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RESULTS OF THE STUDY OF KUP-EGYES PREHISTORIC SETTLEMENT

Katalin T. BIRÓ¹  – Judit REGENYE²  – Annamária BÁRÁNY³ 

The prehistoric settlement Kup-Egyes is located near the city of Pápa, N-Central Transdanubia. It was located in 1974. Sándor Mithay, archaeologist, director of the Pápa Municipal Museum (later: Esterházy Károly Castle Museum) used to perform authenticating excavations on the site where he found settlement traces of the Linearbandkeramik and the Lengyel culture. The excavated material of multiple field seasons is published in details below. The pottery is dominated by the Late Neolithic – Early Copper Age Lengyel culture ceramic, apart from which abundant quantity of LBK sherds were also found. As a new element in the occupation of the settlement, Middle/Late Copper Age finds associated with the Proto-Boleráz culture were also located. The settlement was excavated by manual methods; the excavation features – pits, ovens, house debris – could be mainly associated with the Lengyel culture. Within the finds, lithic artefacts have an outstanding role, primarily in the chipped stone industry, the procurement and processing of the dominating Upper Cretaceous Tevel flint used to represent an important element in the life of the community. Considerable quantities of animal bone were also found on the site; the exceptional specimens (aurochs, bull and dog skull) were probably related to building offerings.

Kup-Egyes őskori település Pápa közelében. 1974-ben került elő, Mithay Sándor régész, a Pápai Helytörténeti Múzeum (későbbi Esterházy Károly Kastélymúzeum) részéről hitelesítő ásatásokat végzett a lelőhelyen, ahol a vonaldíszes kerámia kultúrájának és a lengyeli kultúrának a leleteit tárta fel. A számos ásatási idényben feltárt leletanyagot adjuk közre az alábbiakban. A kerámiában dominál a késő neolitikus – kora rézkori lengyeli kultúra anyaga, emellett jelentős a VK kerámia. Új elemként a lelőhelyről középső/késő rézkori, a Proto-Boleráz-kultúrához sorolható leletanyag is előkerült. A kézi feltárással feltárt település meghatározható korú telepobjektumai – gödrök, kemencék, házomladékok – elsősorban a lengyeli kultúrához köthetők. A leletanyagon belül kiemelkedő a kőeszközök szerepe, különösen a pattintott kőeszközök között domináló, felső kréta korú teveli tűzkő megmunkálása képezte fontos részét az őskori település lakóinak életében. A településről jelentős mennyiségben került elő állatcsont anyag is, amelynek kiemelkedő darabjai feltehetően építési áldozattal hozhatók összefüggésbe.

Keywords: Kup-Egyes prehistoric site, LBK, Lengyel, Proto-Boleráz, ceramic artefacts, lithic industry, animal bone remains

Kulcsszavak: Kup-Egyes őskori lelőhely, LBK, Lengyel, Proto-Boleráz, kerámia tárgyak, kőipar, állatcsont maradványok

Introduction

Kup is a small village located in the centre of the Northern half of Transdanubia, Hungary at the border of the Kisalföld (Little Hungarian Plain) and the western margin of the Bakony Mountains, some 10

kms south of the city Pápa, along the stream Bittva (Fig. 1). Geographically it belongs to the Pápai-sík (Pápa plains) small region (formerly, Northern part of the Pápa-Devecseri sík (Pápa-Devecser plains) small region (Csorba 2021). The dominant landscape element of the region is the basalt volcano known as

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¹ Hungarian National Museum Public Collection Centre; tbk@ace.hu; ORCID: <https://orcid.org/0009-0006-6919-3404>

² Independent researcher; regenye.judit@gmail.com; ORCID: <https://orcid.org/0009-0000-0236-0294>

³ Eötvös Museum of Natural History; baranay.annamaria@ttk.elte.hu; ORCID: <https://orcid.org/0000-0002-0589-4547>

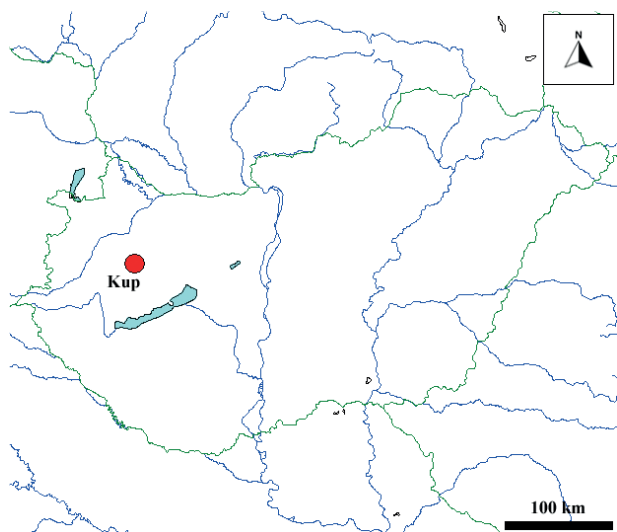


Fig. 1. Location of the site Kup-Egyes
1. kép. Kup-Egyes lelőhely elhelyezkedése

Somló-hill that probably used to serve as steering point and also as raw material source of the prehistoric population. The site concerned in our current research is situated on the Western side of the stream Bittva located some 10–15 m high in over the bed of the stream at approximately 190 m a.s.l. on a slope exposed to S-SE. The climate here is moderately warm and dry. Among the factors facilitating the settlement here we can emphasize the good road network connection to sources of raw material of the region and the excellent potters' clay at the site proper (Fig. 2).

Research history

The first excavations at the site Kup-Egyes were performed by Sándor Mithay in 1974 (Mithay 1975). The site was located on the basis of notification by Kálmán Szalay, local resident. Mithay found here settlement material and refuse pits of the Neolithic Linearbandkeramik and Lengyel cultures. The excavated finds were deposited in the Pápa Municipal Museum (Esterházy Castle Museum). The lithic artefacts from the site were studied first in the framework of raw material research program supervised by academician József Fülöp (Fülöp 1984) aiming at the investigation of the distribution of Sümeg flint, the largest known excavated flintmine in Hungary (Bácskay 1986; T. Biró 1987a). During the 1974 excavations, however, the Sümeg raw material was not located at the site and even later on it was found only in very small quantities (max. 7 pieces /0.25%, see Table 2). The quantity and exceptional quality of the 1974 lithics, however, justified the publication

of the material. The ceramic finds were elaborated and published by R. Gläser and J. Regenye, the stone artefacts by K.T. Biró in the IInd volume of the periodical *Veszprémi Történelmi Tár* (Gläser, Regenye 1989; T. Biró 1989).

Most of the finds in the Pápa Museum represented the heritage of the LBK and in smaller quantities that of the Lengyel culture. The site was not mentioned in the relevant volume of archaeological topography from Veszprém County (Éri et al. 1972) as it was not known at that time. In the complementing publication, Gábor Ilon had registered the site under the number 39/5 (Ilon 1995; national identification number of the site: 29826). In the 1980's there were fieldworks conducted on the site; from these as well as the personal collection of Kálmán Szalay further considerable amount of archaeological material was obtained by the Pápa (Esterházy Károly) Museum. Outstanding pieces of the Kup collection were flint tools from the near-by Tevel-hill, mainly blade cores (T. Biró 1989, 1. ábra).

The new, planned archaeological exploration of the site was initiated by the village: in 1999, the municipality has published the local historical monograph written by Dezső Varjú, former teacher in Kup (Varjú 1999). On the presentation of the book, the possibility of further excavations was raised, actively supported by the municipality.

Excavations between 2000–2003

The recent excavations at Kup were performed basically by the traditional „manual” technique. The trenches and sections were excavated using spade and shovel from the surface till the bottom of the soil (humus) by “shovel marks” where the surface was cut smooth. The detected pits were exploited by hand tools, i.e. by spatula and brush. Finds were registered accordingly, by excavation unit.

In the first year (2000) altogether 85 m² surface was opened by trenches and sections (four trenches of 1 × 10 m, 3 sections of 3 × 5 m); besides, we had the possibility to explore further 400 m² area by detaching the humus in the place of a newly planted alfalfa field, where no digging was to be done for the next few years (Fig. 3). The trenches were planted, as planned, adjacent to the 1974 sections by Sándor Mithay. In this we were not clearly successful, though we could certainly track traces of former archaeological activities. The sections were planted on the basis of features (pits) observed in the trenches

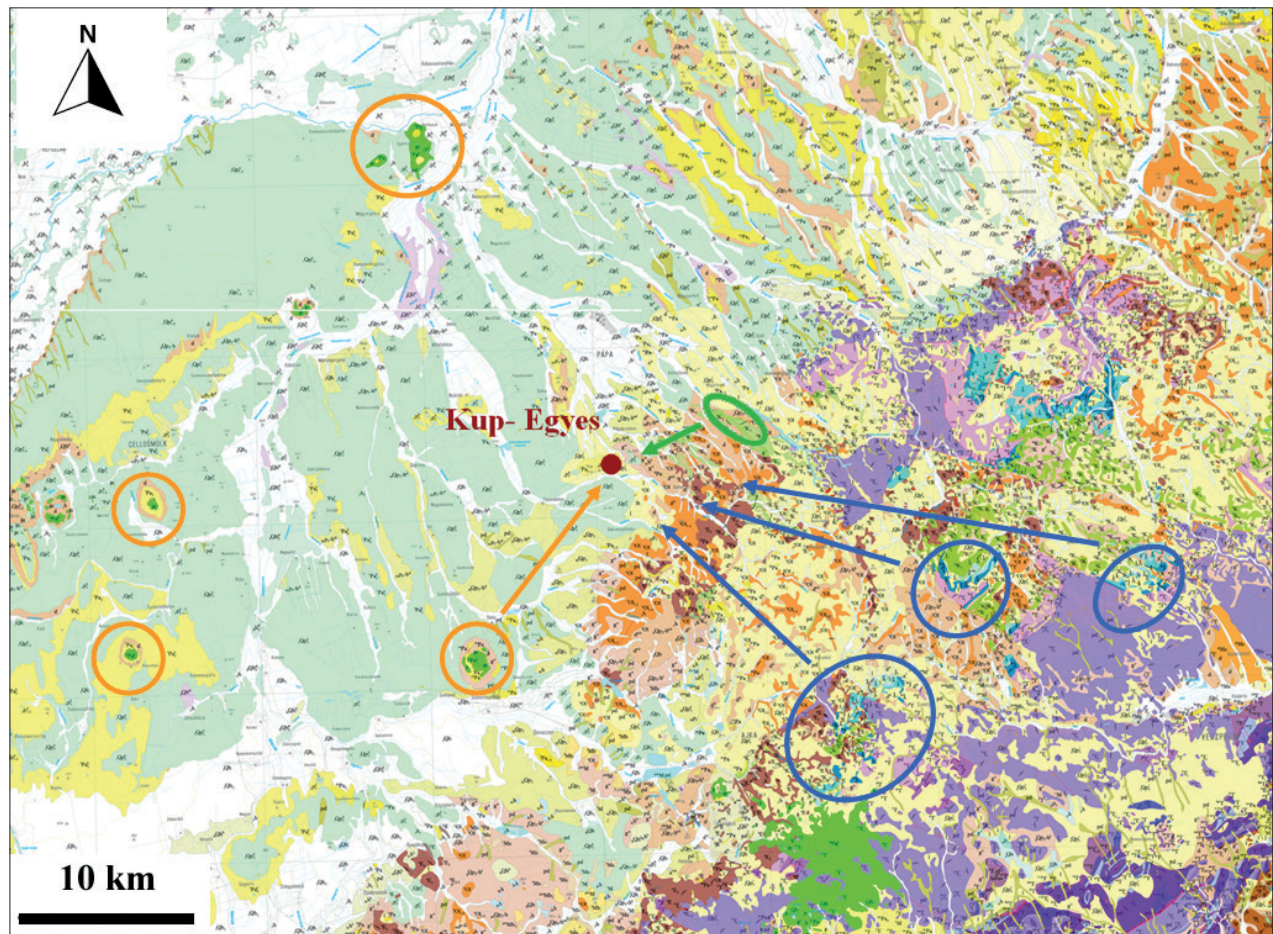


Fig. 2. Geological map of the site environs (after Gyalog 2005): green circle: Upper Cretaceous flint (Tevel flint); blue circles: Middle Jurassic radiolarites (Bakony radiolarites, Szentgál, Űrkút-Eplény, Hárskút colour versions); orange circles: Pliocene/Quaternary basalts

2. kép. A lelőhely környezetének geológiai térképe (Gyalog 2005 után): zöld kör: felső kréta kori kovakő (teveli kova); kék kör: középső jura kori radiarit (bakonyi-radiarit, szentgáli, Űrkút-eplényi, hárskúti színváltozatok); narancssárga kör: pliocén/negyedidőszaki basalt

(Trenches 2000/2, 2000/4, Section I), partly on the basis of finds accumulated on the surface (Sections II and III). The three sections provided two large pit complexes, containing dominantly Lengyel culture finds with scattered LBK sherds.

In Section I, details of at least three pits transecting each other were recognised, comprising a large Lengyel culture refuse pit, a sterile pit with burnt debris deepened into the former one and another feature of special deposition observed under the large refuse pit. In this feature, besides various animal bones, on a large profiled base bowl we could observe a pair of aurochs horns (cores) with part of the skull (Fig. 4). The sediment in this inner pit comprised greasy, ashy grey layers separated by yellow clayey seams. The large refuse pit contained a rich set of ceramic finds, abundant lithic material: grinding stones, chipped stones and polished axes, several

spinning whorls and rings. Sporadically, but mainly on the SE part of the section, sherds ornamented with linear motive were also found.

The archaeological finds of the Sections II and III were also rich and comprised basically material of the Lengyel culture. According to our preliminary observations, the finds probably represented the IInd phase of the Lengyel culture with relatively large number of painted pottery, with red and white pigments. On the territory explored by dozer there were only sporadic finds registered, including a very nice polished chisel made of Felsőcsatár green-schist (Fig. 5; T. Biró 2019).

In 2001, the excavations were continued. We have finished exploring the “aurochs pit” partly excavated in the previous year and new exploring trenches were opened on the land of Kálmán Szalay who was planning to renew part of his vineyard. From here,

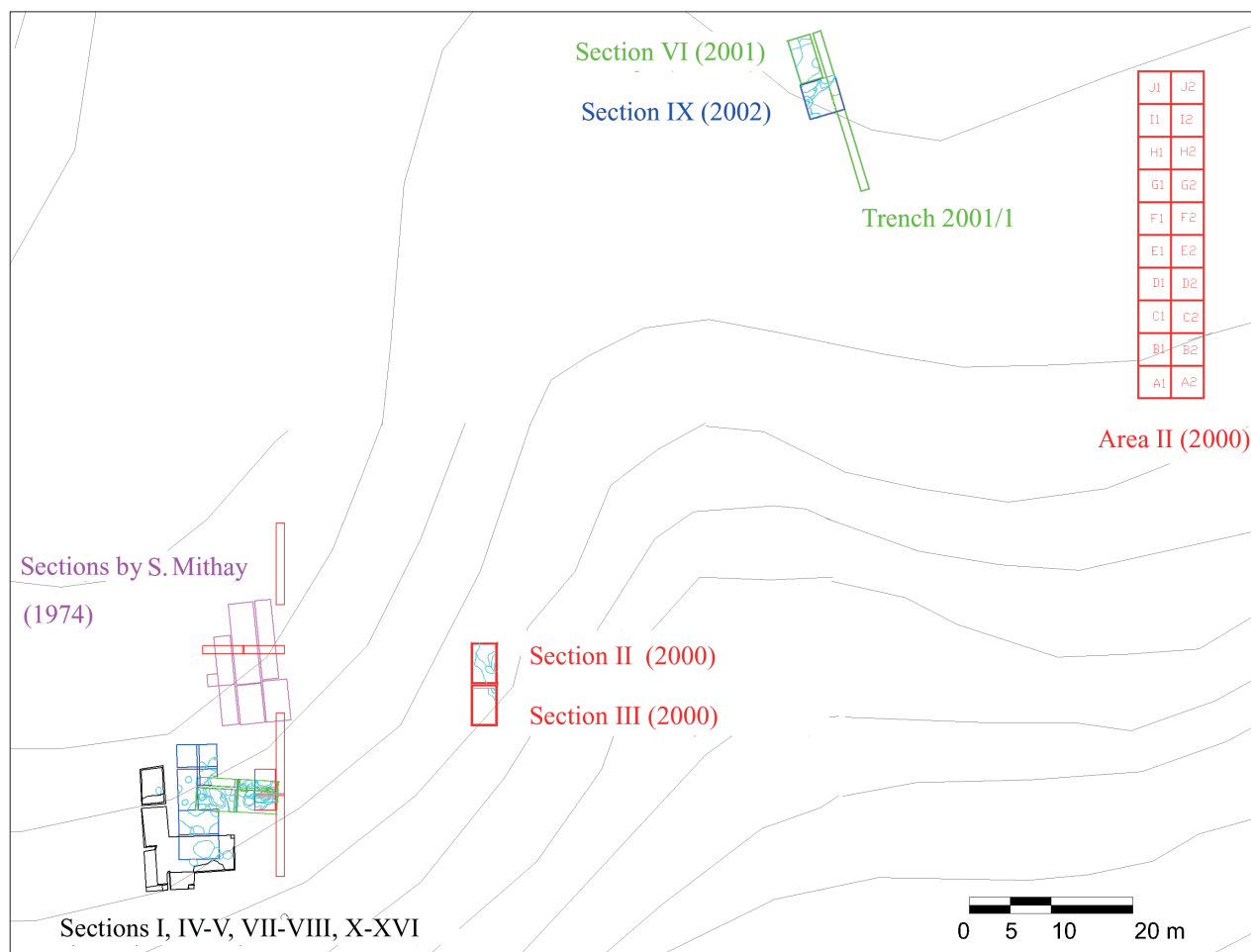


Fig. 3. Excavation ground plan, summary: a – central area of the 2000–2003 excavations (detail): trenches and sections in 2000 (red), 2001 (green), 2002 (blue), 2003 (black)

3. kép. Az ásatás alaprajza, összegzés: a – a 2000–2003 közötti ásatások központi területe (részlet): 2000-ben (piros), 2001-ben (zöld), 2002-ben (kék) és 2003-ban (fekete) feltárt szelvények

according to the report of K. Szalay, a new large blade core made of Tevel flint was found (Fig. 6), as well as sherds and ashy spot marking a fireplace.

The new trenches were planted in the direction of the rows of grapes, directed roughly to the North (Trench 2001/1) and were opened by 5 m phases till the subsoil containing sporadic finds of Neolithic sherds and stone tools. In the upper quarter of the area (Trench 2001/1: 15–20 m) however accumulation of finds and traces of a refuse pit were observed; we planted a new 3 × 5 m section here, accordingly (Section VI). The finds – mainly ceramics and lot of animal bones – could be associated with the Middle/Late Copper Age Proto-Boleráz culture (Kalicz, Horváth 2010). In spite of the obvious context (refuse pit), there was a large number of Neolithic (mainly Lengyel culture) sherds involved in the find assemblage.

At the same time, we continued excavations near Section I (and adjacent Trenches 2000/2, 2000/4).



Fig. 4. Pair of aurochs horns - building (?) sacrificial pit in Section I

4. kép. Őstulok szarvpár – építési (?) áldozati gödör az I. szelvényben



Fig. 5. Polished chisel made of Felsőcsatár greenschist
5. kép. Felsőcsatári zöldpalából készült csiszolt véső

The limits of our former work were delimited by a 10 m long E–W directed exploring trench exploited in two phases (Trenches 2001/2: 0–5 and 5–10 m, respectively). New sections were appointed by the accumulation of finds and the traces of the excavations of the previous year (Sections IV and V, 3 × 5 m, directed E–W). Part of Section IV and the Eastern phase of Trench 2001/2 (0–5 m) was adjacent to Section I (2000) observable in the section wall as well as the mixed refill sediment.

Connected to the large Lengyel culture pit complex partly excavated in 2000 several pits (i.e., parts of several pits) were opened with rich finds, including burnt debris (daub). The western part of the “aurochs pit” was opened till the subsoil and documented in longitudinal section.



Fig. 6. Large blade core made of Teveli flint
(stray find by K. Szalay)

6. kép. Teveli kovából készített nagy magkő penge
(Szalay K. szórványlelete)

Section V was planted the west of the area; with could observe the continuation of the large Lengyel pit. In course of exploiting the sediments we found two large pole pits that can be associated with the “aurochs pit” and the observed burnt debris as well. Moreover, in the SW part of Section V a large pit, containing sherds of the Zseliz culture and the LBK complex were found, as well as a fireplace dated also by LBK sherds.

The 2002 sections were planted adjacent to the 2000–2001 excavation areas, partly to finish whatever was left partly unexplored (Section VI, Trench 2001/1: 15–20 m), partly to continue observations on the Lengyel and LBK-Zseliz features. Sections VII, VIII, and XI were placed around the 2000–2001 areas and to the south of the, Section X was started. All of them yielded rich material, dominantly, belonging to the Lengyel culture. The features observed included refuse pits, postholes, debris (daub) from wattle-wall house and an oven. On the plot of Kálmán Szalay, the surfaces opened in 2001 were fully excavated, with further details of the Middle/Late Copper Age refuse pit and as new elements, pit and postholes associated to a Lengyel house.

New field surveys extended the known area of the settlement in Eastern direction, some 800 m along the southern slope of the Bittva stream.

In 2003, excavations were continued at Kup-Egyes. The aim of the excavations was to find the extension of the house associated with the large Lengyel culture pit complex and the pole posts. Apart from this, we wanted to finish the work on Section 2002/X, started but not finished in 2002 due to unfavourable weather conditions. In other words, we wanted to open and explore a larger continuous surface at the central excavation area for uniform interpretation and processing. Accordingly, the 2003 sections were planted over and around Section X of as well as besides Sections VII and VIII of the 2002 campaign.

The 2003 sections were numbered continuously as Sections XII–XVI. To the North of Sections XII and XVI, a narrow trench was drawn that is practically the enlargement of these sections ensuring their connection to the areas opened in 2002.

The total excavated area extended to 275 m², of which the Ist excavation area (also investigated by Mithay 1974) extended to 195 m². In 2003, altogether 85 m² surface was opened and explored, partly in conjunction to formerly excavated units (margins of Sections VII, VIII and the completely excavated

Section X (the overlapping area was altogether approximately 20 m²).

The features excavated in 2003 included a large pit rich in animal bones including complete dog skulls, bull cranium with horns, several pole post pits and house debris with daub. To the West of the previously known complex of pits and house debris there was a continuous layer of house debris (thick daub) con-

tinued, as yet unexplored, towards the West. Under the house debris, remains of a wattle-wall plastered oven were found with ash pit and pole post deepened in the latter. The finds were probably associated with at least two, but probably three houses settled close to each other, but of slightly different age.

Together with the formerly explored fireplaces, there were 3 ovens located at area I., one of them as-

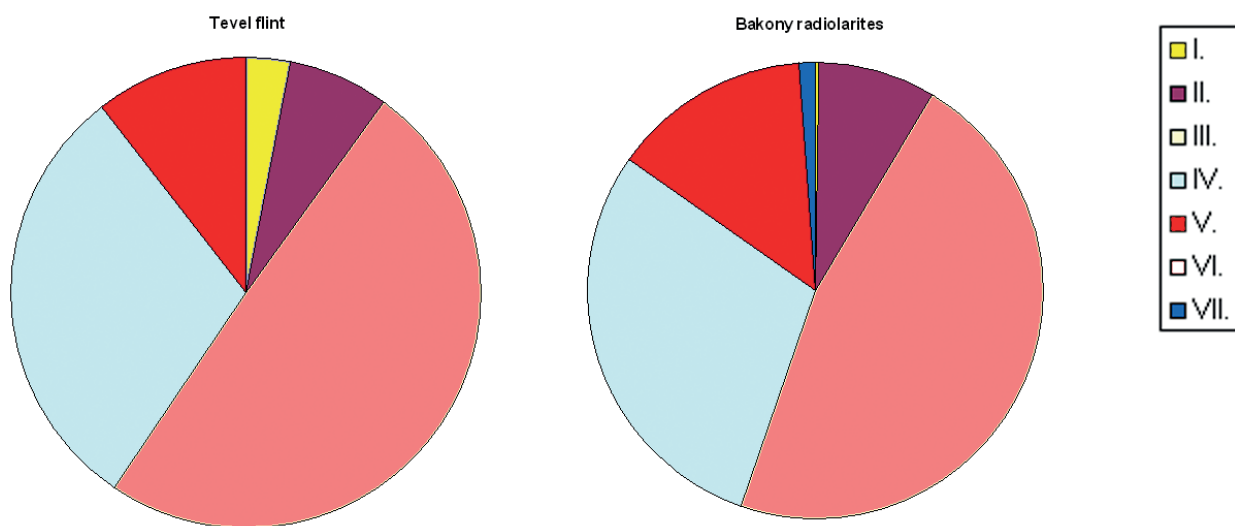


Fig. 7. Distribution of the main technological type groups for Tevel flint and different colour variants of radiolarite: I. raw material and precore; II. core; III. flake; IV. blade; V. retouched tool; (VI. polished stone tool); VII. other stone utensils

7. kép. A teveli kova és különböző színvariánsú radiolaritok főbb technológiai típuscsoportjainak eloszlása: I. nyersanyag és előmagkő; II. magkő; III. szilánk; IV. penge; V. retusált eszköz; (VI. csiszolt kőeszköz); VII. egyéb kőeszközök

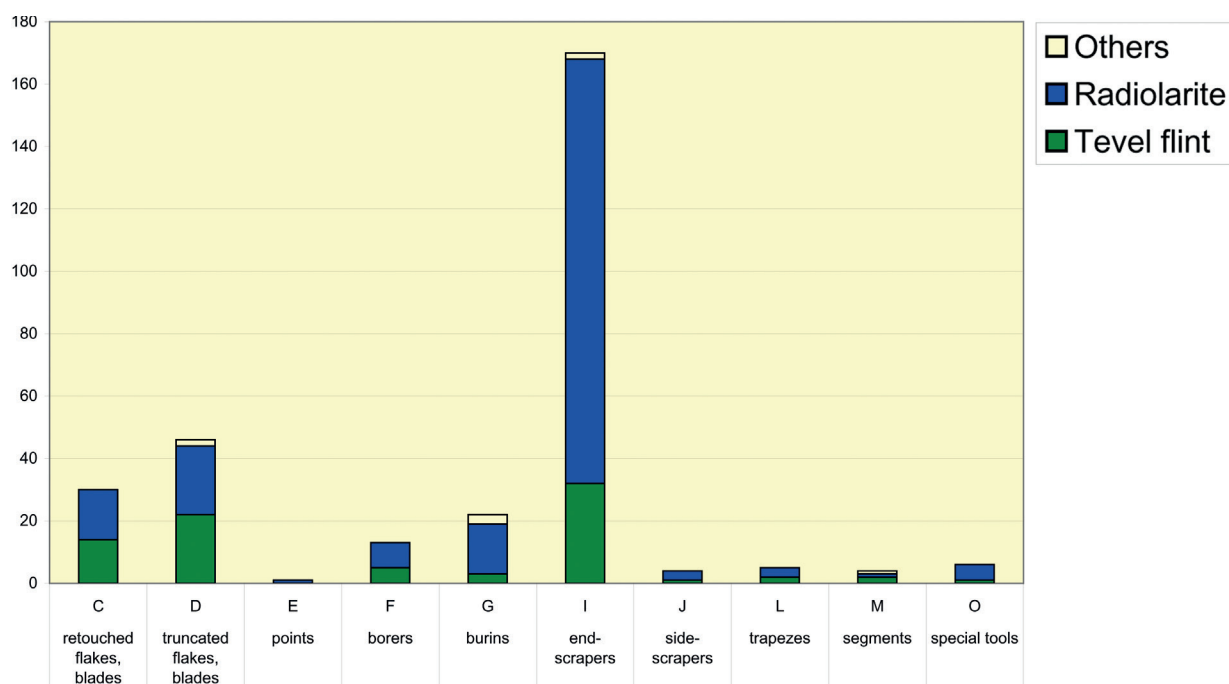


Fig. 8. Type frequency of the retouched stone tools by raw materials
8. kép. A retusált kőeszközök típusainak gyakorisága nyersanyagok szerint

sociated with the LBK (from the 2001 excavations) and two from the Lengyel culture (excavation in 2002 and 2003, respectively). Part of the pits - especially the large pit excavated in 2000–2001 in Section I and pits with complete animal skull (cattle, dog) from the 2003 season can be considered building offering.

Most of the archaeological finds from 2003 belong to the Lengyel culture (mainly its later phase). Apart from these, sporadically sherds belonging to the Linearbandkeramik were also found (e.g., eastern part of Section XVI). However, no specific feature can be associated with the LBK in the 2003 excavation material.

Though the site is far from completely excavated, we decided to stop at this point to perform the elaboration of the obtained evidence for publication. The site is eminently suitable for protection and further research. The complete extension of the site area, according to our field survey, probably surpasses 1 km × 200 m along the slopes of the Bittva stream in ENE–SSW direction.

Archaeological finds

The site was excavated by traditional manual technique. In all of the sections and features we have found sherds belonging to the Lengyel culture. In our excavations, pottery finds of the LBK and Zseliz culture mainly came to light in Sections I, II, IV, V and XVI, while Middle/Late Copper Age (Proto-Boleráz) finds were found in Trench 2001/1 and Sections VI and IX (*Table 1*). The elaboration of ceramic finds has been performed by Judit Regenye, the lithic material is presented here by Katalin T. Biró, while animal bones have been determined and published here by Annamária Bárány. As the Lengyel culture sherds came to light all over the excavated sections and features, the lithic material and the fauna are treated here uniformly.

Ceramic artefacts from the excavation

A total of 5,983 pottery sherds have been recovered from the excavation site. The high number of finds in relation to the excavated area is due to the fact that we did not remove the humus layer by machine, as this was a manual excavation. It should be added that the ceramic material is highly fragmented, which also contributes to the large number of pieces. The pottery represents three time horizons of the site.

The Neolithic Linearbandkeramik and the Lengyel occupation were distributed over the whole site, although the former was less pronounced in the excavated area, and the Copper Age Proto-Boleráz occupation was found in only one place. The quantity of pottery sherds is not evenly distributed between the periods, with the Lengyel occupation being most intense in the excavated area, and the others yielding relatively little pottery.

Linearbandkeramik culture (LBK)

The use of the site began in the late period of the LBK, around the turn of the 6th–5th millennium BC. Pottery fragments have been found sporadically, only in small numbers, in almost the entire excavated area. Their quantity is less than 3% of the total pottery. A layer of pottery was found in section V and around it (Sections I, XVI), where a pit and a hearth were excavated. No other features can be linked to this period. Some of the LBK pottery is fired to grey or yellowish-grey colour, and tempered with sand. Incised decoration is the dominant element in form of deep incised (*Fig. 9. 1–4*) or several rows of finely incised lines (*Fig. 9. 8*). There are straight line segments of lines encircling the vessel below the rim (*Fig. 9. 1*) or curved patterns running in several lines (*Fig. 9. 3–4*), and meander pattern (*Fig. 9. 5*) with deeply incised line decoration. The typical Zseliz style decoration of short stabs intersecting the incised bundle of lines is also present (*Fig. 9. 8*), and only in three cases the Notenkopf decoration (*Fig. 9. 5*). The fragments cannot be used to assemble larger compositional units of the designs. There were no painted pieces among the incised ornaments, but the surface of the ceramic fragments is heavily worn, it is possible that the paint has eroded. The applied decoration is represented by a perforated handle with an upturned end (*Fig. 9. 8*). As far as the shapes are concerned, fragments of spherical vessels occur in most cases, with only a few rim fragments suggesting a bomb-shaped vessel. The coarse pottery is brick-red, brown, tempered with plant material and sand. There are fragments of undecorated storage containers and hemispherical vessels, with a few pieces showing pinched decoration and knob ornamentation (*Fig. 9. 9*).

The decoration of a good part of the excavated ceramics with its deeply incised lines, the line running around the rim is typical of the Keszthely style. The material of the pit and hearth excavated in Section V is predominantly of Zseliz style. The finds of this composition form the 5th stylistic group in

Table 1. Kup-Egyes, main find categories by excavation units (2000–2003) (general)

1. táblázat. Kup-Egyes, fontosabb leletkategóriák a feltárási egységek (2000–2003) szerint (általános)

[illegible]

<i>Excavation unit</i>	<i>Total pottery</i>	<i>Lengyel pottery</i>	<i>LBK pottery</i>	<i>Proto-boleraz pottery</i>	<i>unspec. prehist.</i>	<i>Total stone artefacts</i>	<i>Total bones</i>	<i>Others (pigment, daub)</i>
2002/X. section	209	208	1			157	5	1
observed features:	2002: top layers with Lengyel finds till subsoil (continued in 2003, partly as Exploring trench 2003/1 and Section XII/XVI)							
2002/XI. section (with extension)	247	244	2		1	136	13	5
observed features:	Refuse pit with Lengyel finds at SE part (belonging to the large pit complex?), construction debris and oven with Lengyel finds							
2003/1 exploring trench	238	236	2			122	75	2
observed features:	Mainly Lengyel refuse pit area (connecting excavation areas 2002 and 2003)							
2003/XII. section	290	290				218	324	7
observed features:	On N part large Lengyel refuse pit complex; in NE corner of section, pole post pit separate parts of the pit with bull horn and complete dog head							
2003/XIII. section	210	206	4			121	112	4
observed features:	Remains of refuse pit on the E part with mainly Lengyel finds including burnt daub debris							
2003/XIV. section	850	848	2			324	226	6
observed features:	On W part, large, burnt house debris with rich Lengyel finds and ashy fireplace, in the SE part of the section, refuse pit towards section XII. Under the ashy pit, pole post pit with circular section							
2003/XV. section	63	63				38	13	0
observed features:	Smaller pit in central part of the section on the E side							
2003/XVI. section	638	607	30		1	204	495	4
observed features:	Large central pit complex with dark filling rich in animal bone finds, adjacent to Trench 2003/1, mainly with Lengyel finds. On the E part of the section, some characteristic LBK sherds							
excavation units total	5936	5557	172	90	117	2548	1750	106

Tibor Marton's system developed for the Balaton-szárszó site (Marton 2015, 193–194).

The artefacts we have excavated differs from the material of Pit 1 excavated by S. Mithay in Kup in 1974 (Gläser, Regenye 1989, Plates I–V), which contained a large number of Notenkopf style pottery in addition to the incised Keszthely style material. This pit had an irregular, roughly NW-SE oriented, elongated shape, interpreted as a lateral pit next to a house. (The house was not excavated.) The orientation of the pit from north to slightly west is typical for LBK houses in the nearby Kisalföld region (Oross et al. 2019, 34), which strengthens the hypothesis that Kup Pit I is also a lateral pit next to a house. The mixed Keszthely and Notenkopf style pottery found here, is therefore representative of the environment of a house. South of this, we found the concentration of Zseliz style artefacts, which may have belonged to the surroundings of another house. The exact extent

of the relationship between the two houses and their chronology is not known.

The Kup site, located on the banks of the Bittva stream, is part of the LBK settlement region of the Marcal river, as Bittva is in the catchment area of the Marcal (Regenye 2019, 41, Fig. 1). It is precisely in this area that the transition zone defined by N. Kalicz between the Keszthely and Notenkopf/Zseliz groups of the LBK extends (Kalicz 1991, 5, Fig. 1; Bánffy and Oross 2009, 182; Oross et al. 2019, 55–57). The LBK material of Central Transdanubia is entirely part of the transition zone. Numerous examples show that no sharp boundary can be drawn between ceramic styles (Raczky et al. 2014), and in this case it is not surprising that mixed find assemblages are found in most of the LBK sites of Central Transdanubia. Typically, Keszthely-type finds are mixed with Zseliz style pottery in this area (e.g. Mencshely), and a smaller number we can find sites

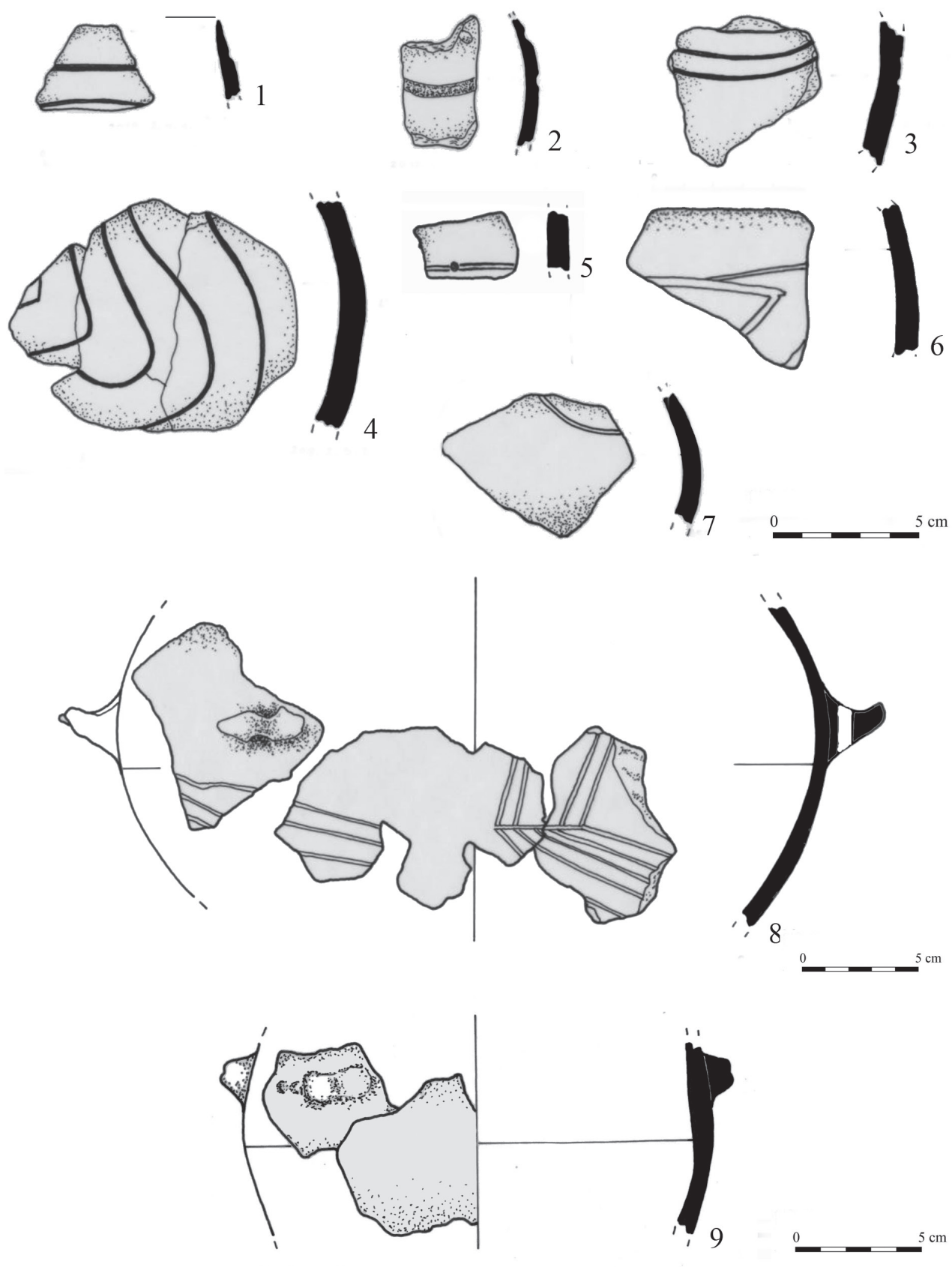


Fig. 9. Kup-Egyes, ceramic finds, Linearbandkeramik culture
 9. kép. Kup-Egyes, kerámia leletek, vonaldíszes kerámia kultúrája

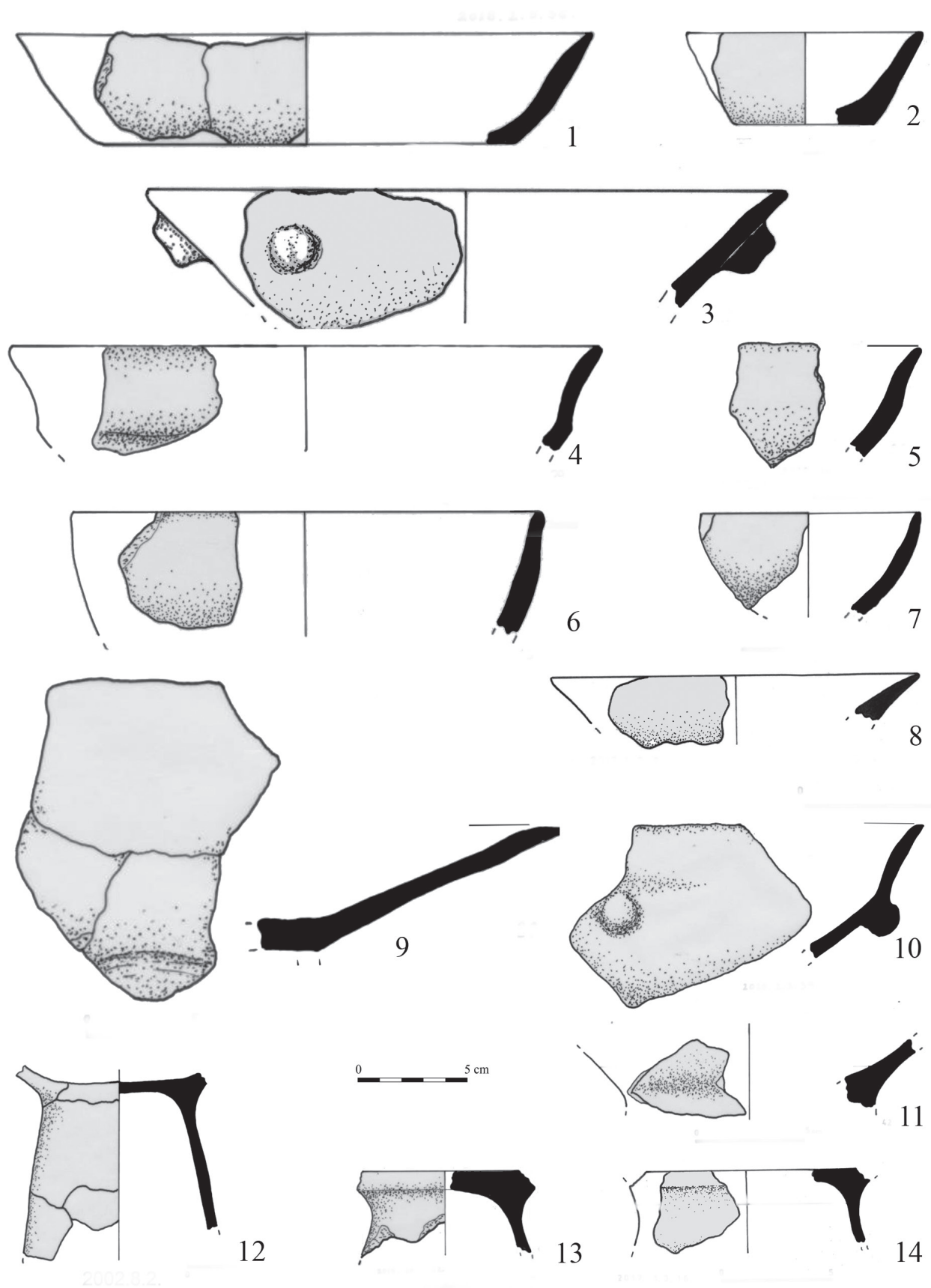


Fig. 10. Kup-Egyes, ceramic finds, Lengyel culture
 10. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

with finds of Keszthely and Notenkopf composition (e.g. Kup's earlier excavation material). The difference may be due to temporal and social factors, and it should be added that small excavation areas do not give a complete picture of the whole sites.

K. Oross, as a result of large-scale excavations in the LBK sites of the Balaton region, extended the transitional zone where mixed finds occur to the Kapos river. In his interpretation of the situation, he drew a picture into which the results of the Kup excavations can be well integrated. Mixtures of different ceramic styles vary from site to site and even between social units within a site (Oross et al. 2019, 57–60). Two excavations at Kup, not far from each other, produced two LBK deposits with different ceramic styles. The two concentrations of finds may indicate two households, which typically use a different dominant pottery style, either the Zseliz or the Notenkopf style. Sites with mixed artefactual material thus indicate settlements composed of households using different stylistic variations. (Oross et al. 2019, 59). In the absence of chronological and ceramic raw material studies, this is a far-reaching conclusion for an excavation on such a small scale as Kup. Other interpretations are possible.

Lengyel culture

The site was most intensively inhabited during the Lengyel period. More than 90% of the pottery excavated can be classified here. The richness of the finds is due to the large settlement, as evidenced by the presence of Lengyel finds in all the excavated parts of the site, and may also reflect a longer period of use. The age of the site is limited to the Late Lengyel period, the mid-5th millennium BC. The term Late Lengyel being understood as outlined by the study of the material from the settlements around the Tüzköves Hill in Szentgál, where the ceramic typology suggests that the second half of Lengyel II with Lengyel III forms the Late Period (Regenye 2011, 53). This entire period is usually present in the material of larger excavations (Veszprém: Regenye, Biró 2014; Regenye, Biró 2019; Regenye, Biró 2020; Balatonmagyaród: Barna et al. 2019). Settlement features are usually large pits dug over several periods. The most notable of these is a pit with a pair of aurochs' horns placed on a bowl at the bottom. The post-holes next to the pit indicate a house here. The specific nature of the deposit and its context, its relationship to a house, suggest the notion of ritual.

The Lengyel ceramic material is grey, brown, yellow or brick-red in colour. The use of tempering

agents is varied; thin-walled ceramics are tempered with sand, the other ceramics contain sand, crushed pot fragments and less frequently crushed pebbles. The surface of the pot fragments is heavily abraded, a common phenomenon in clay soils, and therefore traces of surface finishing and decoration are rarely visible, except in the material of pits where the pit-filling preserved the pottery better (e.g. in the large pit with black fill in Section XVI).

The composition of Late Lengyel settlement pottery shows a uniform pattern in terms of vessel shapes. A large number of bowl fragments are typical of all sites, including this one. The conical bowl form (Fig. 10. 1–3; Fig. 11. 1–2, 11–14) is the dominant one, occurring in larger and smaller sizes, as a bowl with low and steep walls (Fig. 10. 1–2; Fig. 11. 9–10) or as a wide-mouthed bowl (Fig. 10. 3). The latter are often joined by a high pedestal (Fig. 10. 9, 11–14). The sides of the bowls are straight, sometimes slightly curved at the rim. A common applied ornamentation is a knob placed under the rim (Fig. 10. 3; Fig. 11. 10, 12), which can take several forms, mostly round. The upwardly curved, prominent wide handle (Fig. 11. 14; Fig. 17. 14) may also be an accessory of low bowls. A characteristic feature of the site is the triangular projection on the rim of the conical bowls (Fig. 11. 2) or, less characteristically, the wavy rim (Fig. 11. 1). Another characteristic feature is the rim cut straight and thickened on the inside of the conical bowls (Fig. 11. 5, 7), thereby widening the rim of the bowl. There is also a cut straight rim thickened on the outside (Fig. 11. 8). This type of rim is not at all common in Lengyel pottery. Similar bowls can be found only in Zalaszentbalázs (Bánffy 1995a, 84–85, Pl. 68. 155, 156, 160, 161, 162). The rim of the conical low bowls is often decorated with finger imprints (Fig. 11. 10–11). This shaping of rims is also found on larger conical bowls (Fig. 11. 9, 14). Here it is the rims of the bowls that have been shaped in this way, but in other sites it is more likely to be found this rim design on the larger pot-shaped vessels. The decoration of the rim in this way is interesting from a chronological point of view, as the material from the Lengyel sites around Szentgál shows that the practice became more common over time (Regenye 2011, 40). In one case (Fig. 11. 13), a small spout was found on the rim of a conical bowl. In this case, the spout had a handle on the opposite side of the rim. It should be noted that this spout is a simple pinching of the rim, not the spout-form known from the Lengyel sites in Western Transdanubia. (Bánffy 1995a, Pl. 97. 166; Kalicz

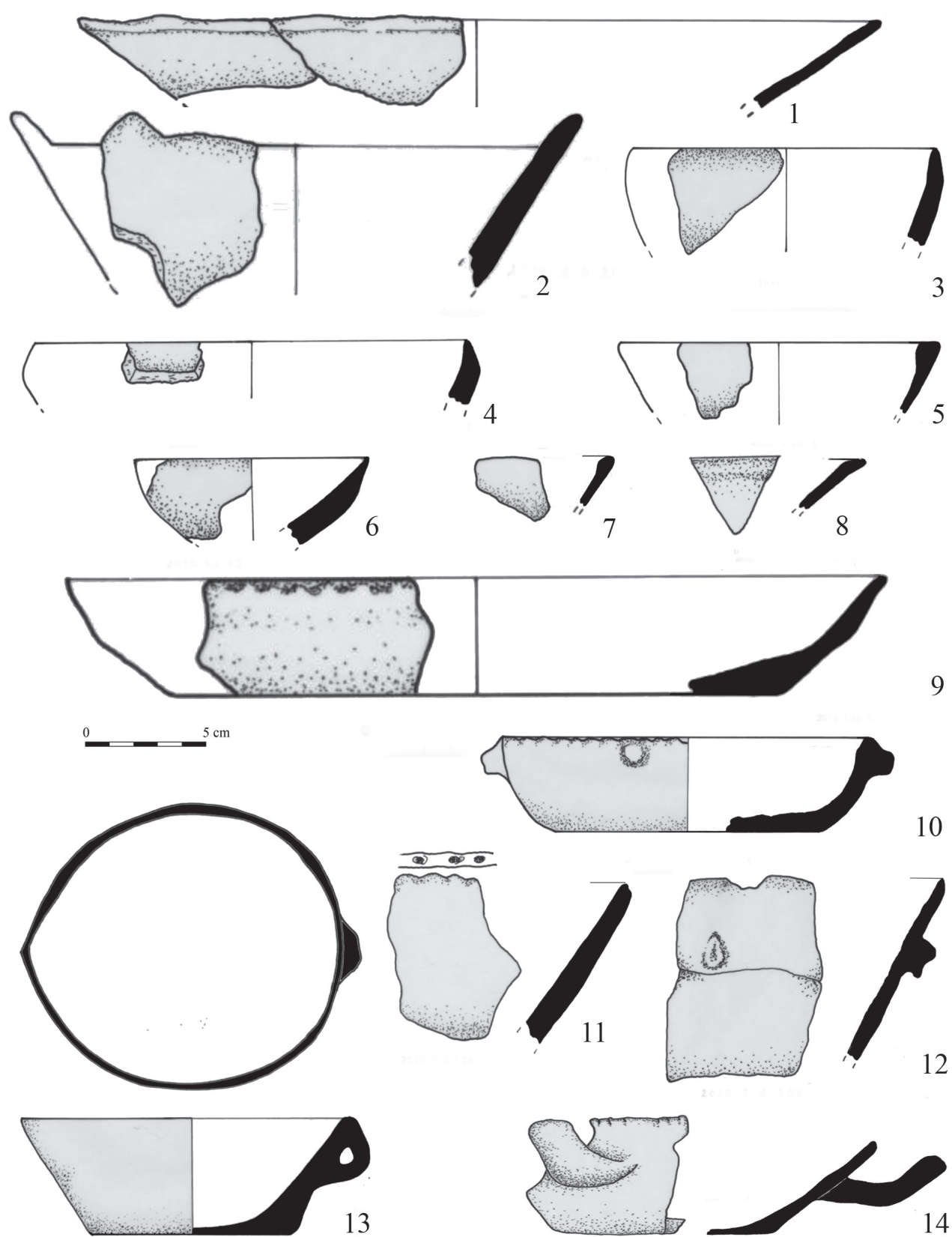


Fig. 11. Kup-Egyes, ceramic finds, Lengyel culture
 11. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

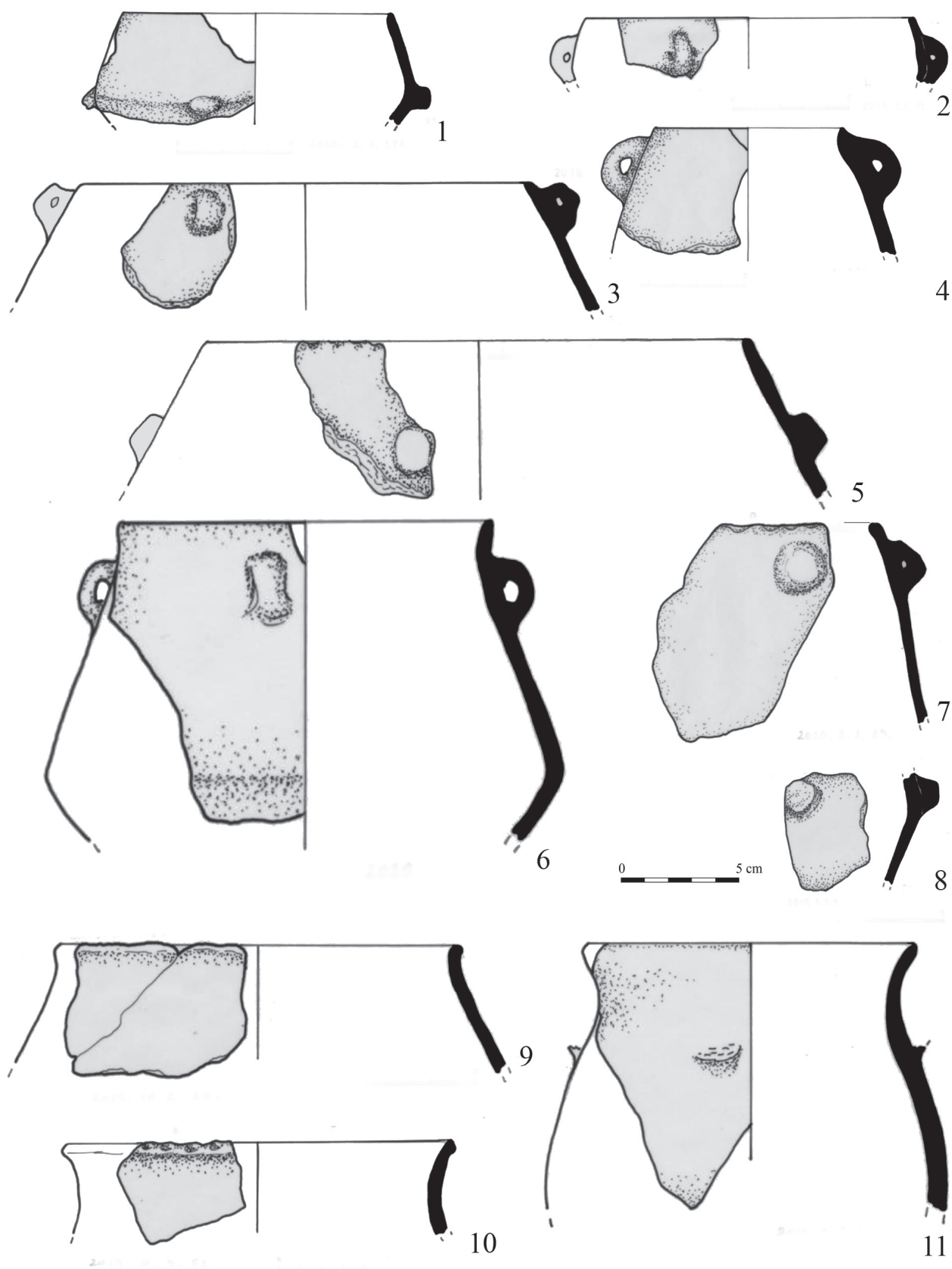


Fig. 12. Kup-Egyes, ceramic finds, Lengyel culture
 12. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

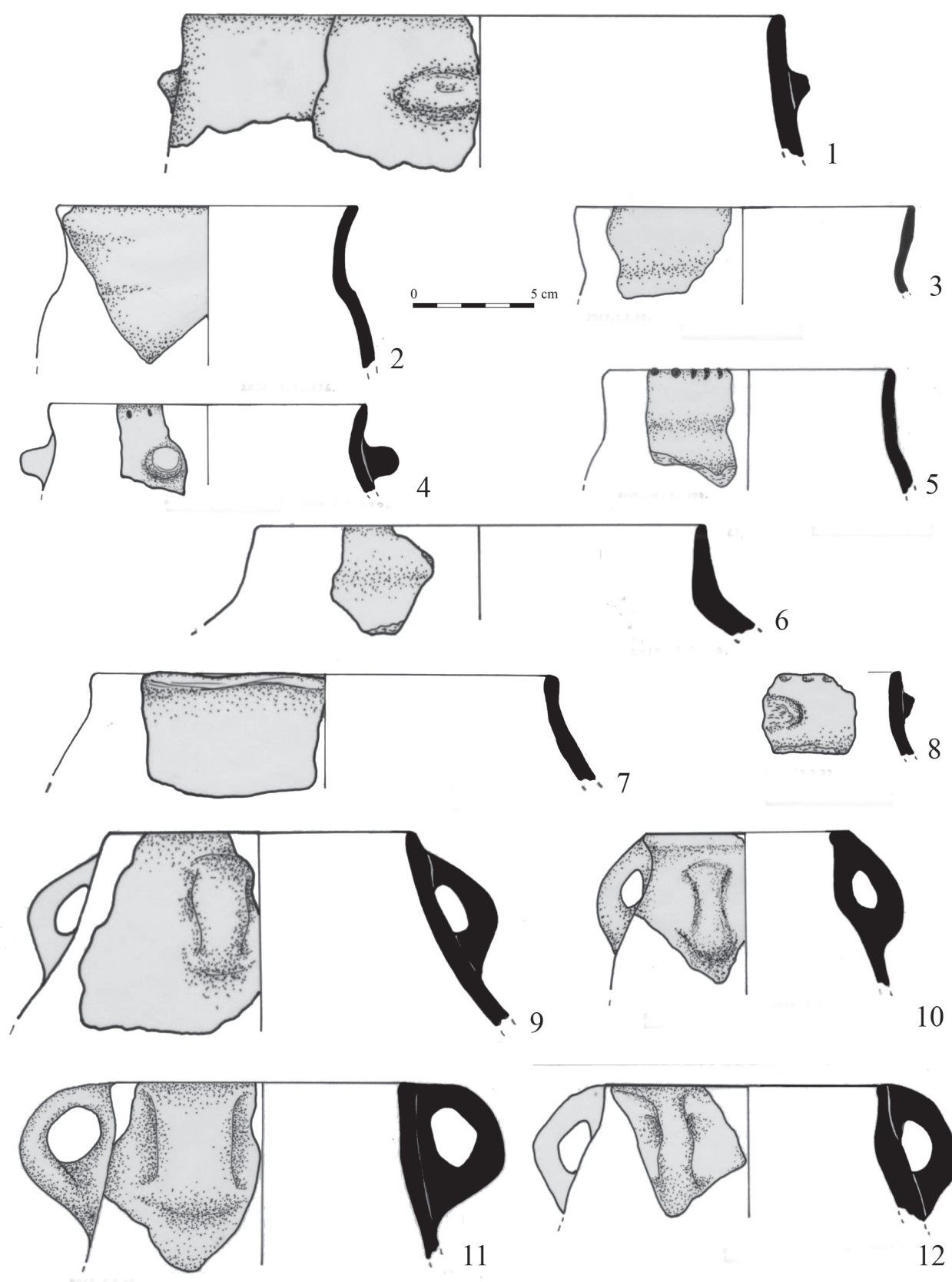


Fig. 13. Kup-Egyes, ceramic finds, Lengyel culture
 13. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

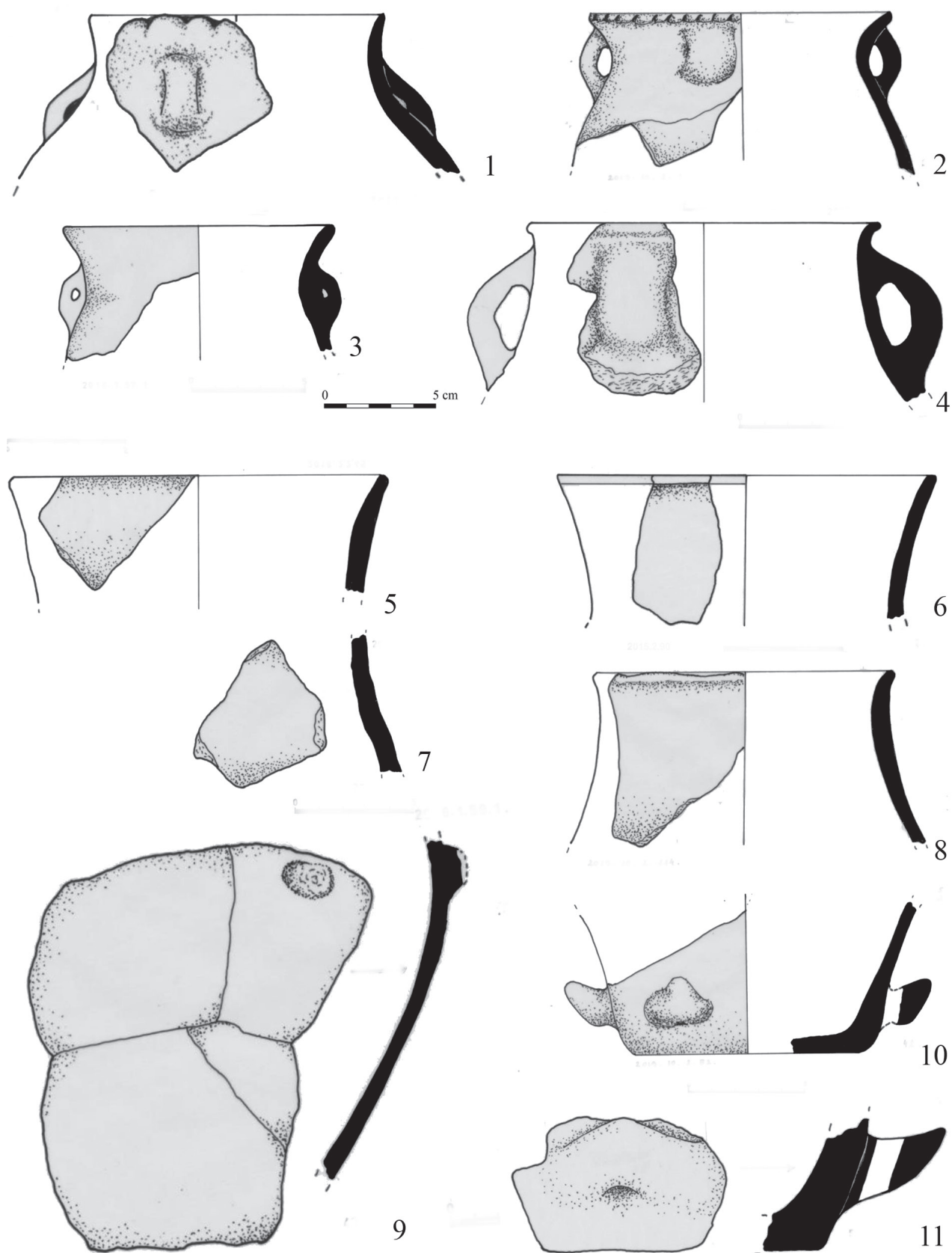


Fig. 14. Kup-Egyes, ceramic finds, Lengyel culture
 14. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

2003, 4, Fig. 8. 9). The two are related phenomena, despite their different design. Similar to the straight-walled bowl, the profiled bowl is a common vessel form at the site, with a sharper (Fig. 10. 4, 10) or less sharp carination line (Fig. 10. 5). The profiled bowl has a wide mouth, but the sides are not as steep as the conical ones, the rim is outwardly inclined, and the sides run down steeply below a sharper or less sharp carination line. This type of vessel is often painted, but here the painting is less preserved for the reason already mentioned. The bowl form is characterised by applied ornamentation, with mostly a round knob (Fig. 10. 10; Fig. 16. 4) or oval horizontally perforated knobs along the carination line. Profiled bowls can also be equipped with a high pedestal. Smaller bowls may have curved walls (Fig. 10. 7), or there may be a bowl with a thinning rim that is bent inwards above the carination line near the rim (Fig. 11. 3–4). This type of bowl, similar to the previously mentioned straight rim bowls, is found at sites of western Transdanubia (Bánffy 1995a, Pl. 55. 251–252, 254–255). The next vessel type to be mentioned is the biconical vessel. There are smaller or larger biconical vessels (Fig. 12. 1–3, 5–7), with a sharp carination, biconical profile. They are larger than the bowls, and are markers of the Late Lengyel period. Smaller and larger versions are abundant in sites of this period. The rim and the belly are frequently applied with knobs and the rim is decorated with finger printing. One variant of the vessel form has a short, curved rim on the strongly inward shoulder (Fig. 12. 6). Very characteristic and common to the site are the larger, round-bellied vessels known as pots. There are variants with curved or funnel-shape necks (Fig. 12. 9–11), in addition to the cylindrical neck form (Fig. 13. 1, 6). The rim is often notched or finger-pressed. Below the curved rim the shoulder line may be sharply or more softly profiled. The neck often has a vertically applied tongue-shaped knob (Fig. 16. 7). The belly is oval or spherical, possibly with a knob on the widening. There is a smaller version of the vessel form, with a funnel-shaped neck, (Fig. 13. 2–4) and a cylindrical neck (Fig. 13. 5). There is also a small pot with a featured shoulder typical of the late Lengyel period (Fig. 13. 2). The amphora is a similar vessel to the pot, distinguished by the handle starting from the rim or from below, possibly from the shoulder (Fig. 13. 9–12; Fig. 14. 1–4). They are not functionally different vessels, although this is portable. A vessel with a handle from the rim is another marker of the Late Lengyel pottery style, along with the biconical large vessel mentioned earlier. It is a

common vessel at the site and the form is very varied. One of the basic types is a vessel with shorter or taller cylindrical neck, with a curved shoulder, and a handle on it (Fig. 13. 9, 11–12). The other is a vessel with cylindrical neck and a profiled shoulder (Fig. 13. 10). The third form is a vessel with curved rim and shoulder (Fig. 14. 1–4). The large loop handle starts from the rim (Fig. 17. 1) or directly below it (Fig. 17. 5), or a similarly wide but shorter handle is found on the neck (Fig. 17. 7). The extremely wide handle fragments found in several examples (Fig. 17. 12–13) may have belonged to such vessels. These pots also have a characteristic finger printing decoration on the rim. A further category of larger vessels is the vase-shaped vessel (Fig. 14. 5–11). They have a funnel-shaped or cylindrical neck, curved shoulder and a rounded belly. Some fragments of vessel bottoms with a beak-shaped handle near the base of the vessel have been recovered (Fig. 14. 10–11). Large vase-shaped vessels with such handles near the belly and bottom are typical of the Lengyel II period. In addition to these larger vessel shapes, there are a fairly large number of similar, but smaller forms. They are of light-brown to yellow-coloured, sand-tempered, thin-walled pottery, mostly small rim fragments, biconical or curved side fragments. Small pots with slightly curved rims and slender, curved shoulders (Fig. 15. 1) are the basic form, but there are also cylindrical high-necked pots (Fig. 15. 2), short curved necked pots with oval bellies (Fig. 15. 8) and more compact, sharply profiled vessels (Fig. 15. 12). The fragments represent the various forms of the small three-piece vessel. Small rounded knobs are common on the belly. Rarely, but occasionally, a vessel with handle is found among them (Fig. 15. 14). A frequent find is a spoon with a perforated handle (Fig. 18. 3–4), which appeared in several places in the site. A single exemplar is the fragment belonging to a strainer vessel (Fig. 18. 5). In addition, spindle discs made from drilled vessel sides (Fig. 18. 1–2) and double conical bobbins (Fig. 18. 7–8) were found. The latter include a beautifully decorated piece. Finally, a small lid (Fig. 18. 10), the only one found on the site, should be mentioned. These little objects are all standard pieces of Lengyel settlement pottery. A common feature of Late Lengyel pottery is the imprint of a mat on the bottom of a vessel (Fig. 18. 11). The pattern, which was produced during the pot-making process, is interesting because it points to weaving, a household activity.

Vessel decoration is important for a number of reasons. In terms of vessel forms, the whole Lengyel

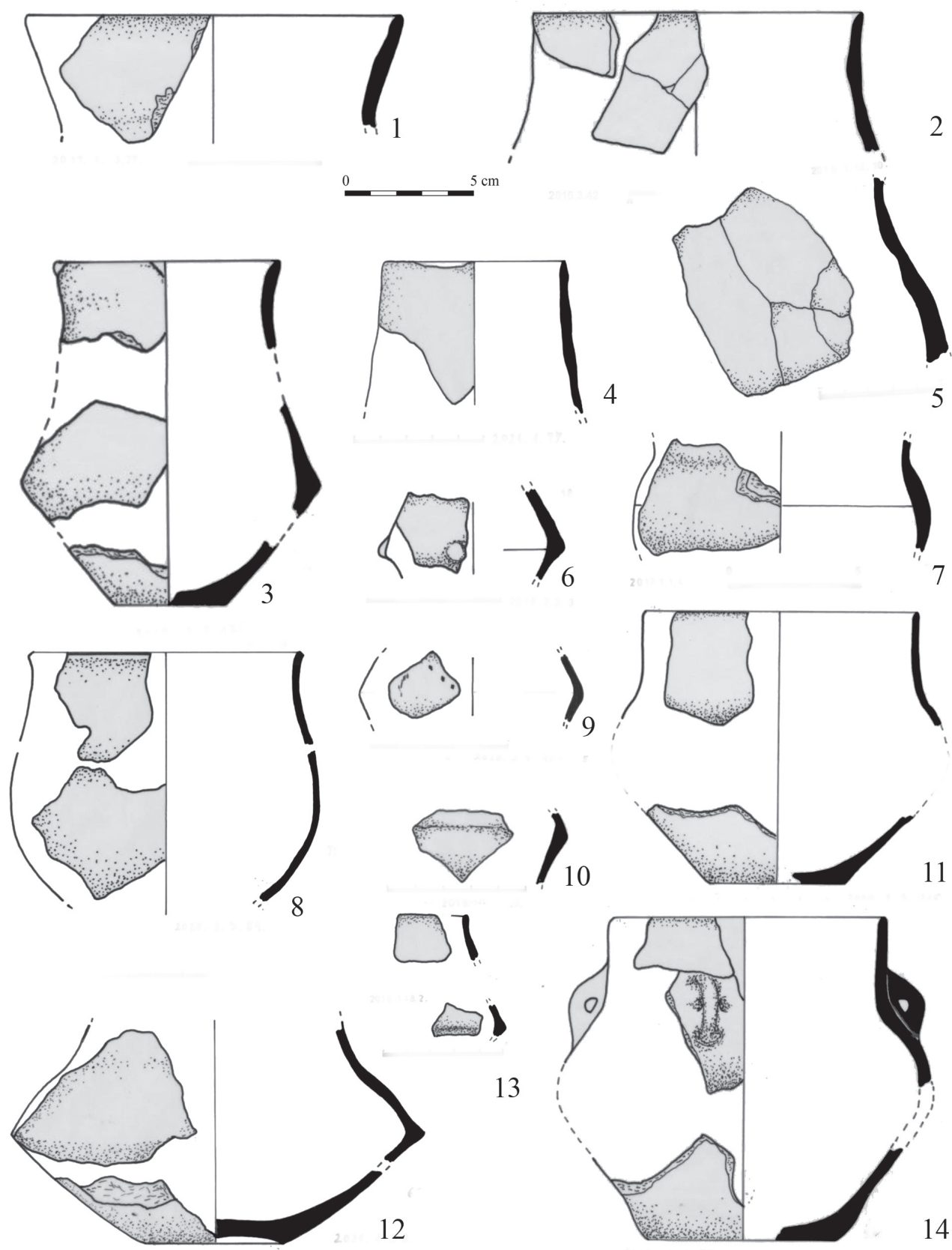


Fig. 15. Kup-Egyes, ceramic finds, Lengyel culture
 15. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

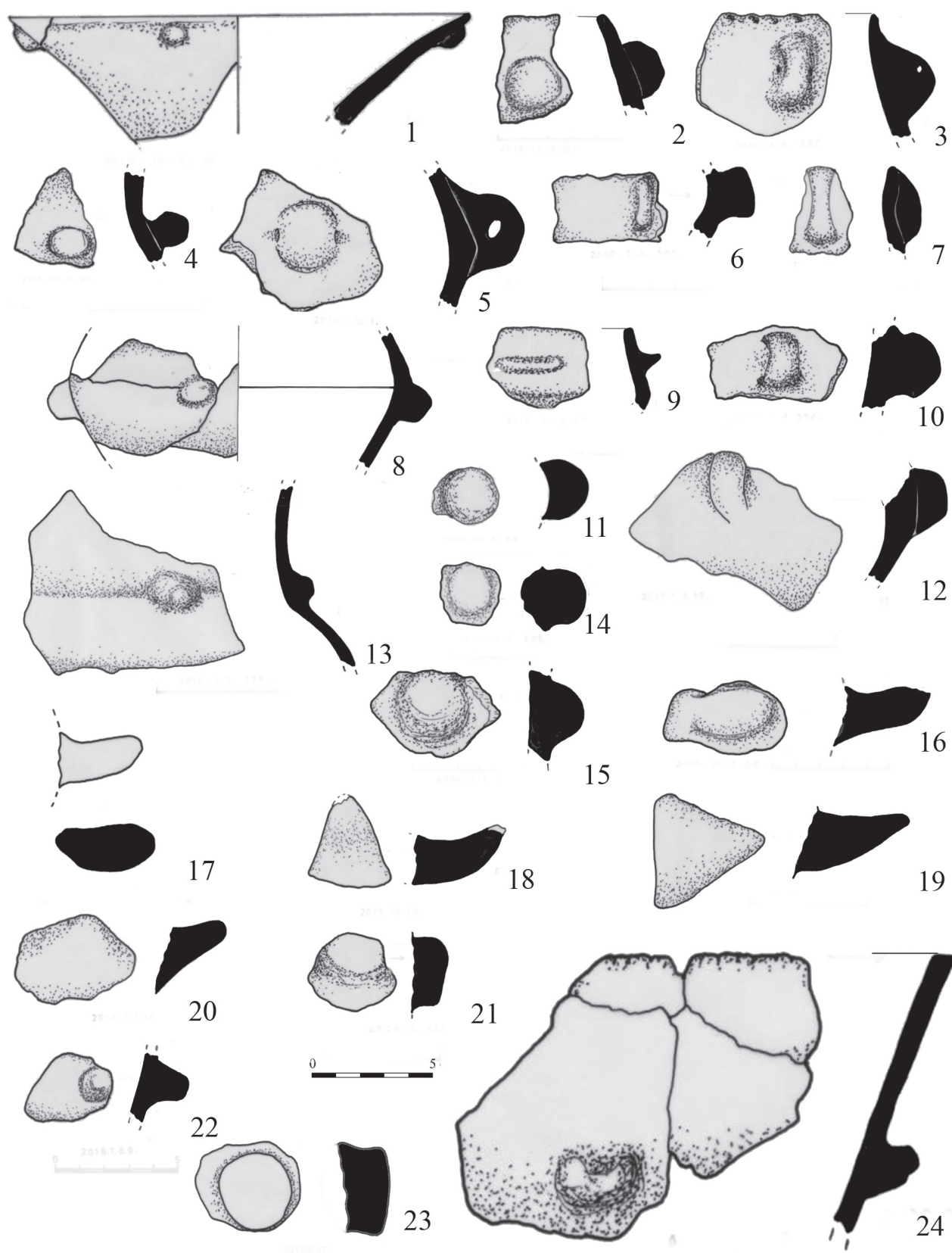


Fig. 16. Kup-Egyes, ceramic finds, Lengyel culture
 16. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

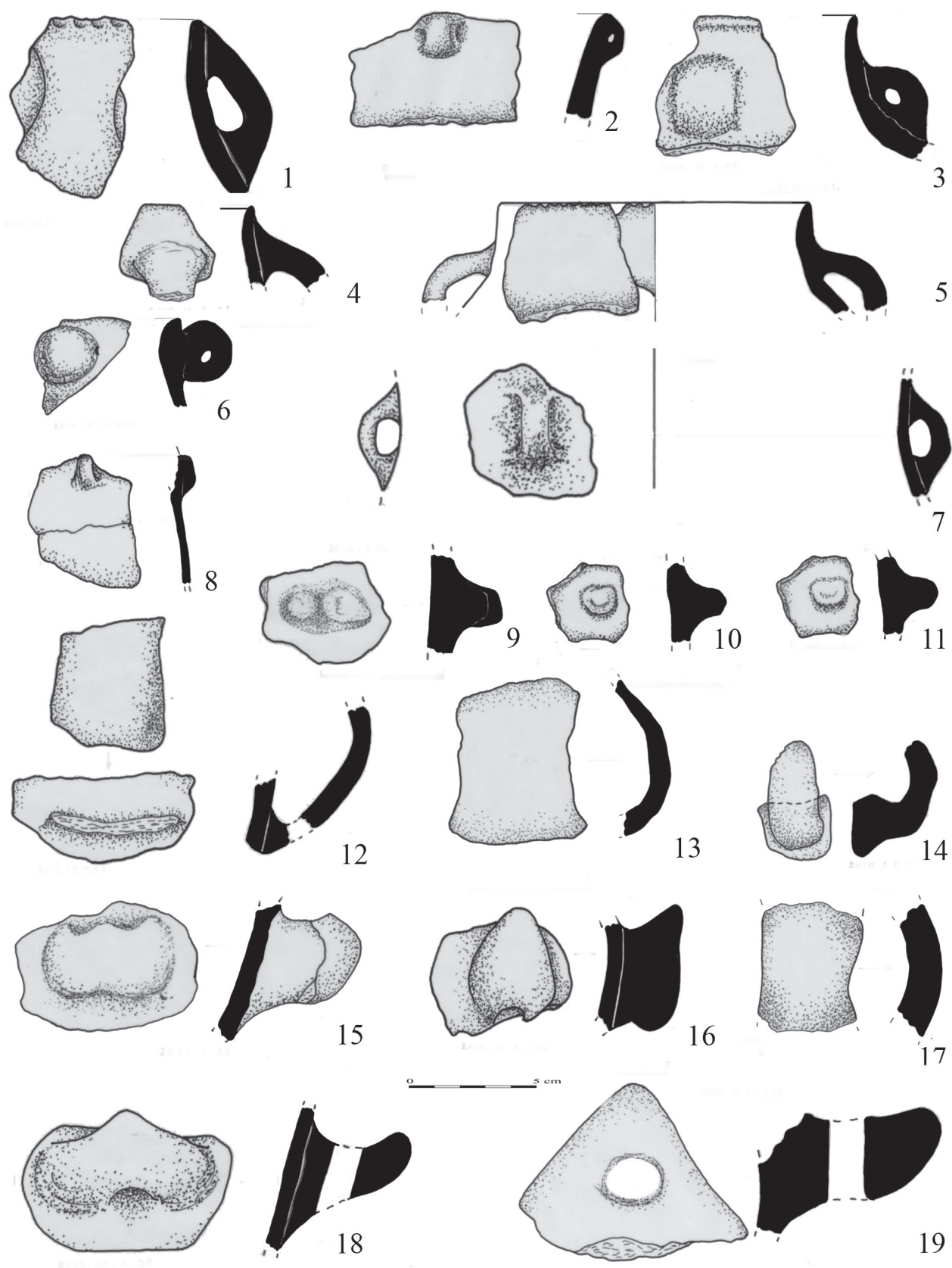


Fig. 17. Kup-Egyes, ceramic finds, Lengyel culture
 17. kép. Kup-Egyes, kerámia leletek, lengyeli kultúra

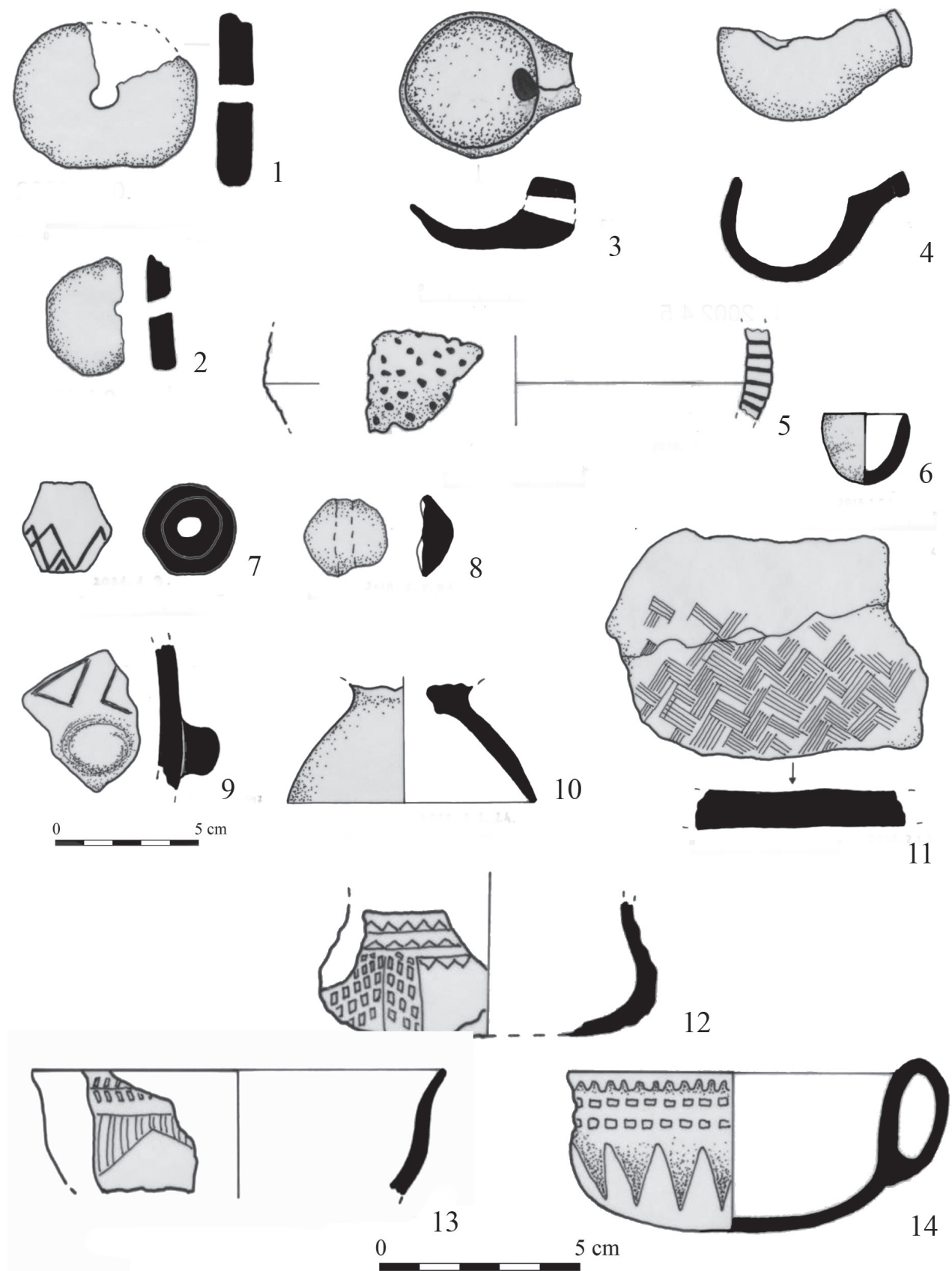


Fig. 18. Kup-Egyes, ceramic finds, Lengyel (1–11) and Proto-Boleráz culture (12–14)
 18. kép. Kup-Egyes, kerámia leletek, lengyeli (1–11) és Proto-Boleráz-kultúra (12–14)

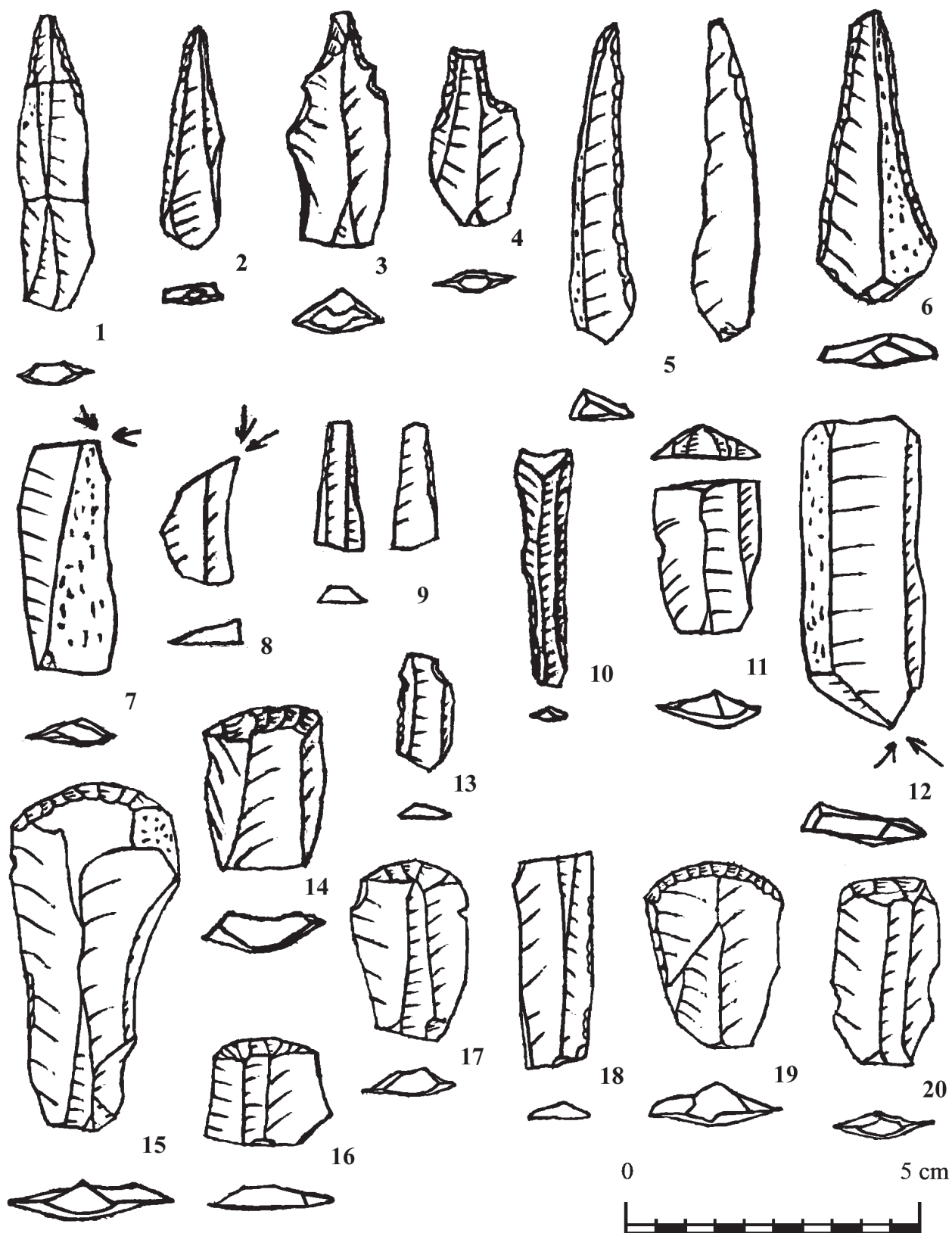


Fig. 19. Kup-Egyes, lithic finds, retouched tools
 19. kép. Kup-Egyes, kő leletek, retusált eszközök

circle had basically the same set of vessels, but there were differences between the communities in the characteristic of the vessel decoration, especially in the use of applied ornaments. On the other hand, the decoration of vessels is also important from a chronological point of view, as the form of decoration has been subject to change over time. Applied decoration is an important feature of Late Lengyel ceramics. The range is very wide, from small, lenticular knobs to large, upturned, horn-shaped knobs. While the earlier forms continue to be used, new forms appear and there is a tendency to emphasise the decoration by increasing the size. The small round (Fig. 16. 11, 14), the globular (Fig. 16. 4) and the rounded or oval perforated knobs (Fig. 16. 5; Fig. 17. 6) are traditional types of ornamentation. Lengyel III features include the round pointed knobs (Fig. 16. 22), the vertical elongated knobs with flattened sides (Fig. 16. 6–7), which were placed on the necks of pots, and the horizontally applied counterpart, horizontal elongated knobs with flattened sides (tongue-shaped) knobs (Fig. 16. 9). The squared round knobs with impressed sides makes the originally rounded form square (Fig. 17. 10–11). A large version of the round flat-topped knob has been also used (Fig. 16. 21, 23). It can be observed that some long-used vessel forms were not changed in the way they were decorated, but the usual ones were repeated. This is still the case, for example, with three-piece vessels, on which small lentil-shaped or oval, perforated knobs are still placed (Fig. 15. 6; Fig. 16. 13). Important innovations include large, upright knobs with different shapes, triangular (Fig. 16. 19–20), flat knobs bent upwards at right angles (Fig. 17. 14), horn-shaped knobs (Fig. 16. 16–18) and large elongated knobs with impressed centre (Fig. 17. 9). The handles also show new shapes, with the traditional beak-shaped (Fig. 17. 15–16, 18–19) and the small loop handles on the shoulders (Fig. 17. 3) being joined by wide long handles (Fig. 17. 12–13, 17) placed vertically on the rim or neck. In addition to the form of the applied decoration, the way in which it is placed on the body of the pot also varies. Placement on the rim is very common, which changes the character of the vessel. The specific design of the rim has already been mentioned. Painting is an important element of Lengyel pottery. The use of painted pots is decreasing over time, but it is not disappearing. The surface abrasion of the pottery at the site is not favourable to the preservation of the painting. The soil is generally blamed for the poor quality of the pottery, but it should be

noted that this is generally the case for Late Lengyel pottery, so there may be a ceramic manufacturing reason for the poor preservation. Traces of painting are mainly visible on small pots with thin walls. The proportion of painted fragments is less than 10% here, which is certainly of chronological importance given the declining trend in painting over time. Most of the fragments are painted red, with white on a red ground and occasionally black. Painted pieces were more frequent in Sections II–III, and there were white painted fragments on a red background, suggesting that an early layer of Lengyel settlement was found in this area. A unique decoration is an incised pattern on the side of a vessel (Fig. 18. 9). This type of decoration is not typical of Late Lengyel pottery, but it does occur occasionally (Regenye 2011, 56, Pl. 19, Fig. 10–11).

The Lengyel finds recovered during the earlier excavations in Kup (Gläser, Regenye 1989, Pls. VI–X) are entirely identical to those described here. Nearby, finds from Pápateszér are also known from a similar Lengyel period (Regenye, T. Biró 2012). Both sites are of Late Lengyel age and have a similar geographical location outside the Bakony Mountains, to the north of them, away from the workshop area of Szentgál. The basic features of their finds are similar, but there are important differences. The difference between the two sites is that the Pápateszér site belongs to the Lengyel circle of Central Transdanubia, represented by the Veszprém site (Raczky 1974; Regenye, Biró 2014; Biró 2019; Biró 2020), while Kup belongs to the Lengyel circle of Western Transdanubia, represented by the Zalaszentbalázs site (Bánffy 1995). This classification is justified by the design of the bowl rims, which is typical only for that site, and the nature of the applied decorations. The geographical location of the Kup site supports this conclusion, as the Bittva stream falls within the catchment area of the Marcal river and the Marcal basin is part of the Western Transdanubian region of the Lengyel culture.

Why is there so much emphasis on the difference in ceramics between the two regions? What does the difference in ceramic use express? The difference in ceramic style between some areas of Transdanubia can be interpreted as a regionalisation at the end of the Lengyel period. Variations in material culture are perceived as regional differences. We see stylistic differences in the shaping of the vessels, but of course there are real reasons behind this, namely social reasons. The pottery merely makes visible the

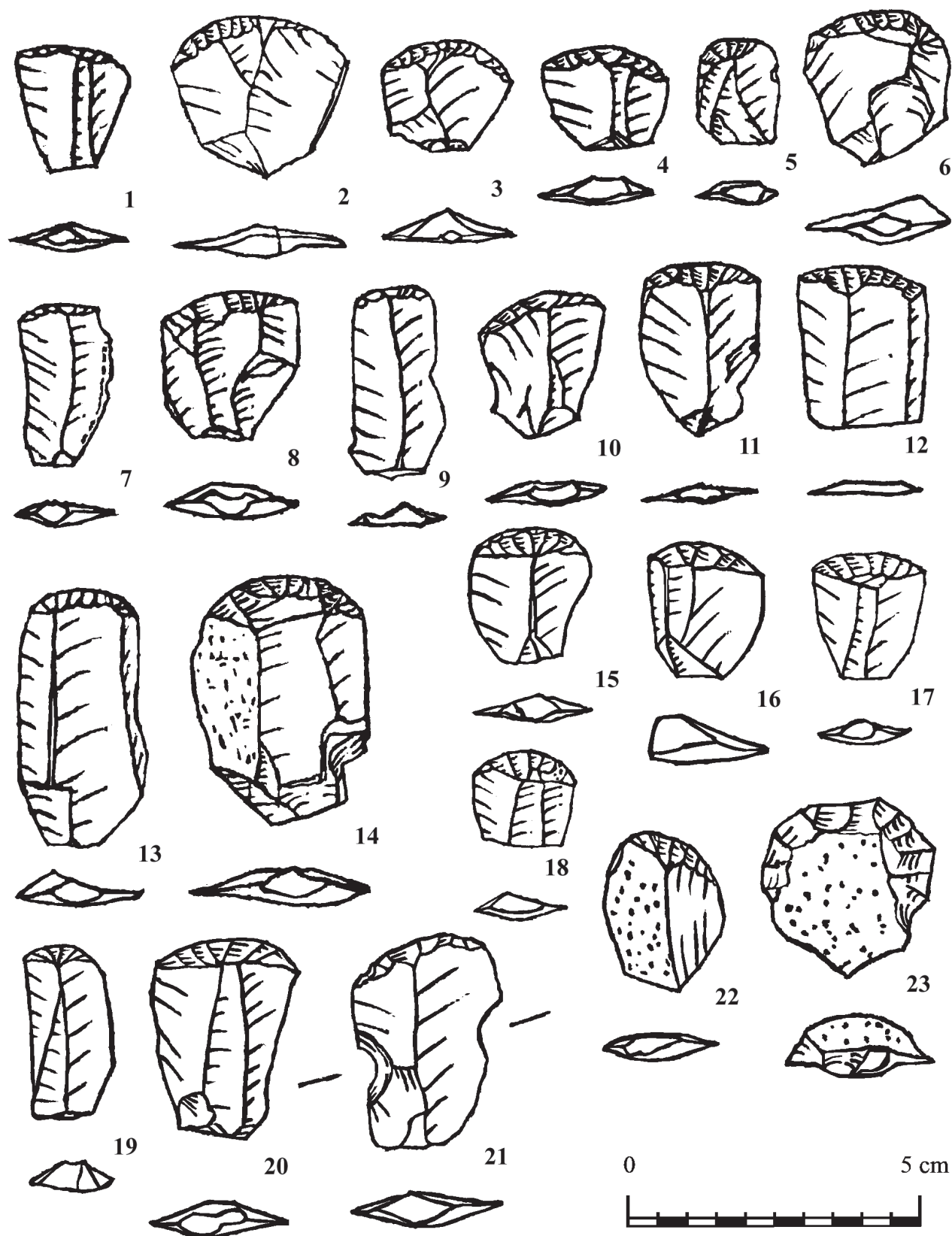


Fig. 20. Kup-Egyes, lithic finds, retouched tools
 20. kép. Kup-Egyes, kő leletek, retusált eszközök

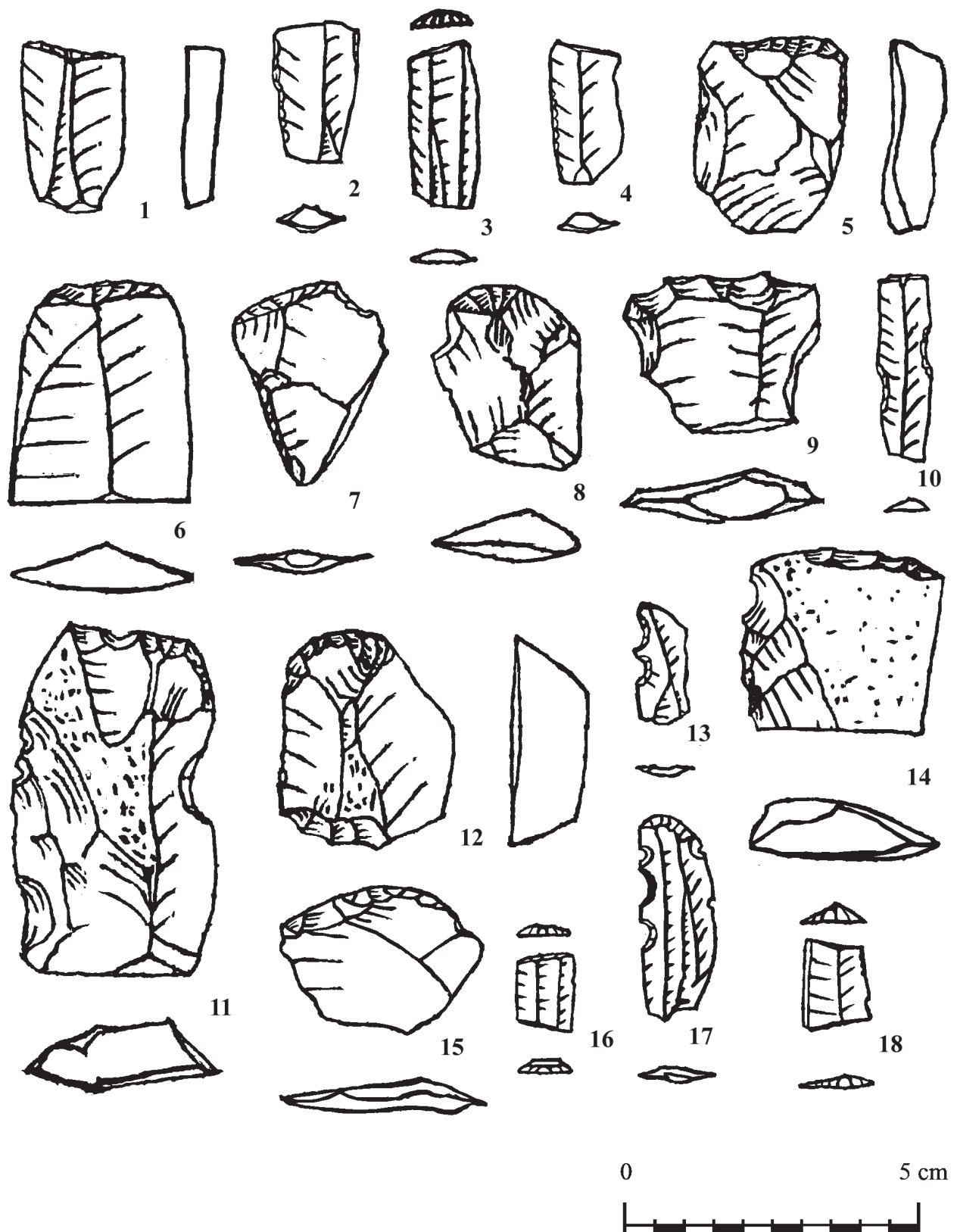


Fig. 21. Kup-Egyes, lithic finds, retouched tools

21. kép. Kup-Egyes, kő leletek, retusált eszközök

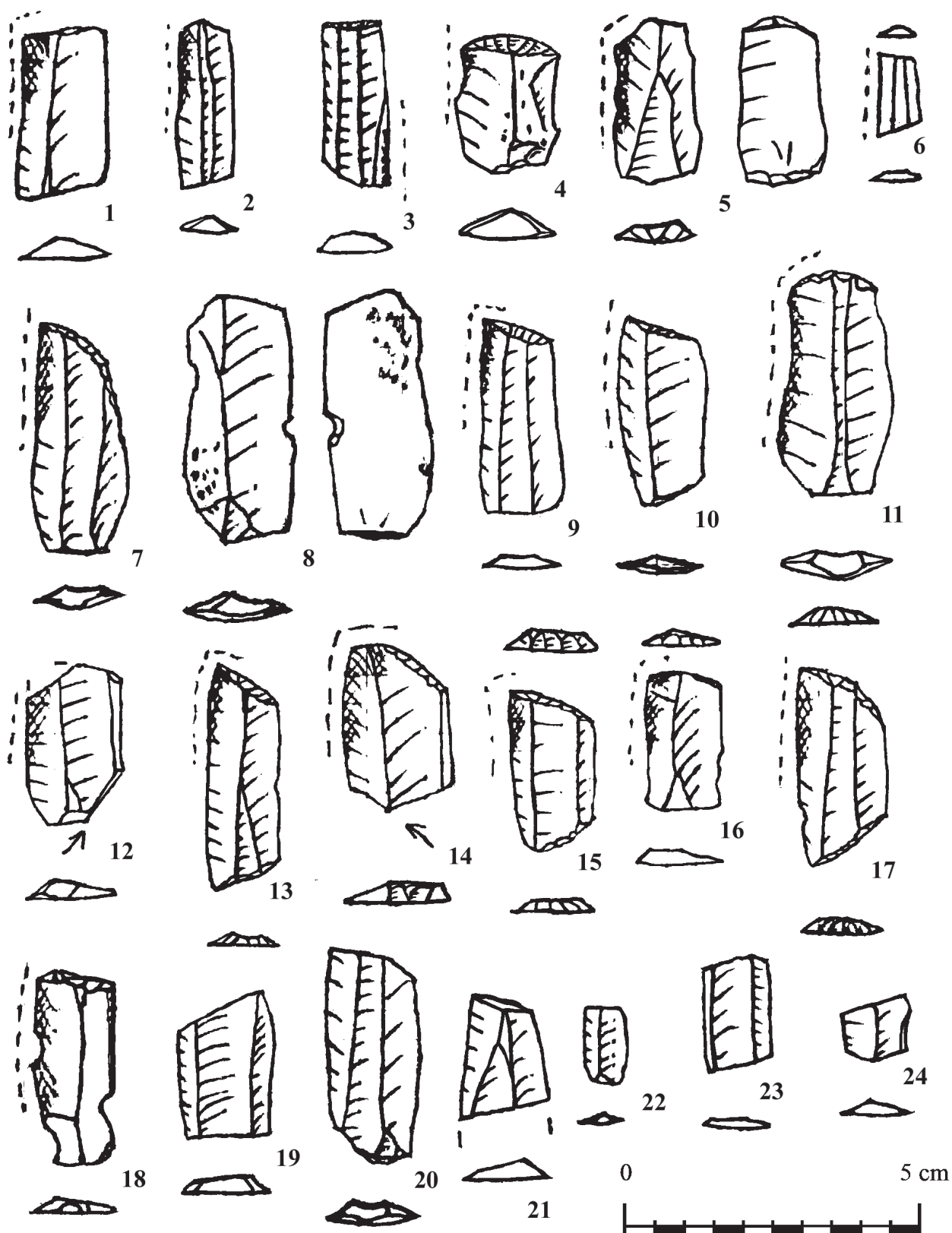


Fig. 22. Kup-Egyes, lithic finds, blades with sickle shine
 22. kép. Kup-Egyes, kő leletek, sarlófényes pengék

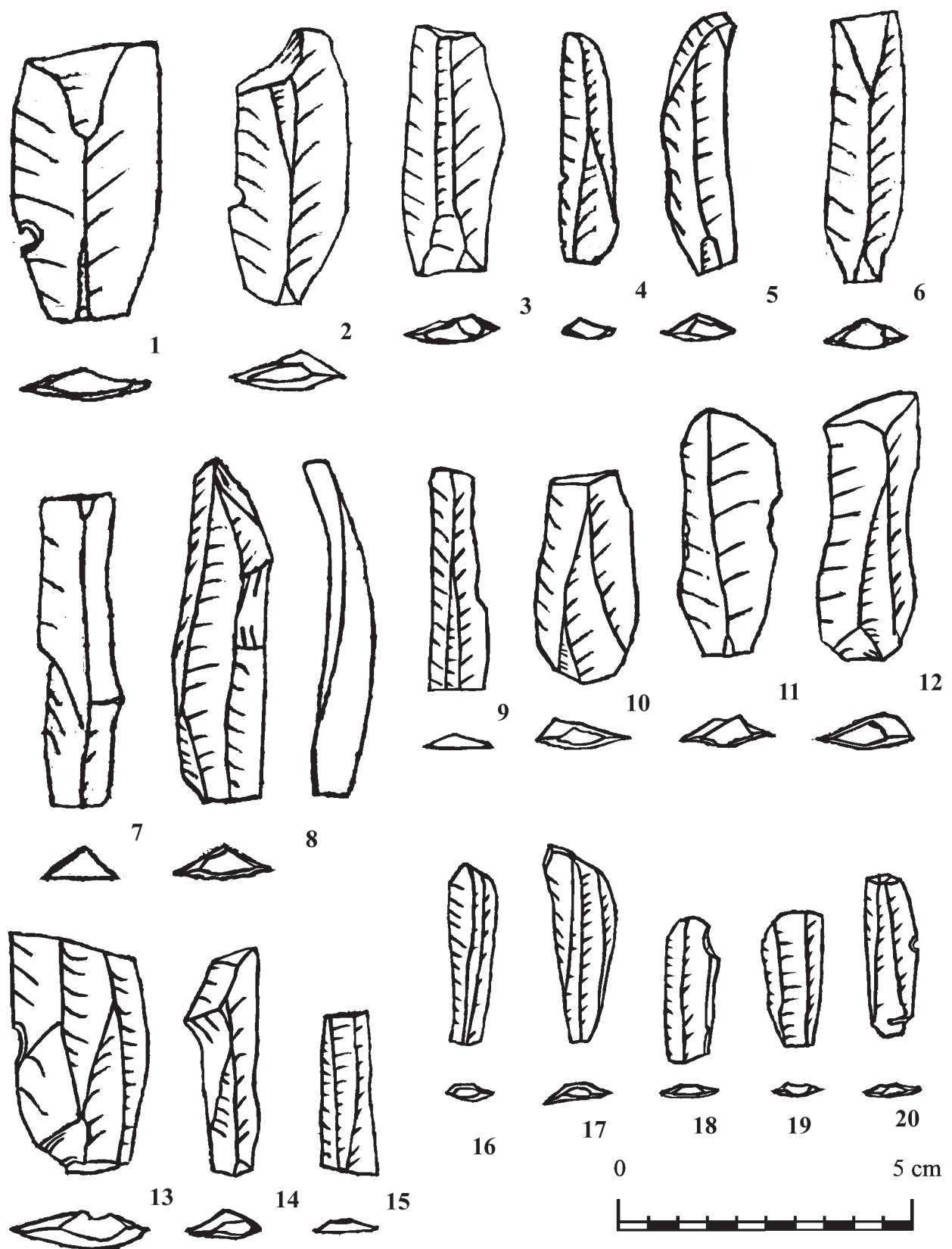


Fig. 23. Kup-Egyes, lithic finds, blades
 23. kép. Kup-Egyes, kő leletek, pengék

socio-economic changes within the Lengyel complex. The essence of this process is that the cultural shift in south-eastern Europe in the middle of the 5th millennium affected different parts of the Danube region differently. The transformation process induced by the intensive south-eastern contacts of the Western Transdanubian region is well known from the research of E. Bánffy (Bánffy 1995b; Bánffy 2002). The rest of Transdanubia was less affected by this process, or only later. There were also regional differences in the earlier phases of the Lengyel culture, but these differences were only slightly reflected in settlement ceramics and more spectacularly in the funerary context. It is only in the final phase that the strong regionalisation in ceramics begins to emerge as a result of the cultural shift and restructuring in SE Europe (Bánffy 1995b; Borić 2015, 188; Oross 2002; Regenye 2020). Ethnographic parallels give us an idea of how Neolithic communities expressed their identity through the use of vessels and what the reasons for the change in tradition might be. Socio-economic changes lead to reorienting agriculture, changing settlement patterns and increasing the capacity to innovate. (Ritter-Burkert 2019). These are precisely the phenomena we are witnessing at the end of the Neolithic period in the Danube region. The significance of the excavation of the Kup site for the Lengyel culture is that it clarified the boundaries between the Western and Central Transdanubian regions. Even the small area excavated showed the intensive nature of the Lengyel settlement. Kup was a large and significant settlement on the border between the two regions. Its location could have been a link between the two regions.

Proto-Boleráz ceramics

Away from the central area of the excavation, in the vineyard of Kálmán Szalay, in addition to Lengyel settlement objects, we found a Copper Age Proto-Boleráz type find (the second quarter of the 4th millennium BC) in a pit in Section IX. The quantity of finds is similar to that of the LBK, only about 2% of the total pottery excavated. The pottery is grey, sometimes yellowish or reddish in colour, and is tempered with sand. The most common are fragments of cups (Fig. 18, 12–14), small spherical, low, wide-mouthed vessels with a low cylindrical or curved rim, rounded bottom, a handle rising above the rim and a characteristic geometric incised decoration with white incrustation. Below the rim there are several rows of cut triangles and on the belly a varied stamped, im-

pressed pattern. The small bowls with slightly curved rim also show this type of decoration, but most are undecorated. Fragments of medium-sized and larger pots form another group of finds. The majority of these have a characteristic roughened surface typical of this type of pottery. Large pots are rarely decorated. Some large vessels have a rib under the rim, a wide handle and a neck with parallel grooves.

We do not know the extent of the Copper Age site, only one section yielded such material, so we have no information on the nature of the site. It is typical that even in excavations with a larger surface area only pits indicate the Proto-Boleráz settlement (Eszteregnye: Straub 2006; Petrivente: Kalicz, Horváth 2010; Zalaegerszeg-Andráshida: P. Barna, Kreiter 2006), and no data on its structure are available.

Lithic artefacts

The recent investigation of Kup-Egyes, including the 2000–2003 excavations was started primarily because of the lithic tools, made of high-quality raw material (flint), which is considered unique in Hungary (T. Biró 2003).

The chronological assignment of the lithic artefacts

Lithic artefacts, especially chipped stone tools can extend over a wide chronological range (T. Biró 2011, Fig. 1). Their form and technique are rather stable of long period of time and therefore they cannot be exactly dated e.g. within the Neolithic period. We can say that the stone tools are typically dated on the basis of the more variable ceramics within closed features and not the other way round, dating the associated finds (non-lithic) on the basis of stone tool typology.

In the case of Kup we could separate three large chronological units on the basis of potters, the Middle Neolithic Central European Linearbandkeramik culture, the Late Neolithic and Early Copper Age Lengyel culture and the Middle/Late Copper Age Proto-Boleráz culture. These came to light on the site mainly mixed. In almost all features and layers, the ceramics of the Lengyel culture was dominant, occurring together with LBK or Proto-Boleráz finds. In course of the excavations by Sándor Mithay finds of the Linearbandkeramik clearly dominated the find assemblage, therefore most of the lithic material, including the emblematic large blade cores was assigned to the Middle Neolithic horizon (T. Biró 1989, 1. ábra).

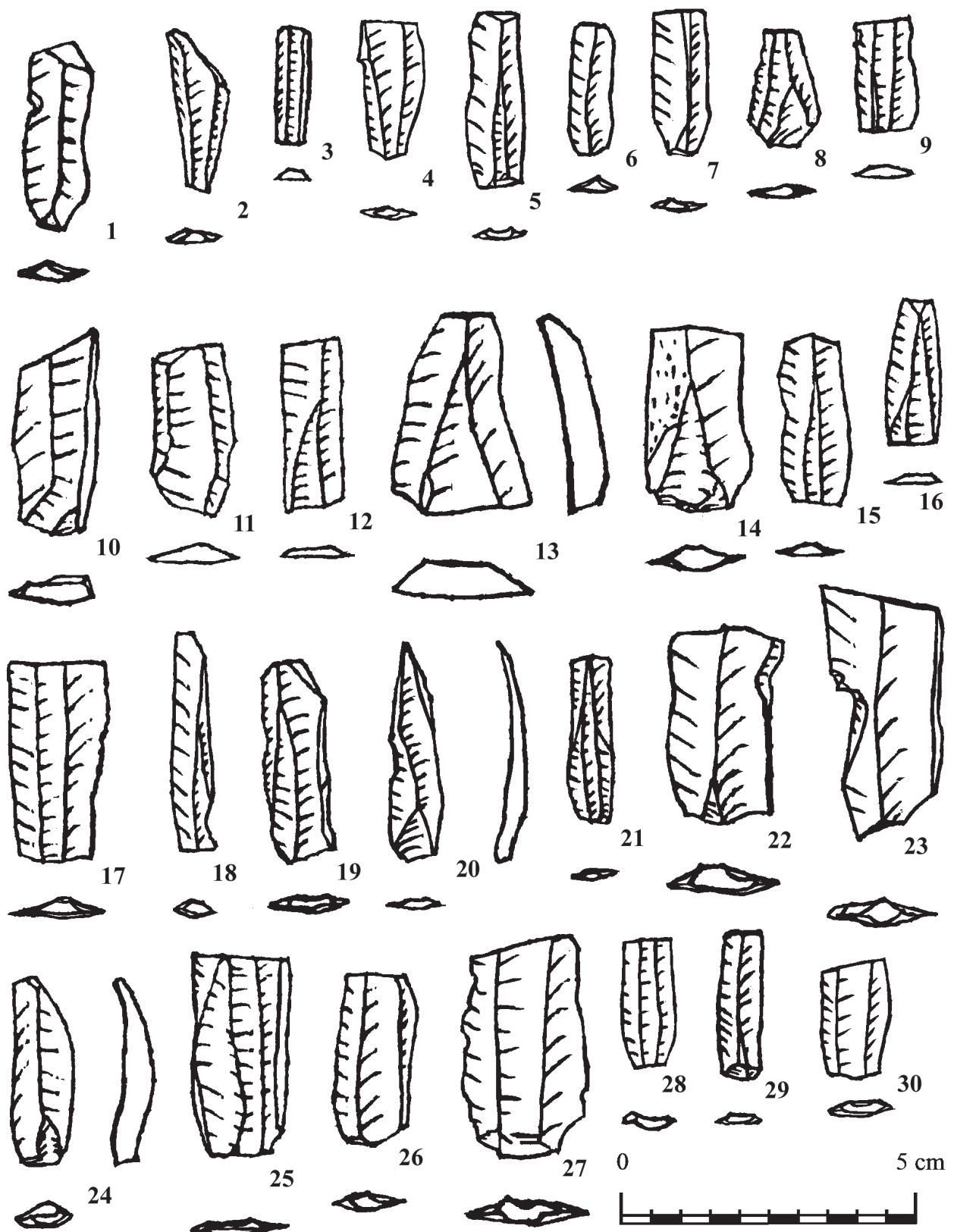


Fig. 24. Kup-Egyes, lithic finds, blades
 24. kép. Kup-Egyes, kő leletek, pengék

In course of the recent excavations, however, in all sections and features we have found Lengyel sherds, in several cases “clearly”, without the heritage of other archaeological periods (LBK, M/LCA) (Table 1). In these latter instances, the lithic material can be unambiguously associated with the Lengyel culture. On the other hand, the Middle/Late Copper Age and the Middle Neolithic features always contained Lengyel sherds as well, thus the chronological assignment of stone artefacts is not clear.

Raw material utilisation and typology

The most prominent feature of lithic artefacts found at Kup-Egyes is their high lithic intensity value, i.e. the large number of stone tools found in a unit area (m²). One of the reasons for this was the manual excavation method and the special attention devoted to stone tools, as one of the motivation factors for the new excavation was the study of the lithic industry. Nevertheless, the experienced lithic intensity value is exceptionally high, 6.9 pieces/m². It can be best compared to the settlement Szentgál, Füzi-kút, also described as a workshop settlement and similarly excavated by manual technique (with lithic intensity value 3.9 pieces/m² (Regenye 1994; T. Biró 1994a; for comparative data, see Regenye, T. Biró 2012). The Füzi-kút settlement was specialised on the processing of local radiolarite; at the Kup-Egyes site, basically two kinds of raw material (of different geographical and geological origin) were processed: Tevel flint, collected from a distance

of some 10 km from the site and radiolarite, that could be obtained from several sources within a daily walking distance of (Fig. 2). The characteristic phases of the processing of the raw materials can be observed in details on the type/raw material matrix of the site (Table 2), summarised on Table 3, according to typological/technological main groups. The utilisation of the two kinds of raw material (flint vs. radiolarite) was compared in details by Katalin T. Biró (T. Biró 2024). Accordingly, Tevel flint was used in smaller quantity by the number of pieces but more in weight and larger in dimensions, its processing started earlier in the “Chaîne opératoire” (nodules of raw material, pre-core, decortication flakes; see Figs. 27–28). Due to its physical qualities, size and microstructure, Tevel flint was better suited for larger blades, blade-based tools but both raw material types (flint and radiolarite) were locally processed on the site till the phase of ready-made and effectually utilised tools. The distribution of the main technological type groups presented on Table 3 for Tevel flint and different colour variants of radiolarite are also presented here in the form of a graph (Fig. 7a–b).

The number of retouched tools from the site (more specifically, the ratio of retouched tools within the lithic assemblage) corresponds to that of the average values of retouched tools on prehistoric sites (T. Biró 1994b); in case of Tevel flint, 82 pieces (10.36%), in the case of radiolarite, a little higher (214 pieces, 14.17%, see Table 3).

Table 3. Kup-Egyes, simplified type/raw material matrix (lithics)
3. táblázat. Kup-Egyes, egyszerűsített típus/nyersanyag mátrix (kőanyag)

		Tevel flint	Bakony radiolarite	Basalt / basalt tuff	Other local rm.	Regional / LD rm	Total	
							pieces	weight (g)
	type group	I.	II.	III.	IV.	V.		
Raw material and precore	I.	24	6	0	12	0	42	4341.42
Core	II.	56	125	0	9	0	190	5586.11.01
Flake	III.	390	702	2	50	10	1154	6179.98
Blade	IV.	238	446	0	25	8	717	1739.51
Retouched tool	V.	82	214	0	1	1	296	1911.75
Polished stone tool	VI.	0	0	3	4	8	15	1570.1
Other stone utensils	VII.	1	17	108	232	2	360	83190.4
Total	pieces	791	1510	113	331	29	2774	
	weight (g)	11193.5	6867.22	42055.5	43674.4	728.6		104519

The type frequency of the retouched stone tools is presented on *Fig. 8*. The dominant forms were (end)scraper, truncated flake and blade, simple retouched flake and blade, burin and borer (*Figs. 19–21*). According to raw material, radiolarite dominated among the endscrapers while among the retouched and truncated flakes / blades we can find a higher number of Tevel flint. More rarely occurring forms include side-scrappers (*Fig. 21. 5*), trapeze (*Fig. 21. 16, 18*) and segment forms (*Fig. 22. 6, 14, 16*). The special tools were typically made of radiolarite (*Fig. 21. 7, 13, 17*) similar to the only and atypical projectile point made on a triangular flake with marginal retouch (*Fig. 21. 7*). Blades (*Figs. 22–24*) and cores (*Figs. 25–26*), often with traces of use (*Fig. 22*) were made of both Tevel flint and radiolarite, typically larger from flint and in an earlier phase in the life of tool along the chain of production (De Grooth 1988).

Apart from the chipped stone tools, considerable quantities of polished stone tools (*Figs. 11–12*) and other stone utensils were found (117 grinding stones and fragments, 10 polishers, 14 hammer stones and 221 other stone implements (mainly pebbles); their ratio is also consistent with that of an average Neo-

lithic site. The production of polished stone tools is documented by a single core-rim form fabrication debris made of basalt (*Fig. 27. 1*). The polished stone tools were typically fragmented and much utilised, the typical forms included shaft-hole axe (*Fig. 29. 1–2*) chisel blades (*Fig. 5; Fig. 29. 3; Fig. 30. 1*) and wedges (*Fig. 29. 5; Fig. 30. 1*). Among the stone utensils, grinding stones and their fragments dominated (117 pieces), followed by pebbles and pebble fragments (131 pieces) and lumps of pigment (57 pieces). Apart from unworked pebbles, hammerstones with clear traces of working (14 pieces) and 4 retouchers were also found (see *Table 2*)

Refitting

The most spectacular evidences of tool-producing activities on a site are refitted flakes and tools. Such pieces have already been found in the lithic material of the 1974 excavations (Biró 1989, 3, 1, 3, 4. ábra). Though not systematically investigated, such (refitted) pieces were also found in the lithic material of the 2000–2003 excavations. They can be flakes detached in the production/flaking of the tools (*Fig. 28, 5*) or intentional / casual breaking of the stone implements (*Fig. 28. 1, 8*).

Table 4. Kup-Egyes, distribution of animal bones by species (pieces, percentage)
4. táblázat. Kup-Egyes, az állatsontok faj szerinti eloszlása (db, %)

	<i>Pieces</i>	<i>%</i>
Cattle (<i>Bos taurus</i> L.)	1001	64.08
Small ruminants (<i>Ovis aries</i> L., <i>Capra hircus</i> L.)	257	16.45
Pig (<i>Sus domesticus</i> Erxl.)	118	7.55
Dog (<i>Canis familiaris</i> L.)	10	0.64
<i>Total nr. of domestic animals</i>	<i>1386</i>	<i>88.73</i>
Aurochs (<i>Bos primigenius</i> L.)	50	3.20
Red deer (<i>Cervus elaphus</i> L.)	17	1.09
Wild horse (<i>Equus ferus</i> B.)	16	1.02
Roe deer (<i>Capreolus capreolus</i> L.)	6	0.38
Wild boar (<i>Sus scrofa</i> L.)	5	0.32
Hare (<i>Lepus europeus</i> Pall.)	1	0.06
<i>Total nr. of wild mammals</i>	<i>95</i>	<i>6.08</i>
Birds (<i>Aves</i>)	2	0.13
Fish (<i>Pisces</i>)	14	0.90
Snail (<i>Gastropoda</i>)	56	3.59
Clam (<i>Bivalvia</i>)	7	0.45
Hamster (<i>Cricetus cricetus</i> L.)	1	0.06
Mole (<i>Talpa europea</i> L.)	1	0.06
<i>Total of identified bones</i>	<i>1562</i>	<i>100</i>
Not identified	205	
<i>Sum total of bones</i>	<i>1767</i>	

Kup-Egyes: animal bone remains from the site

In course of the recent excavations (between 2000–2003) there were altogether 1767 pieces of animal bone remains from the site, among them, 1562 pieces were suitable for archaeozoological identification (Table 4). The topographical distribution of the bone remains was fairly uneven (Table 5): 18 features contained animal bones, seven of them exceeding average. Three of the latter comprised items between 107 and 123, two features contained 202 and 226, respectively, while one feature had 324 pieces and one 495 pieces altogether. The seven features had a total number of 1589 bone fragments, comprising 89.9% of the total amounts of animal bones. The highest number of bone fragments came to light from Section XII (324 pieces) and Section XVI (495 pieces), containing 46% of the total number of animal bones. Moreover, Section XVI yielded 54 pieces of Molluscan remains as well.

Among the bone remains identified, 88.73% were domestic mammals represented by five species: cattle, small ruminants (sheep and goat),

pig, and dog. The ratio of wild mammals was only 6.08% comprising six species: aurochs, red deer, wild horse, roe deer, wild boar and hare. We can add to the range of hunted animals the remains of birds and fish, and judging from the context, snails and clams served also as parts of the diet. From the remains of small mammals living in cavities (hamster, mole) we cannot unambiguously decide when they were interred and if they belong to the coeval fauna of the site.

Among all the animal species recovered and also among the domestic animal bones of cattle were present in highest ratio (64.08%). This was followed by, in much smaller ratio, small ruminants (16.45%) and pig (7.55%) and in a limited proportion, dog (0.64%).

Among the hunted (wild) animals the most frequent was the aurochs (3.20%) followed by red deer (1.09%) and wild horse (1.02%); roe deer (0.38%) and wild boar (0.32%) came forth in similar ratios, finally hare was represented by a single bone. The ratio of fish bones was 0.90%, that of birds 0.13%, and molluscs altogether 4.03%.

Table 5. Kup-Egyes, distribution of animal bones by sections (pieces)
5. táblázat. Kup-Egyes, az állatsontok szelvényenkénti eloszlása (db)

Section	Cattle	Small ruminant	Pig	Dog	Aurochs	Red deer	Horse	Roe deer	Wild boar	Hare	Fish/Bird	Clam/Snail	Undet.h.	Total
I.	52	16	18	1	5						1	1	13	107
II.	9	2	1		1		2		1				7	23
IV.	8	3											2	13
V.	6	1											6	13
VII.	1	2			1								2	6
VIII.	120	37	1	1	4	4	1	1				1	15	202
IX.	6	72	9				2	3	1	1	14	1	14	123
X.	3												2	5
XI.	4	4			2			1					2	13
XII.	214	29	19	3	14	1	5		1		1		37	324
XII/XIII.	3	1											3	7
XII/XIV.	1													1
XII/XVI.	3	1												4
XIII.	78	2	5		10	1						1	15	112
XIV.	145	24	24	2	4	1						1	25	226
XV.	5	2											6	13
XVI.	306	51	20	1	8	10	4		2			56	37	495
Trench 2003/1.	35	9	4	2	1		2	1				1	20	75
stray find	2	1										1	1	5
Total	1001	257	118	10	50	17	16	6	5	1	16	63	205	1767

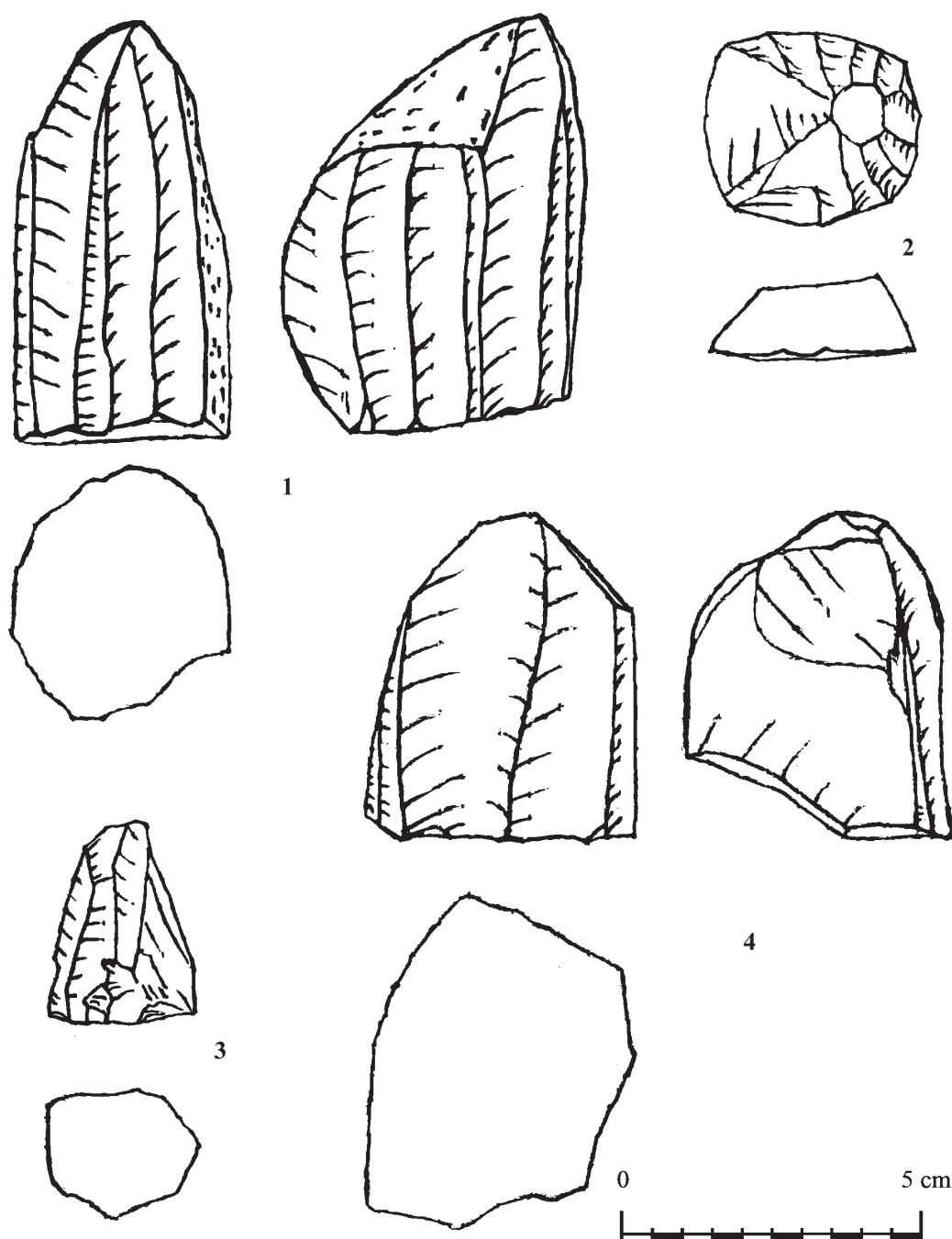


Fig. 25. Kup-Egyes, lithic finds, cores
25. kép. Kup-Egyes, kő leletek, magkövek

Domestic animals

Cattle

The most frequently occurring domestic animal at Kup was cattle (64.08% of identified animal bones), occurring in all of the features. Cattle bones were typically found in a fragmentary state, only some 15% of them could provide measurable data on bone dimensions. Only one piece of radius from a juvenile age individual could serve full series of di-

mensions, as well as several more compact tarsal bones and phalangi. The withers' height calculated (Matolcsi 1970, 118) on the basis of the radius of the young specimen was 107.28* cm, indicating rather low body height, but it can be the result of the juvenile age of the animal (Table 6). On the basis of the dimensions, though we could base on width and depth of the cattle bones we can conclude that the animals kept by the Kup populace used to belong to a mixed livestock, belonging to medium and large

Table 6. Dimensions of the animal bones from Kup-Egyes (mm, withers' height (WH) in cm
6. táblázat. Kup-Egyes, az állatsontanyag méretei (mm, a marmagasság (WH) cm-ben)

Species	Bone	Dimensions (mm)							WH.
		1.	13.						
cattle	M ₃	33.5	15						
cattle	M ₃	37	15						
cattle	M ₃	37.5	15						
cattle	M ₃	38	15						
cattle	M ₃	40	13						
cattle	M ₃	40.5	15						
cattle	M ₃	41	14						
cattle	M ₃	43	16						
cattle	M ₃		15						
cattle	M ₃	28	21						
cattle	M ³	28.5	19						
cattle	M ³	29.5	21						
cattle	M ³	30.5	22						
cattle	M ³	31	22						
cattle	M ³	31	24.5						
cattle	M ³	32	22						
cattle	M ³	32	22						
cattle	M ³	32	23						
cattle	M ³	33.5	19						
		1.	2.	3.	4.	5.			
cattle	scapula				59	51			
		1.	6.	7.	8.	9.	10.	11.	
cattle	humerus				64			36	
cattle	humerus				74				
cattle	humerus				80.5			75	
cattle	humerus				83			71	
cattle	humerus				83			73	
cattle	humerus				92				
cattle	radius				70*			44	
cattle	radius				71			47	
cattle	radius				72.5			46	
cattle	radius				78			51	
cattle	radius				81			50.5	
cattle	radius		89						
cattle	radius					52			
cattle	radius	249.5*	82.5	40		41	23		107.28*
cattle	metacarpus		55			33			
cattle	metacarpus		57			34			
cattle	metacarpus		58			36			
cattle	metacarpus		60.5			34			
cattle	metacarpus		63			38.5			
cattle	metacarpus				54			33	
cattle	metacarpus				54.5			31	
cattle	metacarpus				59			39	
cattle	metacarpus				60			34	
cattle	metacarpus				61			34	
cattle	metacarpus				62		33		
cattle	metacarpus				62.5			35	

<i>Species</i>	<i>Bone</i>	<i>Dimensions (mm)</i>							<i>WH.</i>
cattle	metacarpus				67.5			38	
cattle	femur				60			70.5	
cattle	tibia				55			50.5	
cattle	tibia				59			45.5	
cattle	tibia				61.5			46	
cattle	tibia				62			47	
cattle	tibia				63			50	
cattle	tibia				65.5			49	
cattle	tibia				76.5			62	
cattle	metatarsus		41			43.5			
cattle	metatarsus		48			44			
cattle	metatarsus		48.5			45			
cattle	metatarsus		51.5			46			
cattle	metatarsus		43*			46			
cattle	metatarsus				52.5			31	
cattle	metatarsus				53			31.5	
cattle	metatarsus				54.5			32	
cattle	metatarsus				55			32	
cattle	metatarsus				56			35	
cattle	metatarsus				57			33	
cattle	metatarsus				58			33.5	
cattle	metatarsus				58			33.5	
cattle	metatarsus				58.5			34.5	
cattle	metatarsus				59.5			34	
cattle	metatarsus				64			38	
cattle	metatarsus				66			39	
cattle	metatarsus				67			39.5	
cattle	phalanx I	52.5	31	25		32	23		
cattle	phalanx I	53		23	27	33.5	18	20	
cattle	phalanx I	55.5	32	30	31.5	36	23	25	
cattle	phalanx I	56	31	28	30	33	19	23	
cattle	phalanx I	57	29	25	28	34	19	22	
cattle	phalanx I	59.5	29	26	28	34	20	22	
cattle	phalanx I	60	33	28		38	21		
cattle	phalanx I	60	35	30	31	36	22.5	25.5	
cattle	phalanx I	60	38	31	34	36	24	25	
cattle	phalanx I	63	35	28		38	21		
cattle	phalanx I	65	34	31	37			26	
cattle	phalanx I		28.5			31			
cattle	phalanx I				26			21	
cattle	phalanx I				33			26	
cattle	phalanx II	35	29	23	25.5	30	25	30	
cattle	phalanx II	38	29.5	26	24.5	31	24	28	
cattle	phalanx II	39		23	24		22	26.5	
cattle	phalanx II	40	29	24	24	29	21	26	
cattle	phalanx II	41	30	25	25.5	31.5	25	27*	
cattle	phalanx II	41	33	32	31	33.5	28	33.5	
cattle	phalanx II	41.5	30	29	24	31	21	28	
cattle	phalanx II	42	33	27	27.5	33	27	34	
cattle	phalanx II	44	32	26	27	33.5	24.5	30	
cattle	phalanx II		28			30			
		1.	12.	13.					

<i>Species</i>	<i>Bone</i>	<i>Dimensions (mm)</i>							<i>WH.</i>
cattle	astragalus	64	46	36					
cattle	astragalus	67.5	45						
cattle	astragalus	75	54.5	41.5					
cattle	astragalus			38					
cattle	astragalus		45.5	57					
cattle	calcaneus		40	54					
cattle	calcaneus		41.5	52					
cattle	calcaneus		42	52					
cattle	calcaneus		44	59					
cattle	calcaneus	121*	46	54					
cattle	calcaneus	140*	49	55					
		1.	13.						
small ruminant	M ³	29	19						
small ruminant	M ³	29	20						
small ruminant	M ³	30	20						
small ruminant	M ³	30	17						
small ruminant	M ³	31	18						
small ruminant	M ₃	33	18						
small ruminant	M ₃	35	20						
small ruminant	M ₃	23.5	13.5						
small ruminant	M ₃	28	12						
small ruminant	M ₃	31	13						
		1.	6.	7.	8.	9.	10.	11.	
small ruminant	humerus				26.5			22	
small ruminant	humerus				29			24	
small ruminant	humerus				32			25*	
small ruminant	radius	125*		14.5		14	7		
small ruminant	radius			18			10		
small ruminant	radius				24			16.5	
small ruminant	femur				40.5			56.5	
small ruminant	tibia			11.5			10		
small ruminant	tibia				24			21	
small ruminant	tibia				26			21.5	
small ruminant	phalanx I	27*			10.5			9	
small ruminant	phalanx I	30	11	8	10	13	7	8.5	
small ruminant	phalanx II	14*							
small ruminant	phalanx II	21	13	11	10.5	13	10	10.5	
		1.	13.						
pig	M ³	28	17						
pig	M ³	30	18						
pig	M ₃	29	14						
pig	M ₃	29	14						
pig	M ₃	29.5	15						
pig	M ₃	31	13						
		1.	6.	7.	8.	9.	10.	11.	
pig	humerus				31.5			30	
pig	radius		23	13		16	9.5		
pig	metacarpus III	59*	20	13		16	9		63.2*
pig	metacarpus V		14			6			
pig	metatarsus IV	71*	14	11		22	10		66.3*
pig	phalanx II	19	15	12	13	14	9	13	
		1.	12.	13.					

<i>Species</i>	<i>Bone</i>	<i>Dimensions (mm)</i>							<i>WH.</i>
pig	calcaneus	60*	19	24.5					56*
		1.	6.	7.	8.	9.	10.	11.	
dog	metacarpus III	55	6	5	7	10	5	8	
		1.	6.	7.	8.	9.	10.	11.	
aurochs	femur				123*			158*	
aurochs	femur		67.5			55			
aurochs	metatarsus		66			64			
aurochs	radius		97			48			
aurochs	tibia				83			60.5	
aurochs	tibia				87			62.5	
aurochs	phalanx II	40.5	35	28.5	31.5	36	27	35	
		1.	12.	13.					
aurochs	calcaneus	143	49	54					
aurochs	calcaneus	157	51	58					
aurochs	calcaneus	162	59	67.5					
		1.	6.	7.	8.	9.	10.	11.	
red deer	radius				63			43	
red deer	metacarpus		47			33			
		1.	12.	13.					
wild boar	calcaneus	103.5		39					96.6

size individuals, although sexual dimorphism alone can cause size differences.

The dimensions of the lower M3 teeth varied between 28.5 and 43 mm. In the case of the tarsal bones, the dimension of the astragals was recorded between 64 and 75 mm, those of the calcaneuses between 120 and 140 mm. The length of the phalangi varied between 52 and 65 mm.

The distribution of the animal remains by body region (Kretzoi 1968, 230), head region (27.57%), meaty region (27.57%), and dry limb region (24.28%) was found in similar ratios. The trunk region was 17.98%, terminal region only 4.2%. It is obvious that specifying the dominant region of cattle remains is not unambiguous; the only clear tendency is the low amount of terminal bones. We cannot, therefore, clearly state that the primary use of the cattle was utilisation for meat consumption, though the fragmentary state of the bones seem to contradict us here. However, besides the fragmentary state of the bones, the number of cutmarks, usually indicating meat consumption, is low.

In the age distribution of the animals, adult individuals seem to dominate; only about 3% of the bones could be attributed to young individuals. According to the ossification phase of the long bones (Schmid 1972, 75, Table IX) and the state of the dentition (Schmid 1972, 77, Table X) the age of 21 juvenile, 8 subadultus and 1 infantile individual could

be identified. The traction force and the milk of the living cattle, the meat and hide of the butchered animals were probably equally utilised. There was no pathological alterations observable on the bones of the stock of the cattle found at Kup.

Small ruminants

Compared to cattle, the quantity of small ruminants (sheep and goat) was much smaller, their ratio comprising altogether 16.45%. There were four horn cores found; among them, one could be attributed to a goat. The bones of small ruminants came to light from almost all features with the exception of two. 11% of these bones could serve for measuring, but the total measurement series could be obtained from one piece of phalanx only (Table 6).

The dimension of a medium size ram horn core was measured as 38.26 mm diameter and at the base, 97 mm. Among the small ruminants there were no dimensional differences. The size of the lower M3-s varied between 20 and 25 mm. For the determination of the gender, only the above-mentioned ram could be identified. The individual age could be determined from the ossification phase of the long bones (Schmid 1972, 75, Table IX) and the dentition (Schmid 1972, 77, Table X) for three juveniles and to infants. The quantity of small ruminant bones indicated that their keep was not a significant element of animal husbandry. The distribution of the body re-

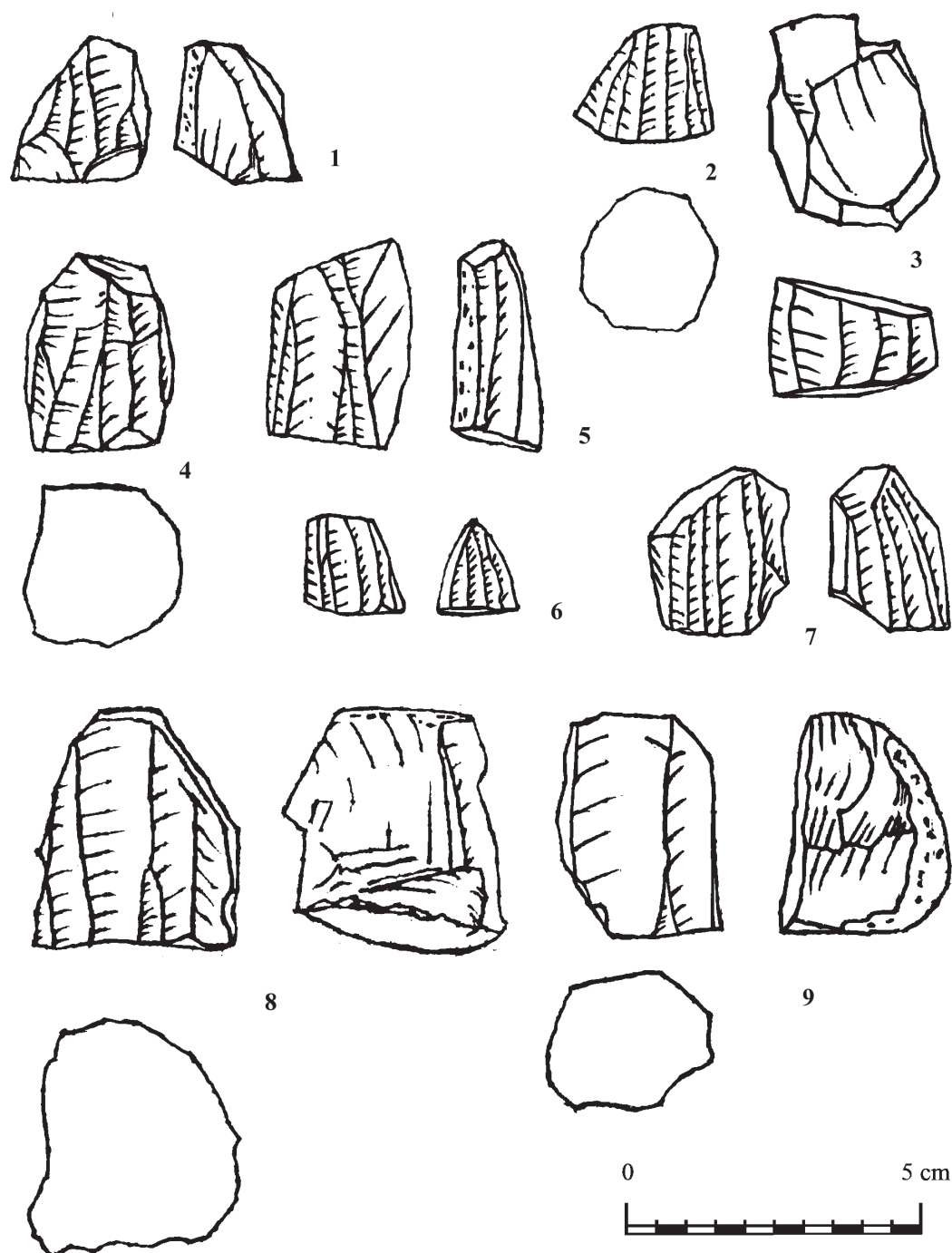


Fig. 26. Kup-Egyes, lithic finds, cores
26. kép. Kup-Egyes, kő leletek, magkövek

gions (Kretzoi 1968, 230) reflects an absolute dominance of meaty limb region (58.37%) and also the meaty parts of the trunk 8.95%. Occurrence of the head part is also significant (21.4%) while dry limbs (9.73%) and terminal parts of the limbs (1.56%) are much rarer. These animals served mainly the needs for meat but they had significant roles in other fields of exploitation (wool, milk). There were two tools (artefacts) made of small ruminant bones. From

Section I we have the longitudinal part of the upper part of a metatarsus with used cutting and breaking surface with traces of working and polish (Inv. nr.: 2002.4.4, Fig 31. 01a); from Section XIV we have a polished tibia fragment, probably an awl (Inv.nr.: 2010.42.85.1, Fig 31. 01b). Traces of burning were observed on four pieces of bone. Alteration of the bone was observed in the form of some bone accumulation on a mandible.

Table 7. Kup-Egyes, dimensions of dog skulls (mm)
 7. táblázat. Kup-Egyes, kutya koponyák méretei (mm)

<i>Canis cranium dimensions</i>	<i>Section I. pit with aurochs</i>	<i>Trench 2003/1. bottom of pit</i>	<i>Section XII. bottom of pit</i>	<i>Section XII. N. bottom of pit</i>	<i>Section XII. N. under -80 cm</i>
Total length (Op-P)			169		
Parietale length (Op-Br)		42			
Os interparietale length (Op-L)		28	22		
Os parietale med.-sag. length (L-Br)		16			
Cranial skull length (Op-N)			96		
Facial skull length (N-P)			84		
P-If length			52		
Lateral length (P-Mo)			27		
Palatal length (P-St)			83		
Os palatinum length (Po-St)			55		
Basal length (B-P)			150		
Denture length (P-Pd)			86		
Molar row length (Pm-Pd)			58	63	
Intermaxilla med.-sag. length (P-Im)			24		
I-k length (P-Ic)			12	12.5	
Diastema length (Ic-Pm)			14	15	
C alveolus length			13	17	
P1-4 length (Pm-Mol)			42	48	
M1-2 length (Mol-Pd)	15	16	17	18	19
P-Mol length			53		
B-Mol length			84		
Cranial skull caudal height (B-Op)		47	50		
Os occipitale height (O-Op)		25.5	30		
Foramen magnum height (B-O)		14	13	13	
External skull length (B-N)			92.5		
Largest width of skull (Zy-Zy)			85		
Cranial skull width (eu-eu)			53		
Frontale smallest width (fs-fs)		32			37
Frontale largest width (Ect-Ect)		37.5*			47
If-If distance			36.5		
M-M distance			56		
Zmi-Zmi distance			64		
Smallest facial width at Pm			32		
Largest facial width at Mols			57		
Width of Incisives				26	
Width of Canines			32		
Proc. jugularis distance (Ju-Ju)			47		
Fossa mandibularis width			28		
Condylus occipitalis width (c-c)		27	36	34	
Foramen magnum width		12	17	16	
P4 length. (alv.)	15		17	20	17
Height of the skull (B-L)			57.5		

Table 8. Kup-Egyes, dimensions of dog mandibles (mm)
8. táblázat. Kup-Egyes, kutya mandibulák méretei (mm)

<i>Canis mandible dimensions</i>	<i>Section XII., bottom of pit</i>	<i>Trench 2003/1 4-8 W pit</i>
Total length (cm-Id)	123	
goc-Id length	123	
X –Id length	118	
C aboralis alv.-cm length	109	
C aboralis alv.-goc length	108	
C aboralis alv. –X length	103	
C aboralis alv.-M3 aboralis alv. distance	71	
M3-P1	68	
M3-P2	63	
Length of the molar row	32	35
Premolar row length (P1-4)	38	
Premolar row length (P2-4)	33	
M1 width and depth (measured on tooth)	21;7,5	21;8
M1 width and depth (measured on the alveolus)	21	
M2 width and depth	8;6	10;7
M3 width and depth	5;4	4;5
Greatest thickness of the mandible measured under M1	10,5	
Height of Cm-gov.	25	
Height of Cr-gov.	51	
Height of mandible behind M3	25	23,5
Height of mandible behind M1	19	20
Height of mandible behind P2	18	
Ramus thickness	21	23
Condylus width	20	20,5
C length	17	

Pig

The third among the most frequent domestic animals at the Kup settlement was pig (7.55%), their quantity extended to 1/8 of cattle bones. Only half of the settlement features used to contain pig bones, but their quantity is still significant among the coeval settlements. Pig bones were also in a fragmentary state, only 15% of them yielded data for measurement. Complete series of measurements were taken only on some compact bones, but the withers' height values calculated on the basis of these bones (Teichert 1969, 286) are not convincing as they were typically measured on young individuals under 2 years of age (calcaneus sin:

56 cm, mc III dext.: 63.2 cm and mt IV dext.: 66.3 cm; Table 6). The withers' height values calculated from metapodia indicate moderately large individuals. The lower M3 teeth were between 29 and 30 mm, indicating fairly even size. Determination of gender was possible only in the case of a female specimen. The ossification phase of the long bones (Schmid 1972, 75, Table IX) and the dentition (Schmid 1972, 77, Table X) indicated 3 infantile, 7 juvenile, and 1 maturus individual. According to the distribution of pig remains by body regions (Kretzoi 1968, 230) the utilisation of the animals was fairly clear. Head region was represented by 37.29%, trunk region by 20.34%, meaty

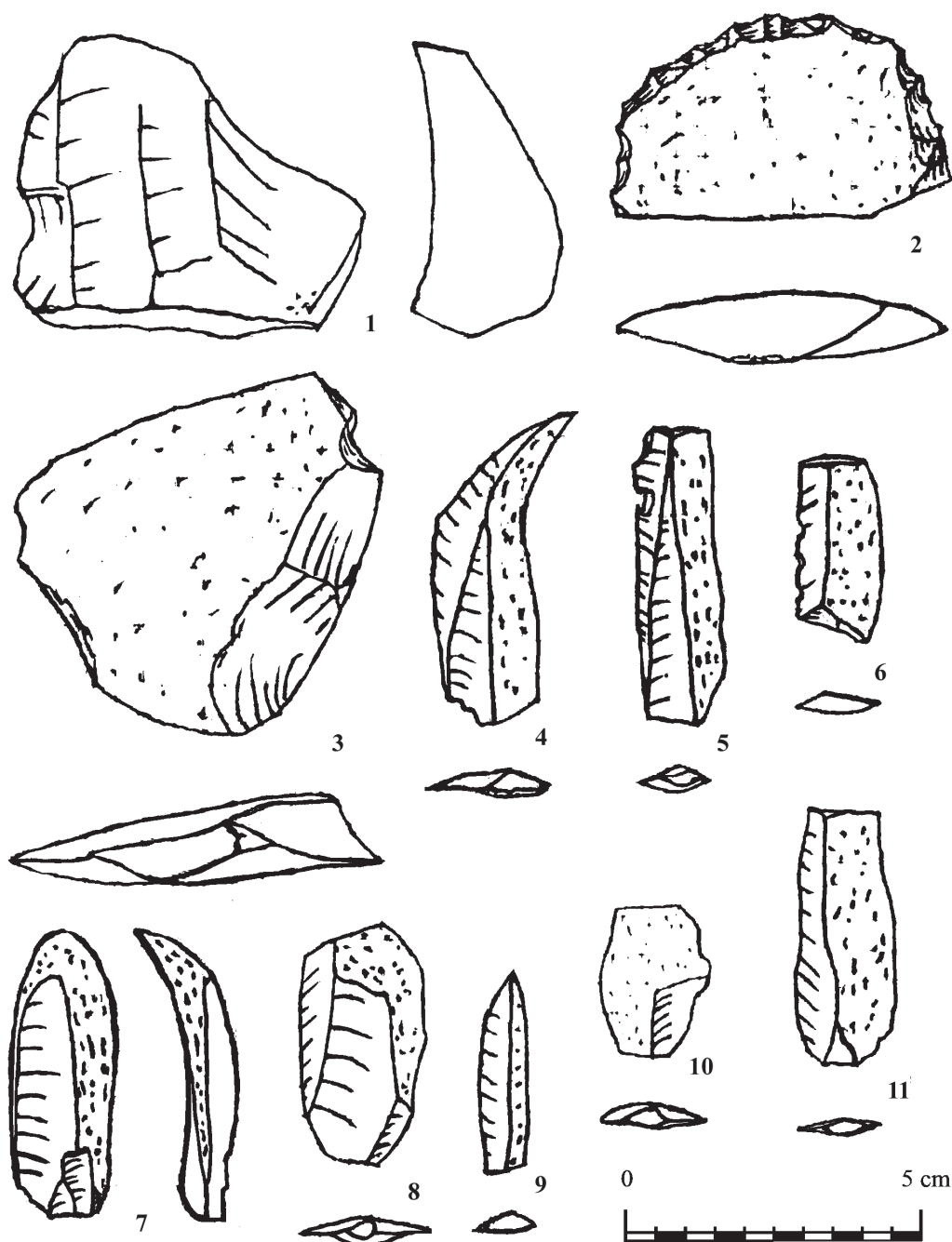


Fig. 27. Kup-Egyes, lithic finds, technology
27. kép. Kup-Egyes, kő leletek, technológia

limb region 31.36 %, while dry limb region was 9.32% and only 1.69% of terminal limbs were encountered. Both the relative high ratio of juveniles and the distribution of body regions indicated meat consumption as primary utilisation of the pig.

Dog

The smallest amount of domestic animals found on the Kup settlement was dog, altogether 10 pieces (0.64%). Half of these few came to light from Section

XII. From here, at the bottom of the sediment removal the skull and mandible of an adult individual was found in fairly good state of preservation (Fig 31. 02a-c). Dimensions of the skull and mandible fragments are presented on Tables 7–8. Unfortunately, none of the fragments were suitable for calculating the withers' height. By collating the dimensions of the teeth we can visualize a „dog stock” of fairly variable size, but the low number of bones cannot allow to draw more conclusions.

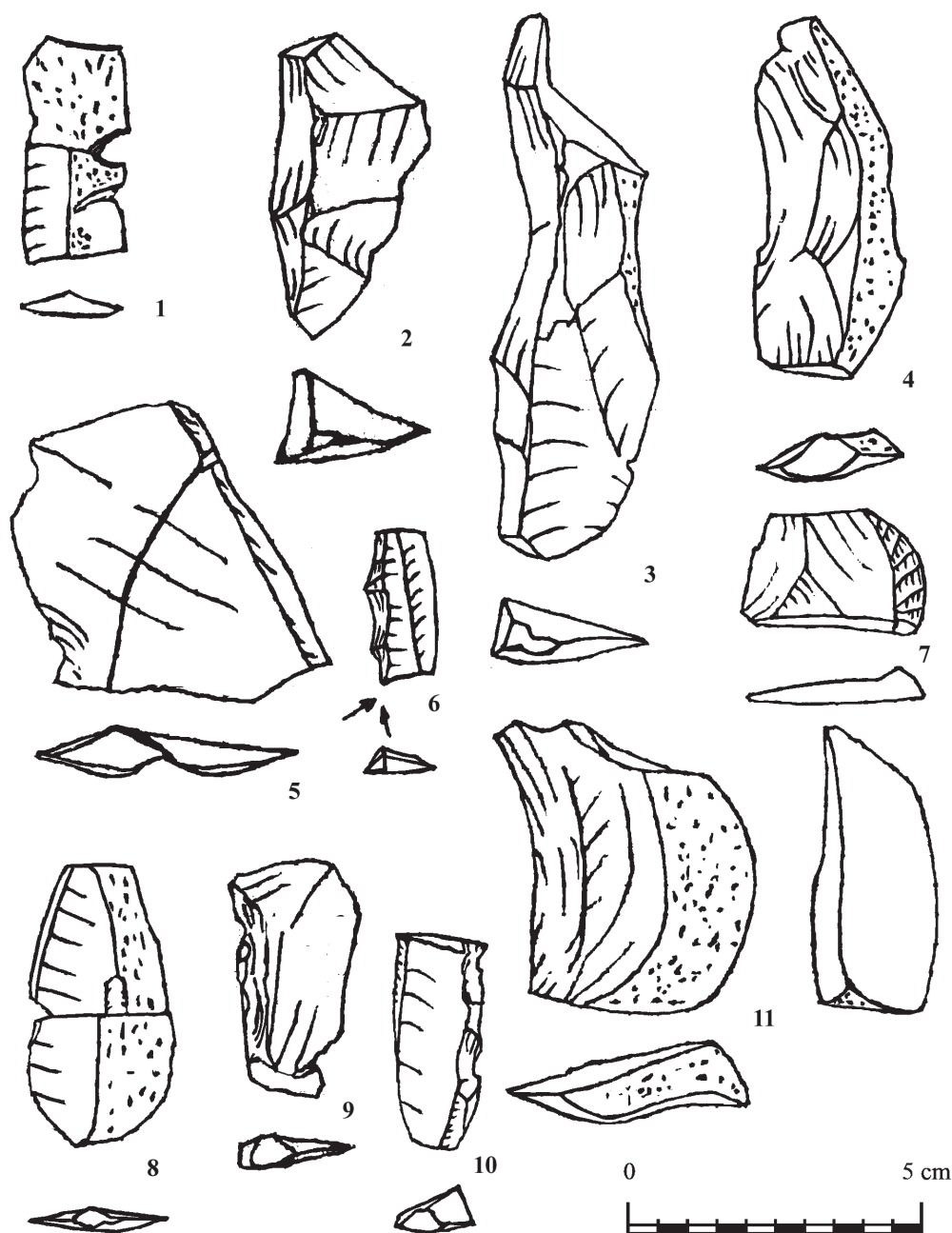


Fig. 28. Kup-Egyes, lithic finds, technology
 28. kép. Kup-Egyes, kő leletek, technológia

Hunting

Aurochs

Among the wild (hunted) animals the most frequent species was the aurochs volt (50 pieces, 3.2% of total animal bones). It used to occur in more than half of the features, most frequently in Sections XII and XIII. Most of the bones represented the meaty and trunk regions (Kretzoi 1968, 230) (15 and 12 pieces, respectively) but a comparable amount of dry limb bones were also found (21 pieces). From the termi-

nal and head region, only one specimen was found, however, these aurochs remains found from the head region represent probably the most remarkable archaeozoological assemblage of the site (Fig. 31. 3): this is a frontale-occipitale bone preserved in one piece with the fragment of horn core on both sides. The width of the basis of the left horn core was 110 mm, its depth 88 mm, basis diameter 328 mm, its length (almost complete) 507 mm (small curvature) and 671 mm (large curvature). The dimensions of the right horn core were the following: base width

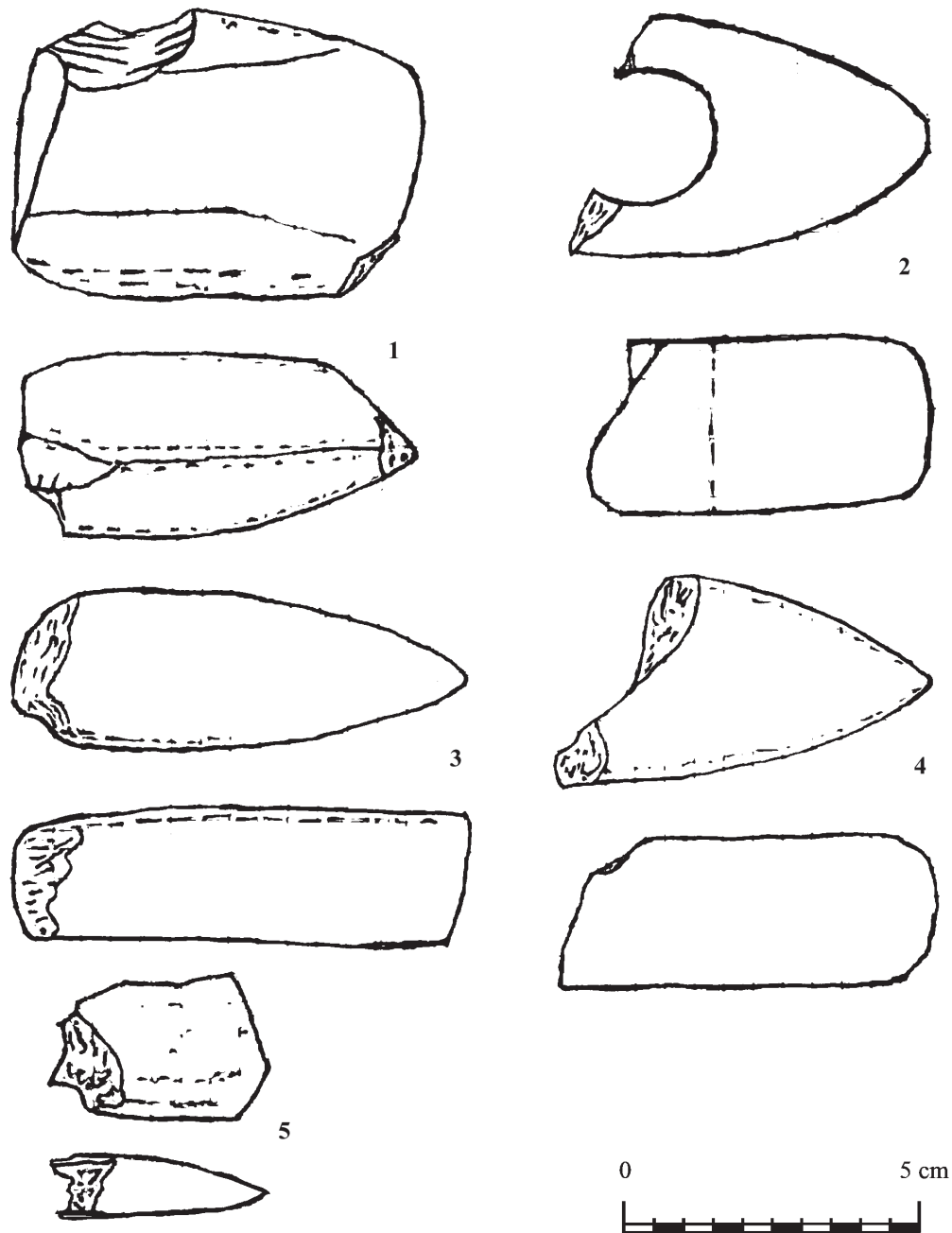


Fig. 29. Kup-Egyes, lithic finds, polished stone tools
 29. kép. Kup-Egyes, kő leletek, csiszolt kőeszközök

113 mm, depth: 87 mm, basis diameter: 322 mm. Its length (with the tip broken off): 421* mm (small curvature) 558* mm (large curvature). The distance between the horn cores was measured as 184 mm. The surface pattern of the horn cores indicated an adult individual. The context of the find indicated building offering (Makkay 1979; Makkay 1986). From the same pit, another aurochs humerus, calcaneus and probably worked rib fragments also came to light. The relatively large number of aurochs bones on the site seems to indicate intensive hunting. Apparently

not all parts of the hunted animals were transported to the settlement, the low ratio of the head and terminal regions is conspicuous.

Red deer

Red deer was the second most frequently hunted animal, the quantity of its bone remains is less than half of the aurochs (17 pieces, 1.09%). Red deer bones were found in 5 features, most of them in Section XVI (10 pieces, 6 of them antler fragments). Among the 17 fragments, measurable data on dimensions

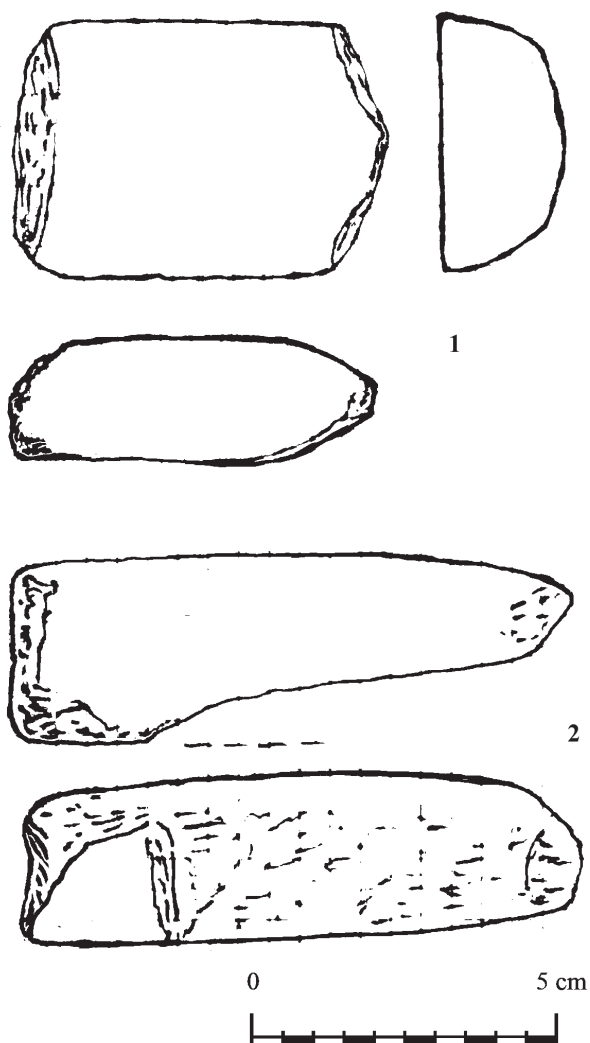


Fig. 30. Kup-Egyes, lithic finds, polished stone tools
30. kép. Kup-Egyes, kő leletek, csiszolt kőeszközök

were obtained from 3 fragments, none of them suitable for the calculation of withers' height. From Section XII, antler fragment of an individual surpassing 4 years was recovered (dimension of antler stem: 42 and 36.5 cm, respectively).

Wild horse

Wild horse was the third most frequent hunted animal on the site (16 pieces, 1.02%). Horse bones occurred sporadically, altogether in 6 features. They were mainly humerus, forearm and vertebral fragments, none of them in measurable state. Two forearm bones used to belong to juvenile individuals.

Roe deer

There were altogether 6 pieces of roe deer bones found on the settlement, four of them antler fragments. One of them is a shed antler (Section IX) and

there is one with carved antler burr. (Section VIII). Two of the antler fragments were burnt. There were two long bone fragments without measurable dimensions.

Wild boar

The number of wild boar remains is slightly less than that of roe deer: 5 pieces (0.32 %). Among the fragments found there were 3 astragals, one of them with cutmark (Section IX). The mandible fragment found in Section XVI used to belong to an adult male specimen (diameter of the canine bed: 19.5* mm). The calcaneus bone from Section II was suitable for measuring dimensions and could be used for calculating withers' height (Teichert 1969, 286), determined as 96.6 cm.

Hare

There was one bone of hare found, from Section IX.

Fish and birds

There were 2 pieces of bird bones and 14 pieces of fish bones, requiring further analysis. They also contribute to the amount of hunted animals.

Molluscs

Judging by their context, the snails and clams found on the site can also be assigned to the consumed animals (food). Among them, the more significant were snails (represented by 56 pieces). The molluscs from the site also require further analysis.

Summary of animal bone studies

The animal bones recovered from the site Kup show an absolute dominance of domestic species, hunting can be considered on the basis of the quantity of wild animal bones as a supplementary activity. On the basis of the aurochs remains, the butchering of the prey took place not on the settlement but at the place of hunting. The dominant species among the domestic animals, in overwhelming ratio, was cattle; in smaller quantities, the number of small ruminants was also significant. Cattle husbandry required pastures with adequately watered land rich in grasses, the small ruminants are somewhat less demanding. The large quantity of Molluscs also on the diet similarly indicated an environment rich in waters. Both cattle and small ruminants probably served for, apart from being the source of meat, as further benefits for the settled agrarian community, using traction of cattle, hide, bones, probably milk; moreover,



Fig. 31. Kup-Egyes, bone tools, animal bone finds
31. kép. Kup-Egyes, csonteszközök, állatcsont leletek

wool, hide, milk of small ruminants. The third species in frequency, i.e. pig was probably a single use animal, kept mainly for their meat. Their appearance in the wealth of animal bone finds in Hungary became more typical in the Bronze Age (appearing also in the Late Copper Age context). Pig husbandry requires water-rich environment, similar to cattle, their presence in the domestic animal stock – apart from other factors – was promoted by the changes of the climate, becoming cooler and more rainy (Gál 2017, 61).

Among the hunted wild animals, hunting for aurochs seem to be most intensive, the distribution of the bones by body region denoting their primary use as meat consumption. The skull fragment in the aurochs pit in Section I was probably placed there for cultic reasons. Apart from the small ruminant bones, roe deer antlers could serve for raw material for tools. Considering, that most of the archaeological material dated to the Lengyel culture, the horse remains most probably belonged to wild animals. Domestic horses, similar to pig, appeared in larger ratios in the Bronze Age when the remains of horse harness (horse bit, accoutrements etc.) stand for their keep and character of utilisation. The wild animal remains from the settlement indicate an environment with wooden spots and large grasslands.

Archaeometrical studies on the Kup-Egyes finds

The site and its archaeological material has been the subject of several archaeometrical specialists' studies: on pottery (Taubald, T. Biró 2007), stone artefacts (Kasztovszky et al. 2005; Kasztovszky et al. 2008; T. Biró et al. 2009) pigments (Váczai et al. 2012; T. Biró, Váczai 2017), and daub (Kovács 2005a; Kovács 2005b). Bulrush prints on pottery were published by Éva Richter (Richter 2003; Richter 2010).

Conclusions

The authenticating excavation of Kup-Egyes prehistoric settlement in 1974 had brought to light archaeological finds of the Linearbandkeramik (LBK) and Lengyel cultures. The new excavations (2000–2003) yielded dominantly the heritage of the Lengyel culture, considerable amount of LBK finds and as new element, in a distance of 110 m from the center of the former excavations, finds of the Proto-Boleráz culture. The excavation of the site was performed by traditional manual methods resulted in a large num-

ber of finds, also from the topsoil, but the context was not unambiguous. The archaeological features excavated were refuse pits, pole post holes, ovens and burnt house remains and a pit with building sacrifice, mainly belonging to the Lengyel culture. Among the archaeological features, one oven and one refuse pit can be associated with the LBK.

The chronological assignment of the finds was basically performed on the strength of the ceramic finds, serving as a basis for the age determination of stone artefacts and animal bones. As finds of the Lengyel culture came to light from all excavation units and archaeological features, lithic artefacts and animal bones were treated here uniformly.

The recent (2000–2003) excavations were primarily motivated by the rich lithic industry. In accordance with our hopes, the new excavations have brought to light a rich and significant lithic inventory with high lithic intensity value (6.9 pieces/m²). According to the study of the lithic material, there were basically two schemes of processing the lithic raw materials on the Kup-Egyes site, one concerning the processing of the near-by Upper Cretaceous Tevel flint from the Nagytevel flint mine, the other „*chaîne opératoire*” was practised on the radiolarites collected from the more distant Bakony sources and its colour variants (still within one days' walking distance). The processing of these two kinds of raw material has revealed characteristic differences: Tevel flint was documented on the Kup site from an earlier phase in the processing (raw material, i.e. flint nodule, preparation of core, production of support base forms, retouched tools, their production and use). The phases of elaboration documented at the site were typically started from the stage of pre-cores and cores. Regarding the ratio of retouched (ready made and used) tools, we find more (in number and ratio) from this raw material (group). Nevertheless, Kup-Egyes is so far the only significant processing/workshop site for Tevel flint. The distribution and utilisation data (T. Biró et al. 2010, 20. kép) known so far support this view.

Acknowledgement

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Veszprém – partly in the form of personal collaboration, partly by lending part of the excavation equipment. The local museum (Esterházy Castle Museum, Pápa) whose catchment area includes the village Kup also supported our work and followed it with interest. Last, but certainly not least we owe thanks to our collaborators, friends, who contributed with their voluntary work to the excavations.

Appendix 1: Resolving the codes on the figures¹

Table 2

Typology: **A1** raw material; **A2** remnants of raw material; **A2w** remnants of raw material, small; **A3** raw material- or pre-core flake; **A3w** raw material- or pre-core flake; **B1** core; **B1w** micro-core; **B2** core remnant; **B2/9** fragment of core remnant; **B2w** micro-core remnant; **B3** flake; **B3/9** fragment of flake; **B3f** pointed flake; **B3w** microflake; **B4** chip; **B4/9** chip fragment; **B4f** pointed chip; **B4w** micro-chip; **B5** blade; **B5/9** fragment of blade; **B5f** pointed blade; **B5w** microblade; **B6** knife; **B6/9** knife fragment; **B6w** micro-knife; **B7** blade-like flake; **B7/9** fragment of blade-like flake; **B7f** pointed blade-like flake; **B7w** micro-blade-like flake; **B8** blade-like chip; **B8/9** fragment of blade-like chip; **B8f** pointed blade-like chip; **B8w** micro-blade-like chip; **B9** fragment of chipped tool blank; **B9w** micro-fragment of chipped tool blank; **C2** retouched core-remnant; **C3** retouched flake; **C3/9** retouched flake fragment; **C3w** retouched micro-flake; **C4** retouched chip; **C5** retouched blade; **C5w** microblade, retouched; **C6** retouched knife blade; **C7** retouched blade-like-flake; **C7w** retouched blade-like flake, small; **C8** retouched blade-like chip; **csi**. polisher; **csi9** fragment of polisher; **D/** **C5** truncated retouched blade; **D3** truncated flake; **D4/9** fragment of truncated chip; **D4w** microchip, truncated; **D5** truncated blade; **D5/9** truncated blade fragment; **D5w** truncated microblade; **D6** truncated knife-blade; **D6w** micro-knife-blade, truncated; **D7** truncated blade-like-flake; **D7w** truncated blade-like-flake, small; **E4** point on chip; **F/C5** borer on retouched blade; **F/C6** borer on retouched knife-blade; **F/D7** borer on truncated blade-like flake; **F4** borer on chip; **F4w** borer on micro-chip; **F7** borer on blade-like flake; **fest** paint; **G/C3** burin on retouched flake; **G/D3** burin on retouched flake; **G/D7** burin on retouched flake; **G3** burin on flake; **G4** burin on chip; **G5** burin on blade; **G5w** burin on micro-blade; **G6w** burin on micro-blade; **G7** burin on blade-like flake; **I/C3** end-scraper on retouched flake; **I/C7** endscraper on retouched blade-like flake; **I/D3** end-scraper / truncated flake; **I/D7** end-scraper / truncated blade-like flake; **I/J3** end-scraper / side-scraper on flake; **I2** end-scraper on core remnant; **I2w** end-scraper on micro-core remnant; **I3** end-scraper on flake; **I3/9** fragment of end-scraper on flake; **I3w** end-scraper on micro-flake; **I4** end-scraper on chip; **I4w** endscraper on micro-chip; **I5** end-scraper on blade; **I5/9**

end-scraper on blade fragment; **I5w** endscraper on microblade; **I6** endscraper on knife-blade; **I6w** endscraper on small knife-blade; **I7** end-scraper on blade-like flake; **I7/9** fragment of end-scraper on blade-like flake; **I7w** end-scraper on small blade-like flake; **J2** side-scraper on core remnant; **J3** side scraper on flake; **J3w** side scraper on flake; **kav**. pebble; **kav9** pebble fragment; **L/D5** trapeze form truncated blade; **lap** plane sheet of stone; **M/** **D5** segment / truncated blade; **M5** segment on blade; **M6** segment on knife-blade; **M6w** segment on knife-blade; **O2** special tool on core remnant; **O3** special tool on flake; **O6** special tool on knife-blade; **O6w** special tool on knife-blade; **O8** special tool on blade-like chip; **örl**. grinding stone; **örl9** grinding stone fragment; **P** polished stone tool; **P1** polished stone tool pre-form; **P9** fragment of polished stone tool; **ret**. retoucher; **sim**. smoother, polisher; **tömb** block; **tör**. fragment; **üt**. hammerstone; **üt9** hammerstone fragment

Raw materials: **9** Transdanubian radiolarite – Szentgál type; **10** Transdanubian radiolarite – Úrkút-Eplény type; **11** Transdanubian radiolarite – Hárskút type; **12** Transdanubian radiolarite – Tata type; **13** Transdanubian radiolarite, reddish brown; **14** Transdanubian radiolarite, Sümeg radiolarian chert; **15** Transdanubian radiolarite, others; **21** unspecified radiolarite; **22** Tevel flint; **23** Jurassic Kraków flint; **24** Volhynian flint; **28** J1 Bakony chert; **36** cinopel; **47** basalt; **49** greenschist-amphibolite; **50** fine sandstone; **51** medium sandstone; **52** rough sandstone; **53** quartzite; **57** other volcanite; **58** unspecified pebble material; **59** mineral paint; **77** Becsehely type grey silex; **81** light green greenschist; **83** basalt tuff with large cavities; **909** Transdanubian radiolarite – Szentgál type ?; **910** Transdanubian radiolarite – Úrkút-Eplény type ?; **911** Transdanubian radiolarite – Hárskút type ?; **913** Transdanubian radiolarite, reddish brown ?; **914** Transdanubian radiolarite, Sümeg radiolarian chert?; **915** Transdanubian radiolarite, others ?; **917** Mecsek radiolarite, grey ?; **918** Mecsek radiolarite, others?; **922** Tevel flint ?; **923** Jurassic Kraków flint ?; **928** J1 Bakony chert ?; **941** other (general) limnic quartzite ?; **943** Csesztve silex (Prut flint) ?; **947** basalt ?; **949** greenschist-amphibolite ?; **950** fine sandstone ?; **951** medium sandstone ?; **952** rough sandstone ?; **953** quartzite ?; **958** unspecified pebble material ?; **960** Lengyel quartzite ?; **977** Becsehely type grey silex ?; **983** basalt tuff with large cavities ?; **999** others

Appendix 2: Inventory of lithic artefacts

Fig. 19

19/01 Inv.nr.: 2010.42.57.1. 1-2 **B5** blade, broken in the middle, with worn edge **22** Tevel flint 38 × 11 × 4 mm; **19/02** Inv.nr.: 2010.42.68.8. **F/C5** borer on retouched blade, borer tip in medial position **9** Transdanubian radiolarite, Szentgál type 34 × 11 × 4 mm; **19/03** Inv.nr.: 2010.42.109.2. **F/C6** borer on retouched knife blade, with

cortex on the back, borer tip in medial position **22** Tevel flint mottled, with cortex $39 \times 17 \times 9$ mm; 19/04 Inv.nr.: 2011.3.59.14 **F/C5** borer on retouched blade **10** Transdanubian radiolarite, Úrkút-Eplény type $29 \times 13 \times 3$ mm; 19/05 Inv.nr.: 2011.7.059.2 **F/C6** borer on retouched knife blade with cortex on the back, needle-like implement with arched axis **22** Tevel flint $54 \times 10 \times 7$ mm; 19/06 Inv.nr.: 2011.3.54.1 **F/C5** borer on retouched blade with cortex on the back, borer tip in medial position **22** Tevel flint with cortex, $47 \times 18 \times 5$ mm; 19/07 Inv.nr.: 2011.3.55.03 **B6** knife blade on secondary decortication flake **22** Tevel flint $41 \times 12 \times 3$ mm; 19/08 Inv.nr.: 2017.1.4.16.03 **G4** burin on chip **9** Transdanubian radiolarite, Szentgál type $20 \times 9 \times 4$ mm; 19/09 Inv.nr.: 2017.1.12.8. **F/C5** borer on retouched blade, small **9** Transdanubian radiolarite, Szentgál type $20 \times 7 \times 3$ mm; 19/10 Inv.nr.: 2011.7.007.16 **C5** retouched blade, narrow, needle-like **22** Tevel flint $40 \times 7 \times 2$ mm; 19/11 Inv.nr.: 2011.3.27.27 **D5** truncated blade, hafted **9** Transdanubian radiolarite, Szentgál type $24 \times 17 \times 5$ mm; 19/12 Inv.nr.: 2011.7.059.1 **B6** knife blade with burin-like detachment at the basis and remains of black hafting substance (resin?) and cortex on the back side **22** Tevel flint $52 \times 20 \times 5$ mm; 19/13 Inv.nr.: 2018.2.3.137. **9** **B5w** microblade with used, worn edge **9** Transdanubian radiolarite, Szentgál type $19 \times 8 \times 2$ mm; 19/14 Inv.nr.: 2021.1.49.2 **I7** end-scraper on blade-like flake **22** Tevel flint $26 \times 18 \times 6$ mm; 19/15 Inv.nr.: 2011.7.042.2 **I5** end-scraper on blade on finger-cake form flat blade with flake scar hafting **22** Tevel flint $56 \times 27 \times 5$ mm; 19/16 Inv.nr.: 2011.7.124.2 **I7** end-scraper on blade-like flake **9** Transdanubian radiolarite, Szentgál type $20 \times 13 \times 2$ mm; 19/17 Inv.nr.: 2011.7.102.1 **I7** end-scraper on blade-like flake with notched hafting **22** Tevel flint $30 \times 20 \times 6$ mm; 19/18 Inv.nr.: 2011.7.093.04 **B5** blade **13** Transdanubian radiolarite, reddish brown, with porcelanite $36 \times 13 \times 4$ mm; 19/19 Inv.nr.: 2011.7.092.01 **I3** end-scraper on flake on flat, widening blade-like flake **9** Transdanubian radiolarite, Szentgál type, with porcelanite $32 \times 23 \times 4$ mm; 19/20 Inv.nr.: 2011.7.089.4 **D5** truncated blade, with use wear and remains of hafting substance **22** Tevel flint $32 \times 18 \times 5$ mm.

Fig. 20

20/01 Inv.nr.: 2002.10.1. 4 **I/D3** end-scraper / truncated flake, small, with steep retouch **9** Transdanubian radiolarite, Szentgál type with porcelanite $20 \times 18 \times 5$ mm; 20/02 Inv.nr.: 2010.42.31.12. **I3** end-scraper on flake, regular fan-shape **22** Tevel flint with cortex $26 \times 29 \times 8$ mm; 20/03 Inv.nr.: 2010.42.38.9. **I3w** micro-end-scraper on flake, thumb-nail form end-scraper **9** Transdanubian radiolarite, Szentgál type $19 \times 21 \times 7$ mm; 20/04 Inv.nr.: 2010.42.42.5. **I3w** micro-end-scraper on flake base, thumb-nail form **9** Transdanubian radiolarite, Szentgál type $17 \times 20 \times 6$ mm; 20/05 Inv.nr.: 2010.42.59.3. **I7w** small end-scraper on blade-like flake **13** Transdanubian radiolarite, reddish brown $17 \times 14 \times 5$ mm; 20/06 Inv.nr.: 2010.42.96.4. **I3** end-scraper on flake, thumb-nail form

end-scraper, hafted **9** Transdanubian radiolarite, Szentgál type, burnt $26 \times 26 \times 7$ mm; 20/07 Inv.nr.: 2010.42.22.4. **D5** truncated blade used edges with hafting organic substance **22** Tevel flint $27 \times 15 \times 4$ mm; 20/08 Inv.nr.: 2010.42.24.6. **I7** end-scraper on blade-like flake, hafted **9** Transdanubian radiolarite, Szentgál type, dark red $26 \times 22 \times 7$ mm; 20/09 Inv.nr.: 2010.42.30.4. **I5** end-scraper on blade **10** Transdanubian radiolarite, Úrkút-Eplény type $32 \times 14 \times 3$ mm; 20/10 Inv.nr.: 2010.42.54.1. **I3w** micro-end-scraper on flake with straight, slightly asymmetrical working edge **922** Tevel flint? $22 \times 21 \times 4$ mm; 20/11 Inv.nr.: 2010.42.71.6. **I7** end-scraper on blade-like flake, hafted, regular form **10** Transdanubian radiolarite, Úrkút-Eplény type with yellow cream-like porcelanite $27 \times 20 \times 5$ mm; 20/12 Inv.nr.: 2010.42.91.1. **I5/9** end-scraper on blade, fragment with cut-off basis **22** Tevel flint $28 \times 21 \times 4$ mm; 20/13 Inv.nr.: 2010.42.26.1. **I5** end-scraper on (knife-like) blade **22** Tevel flint with cortex $43 \times 22 \times 6$ mm; 20/14 Inv.nr.: 2010.42.118.4. **I7** end-scraper on blade-like flake **22** Tevel flint with cortex, mottled pattern $42 \times 30 \times 9$ mm; 20/15 Inv.nr.: 2011.3.06.2. **I3** end-scraper on flake, thumb-nail form with fan-shape retouch **13** Transdanubian radiolarite, reddish brown $23 \times 20 \times 5$ mm; 20/16 Inv.nr.: 2011.3.24.06 **I3** end-scraper on flake, on asymmetrical core remnant flake **10** Transdanubian radiolarite, Úrkút-Eplény type $23 \times 18 \times 8$ mm; 20/17 Inv.nr.: 2011.7.063.03 **B2** core remnant **22** Tevel flint $34 \times 43 \times 24$ mm; 20/18 Inv.nr.: 2011.7.046.20 **I3w** micro-end-scraper on flake **9** Transdanubian radiolarite, Szentgál type $15 \times 17 \times 5$ mm; 20/19 Inv.nr.: 2011.3.31.09 **I5** end-scraper on thick blade **909** Transdanubian radiolarite, Szentgál type? $31 \times 15 \times 6$ mm; 20/20 Inv.nr.: 2011.3.36.2 **I7** end-scraper on blade-like flake **922** Tevel flint? burnt, pink $34 \times 24 \times 9$ mm; 20/21 Inv.nr.: 2011.3.31.05 **I7** end-scraper on blade-like flake, hafted **22** Tevel flint $35 \times 26 \times 5$ mm; 20/22 Inv.nr.: 2011.3.39.14 1 **B4** chip **9** Transdanubian radiolarite, Szentgál type, orange shade $14 \times 15 \times 3$ mm; 20/23 Inv.nr.: 2011.3.28.3 **I3** end-scraper on flake with dorsal cortex, atypical **22** Tevel flint $28 \times 24 \times 12$ mm

Fig. 21

21/01 Inv.nr.: 2002.5.7. **13** **D5** truncated blade with steep retouch **922** Tevel flint? $27 \times 17 \times 6$ mm; 21/02 Inv.nr.: 2010.42.31.25. **B5/9** blade fragment with worn edges, distal part detached **9** Transdanubian radiolarite, Szentgál type $24 \times 13 \times 4$ mm; 21/03 Inv.nr.: 2010.42.129.4. **D5** truncated blade, truncation from the direction of the basis **22** Tevel flint $27 \times 11 \times 4$ mm; 21/04 Inv.nr.: 2011.3.15.4 **B5** blade with fine retouch-like traces of utilisation **9** Transdanubian radiolarite, Szentgál type $24 \times 11 \times 2$ mm; 21/05 Inv.nr.: 2010.42.24.22. **I/J3** end-scraper / side scraper on flake, angular, hafted **9** Transdanubian radiolarite, Szentgál type $31 \times 26 \times 10$ mm; 21/06 Inv.nr.: 2002.6.2.2 **I/D7** end-scraper / truncated blade-like flake **22** Tevel flint $36 \times 32 \times 8$ mm; 21/07 Inv.nr.: 2002.10.1.3 **O3** special tool on flake, atypical projectile point or end-scraper? **9** Transdanubian radiolarite, Szentgál type $35 \times 25 \times 4$ mm; 21/08

Inv.nr.: 2010.42.4.1. **I3** end-scraper on core-rim flake **10** Transdanubian radiolarite, Úrkút-Eplény type $34 \times 32 \times 9$ mm; 21/09 Inv.nr.: 2010.42.14.6. **I/D3** end-scraper / truncated flake hafted **9** Transdanubian radiolarite, Szentgál type with porcelanite $30 \times 33 \times 10$ mm; 21/10 Inv.nr.: 2010.42.31.36 **D/C5** truncated / retouched blade with fine marginal retouch **9** Transdanubian radiolarite, Szentgál type with porcelanite, orange shade $30 \times 10 \times 3$ mm; 21/11 Inv.nr.: 2010.42.24.1. **C5** retouched blade with irregular saw-like retouch and sidewise located end-scraper with cortex on the surface **22** Tegel flint $60 \times 33 \times 15$ mm; 21/12 Inv.nr.: 2010.42.130.3. **I3** end-scraper on flake **909** Transdanubian radiolarite, Szentgál type ? burnt $37 \times 27 \times 12$ mm; 21/13 Inv.nr.: 2011.3.11.1 **O6w** special micro-tool on knife blade, notched with saw-like retouch **10** Transdanubian radiolarite, Úrkút-Eplény type $19 \times 8 \times 2$ mm; 21/14 Inv.nr.: 2010.42.39.1. **I/J3** end-scraper / side-scraper on angular secondary decortication flake **22** Tegel flint with cortex and limonitic spots $33 \times 32 \times 10$ mm; 21/15 Inv.nr.: 2011.3.27.20 **I3** end-scraper on flake, asymmetrical **9** Transdanubian radiolarite, Szentgál type $23 \times 31 \times 8$ mm; 21/16 Inv.nr.: 2011.7.124.4 **L/D5** trapeze, on small truncated blade **9** Transdanubian radiolarite, Szentgál type $12 \times 8 \times 2$ mm; 21/17 Inv.nr.: 2011.3.24.02 **O6** special tool on knife blade, shouldered end-scraper on blade with saw-like retouch **9** Transdanubian radiolarite, Szentgál type $32 \times 12 \times 3$ mm; 21/18 Inv.nr.: 2011.7.057.8 **L/D5** trapeze, small truncated blade with double truncation and blunting marginal retouch on the rear side **10** Transdanubian radiolarite, Úrkút-Eplény type $15 \times 9 \times 2$ mm

Fig. 22

22/01 Inv.nr.: 2010.42.24.26 **B5/9** blade fragment **22** Tegel flint $28 \times 13 \times 4$ mm; 22/02 Inv.nr.: 2010.42.39.13 **B5w** microblade **22** Tegel flint $28 \times 9 \times 3$ mm; 22/03 Inv.nr.: 2011.3.01.08 **B5** blade, small **922** Tegel flint? homogeneous grey $28 \times 9 \times 3$ mm; 22/04 Inv.nr.: 2011.3.43.37 **I/D7** end-scraper / truncated blade-like flake, small **15** Transdanubian radiolarite, others, porcelanite $23 \times 15 \times 6$ mm; 22/05 Inv.nr.: 2011.3.47.3 **C5** retouched blade with sickle gloss and sporadic (hafting?) retouch **9** Transdanubian radiolarite, Szentgál type $27 \times 15 \times 4$ mm; 22/06 Inv.nr.: 2011.7.005.7 **1 B5w** microblade **9** Transdanubian radiolarite, Szentgál type $14 \times 5 \times 1$ mm; 22/07 Inv.nr.: 2010.42.53.9. **M6** segment on knife blade, with sickle gloss 999 other silex, dull greenish grey with dotted pattern $40 \times 16 \times 4$ mm; 22/08 Inv.nr.: 2011.3.01.07 **B5** blade with notched hafting and remains of organic hafting material (resin?) **922** Tegel flint? white cortical part? $40 \times 18 \times 6$ mm; 22/09 Inv.nr.: 2011.3.11.2 **D5** truncated blade **22** Tegel flint $33 \times 13 \times 3$ mm; 22/10 Inv.nr.: 2011.7.027.6 **D5** truncated blade, double truncation, long trapeze form with slight sickle gloss **22** Tegel flint $32 \times 12 \times 3$ mm; 22/11 Inv.nr.: 2011.7.053.2 **D5** truncated blade with sickle gloss **922** Tegel flint? $33 \times 18 \times 5$ mm; 22/12 Inv.nr.: 2011.7.044.4 **B5/9** blade fragment, with sickle gloss **22** Tegel flint, homogeneous grey $28 \times 16 \times 3$ mm;

22/13 Inv.nr.: 2011.7.126.1 **D5** truncated blade, double, with sickle gloss **22** Tegel flint $38 \times 13 \times 3$ mm; 22/14 Inv.nr.: 2011.7.058.05 **D6** truncated knife blade with sickle gloss, truncation from the side of the basis **999** other silex? $27 \times 17 \times 3$ mm; 22/15 Inv.nr.: 2011.7.063.27 **M/D5** segment, on truncated blade, with sickle gloss **22** Tegel flint $28 \times 13 \times 3$ mm; 22/16 Inv.nr.: 2011.7.102.2 **D5** truncated blade with sickle gloss, worn edge **9** Transdanubian radiolarite, Szentgál type $26 \times 13 \times 4$ mm; 22/17 Inv.nr.: 2011.7.123.1 **M5** segment on blade, with sickle gloss and double truncation **22** Tegel flint $33 \times 15 \times 4$ mm; 22/18 Inv.nr.: 2016.1.24.2. **1 D7** truncated blade-like flake with sickle gloss, cortex on back, hafted **22** Tegel flint $32 \times 14 \times 4$ mm; 22/19 Inv.nr.: 2010.42.53.11. **B5/9** blade fragment, medial part **10** Transdanubian radiolarite, Úrkút-Eplény type $24 \times 15 \times 4$ mm; 22/20 Inv.nr.: 2010.42.125.2. **B5** blade, with worn edge, distal end cut off **22** Tegel flint $37 \times 14 \times 4$ mm; 22/21 Inv.nr.: 2011.3.01.14 **B5/9** blade fragment, distal part **922** Tegel flint? $20 \times 15 \times 3$ mm; 22/22 Inv.nr.: 2010.42.121.4. **B5w** microblade **10** Transdanubian radiolarite, Úrkút-Eplény type $12 \times 7 \times 2$ mm; 22/23 Inv.nr.: 2010.42.109.4. **B5/9** blade fragment, cut off **9** Transdanubian radiolarite, Szentgál type $19 \times 12 \times 2$ mm; 22/24 Inv.nr.: 2010.42.99.6. **B9** unretouched fragment **9** Transdanubian radiolarite, Szentgál type $10 \times 11 \times 2$ mm

Fig. 23

23/01 Inv.nr.: 2002.6.2. **3 B5** blade with worn edge **22** Tegel flint $45 \times 27 \times 4$ mm; 23/02 Inv.nr.: 2010.42.31.21 **B7** blade-like flake, thick **10** Transdanubian radiolarite, Úrkút-Eplény type, orange shade $46 \times 20 \times 8$ mm; 23/03 Inv.nr.: 2011.3.01.04 **B5** blade **922** Tegel flint? dull yellowish grey $42 \times 15 \times 4$ mm; 23/04 Inv.nr.: 2011.3.01.05 **B5** blade long, elegant blade **9** Transdanubian radiolarite, Szentgál type $40 \times 8 \times 3$ mm; 23/05 Inv.nr.: 2011.3.03.04 **B5** blade narrow, with slightly arched back **22** Tegel flint, homogeneous grey $42 \times 8 \times 3$ mm; 23/06 Inv.nr.: 2021.1.45. **3 B5** blade **11** Transdanubian radiolarite, Hárskút type $45 \times 13 \times 6$ mm; 23/07 Inv.nr.: 2002.6.2. **4 B6** knife blade crested blade **22** Tegel flint $52 \times 12 \times 7$ mm; 23/08 Inv.nr.: 2011.3.03.03 **B5** blade with arched back, with crested retouch from conical blade core **22** Tegel flint $55 \times 13 \times 7$ mm; 23/09 Inv.nr.: 2011.3.03.13 **B5** blade, narrow **922** Tegel flint? $36 \times 9 \times 2$ mm; 23/10 Inv.nr.: 2011.3.11.3 **B6** knife blade **22** Tegel flint $37 \times 16 \times 4$ mm; 23/11 Inv.nr.: 2011.3.13.08 **B5** blade **9** Transdanubian radiolarite, Szentgál type with porcelanite $42 \times 17 \times 4$ mm; 23/12 Inv.nr.: 2011.3.28.1 **B5** blade **922** Tegel flint? $47 \times 16 \times 6$ mm; 23/13 Inv.nr.: 2011.3.27.05 **B5** blade **15** Transdanubian radiolarite, others, pinkish porcelanite $42 \times 22 \times 6$ mm; 23/14 Inv.nr.: 2011.3.29.07 **B6** knife blade with core-rim back **10** Transdanubian radiolarite, Úrkút-Eplény type $36 \times 12 \times 5$ mm; 23/15 Inv.nr.: 2011.3.55.06 **B5** blade **9** Transdanubian radiolarite, Szentgál type $27 \times 8 \times 3$ mm; 23/16 Inv.nr.: 2011.3.43.25 **B5w** microblade narrow **10** Transdanubian radiolarite, Úrkút-Eplény type $29 \times 7 \times 2$ mm; 23/17 Inv.nr.: 2011.3.43.19 **B5w** microblade from core

processed from two sides **9** Transdanubian radiolarite, Szentgál type $33 \times 8 \times 3$ mm; 23/18 Inv.nr.: 2011.3.34.08 **B5w** microblade **9** Transdanubian radiolarite, Szentgál type $24 \times 7 \times 2$ mm; 23/19 Inv.nr.: 2011.3.32.1 **B5** blade **10** Transdanubian radiolarite, Úrkút-Eplény type $23 \times 10 \times 2$ mm; 23/20 Inv.nr.: 2011.3.31.15 **B5w** microblade with use worn edges **9** Transdanubian radiolarite, Szentgál type $27 \times 8 \times 3$ mm

Fig. 24

24/01 Inv.nr.: 2010.42.1.6. **B5** blade **10** Transdanubian radiolarite, Úrkút-Eplény type $31 \times 10 \times 3$ mm; 24/02 Inv.nr.: 2010.42.9.7. **B6w** knife blade, small, with porcelanite back side **9** Transdanubian radiolarite, Szentgál type $25 \times 10 \times 3$ mm; 24/03 Inv.nr.: 2010.42.9.8. **B5w** microblade narrow, elegant small blade **9** Transdanubian radiolarite, Szentgál type $21 \times 5 \times 1$ mm; 24/04 Inv.nr.: 2010.42.31.26. **B5w** microblade **9** Transdanubian radiolarite, Szentgál type $24 \times 10 \times 2$ mm; 24/05 Inv.nr.: 2010.42.31.27. **B5w** microblade with worn edge **9** Transdanubian radiolarite, Szentgál type $29 \times 9 \times 3$ mm; 24/06 Inv.nr.: 2010.42.31.38. **B5w** microblade **10** Transdanubian radiolarite, Úrkút-Eplény type $22 \times 6 \times 2$ mm; 24/07 Inv.nr.: 2010.42.36.4. **B5w** microblade with worn edges **10** Transdanubian radiolarite, Úrkút-Eplény type with porcelanite $23 \times 9 \times 2.5$ mm; 24/08 Inv.nr.: 2010.42.39.24 **B8w** small blade-like chip **10** Transdanubian radiolarite, Úrkút-Eplény type $20 \times 11 \times 2$ mm; 24/09 Inv.nr.: 2010.42.39.29 **B5w** microblade **9** Transdanubian radiolarite, Szentgál type $20 \times 9 \times 2$ mm; 24/10 Inv.nr.: 2010.42.11.4. **B6** knife blade with natural back **928** Bakony Liassic chert ? greenish grey with yellow cortex $35 \times 15 \times 4$ mm; 24/11 Inv.nr.: 2010.42.14.12. **B5w** microblade **922** Tevel flint? $30 \times 15 \times 4$ mm; 24/12 Inv.nr.: 2010.42.14.7. **B7** blade-like flake **9** Transdanubian radiolarite, Szentgál type $35 \times 19 \times 6$ mm; 24/13 Inv.nr.: 2010.42.18.7. **B7** blade-like flake **9** Transdanubian radiolarite, Szentgál type $32 \times 20 \times 7$ mm; 24/14 Inv.nr.: 2010.42.39.4. **B6** knife blade with used edge and corticated back **22** Tevel flint with cortex $32 \times 17 \times 5$ mm; 24/15 Inv.nr.: 2010.42.39.11 **B5** blade **13** Transdanubian radiolarite, reddish brown $30 \times 10 \times 3$ mm; 24/16 Inv.nr.: 2010.42.63.2. **B5w** microblade, with use-worn edge **15** Transdanubian radiolarite, others, creamy-pinkish porcelanite $25 \times 11 \times 3$ mm; 24/17 Inv.nr.: 2010.42.24.19. **B5** blade, with straight cut distal end and use-worn edge **15** Transdanubian radiolarite, others, creamy-pinkish porcelanite $33 \times 14 \times 4$ mm; 24/18 Inv.nr.: 2010.42.38.8. **B6** knife blade, thin **10** Transdanubian radiolarite, Úrkút-Eplény type $37 \times 7 \times 2$ mm; 24/19 Inv.nr.: 2010.42.39.9. **B5** blade **15** Transdanubian radiolarite, others, porcelanite $33 \times 10 \times 3$ mm; 24/20 Inv.nr.: 2010.42.99.4. **B5f** pointed blade **9** Transdanubian radiolarite, Szentgál type $36 \times 8 \times 3$ mm; 24/21 Inv.nr.: 2010.42.103.2. **B5w** microblade **9** Transdanubian radiolarite, Szentgál type $28 \times 7 \times 2$ mm; 24/22 Inv.nr.: 2010.42.105.2. **B5/9** blade fragment, distal end cut off or broken **9** Transdanubian radiolarite, Szentgál type $34 \times 17 \times 5$ mm; 24/23 Inv.nr.: 2010.42.50.1. **B6**

knife blade hafted **22** Tevel flint $42 \times 19 \times 4$ mm; 24/24 Inv.nr.: 2010.42.122.30. **B5w** microblade **9** Transdanubian radiolarite, Szentgál type $33 \times 12 \times 4$ mm; 24/25 Inv.nr.: 2010.42.124.2. **B5** blade **15** Transdanubian radiolarite, others, orange-red $34 \times 15 \times 4$ mm; 24/26 Inv.nr.: 2010.42.130.1. **B5** blade **22** Tevel flint $28 \times 12 \times 3$ mm; 24/27 Inv.nr.: 2010.42.125.1. **B5** blade with worn edge, distal end cut off **922** Tevel flint? homogeneous grey $37 \times 20 \times 4$ mm; 24/28 Inv.nr.: 2011.3.01.16 **B5w** microblade **922** Tevel flint? dull yellowish grey $22 \times 10 \times 2$ mm; 24/29 Inv.nr.: 2010.42.119.4. **B5w** microblade **9** Transdanubian radiolarite, Szentgál type $23 \times 7 \times 2$ mm; 24/30 Inv.nr.: 2011.3.43.47 **B5w** microblade **10** Transdanubian radiolarite, Úrkút-Eplény type H-UE $20 \times 10 \times 2$ mm

Fig. 25

25/01 Inv.nr.: 2010.42.48.1. **B1** core, conical blade core, with **9** blade scars **22** Tevel flint with cortex $68 \times 49 \times 38$ mm; 25/02 Inv.nr.: 2011.7.044.2 **I3** end-scraper on flake, on thick core flake **9** Transdanubian radiolarite, Szentgál type $30 \times 34 \times 15$ mm; 25/03 Inv.nr.: 2011.7.114.7 **B1w** microcore, conical microblade core **13** Transdanubian radiolarite, reddish brown with porcelanite $34 \times 20 \times 24$ mm; 25/04 Inv.nr.: 2010.42.132.1. **B1** core, conical blade core **22** Tevel flint $49 \times 55 \times 45$ mm

Fig. 26

26/01 Inv.nr.: 2010.42.12.5. **B2w** microcore remnant, angular, used from several directions **9** Transdanubian radiolarite, Szentgál type with porcelanite $29 \times 23 \times 17$ mm; 26/02 Inv.nr.: 2011.7.090.02 **B1w** microcore, conical microblade core **10** Transdanubian radiolarite, Úrkút-Eplény type with porcelanite $23 \times 27 \times 22$ mm; 26/03 Inv.nr.: 2011.3.31.02 **B2** core remnant **10** Transdanubian radiolarite, Úrkút-Eplény type $40 \times 24 \times 25$ mm; 26/04 Inv.nr.: 2010.42.24.21. **B2w** microcore remnant, blade core with conical character **9** Transdanubian radiolarite, Szentgál type $29 \times 26 \times 25$ mm; 26/05 Inv.nr.: 2010.42.55.23. **B2** core remnant blade core, with porcelanite back side **9** Transdanubian radiolarite, Szentgál type $35 \times 24 \times 13$ mm; 26/06 Inv.nr.: 2011.7.085.1 **B2w** microcore remnant, micro-blade core with conical character **9** Transdanubian radiolarite, Szentgál type $18 \times 18 \times 17$ mm; 26/07 Inv.nr.: 2011.7.047.04 **B3** flake **22** Tevel flint, burnt $37 \times 23 \times 11$ mm; 26/08 Inv.nr.: 2010.42.26.2. **B1** core, blade core with conical character **22** Tevel flint $42 \times 35 \times 35$ mm; 26/09 Inv.nr.: 2011.3.03.02 **B2** core remnant, remains of blade core utilised from several directions **22** Tevel flint $40 \times 20 \times 24$ mm

Fig. 27

27/01 Inv.nr.: 2011.7.047.14 **B3** flake, core rim for processing a polished tool base form **47** basalt $40 \times 57 \times 25$ mm; 27/02 Inv.nr.: 2010.42.51.2. **C3** retouched flake, large corticated **922** Tevel flint? "Volhynian" quality $35 \times 55 \times 14$ mm; 27/03 Inv.nr.: 2010.42.47.1. **B3** flake, decortication flake **22** Tevel flint $56 \times 63 \times 13$ mm; 27/04 Inv.nr.: 2002.5.7. **10** **B6** knife blade **22** Tevel flint, corticated $53 \times$

16 × 7 mm; 27/05 Inv.nr.: 2010.42.129.3. **B6** knife blade, with natural back **22** Tevel flint with cortex and traces of organic substance (resin) for hafting 48 × 15 × 4 mm; 27/06 Inv.nr.: 2011.3.01.09 **B6** knife blade, secondary decortication flake with saw-like traces of use **922** Tevel flint? cortical part 30 × 16 × 4 mm; 27/07 Inv.nr.: 2011.7.031.04 **B7** blade-like flake on secondary decortication flake **22** Tevel flint 46 × 20 × 7 mm; 27/08 Inv.nr.: 2010.42.31.6. **B6** knife blade with cortex on the back, secondary decortication flake **22** Tevel flint with cortex 39 × 20 × 5 mm; 27/09 Inv.nr.: 2002.5.7. 11 **B6** knife blade **22** Tevel flint with cortex 31 × 10 × 4 mm; 27/10 Inv.nr.: 2010.42.39.14 **B8** blade-like chip, decortication flake **22** Tevel flint 24 × 17 × 4 mm; 27/11 Inv.nr.: 2010.42.68.4. **B6** knife blade with corticated back **22** Tevel flint 43 × 16 × 3 mm

Fig. 28

28/01 Inv.nr.: 2010.42.6.11-12 **B6** knife blade with natural back, with refitted (fresh) breakage **22** Tevel flint with cortex 38 × 18 × 3 mm; 28/02 Inv.nr.: 2011.7.031.03 **B3** flake core rim **22** Tevel flint 25 × 50 × 12 mm; 28/03 Inv.nr.: 2011.7.129.1 **B6** knife blade with core rim on its back **22** Tevel flint 92 × 30 × 13 mm; 28/04 Inv.nr.: 2011.3.34.11 **B6** knife blade with corticated back **22** Tevel flint 62 × 22 × 10 mm; 28/05 Inv.nr.: 2010.42.25.13. **B3** flake core formation flake **77** Becsehely type grey flint, dull light grey 48 × 45 × 8 mm; 28/05 Inv.nr.: 2010.42.25.14. **B3** flake, core formation flake **77** Becsehely type grey flint, dull light grey 39 × 38 × 6 mm; 28/06 Inv.nr.: 2010.42.118.7. **B6** knife blade with core rim back **9** Transdanubian radiolarite, Szentgál type 25 × 11 × 5 mm; 28/07 Inv.nr.: 2011.7.079.3 **I3** end-scraper on flake, asymmetrical **9** Transdanubian radiolarite, Szentgál type 29 × 21 × 6 mm; 28/08 Inv.nr.: 2010.42.31.5. **B6/9** knife blade fragment, basis part **22** Tevel flint with cortex 22 × 24 × 3,5 mm; 28/08 Inv.nr.: 2010.42.31.7. **B6/9** knife blade fragment distal part **22**

Tevel flint with cortex 24 × 22 × 3,5 mm; 28/09 Inv.nr.: 2002.10.1. 5 **B6** knife blade core rim, with crested retouch, hafted? **10** Transdanubian radiolarite, Úrkút-Eplény type 40 × 20 × 6 mm; 28/10 Inv.nr.: 2011.7.045.3 **B6** knife blade, with core rim back **9** Transdanubian radiolarite, Szentgál type 38 × 14 × 8 mm; 28/11 Inv.nr.: 2010.42.102.1. **B3** flake **22** Tevel flint with cortex 49 × 40 × 15 mm

Fig. 29

29/01 Inv.nr.: 2010.42.18.1. **P** polished stone tool, chisel axe with parallel sides, renewed **47** basalt 67 × 47 × 30 mm; 29/02 Inv.nr.: 2011.7.061.1 **P9** polished stone tool fragment with shaft hole **49** greenschist with grey fibrous pattern 68 × 40 × 33 mm; 29/03 Inv.nr.: 2011.7.033.1 **P** polished stone tool, shoelast form chisel axe, lower part fragmented **81** light green greenschist (Felsőcsatár type) 77 × 27 × 24 mm; 29/04 Inv.nr.: 2011.7.075.1 **P9** polished stone tool fragment with shaft hole (?) axe edge fragment **81** light green greenschist (Felsőcsatár type) 65 × 35 × 30 mm; 29/05 Inv.nr.: 2011.3.38.03 **P9** polished stone tool fragment **949** greenschist, amphibolite ? grey 33 × 23 × 12 mm

Fig. 30

30/01 Inv.nr.: 2011.7.043.1 **P9** polished stone tool fragment, chisel blade with parallel sides edge fragment **49** greenschist with dark grey fibrous pattern 60 × 40 × 18 mm; 30/02 Inv.nr.: 2011.7.056.1 **P9** polished stone tool fragment **81** light green greenschist (Felsőcsatár type) 91 × 27 × 26 mm

Fig. 31

31/01a Inv.nr.:2002.4.4 upper part of a small ruminant metatarsus; 31/01b Inv.nr.: 2010.42.85.1 polished small ruminant tibia fragment; 31/02a–b dog skull and 31/02c mandible from Section XII; 31/03 aurochs frontale-occipitale with the fragment of horn cores from Section I.

Notes

- 1 The code system is used since T. Biró 1987b (types) and T. Biró 1991 / 1998 (raw materials with minor modifications (extensions)).

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Table 2. Kup-Egyes, type-row material matrix (lithics)

2. táblázat. Kup-Egyes, típus-nyersanyag mátrix (kőanyag)

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

KUP-EGYES ŐSKORI TELEPÜLÉSÉNEK VIZSGÁLATI EREDMÉNYEI

Összefoglalás

Kup-Egyes őskori településen az 1974-es hitelesítő feltáráson a dunántúli vonaldíszes kerámia (DVK, újabban közép-európai vonaldíszes kerámia) kultúrája, (Marton, Oross 2009) és a lengyeli kultúra leletanyaga került elő. A 2000–2003 közötti feltárásokon dominánsan lengyeli leletanyagot, emellett vonaldíszes leleteket és új elemként, a korábbi feltárásoktól 110 m keleti irányban a Proto-Boleráz-kultúra leleteit találtuk meg. A lelőhely feltárása hagyományos kézi módszerekkel történt, aminek eredménye a nagyobb – de nem egyértelmű kontextusú – leletszám. A feltárt régészeti objektumok hulladékgödörök, feltehetőleg építési áldozati gödör, kemencék és házomladékok voltak, ezek többnyire a lengyeli kultúrához köthetők. A DVK-hoz egy kemence és egy gödör köthető a leletanyag alapján.

A leletek korának meghatározása alapvetően a kerámia jellege alapján történt, ami a kőeszköz és állatcsont leletek datálására is alapul szolgált. Miután lengyeli leletek minden ásatási egységből és objektumból is előkerültek, a kőeszközöket és az állatcsontokat egységesen kezeltük.

A lelőhely újabb (2000–2003) feltárására elsősorban a kiemelkedően gazdag kőanyag miatt került sor. Reményeinkkel összhangban az újonnan feltártterületről is igen gazdag, jelentős kőanyag került elő, igen magas kőeszköz intenzitással (6,9 db/m²). A kőanyag vizsgálata szerint a településen alapvetően kétféle nyersanyag feldolgozása folyt: a közeli, felső kréta korú teveli tűzkő és a kicsit távolabbi, de még mindig egy napi járóföldön belül gyűjthető bakonyi radiolarit (különböző színváltozatainak) megmunkálása. A kétféle nyersanyag feldolgozása jellegzetes különbségeket mutat: a teveli tűzkő a munkafolyamat korábbi szakaszától (nyersanyag /= tűzkő-gumó/, magkőkészítés, alapformák előállítása, retusált eszközök és készítésük, valamint használatuk dokumentumai). A radiolarit feldolgozás tipikusan az előmagkő-magkő stádiumtól kezdődik, és arányában több retusált (kész és használt) eszközt találtunk ebből a nyersanyag(csoport)ból. Mindazonáltal Kup-Egyes a teveli tűzkő eddig ismert első jelentős feldolgozó helye, műhelytelepe. A teveli tűzkő eddig ismert elterjedési és használati adatai (T. Biró et al. 2010, 20. kép) alátámasztják ezt a képet.