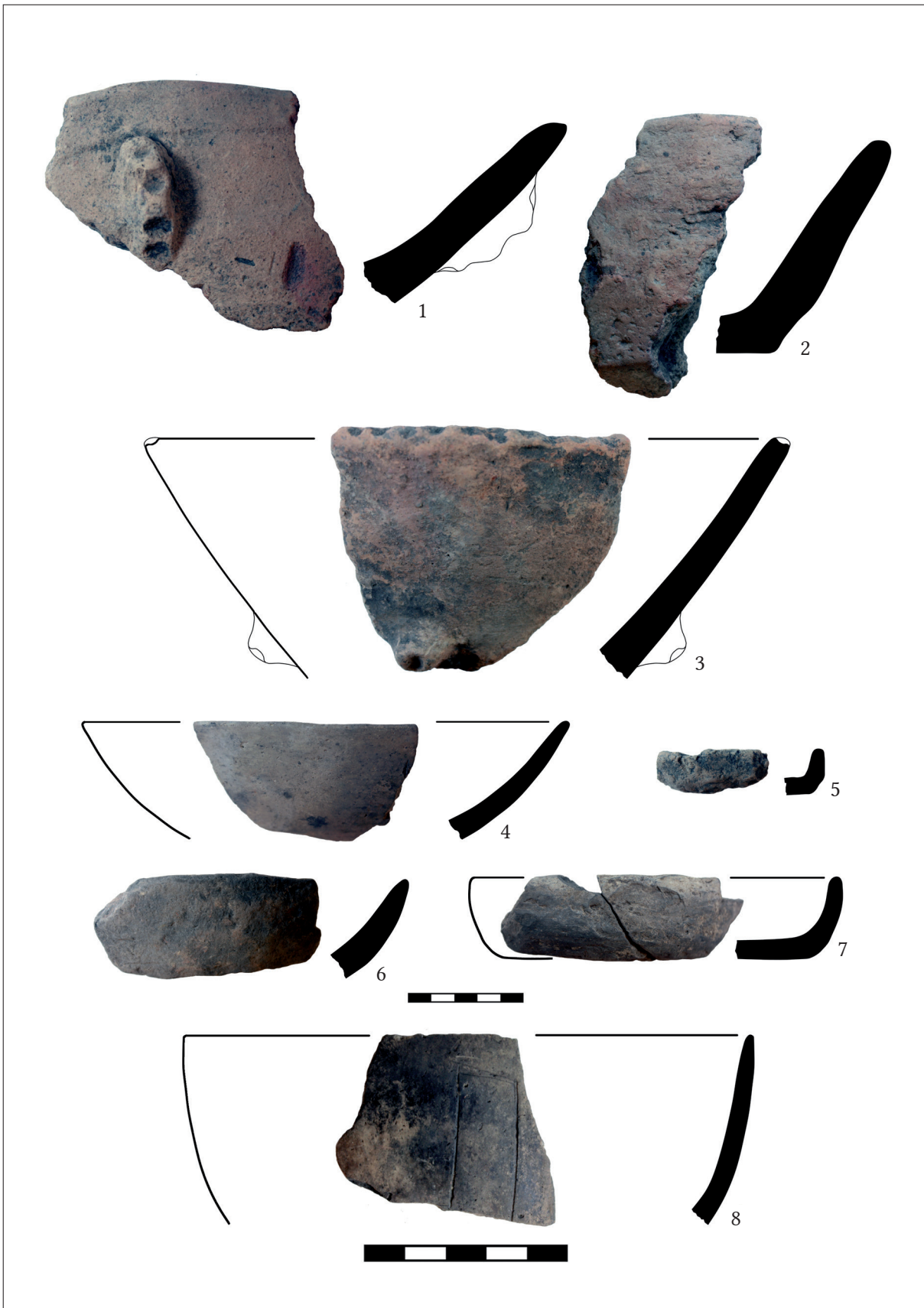


Fig. 22. Open vessel forms (Feature 6).

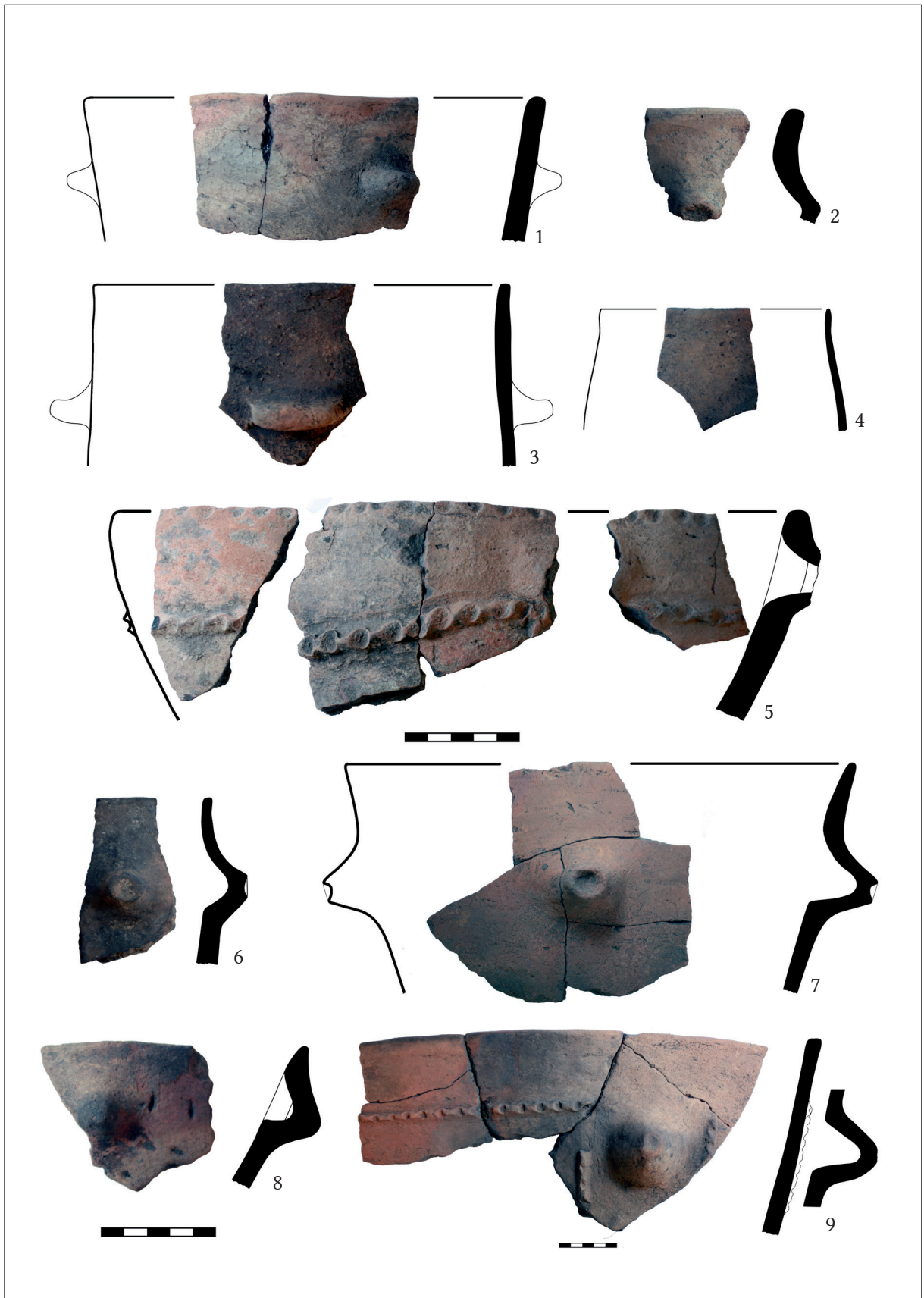


Fig. 23. Restricted vessel forms (Feature 6).



Fig. 24. Cups and mugs (Feature 6).

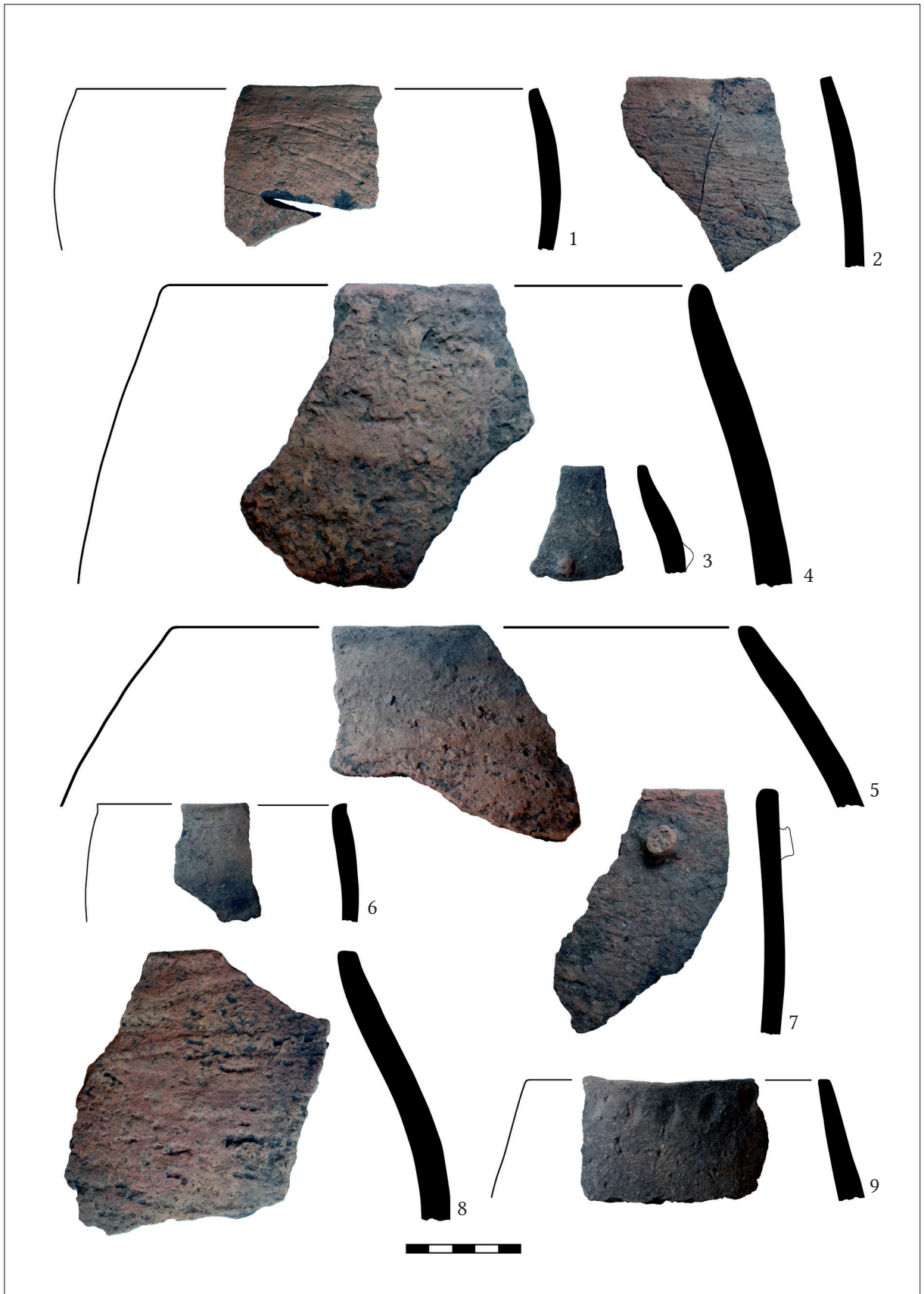


Fig. 25. Pots (Feature 6).



Fig. 26. Storage jar, face-pot and necked pot fragments (Feature 6).



Fig. 27. 1, 3 – reconstructed pots, 2, 4 – traces of pot-building on different types of vessel fragments (Feature 6).

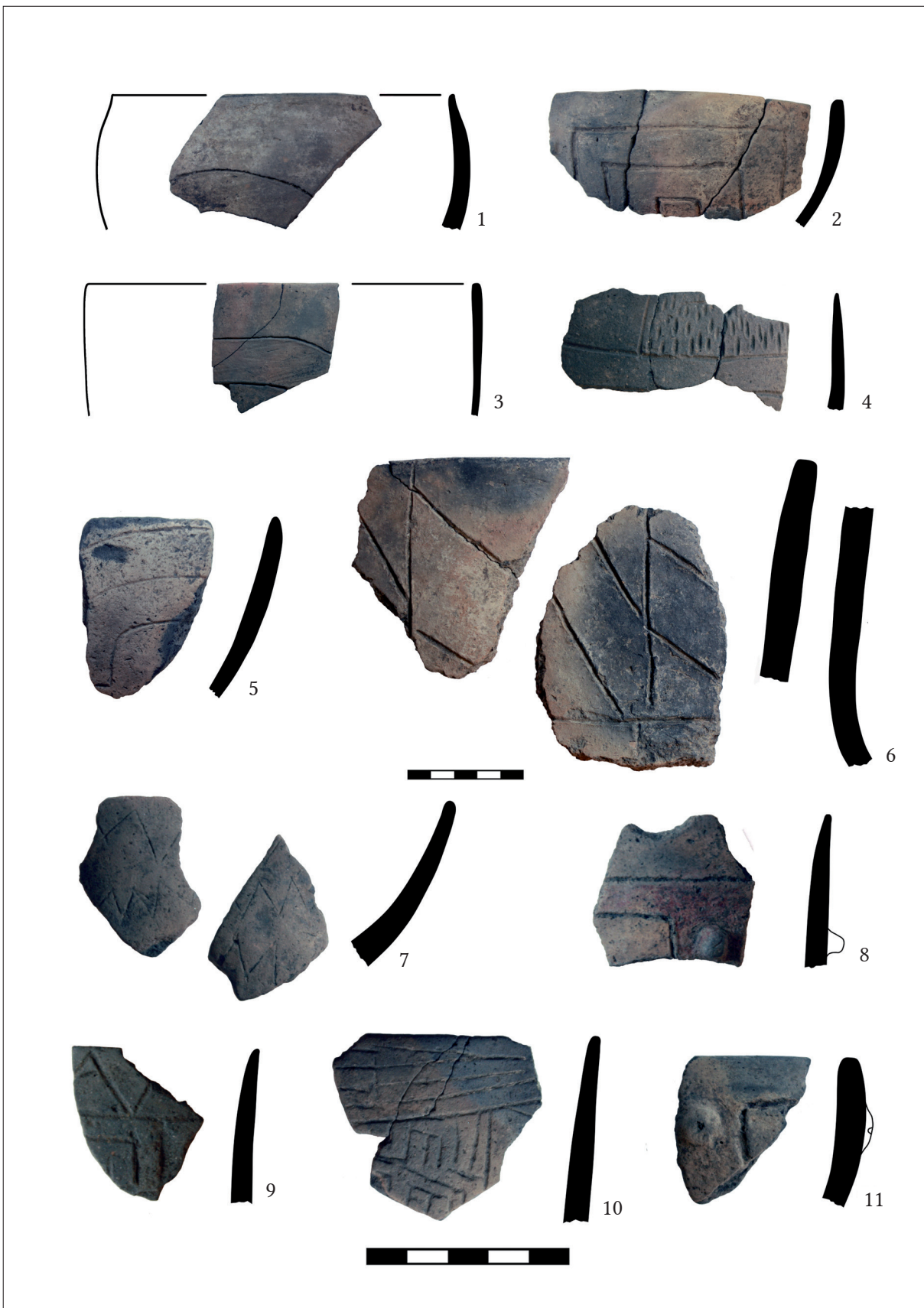


Fig. 28. Szakálhát style ceramics (Feature 6).

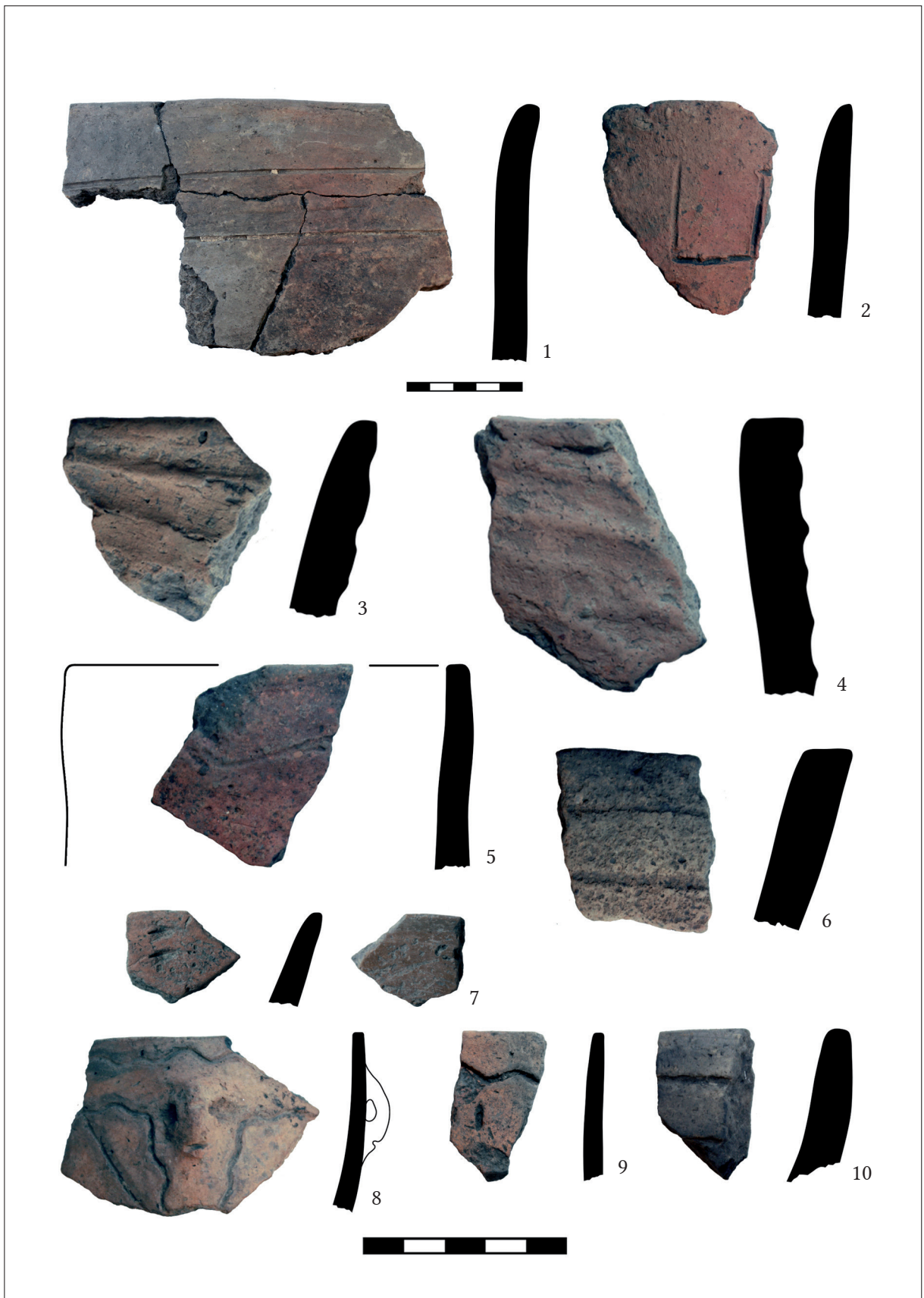


Fig. 29. Late ALP style ceramics (Feature 6).

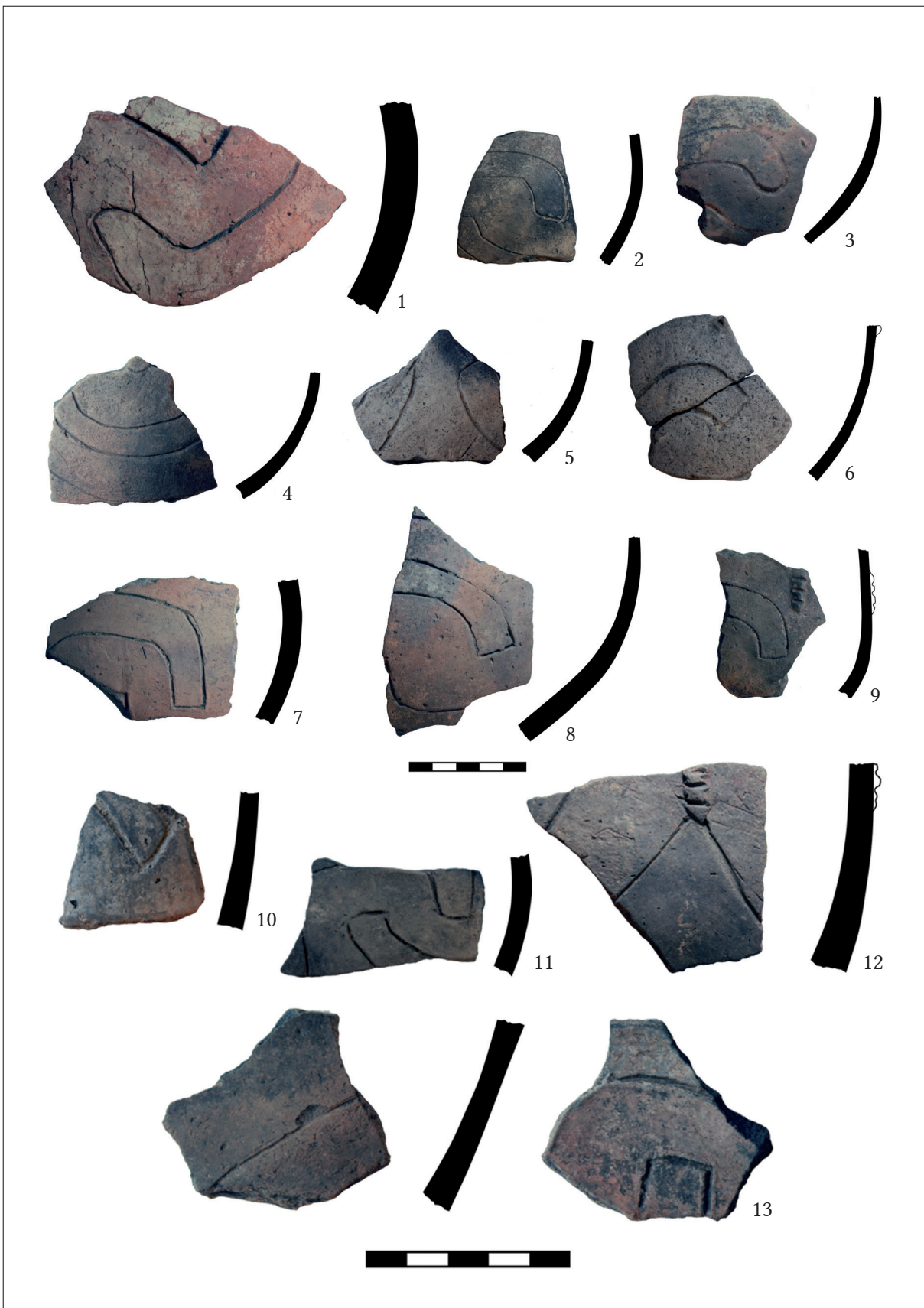


Fig. 30. Szakálhát style ceramics (Feature 6).

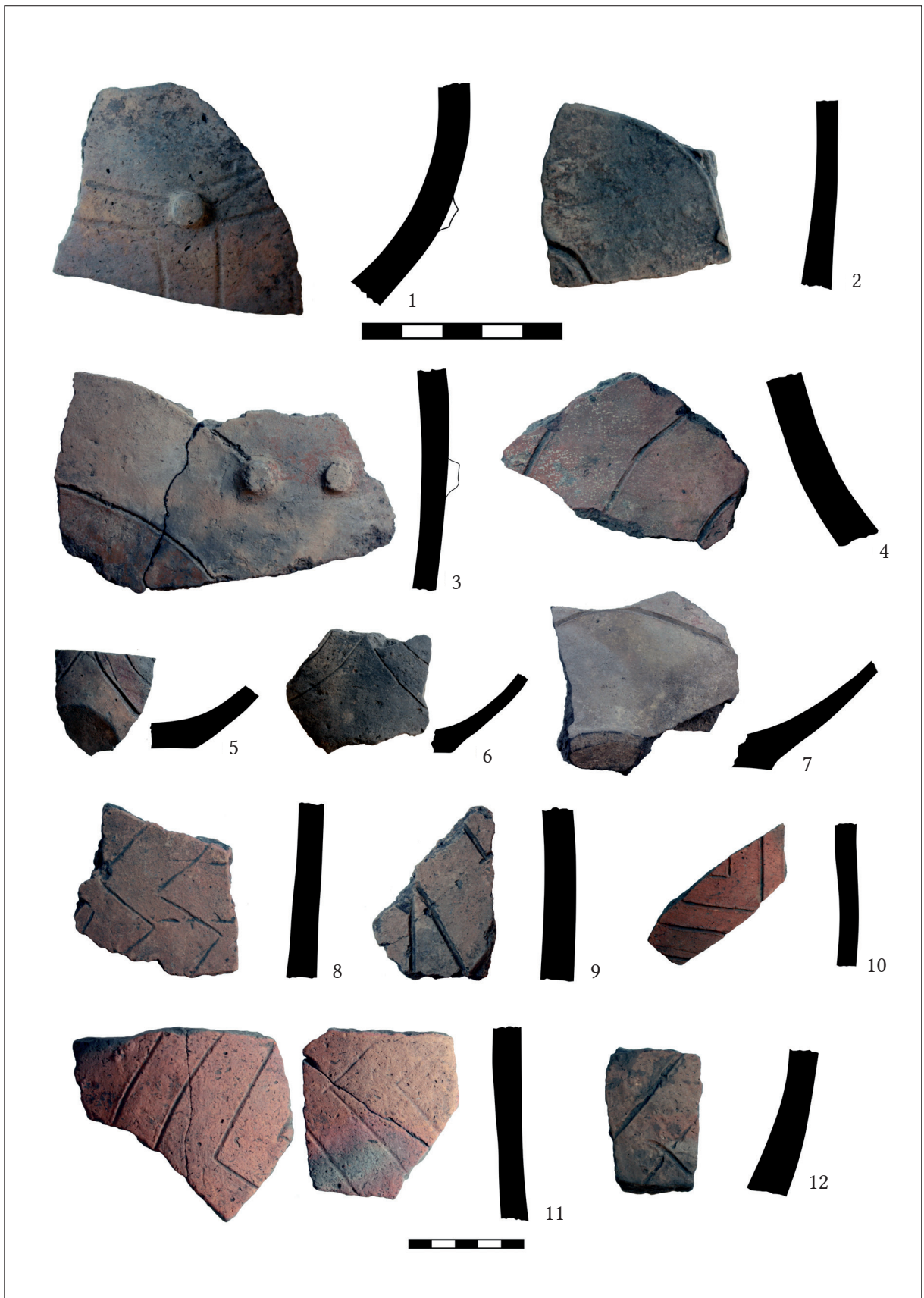


Fig. 31. Szakálhát style ceramics (Feature 6).



Fig. 32. Late ALP style ceramics (Feature 6).

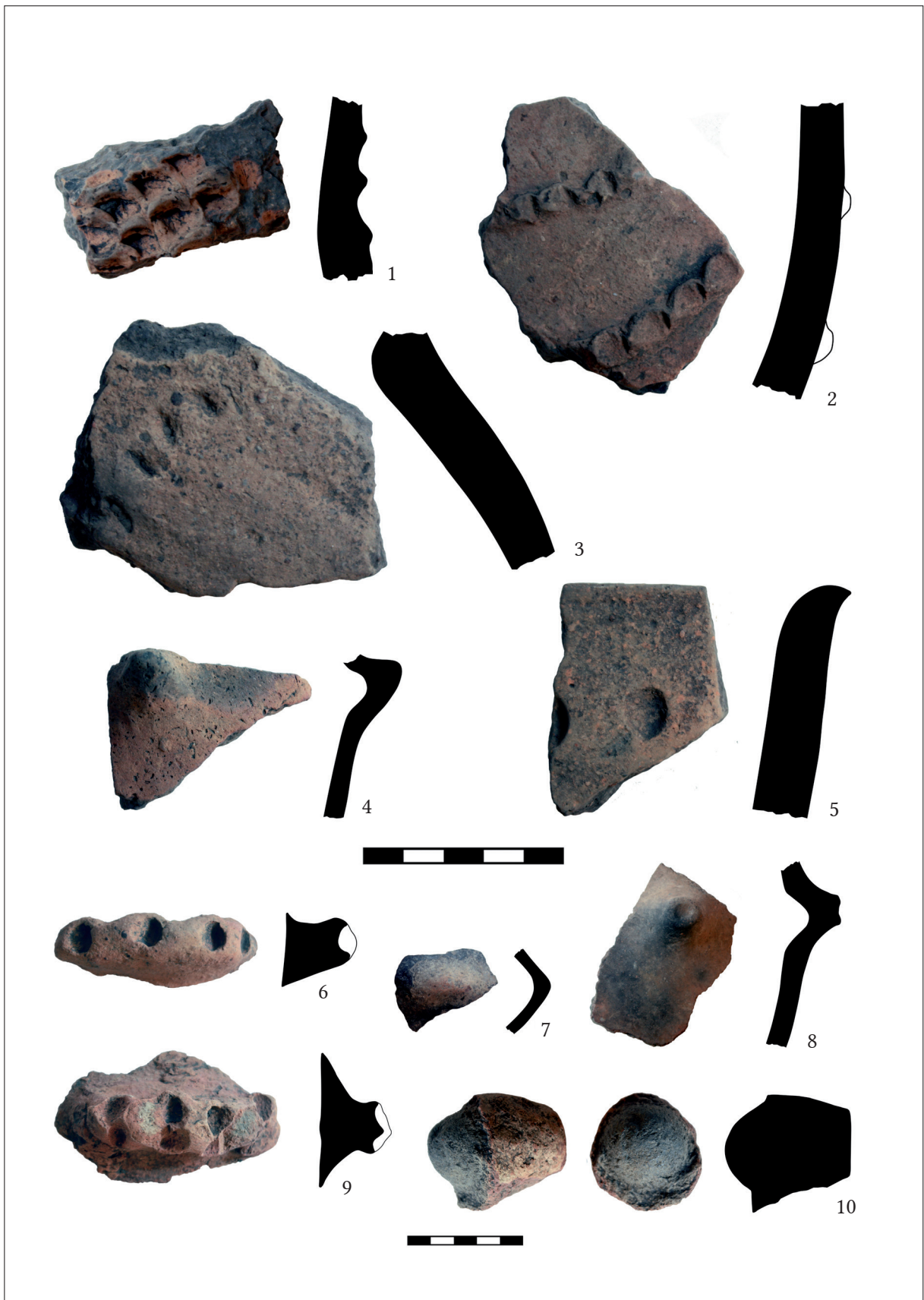


Fig. 33. Sherds with impressed and applied decorations (Feature 6).

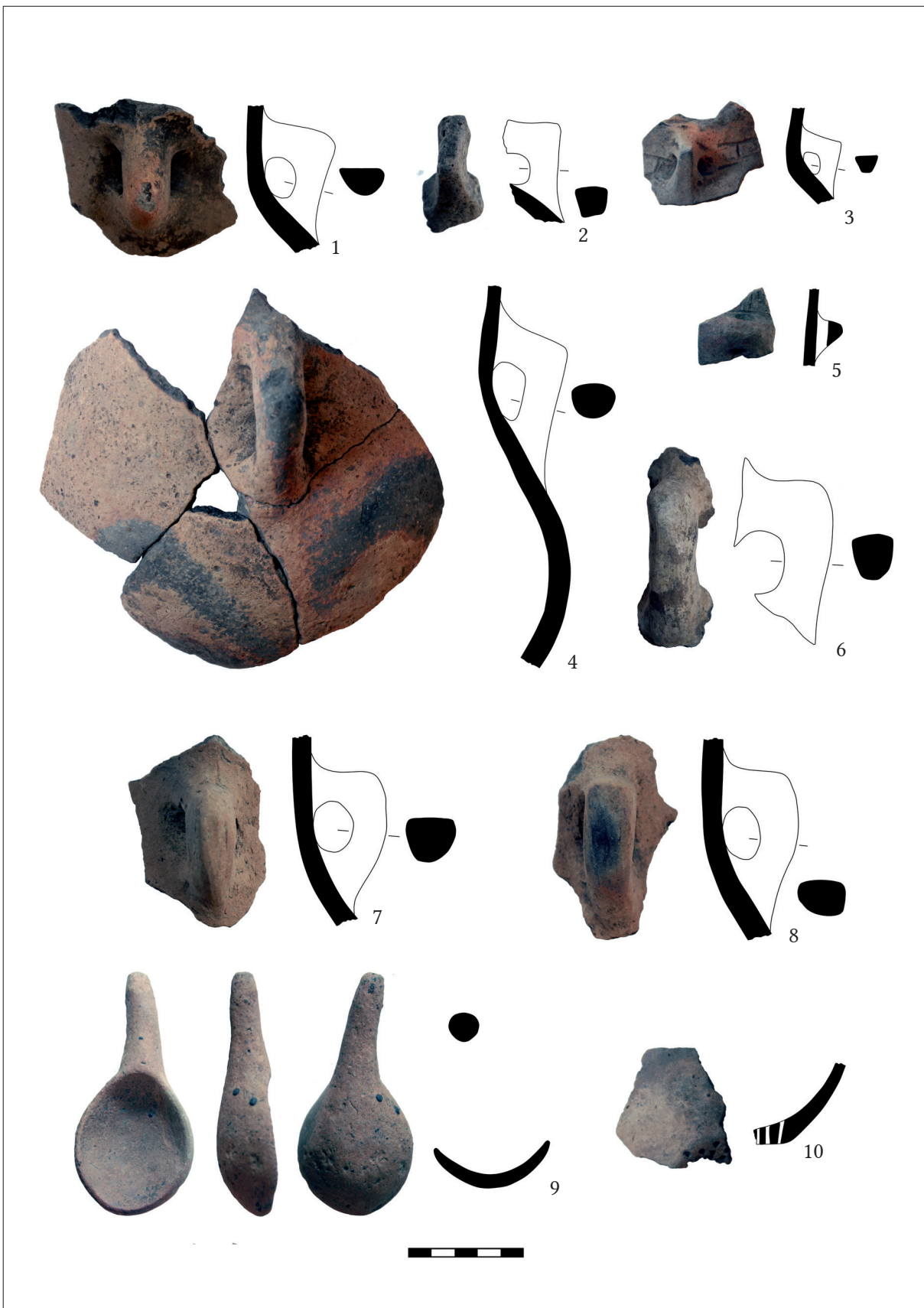


Fig. 34. 1-8 – fragments of jugs, 9 – characteristic clay spoon, 10 – base fragment of a strainer (Feature 6).

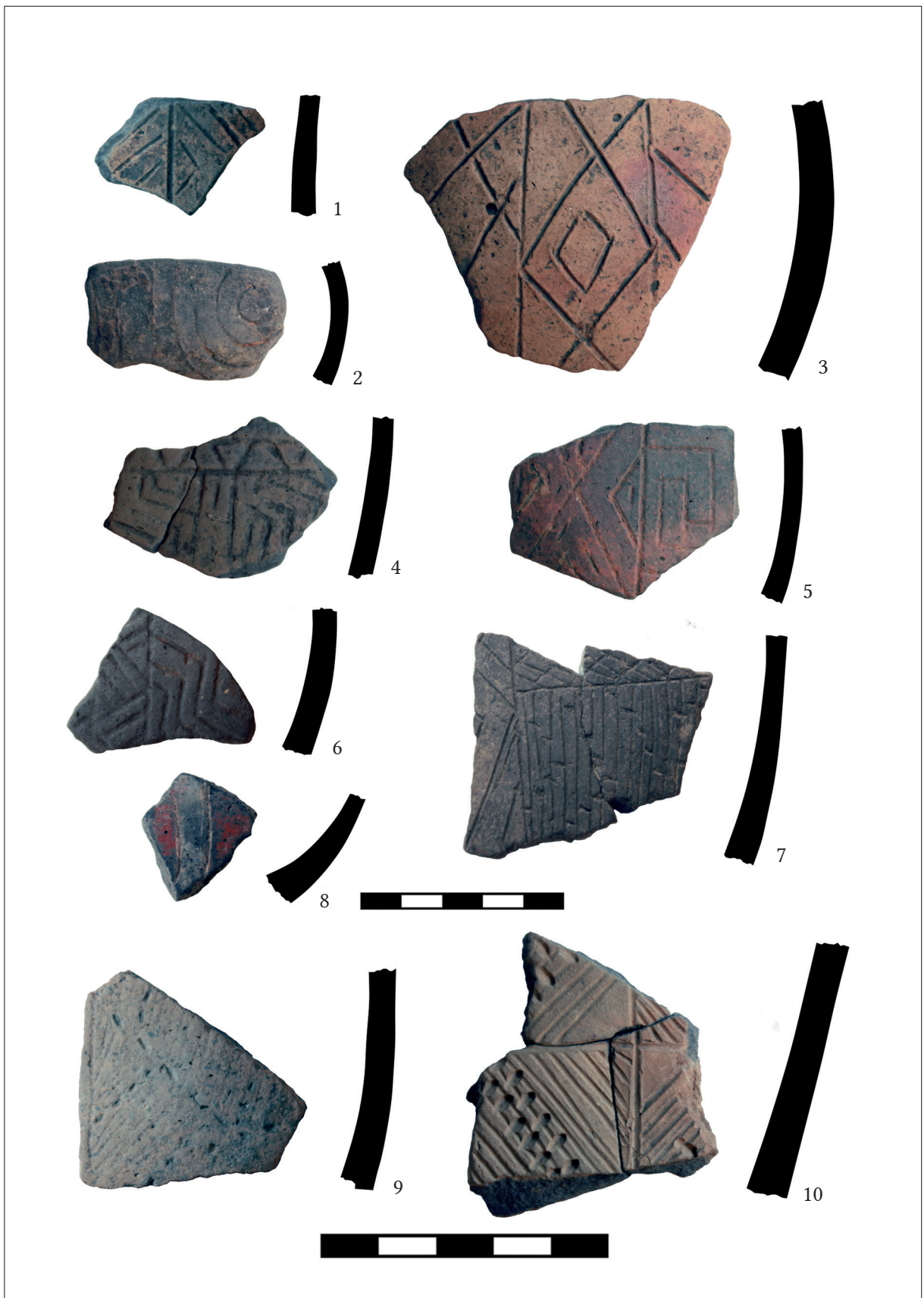


Fig. 35. Bükk and early Tisza style ceramics (Feature 6).



Fig. 36. 1-3 – notenkopf-Zselíz style ceramics, 4 – lid fragment, 5 – clay bead, 6 – clay pendant (Feature 6).

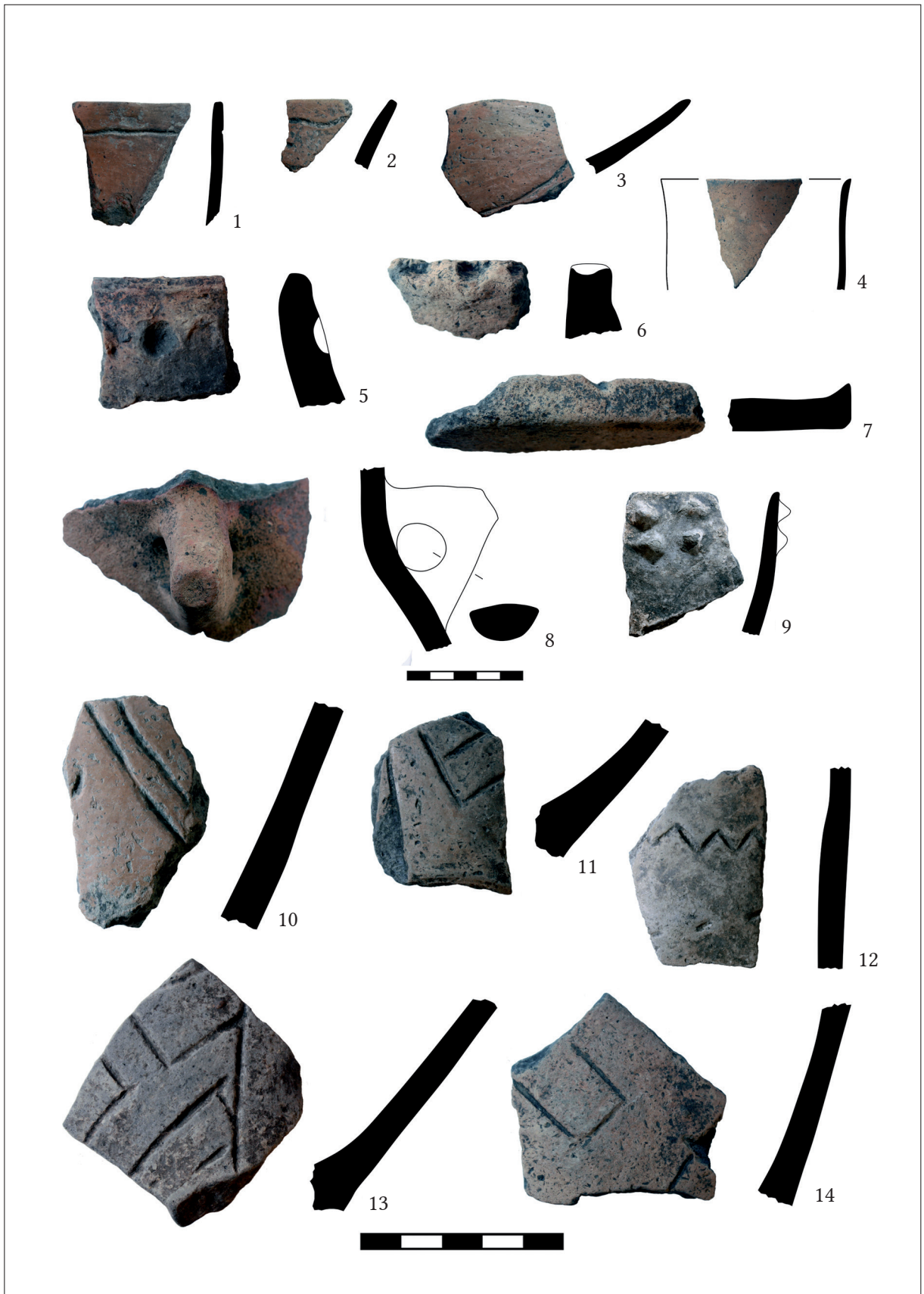


Fig. 37. Sherds from Feature 7.



Fig. 38. Magnified details of characteristic decoration techniques: 1 – broad incised, smoothed lines, 2 – broad incised unsmoothed lines, 3–6 – incised and red crusted painted decoration, the areas among the incised lines are roughened to ensure the better adhesion of the pigments.

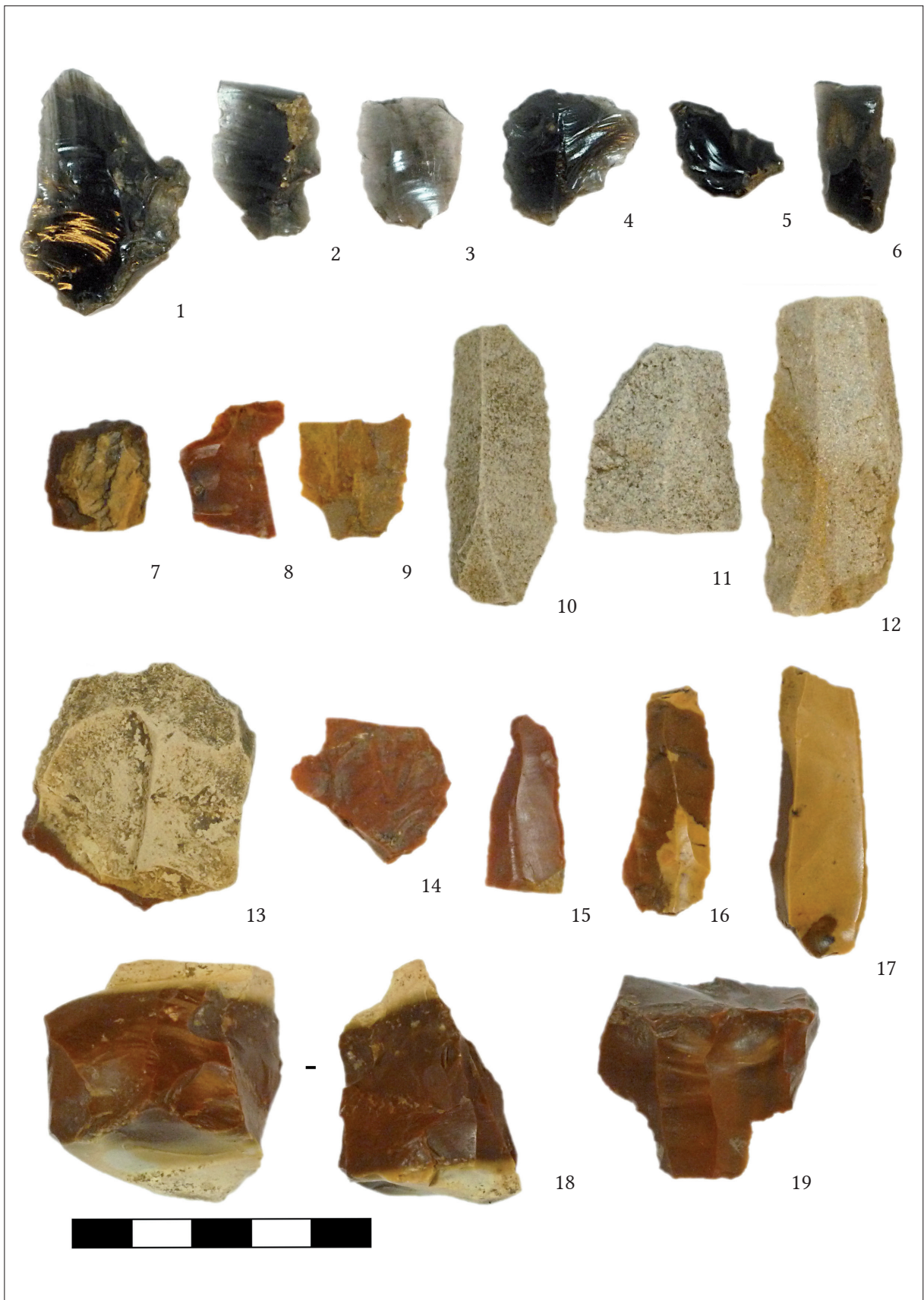


Fig. 39. Chipped stones from Tiszaug-Railway-Station.