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*Medieval cup nested weights from czech and moravian sites. Gruna,
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KOŠICE-ČERVENÝ RAK AND THE KÖRÖS/ EASTERN LINEAR TRANSITION IN THE HORNÁD BASIN (EASTERN SLOVAKIA)

KOŠICE-ČERVENÝ RAK A PRECHOD OD KRIŠSKEJ KULTÚRY KU KULTÚRE S VÝCHODNOU LINEÁRNOU KERAMIKOU V ÚDOLÍ HORNÁDU

Lubomíra Kaminská, Małgorzata Kaczanowska, Janusz K. Kozłowski

Abstract

At Košice-Červený rak the two features discovered during the rescue excavations in 1980, attributed to the transition from the Körös to the Eastern Linear Culture, represent the earliest phase of the Neolithic in the Hornád basin. In this paper pottery and lithic artefacts have been analyzed, showing similarities with the Late Körös from the middle Tisza basin and differences in relation to the Szatmár Group and the Early Linear Culture in the Ondava/Topľa basin. The AMS dates on sherds (6520 ± 50 and 6190 ± 40 BP) discussed in this paper reveal the weakness of radiocarbon dating based on pottery.

Keywords

Early Neolithic, Hornád Basin, Körös, Eastern Linear Culture, radiocarbon dating on sherds

1. Introduction

The discovery of the site of Košice-Červený rak is of essential importance for the question of the Neolithization of the northern part of the Carpathian Basin. While the early phase of the Eastern Linear Neolithic that derived from the Upper Tisza basin, spreading further north in the Ondava and Topľa valleys, is well known in the Eastern Slovakian Lowland, the advance of settlement of the Early Eastern Linear Culture to the north along the Hornád valley is poorly documented (Fig. 2). The classical monograph of S. Šiška (1989) mentions the site of Košice-Červený rak as a "Protolinear Phase" and offers only a brief description. The Early Linear artefacts on this site deserve a more detailed analysis as they provide one of the earliest records of the presence of Neolithic in the northern part of the Carpathian Basin.

2. Excavations

In 1980 rescue excavations at Košice-Červený rak were conducted by Lubomíra Kaminská (Kaminská 1981) when a southern road by-pass to Košice was being built. The site is situated on a small elevation on the left side of the Myslavský stream, in a garden next to a country track that was used as an axis for the new road (Fig. 3).

In the area where ceramics concentrated on the surface five trial trenches (trenches 1–5) were dug on an area of 364 sq m.

In all the trenches the 20 cm thick layer of arable soil extended on the eroded surface of silts. Up to a depth of 60 cm artefacts—described in this work—and daub fragments were revealed. At the level of 20 cm appeared the outlines of features 1 and 2 sunk into the silty layer.

Besides the Early (Proto-) Linear sherds the arable soil layer at Košice-Červený rak contained ceramics representing the Tiszadob Group of the Middle Linear Phase. Investigations in the years 1997, 2000, 2001 revealed

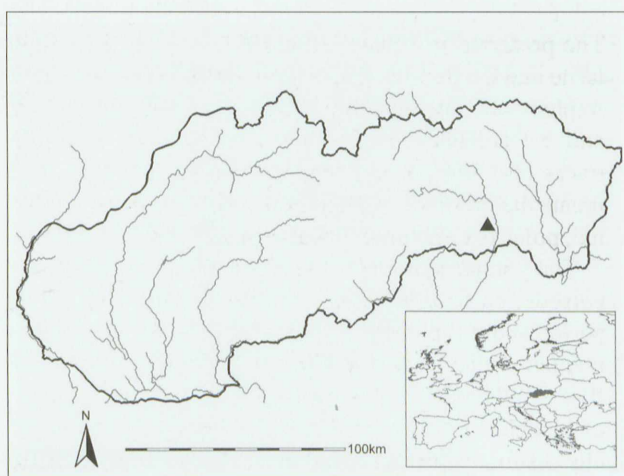


Fig. 1: Studied site on map of Slovakia. Obr. 1: Poloha študovanej lokality na mape Slovenska.

the existence of dense settlement of the Tiszadob group spreading along the Myslavský stream, from the site dennotated as Galgovec, as far as the well-known site at Barca (Kaminská 1999, 2001; Béreš, Novak 2002). When in 1989 S. Šiška published his work the fact of the existence of such intensive Middle Linear settlement along the Myslavský stream, as far as the Hornád valley, was not known.

The archaeological material described in this paper was discovered in features 1 and 2. Feature 1 was an oven with associated pit (Fig. 4). Directly beneath the arable soil a layer of daub was discovered which was, probably, the collapsed dome of the oven. The filling of the oven yielded large sherds of thick-walled ceramics, stone artefacts and a small polished axe. The oven floor was at a depth of 100 cm. The associated pit was sunk to a depth of 140 cm. In the vicinity of the pit three post-holes were discovered (depth of 70 and 75 cm) that could

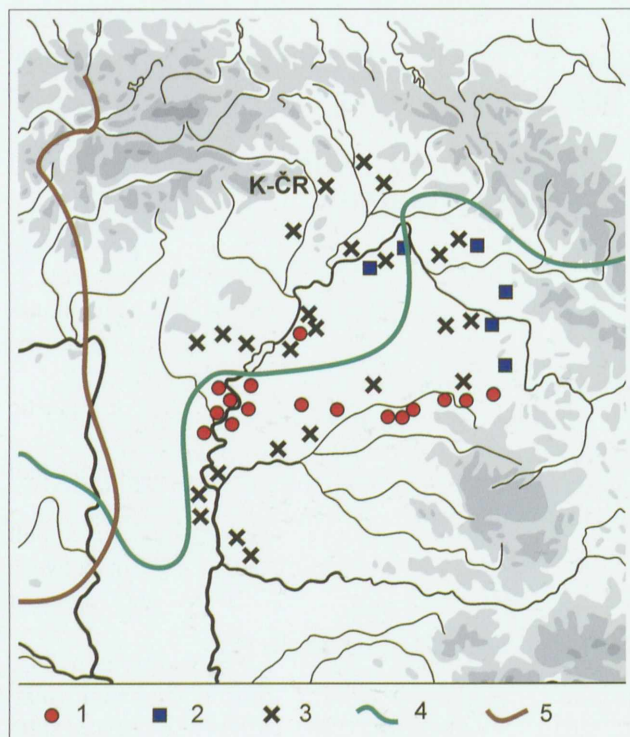


Fig. 2: Map of the Late Körös-Early Linear sites in the North-Eastern part of the Carpathian basin. 1–northernmost Körös Culture sites, 2–Méhtelek group sites, 3–Earliest Linear Pottery Culture sites, 4–Central European agro-ecological barrier, 5–easternmost limit of the Western Linear Culture (LBK). *Obr. 2: Mapa lokalít neskorej fázy krišskej kultúry–včasnej fázy kultúry s lineárnou keramikou v severo-východnej časti Karpatskej kotliny. 1–najsevernejšie lokality krišskej kultúry, 2–lokality skupiny Méhtelek, 3–lokality najčasnnejšej fázy lineárnej keramiky, 4–centrálna európska agro-ekologická bariéra, 5–najvýchodnejšia hranica západnej kultúry s lineárnou keramikou (kultúra s volútovou keramikou).*

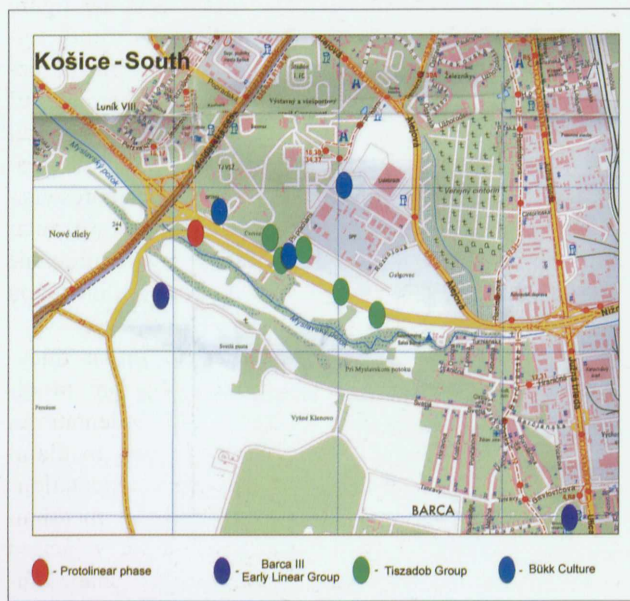


Fig. 3: Map of the sites in the valley of the Myslavský stream. *Obr. 3: Mapa lokalít v údolí Myslavského potoka.*

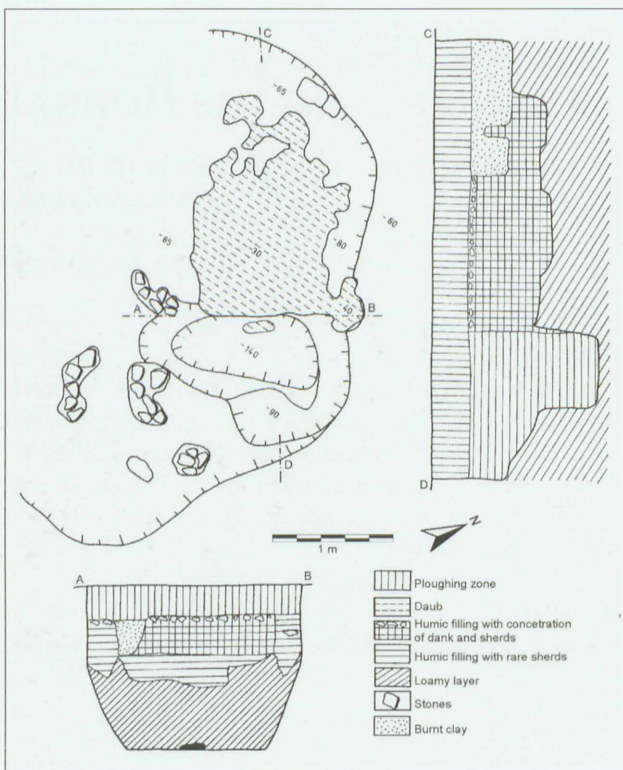


Fig. 4: Košice-Červený rak. Profiles and the horizontal section of feature 1. *Obr. 4: Košice-Červený rak. Profily a pôdorys objektu 1.*

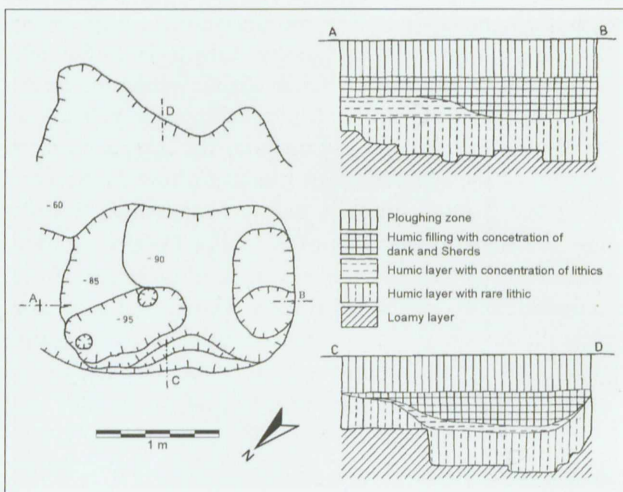


Fig. 5: Košice-Červený rak. Profiles and the horizontal section of feature 2. *Obr. 5: Košice-Červený rak. Profily a pôdorys objektu 2.*

have been ringed by stones. The dimensions of the oven together with the pit are: length 360 cm, width 190 cm.

Feature 2 was a pit, irregular in outline, measuring 140 × 190 cm, and 100 cm deep (Fig. 5). It was situated near the oven and yielded a small quantity of thick-walled ceramics.

3. Ceramics

Most of the ceramic finds from the pit No 2 are sherds of large, thick-walled storage vessels. This pottery was made from ceramic mass with organic or mineral admixture such as gravels (grain diameter of up to 14 mm), broken sherds and dried clay, and was fired at a relatively low

temperature. The assemblage contained fragments of at least three storage vessels:

1. a vessel with a low, cylindrical neck separated from the belly by a plastic band decorated with finger indentations. On the neck these indentations form chevrons. The egg-shaped belly is decorated with finger impressions, at places only in its upper part (Fig. 6:1-3)
2. a pot with a slightly conical neck separated from the belly by a plastic band with finger indentations. The belly, or only its upper part, is closely covered with finger impressions arranged in rows (Fig. 6:4). There are some more sherds with finger impressions forming chevrons. These sherds are probably fragments of vessel No 1, described above (Fig. 6:5-7). Some other sherds are decorated with regularly distributed finger impression on the belly; these are probably fragments of vessel No 2 (Fig. 6: 8-11).
3. this vessel has been wholly reconstructed. It is 108 cm tall, with a slightly conical neck, separated from the egg-shaped belly by a double plastic band decorated with finger impressions (Fig. 7).

Below these two plastic bands, in the upper and middle part of the belly, there are two horizontal sequences of anthropo- and zoomorphic representations (Šiška 1989 Tab. 4; Raczky et al. 2008 Fig. 17) (Fig. 8):



Fig. 6: Košice-Červený rak. Thick-walled pottery fragments. Obr. 6: Košice-Červený rak. Fragmenty hrubostenných nádob.

A1) probably, a human figure with raised arms (the lower part of the figure has been destroyed so that only the head, the arms and partially the body remained intact),

A2) a similar, schematic figure of an orant, wholly preserved, with the legs astride,

A3) a representation of, probably, a bull's head with the horns curved downwards,

A4) another schematic human figure, similar to A2.

In between representations A1 and A2 is a semicircular sign (A1a) possibly denoting an animal figure en face (like the representation B4 in the lower row).

The second row are four figures made up of a plastic band and flat bosses. These are:

B1) a partially preserved en face representation of a bull with the horns curved downwards,

B2) a schematic en face representation of a bull with straight horns; the head is a flat boss in between the legs, with four finger impressions that may represent the mouth,

B3) a partially preserved en face image of a bull: the head is a flat boss with five finger impressions that, probably, represent the mouth; the horns are curved sideways,

B4) a semicircle above a flat boss with four finger impressions. Possibly, this is part of a zoomorphic representation (a charging bull, with the lowered head?) similar to B2 and B3.

This vessel points to an intentional rhythm of anthropomorphic and zoomorphic images. In the upper row this is: A1 – man [A1a – bull (?)], A2 – man (an orant), A3 – an animal with the horns curved downwards (probably a bull), A4 – man (an orant). In the lower row the rhythm is: B1 – an en face bull (charging?) – straight horns, B3 – an en face bull (charging?) – straight horns, B4 – an en face bull; horns have not been preserved.

The iconography of this vessel shows the co-occurrence of bull symbols (also charging bull?) and the figure of an orant. Such a correlation indicates a ritual significance of the bull image in domestic rites in the period of the Körös/Linear transition in the northern part of the Carpathian basin. The bull symbolism is, in all likelihood, a reminiscence of the Early Neolithic symbolics from Anatolia (comp. plastic figural representation of en face bulls from Chatal Huyük, with a similar schematic representation of mouth); it is less probable that these symbols might be an independent innovation in the Carpathian Basin.

Two flat bosses come probably from similar thick-walled vessels: one measuring about 48 mm in diameter, has a decoration of four finger indentations, the other, smaller one, measures 43–46 mm in diameter, and has a decoration of five finger indentations (Fig. 10). Moreover, there were sherds of medium- and thin-walled vessels, decorated with a wavy incised line (5 fragments – Fig. 11:12, 13), with “U” shaped incisions (Fig. 11:14,15) and a sherd decorated with a zig-zag incised line (Fig. 11:17). Among sherds a central fragment of a bowl on a hollow pedestal was identified. The pottery is made from ceramic mass with fine-grained admixture of broken sherds and organic tem-

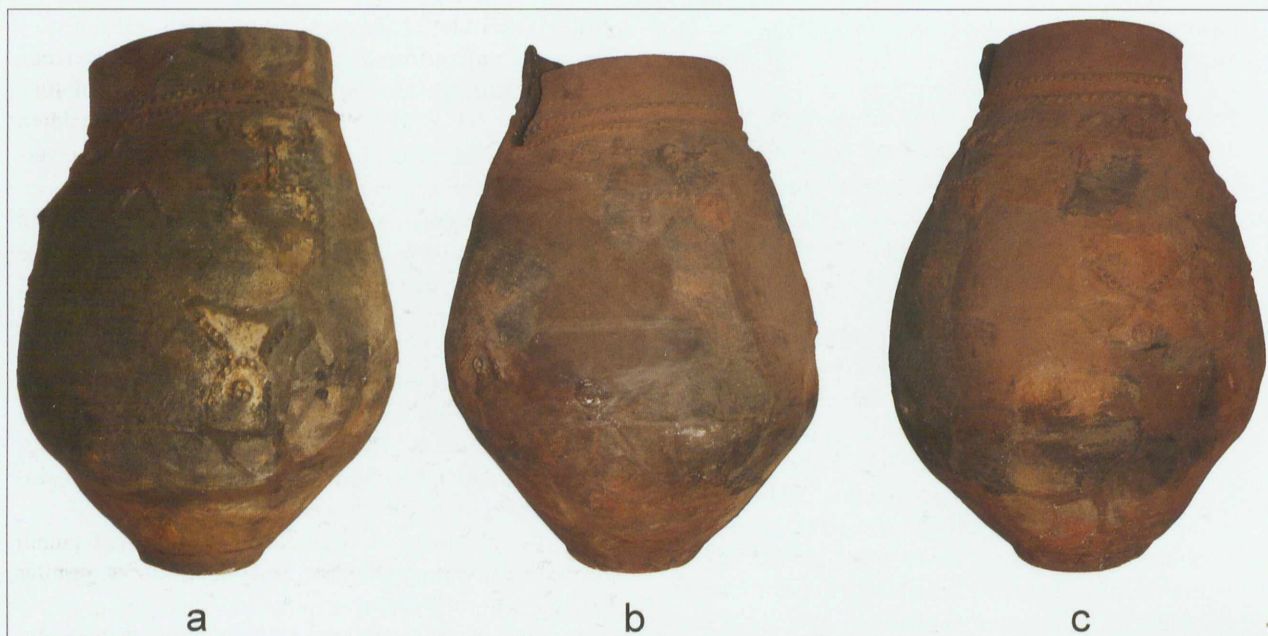


Fig. 7: Košice-Červený rak. Complete thick-walled vessel. *Obr. 7: Košice-Červený rak. Rekonštruovaná hrubostenná nádoba.*

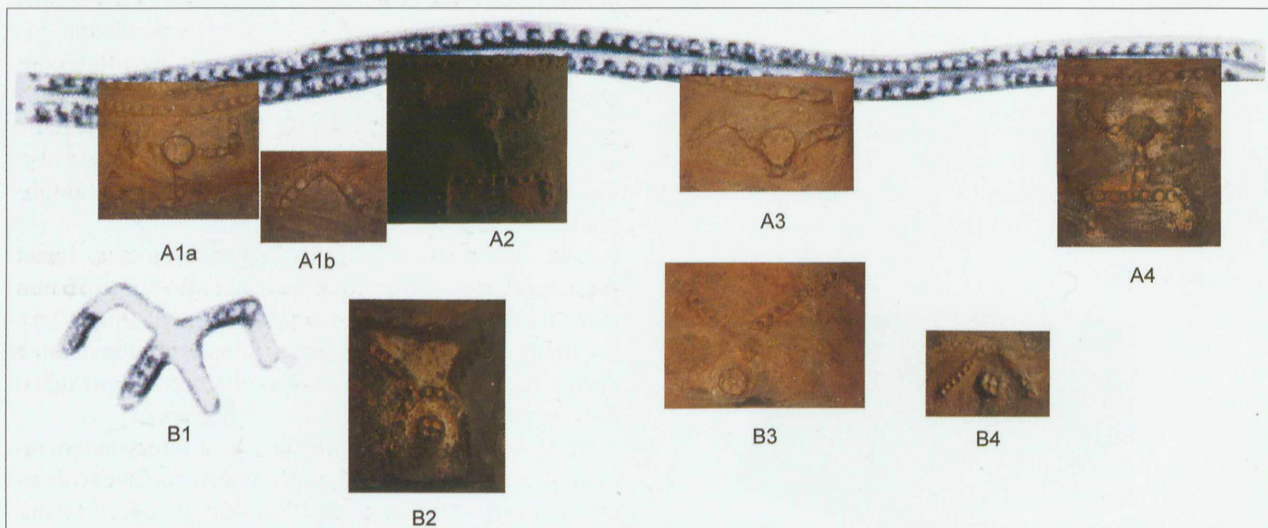


Fig. 8: Košice-Červený rak. Plastic anthropo- and zoomorphic motifs on the vessel from Fig. 7. *Obr. 8: Košice-Červený rak. Plastická antro-po- a zoomorfne motívy na nádobe z Obr. 7.*

per. The decoration of shallow incised wavy lines was executed with a fairly broad tool, whereas the zig-zag lines is extremely fine, incised with a thin pointed tool. The smallest group are sherds of thin-walled vessels from soft, washed clay, without decorations.

The assemblage from Košice-Červený rak is functionally determined. The large quantity (>70%) of a thick-walled vessels comes from domestic activity features: pit and oven. Neither the technology of manufacture nor the method of decorating (finger impressions and indentations) have value as chronological markers. Flat bosses decorated with finger indentations occur more frequently in the assemblages of the Starčevo-Körös culture (among others at the early Starčevo site of Donja Branjevina - Karmanski 2005, Pl. CCV, CCVI), but they also appear in the oldest phase of the Eastern Linear Pottery Culture (at the sites of Slavkovce and Malé Raškovce (Vizdal 1997 Pl. IV-14,15; IV-33,34) and in the oldest west-

ern LBK (Hurbanovo, Pavúk 1980, Fig. 40). The custom of decorating the entire surface of thick-walled vessels with finger impressions can also be seen as late as in the middle or even in the younger phase of the Eastern Slovakian Linear Culture (e.g. at Michalovce I – Šiška 1989 Pl. 18, or at Prešov-Šarišské Lúky).

It should be emphasized, however, that the stylistics of the ornamentation of the storage vessels from Červený rak differs distinctly from the ornamentation in the Szatmár group where the most common motif is the pinched out decoration covering the entire surface of a pot (Makkay 2007, Fig. 119).

The vessel decorated with anthropomorphic and animal reliefs evidences links with the Körös culture – which S. Šiška has emphasized. In the period of the Körös culture/Linear Pottery Culture transition association of anthropomorphic and zoomorphic motifs changed: the motif of sheep/goat becomes replaced by that of bull/cow

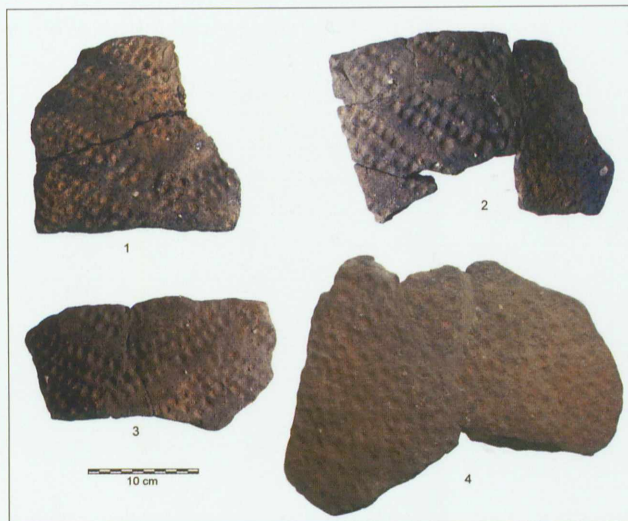


Fig. 9: Košice-Červený rak. Thick-walled pottery fragments. Obr. 9: Košice-Červený rak. Fragmenty hrubostenných nádob.

(Raczky *et al.* 2008, Fig. 17). This change is related to the replacement of the earlier, Early Neolithic structure of stock, dominated by caprids, by cattle. The occurrence of bull head models and centaur type representations in the Early Eastern Linear sites in the Tisza basin such a Füzesáfony-Gubakút (Domboróczi 1997, Fig. 4, 5, 7) and Mezökövesd-Mocsolyas (Kalicz, Koos 1997, Fig. 15, 17, 19) replaced the images of caprids. Thus, the shift in question in the period of Körös/Eastern Linear transition consisted not only in the change of cognitive aspects of the attitude to domestic animals, but also in endowing animal representations with abstract meaning (Raczky *et al.* 2008). The only find in the Körös culture that might be a representation of a bull's head is a fragment of a zoomorphic vessel, a mask, or a ceramic decoration, that O. Trogmayer tentatively reconstructs as a representation of a bull (Trogmayer 2003, Fig. 1, 2). The author admits, however, that the sherd shows only the base of horns antlers which may suggest also a representation of "head of a deer, goat, or sheep" (Trogmayer 2003, 109). He also admits that "representations of bulls from this period in our area are not known", whereas those of caprids and cervids occur on the pots of the Körös Culture (Kutzian 1944). The human images made of plastic bands on vessels are known from Starčevo (*e.g.* at Galovo–Minichreiter 2007) and Körös sites (*e.g.* at Hodmezövasárhely-Kotacspart–Kalicz 1970, Fig. 10), but also appears rarely in Alföld Linear Pottery sites (Tiszavasvári-Peptidekhát–Kalicz 1970, Fig. 18).

We should emphasize that the site under discussion is, in fact, situated, outside the territory that is identified as the cradle area of the Szatmár group. On the other hand, the ceramics decorated with linear motifs, from Červený rak exhibits considerable similarity to the assemblages from the Early Linear site of Košice-Barca III in the same part of the Košice basin; some dissimilarities that have been recorded are caused probably by functional and chronological differences.

4. Chipped stone industry

Feature 2 and the area around it yielded 116 artefacts. The dominant raw materials are various types of limnoquartzite (69 spec. – 59.4%), followed by obsidian (34 spec. – 29.3%). The raw materials structure in the various technological groups is provided in the Tab. 1.

Limnoquartzites were worked on-site; a full processing cycle is documented, namely: flakes are more numerous than blades, and there are numerous chips from coring or tool production. Obsidian was less often worked on-site; some blades and, first of all, tools from obsidian were brought to the site as completed forms. In the production of blanks from limnoquartzites splintered technique was employed (Fig. 12:1, 2): splintered pieces and fragments, also splinters were registered. In the case of obsidian splintered technique was not used.

Blade production was based on the use of a punch which is evidenced by the butt and bulb features, regular edges and interscar ridges.

Cores were represented by 4 specimens namely: a microlithic obsidian core for the production of short and broad regular bladelets (Fig. 12:3), and 3 blade/flake cores from limnoquartzite (Fig. 12:4, 5) of which one was on a flake. Preparation was restricted to platforms, often rejuvenated by detaching tablets: the inventory contains numerous tablets, and the proportion of single-blow butts is high. Moreover, cores – both from limnoquartzite as well as from obsidian – with full preparation were also reduced which is evidenced by numerous crested and sub-crested blades.

Most blades have been preserved as fragments. Intact specimens were from 15 to 59 mm long, from 8 to 16 mm wide. The dorsal pattern was unidirectional (Fig. 12:6). Blade scars were also registered on the dorsal side of three flakes which indicates that some flake cores are residual forms of cores for blades.

The following tools were recorded: 2 somewhat atypical end-scrapers (Fig. 12: 7, 8), 2 truncations (one with inverse retouch on sickle blade – Fig. 12:9), a bec, 5 blades with partial, marginal retouch, 7 retouched flakes, a denticulated tool, a multi-scar burin (served probably as a micro-core – Fig. 12:10), 3 trapezes (Fig. 12:11–13). The tools are mainly made from obsidian. Tools made on flakes are relatively frequent (9 spec.). Only one polished stone tool was found in feature 2: a small

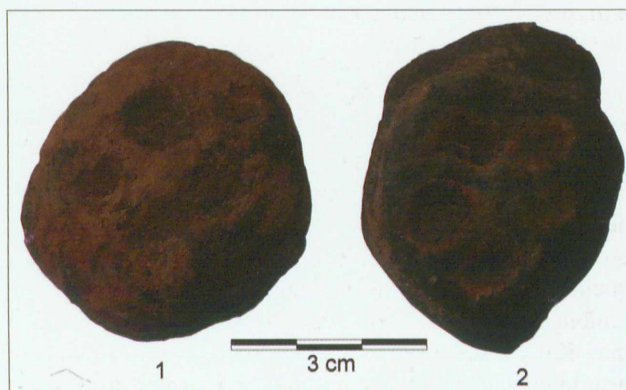


Fig. 10: Košice-Červený rak. Decorated bosses. Obr. 10: Košice-Červený rak. Zdobené výčnelky.

Tab. 1: The raw materials structure in the various technological groups. Tab. 1: Materialové zloženie jednotlivých technologických skupín.

	Obsidian	Limnoquartzite	Opal	Radiolarite	Indeterminate	N	%
Cores	1	3				4	3.4
Flakes	5	26	2			33	27.5
Blades	9	12	1		1	23	19.8
Chips	4	13	1		3	21	18.
Blade or flake fragments	1	4	2		2	9	7.7
Crested blades		1				1	0.8
Splintered pieces		3				3	2.6
Tool fragments	1					1	0.8
Tools	13	7		1		21	18.1
Total	34	69	6	1	6	116	



Fig. 11: Košice-Červený rak. Medium- and thin-walled pottery fragments. Obr. 11: Košice-Červený rak. Stredno a tenkostenné fragmenty nádob.

trapezoidal axe/adze from sedimentary rock (Fig. 12:14). In terms of stylistics the inventory is not particularly diagnostic, it was – rather – determined by the specific function of the assemblage.

However, all the above-mentioned groups of retouched tools have their counterparts at the sites of the early phase of the Eastern Linear Pottery Complex (Kozłowski 1989; Kozłowski, Kaczanowska 1997; Kozłowski 2001). All these characteristic features of the lithic industry appear even earlier at the northernmost sites of the Körös Culture in the Upper Tisza basin (Tiszaszöllös, Nagykörü) and in the transitional Körös/Szatmár sites (Méhtelek, Ibrany).

5. Absolute dating

Two sherds of undecorated, thick-walled pottery were radiocarbon dated using AMS method. Because

on the surface of the sherds there was no organic residue or slip the carbon that was dated was fairly evenly dispersed – as an admixture – within the ceramic mass. The date obtained on the first sherd, without HF treatment of the alkali insoluble fraction (RES), was the youngest date in the series (5660±40 BP) (Goslar *et al.* in print). Other dates on the same sherd, obtained using HF treatment were as follows: at 0.25 N – the identical date of 5660±40, at 0.5 N – 5970±40 BP, and at 70%, HF – 6190±40 BP. These dates indicate that when HF is stronger the date obtained is closer to expected age. On the other hand, we do not know what are the proportions of carbon from the material used for firing, from huminin acids and from the clay itself.

The date obtained on the second sherd was still closer to the expected age: 6520±50 (Poz-22131), which suggests that the younger dates obtained on the first sample are – in all likelihood – the effect of pollution with huminin acids that have not been entirely removed by AAA treatment.

Unquestionably, the Košice-Červený rak site is later than the classical Körös Culture phase which is radiocarbon dated to the period from 7000 to 6800 years BP (Whittle *et al.* 2002). The transition from the Körös Culture to the Eastern Linear Pottery Culture, in turn, has been dated at 6800–6300 years BP. In the latter time interval fall the sites from the Upper Tisza basin of the youngest Körös Culture phase such as Nagykörü-Cooperative Orchard: 6751±40 BP (VERA-3051) and 6890±35 BP (VERA-3474), Kötelek – 6630±60 BP (BLMP-1677) and 6780±35 (VERA-3478), also the eponymic site of the Méhtelek group – 6835±60 BP, Bln-1331; 6665±60, Bln-1332; and 6625±60, GrN-6892. The earliest sites of the Eastern Linear Pottery Culture, on the other hand, such as Füzesabony-Gubakút have been dated at the interval between 6660±55 BP (Fg-135) for phase I of this site and 6252±58 BP (Deb-4852) for phase IV, which is similar to the dating of Mezökvesd-Mocsolyas (Domboróczki 2003, Raczky *et al.* 2008). Thus, the moment of the transformation of the Körös Culture into the Eastern Linear Pottery Culture should fall at the interval of 6600–6500 BP; the date of 6520±50 (Poz-22131) on the second sherd is located within this time interval.

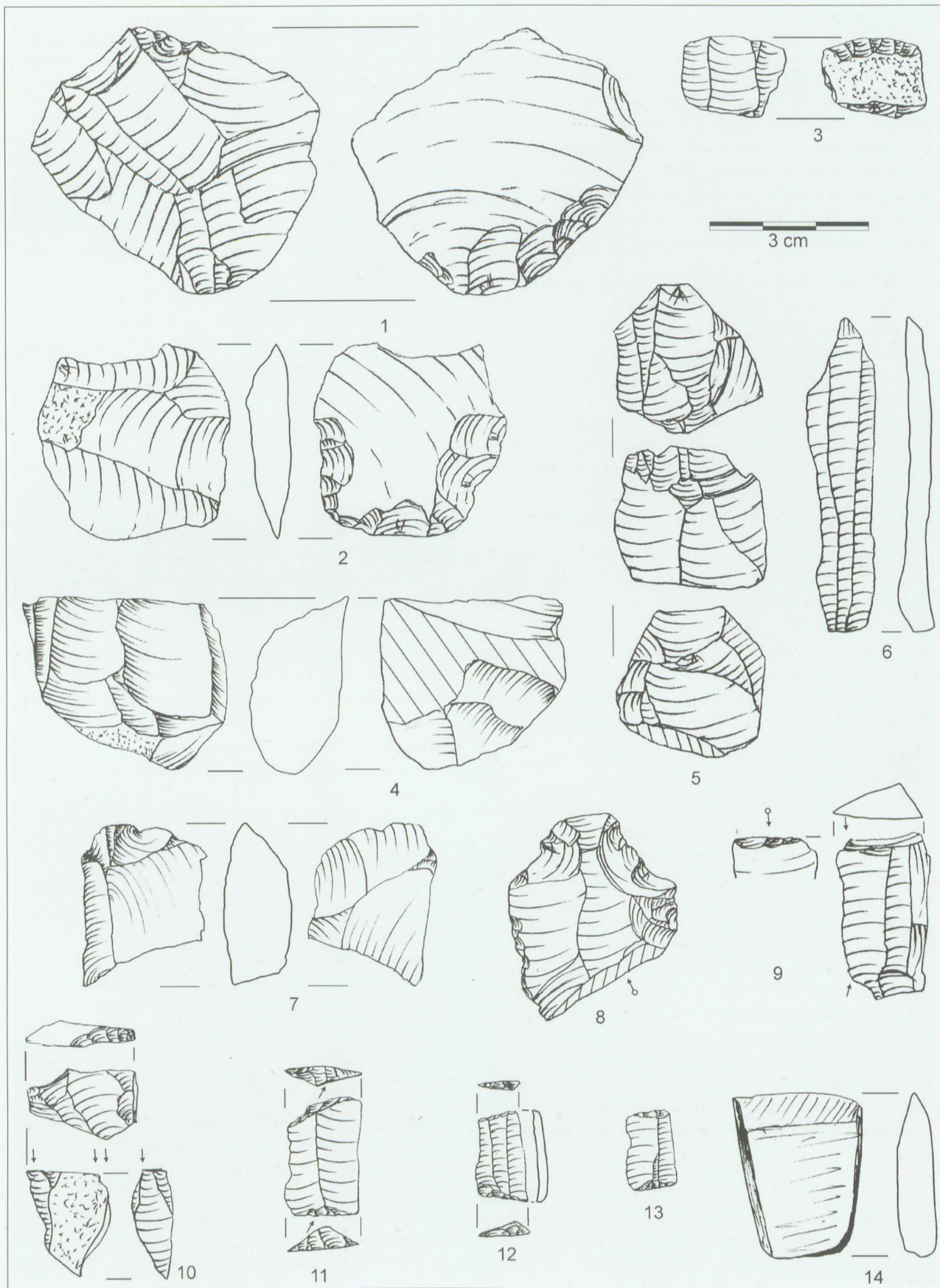


Fig. 12: Košice-Červený rak. Lithic implements. Obr. 12: Košice-Červený rak. Kamenná industria.

6. The taxonomic position of the Červený rak site against the background of the Körös/Eastern Linear Pottery transition

The lithic industry of the site of Košice-Červený rak lacks diagnostic elements of the Stračevo-Körös macroblade technique or bilaterally retouched blades. Such elements occur as late as in the Szatmár group, notably at Méhtelek (Starnini 1993). This indicates that in the Hornád basin the transformation from the Körös Culture to the Eastern Linear Culture took place without the mediation of the Szatmár group.

The Körös Culture heritage at Košice-Červený rak in the sphere of lithic production is, for example, a minor role of local (on-site) obsidian treatment replaced by imported products. This constitutes a difference between the Košice-Červený rak assemblage and the early inventories of the Eastern Linear Pottery Culture (e.g. Čečejevce, possibly Barca III) where all lithic raw materials including obsidian were worked on-site. The fact that at Čečejevce flakes account for 68.3% of the inventory (Kozłowski 1989) whereas at Košice-Červený rak only for 27.5% confirms this explanation.

Another feature of the Košice-Červený rak lithic industry that resembles Čečejevce is, for example, a similar proportion of obsidian (at Košice-Červený rak 29.3%, Čečejevce 32.7%). However, at Čečejevce obsidian was brought as unworked concretions, which is typical of the early phase of the Eastern Linear Pottery industry, and was worked on-site in a full cycle, whereas at Košice-Červený rak blanks and tools were imported.

The ceramics from Košice-Červený rak unquestionably exhibits similarities with the Körös Culture: in respect of some stylistic and technological characteristics, also in the occurrence of symbolic anthropomorphic figurines as plastic decoration on pottery. On the other hand, in respect of association of anthropo-zoomorphic motifs a shift can be seen from the motif of man/sheep-goat to the man/bull-cow association.

Comparison of Košice-Červený rak with other sites from the Körös/Early Linear transition is more complicated. On the one hand, there are no conspicuous similarities to the Szatmár group, on the other hand differences can be seen in comparison with the earliest Linear Pottery in the Eastern Slovakian Lowland (e.g. Slavkovce, Zbudza, Zalužice, and Moravany – Kozłowski ed. 1997, Kozłowski *et al.* 2003) such as, first of all, the absence of black painting.

The site of Košice-Červený rak is one of the northernmost sites from the period of the Körös/Eastern Linear transition documenting the expansion of the Early Linear Culture in the intermontane section of the middle Hornád basin. At the same time, Košice-Červený rak is situated north of the sparsely populated interfluvium of the Tisza and the Danube – the territories that separated the Eastern and the Western (LBK) Linear Complexes (Kalicz, Makkay 1977).

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Resumé

Počas záchranného výskumu v roku 1980 sa v Košiciach, v polohe Červený rak, odkryli dva objekty patriace do obdobia prechodu od krišskej kultúry ku kultúre s východnou lineárnou keramikou, ktoré predstavujú najvčasnejšiu fázu neolitu v Hornádskej kotline. V tomto článku je analyzovaná keramika a kamenná industria, ktorá vykazuje podobnosti s neskorou fázou krišskej kultúry zo stredného Pötisia a odlišnosti vo vzťahu ku skupine Szatmár a včasnej fáze kultúry s východnou lineárnou keramikou v povodí Ondavy a Tople. AMS datovanie črepov (6520±50 a 6190±40 BP) uvedené v tomto článku odhaľuje slabiny radiokarbonového datovania nádob.