

NON-DESTRUCTIVE INVESTIGATION IN THE CADASTRAL AREA OF THE VILLAGE OF LONTOV

Surface, Aerial and Geophysical Prospecting¹

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There was realized complex archaeological prospection in the Lontov district during the year 2016. The main aim of prospection was to verify the known data about the settlement on one side and to search for the unknown archaeological sites on the other hand. Within the prospection there were used also the methods of non-destructive archaeology (aerial prospection, geophysical measurement of known features using magnetometer). The above mentioned methods of archaeological research were realized on two designated sites (U Litaša and Nad kostolom), which distance is about 1 km from each other. Field prospection was focused on verification of anomalies seen on satellite pictures of GoogleEarth, as well as on aerial prospection. There were approved the archaeological situations/features on both sites, that were found during aerial prospection of the monitored area. By Geophysical interpretation there were located first of all settlement features, but also system of fortification. Regarding to location of each features measured by geophysics, it is possible to analyze the build-up area on both settlements. According to recovered ceramics it is possible to date both sites only to prehistory, as there are more cultures represented.

Keywords: Southwestern Slovakia, Ipel' River basin, non-destructive survey, settlement, fortified area, roundel, prehistory.

NATURE CHARACTERISTICS AND HISTORY OF INVESTIGATION

The village of Lontov is situated in Southwestern Slovakia, it lies approx. 20 km southwest of the town of Šahy (Fig. 1). The Jelšovka stream runs through the village; its source is in the Ipeľská pahorkatina hills east of the village of Hontianska Vrbica, at altitude of 185 m. It joins the Ipel' river near Ipeľský Sokolec village in the area of Ipeľská niva flat. From the aspect of geomorphology, the village is located in the Podunajská nížina lowland, on the southern slope of the Ipeľská pahorkatina hills. The village is surrounded by loamy farmland consisting of brown earths, chernozems and fluvisols. Quaternary cover comprises of eolian sediments made of loesses, sand loesses and calcareous and non-calcareous loess soils. As for vegetation, the area lies in the oak zone of the Ipeľská pahorkatina hills with warm and dry climate with mild winters and average annual precipitation of 550–600 mm.

The archaeological activities so far were mainly of rescue character or they were only surface surveys. We have only a little published information on archaeological finds – often without exact localiza-

tion – from the cadastral area of the village of Lontov and directly from its residential area. Considerable part of data remained in form of short reports which come mostly from the 1950s.

The archaeological sites of U Litaša and Kňažské zeme mentioned by Š. Janšák as early as 1938 are well-known. Several urns indicating a burial ground which were found on an estate of a farm situated southwest of the village were documented from the Bronze Age (North Pannonian culture). Prehistoric settlement documented by pottery fragments from the late Stone Age and Early Bronze Age were obtained in the surface collection on the Dudkáš field on a terrace elevation on the bank of the small Jelšovka stream in the village's cadastral area. Besides prehistoric sherds, fragments of LaTène pottery were collected from the sites (*Lichardus/Liptáková* 1962, 782). According to information from local people, the settlement on the right bank of the stream is located on the site of Konopisko. Š. Janšák (1938, 79) mentions prehistoric settlement also in the northwestern part of the village. According to the collected sherd material, it is a settlement inventory of the Early Bronze Age and the Urnfield Period.

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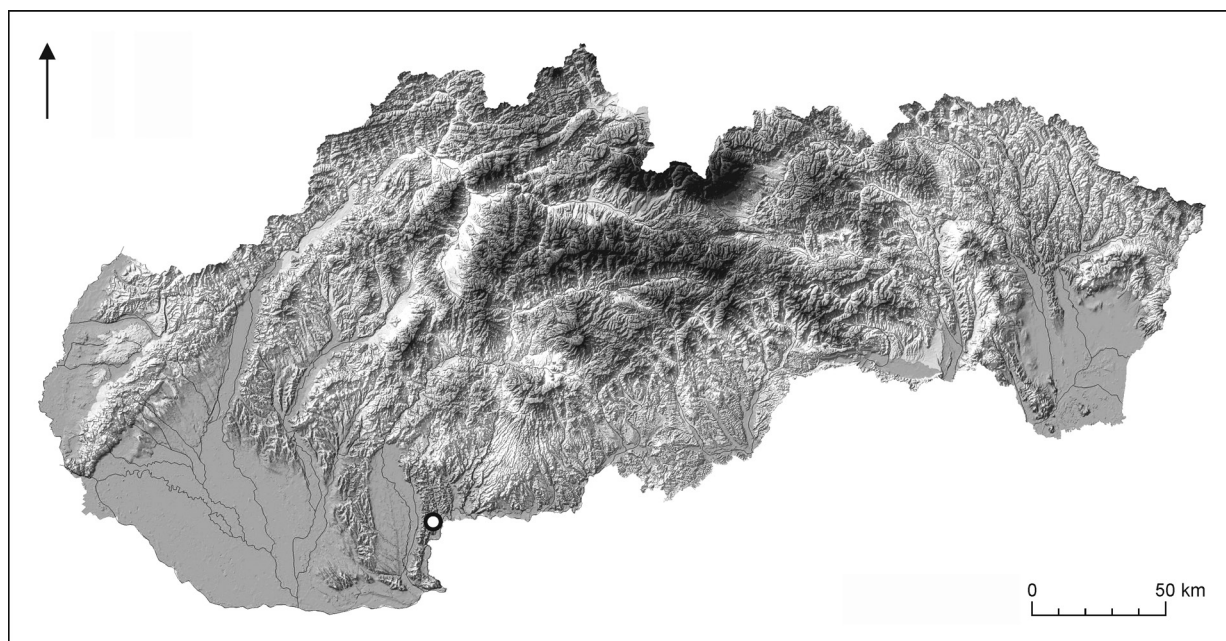


Fig. 1. Location of the studied area.

METHODOLOGY OF ARCHAEOLOGICAL PROSPECTING AND EVALUATION

Survey of the cadastral area of Lontov village was focused mainly on verification of growth symptoms identified by satellite photos of the GoogleEarth service and aerial photos. Exclusively non-destructive archaeological methods were used for archaeological prospecting. First of all, available written information of all previous archaeological activities was collected from both sites. Then, geophysical prospecting was carried out to detect the size of the settlement, its structure as well as density and occurrence of archaeological features and situations. After evaluation of the measured data from both sites (measured parts of settlements), maps of magnetic anomalies were obtained which confirmed the assumed archaeological features. Intense surface surveys were carried out during measurements on both sites; they brought new knowledge of the settlement in this territory.

U LITAŠA SITE

The well-known site is situated 1.5 km east of the village, on the left side of the road between Kubáňovo and Ipeľský Sokolec. The settlement is spread on the Ipeľ's terrace with altitude of 135–153 m, where it is protected by a steep precipice

from the east. The site has a favourable geographical location providing effective natural protection.

Magnetometric measuring which used a multichannel magnetometer with vertical probes (14-channel system from SENSYS company) measured an area of 9.77 ha (Fig. 2: 1, 2). After evaluation of the measured data, a map of magnetic anomalies was made which – besides a visible semi-circular fortification detected by aerial photos – detected other two fortification systems as well as archaeological features situated also outside the fortification.

A semi-circular fortified area I of 0.93 ha consisting of a ditch and palisade was detected on a significant terrain elevation (153 m above sea level) in the northeastern part. The area between the steep precipice and the ditch is 30 x 88 m large. Its width is approx. 4 m. The space between the ditch and the palisade is approx. 34 m wide. The collected pottery material near the fortification suggests settlement from the Early Bronze Age (Hatvan culture).

Another fortified area II is situated south, less than 70 m far from the fortification from the Early Bronze Age. This fortification was also built on a significant terrain wave (16 m above sea level). It is a fortification system consisting of two ditches and a palisade. Size of the outer ditch (outer size) with a rather quadratic groundplan is approx. 107 x 120 m and the size of the inner ditch with an irregular groundplan is approx. 81 x 80 m. Width of the outer ditch varies between 8 and 10 m, while the

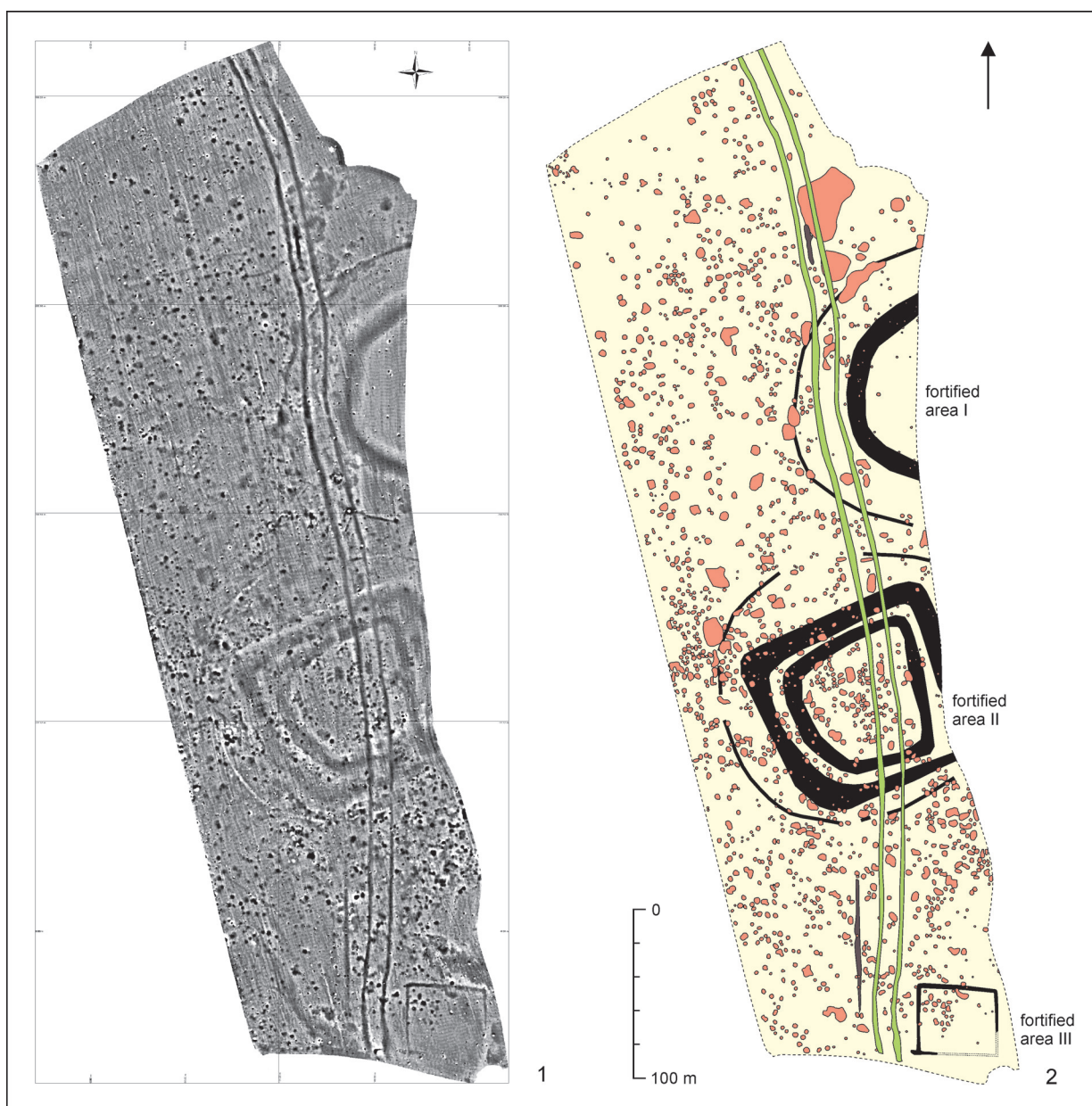


Fig. 2. Lontov, U Litaša site. 1 – plan of magnetic anomalies; 2 – plan of redrawn archaeological features/situations.

inner ditch reaches width of approx. 6 m. The inner area of the fortification is approx. 0.41 ha. Distance between the ditches varies from 5 to 10 m. Entrance in the fortification was not detected by geophysical measuring. Here, we can consider wooden bridges which could have been built above the ditches. Other possibilities include an entrance situated east of the fortified feature whose part was destroyed by erosion. On the map of magnetic anomalies, a distinct narrow line-shaped semi-circular structure which was interpreted as a palisade appeared around the whole quadratic fortification. It was possible to collect sherd material mainly from the late Stone Age in this area, which could suggest settle-

ment of the Baden culture. With regard to the fact that fortified upland settlements were built in the territory of Slovakia by the Baden culture bearers as well as by the Bošáca group (Horváthová 2010, 28), we cannot exclude the possibility that this hillfort fortification was built by bearers of this specific culture. The archaeological investigation itself will prove whether it is really a fortification from the late Stone Age. A fortification system similar in shape is shown on the upland settlement at the site of Burchbrich situated in the cadastral area of Veľká Lomnica village (Novotná/Soják 2013, 32, fig. 21).

The last fortification III with a quadratic ground-plan is situated in the southern part of the measured

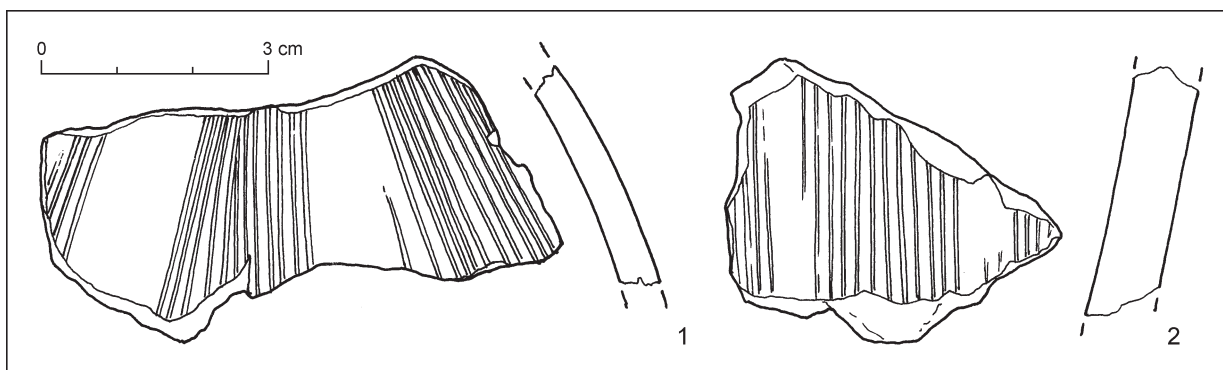


Fig. 3. Lontov, U Litaša site. Pottery of the Bükk culture.

area, approx. 100 m from the previous feature. This fortification was also situated on a significant terrain elevation with altitude of 136 m. This feature is smaller, approx 44 x 38 m. The inner area's size is 0.16 ha. The ditch, whose width is approx. 2 m, has not been preserved in the southern and partly also in the eastern part, probably as a result of erosion. Dating of the fortification has not been clarified so far, due to absence of significant pottery material in its area. It could have been a farm building, e. g. an enclosure for animals, or it might have been a fortification with military function. Nevertheless, the described feature has been preliminarily dated to the Middle Ages or postmedieval period.

Besides the fortified area, two distinctly parallel line-shaped magnetic anomalies crossing the whole measured area in the N – S direction were detected within the studied area. We assume that they could be the youngest features (ditches/gutters) within the site. We may also consider a road. Width of the ditches is approx. 2 m. Distance between the ditches is approx. 10 m. Countless magnetic anomalies which may be interpreted as settlement features were detected in areas I and III and in their surroundings. Features of regular circular or oval groundplans of various sizes prevail. The map of magnetic anomalies did not allow to clearly identify possible built-up areas or places.

The surface survey collected a large amount of archaeological material. Besides pottery vessel fragments, almost whole vessels, numerous chipped and ground lithic industry, clay spindlewhorls or weights were collected. On the basis of older collections by Š. Janšák in the first half of the 20th c., pottery material documenting settlement by the people of the Lengyel culture was reportedly collected (Janšák 1938, 78). However, the systematic collections carried out during 2016 and in the beginning of 2017 did not confirm presence of pottery material from this period.

The Neolithic and Eneolithic periods

The Late Linear Pottery culture and the Želiezovce group

Only two fragments decorated with bunches of engraved vertical lines which could be assigned to the Bükk culture come from the whole area. The material which they are made of consists of finely washed clay (Fig. 3: 1, 2).

The Baden culture

Pottery material from the late Stone Age was dominant in the studied area. Besides thick-walled fragments with vertical cannellure decoration, thin-walled pottery fragments with burnished surface were also obtained.

Finds

1. Rim fragments of vessels decorated with slashed plastic cordon under the mouth's rim (Pl. I: 1–8).
2. Rim sherd of a bowl decorated with a line of impressions on the interface of the vessel's neck and body (Pl. I: 9).
3. Rim sherd of a bowl (?) with three rows of scratches under the mouth's rim (Pl. I: 10).
4. Sherd from a vessel body with two rows of scratches (Pl. II: 1).
5. Fragment of a vessel body with three rows of scratches under which triangular engraved lines are situated (Pl. II: 2).
6. Fragment of a vessel body with three rows of scratches (Pl. II: 3).
7. Rim sherd of a bowl with a row of scratches on the interface of the vessel's neck and body, the inner surface is decorated with flutings (Pl. II: 4).
8. Rim sherd of a bowl with a row of scratches on the interface of the vessel's neck and body (Pl. II: 5).
9. Rim sherd of a vessel with scratches under the mouth's rim (Pl. II: 6, 10).

10. Fragment of a body from a bowl with a row of scratches on the interface of the vessel's neck and body (Pl. II: 7).
11. Fragment of a body from a bowl with two rows of scratches (Pl. II: 8).
12. Rim sherd of a bowl decorated with a row of impressions below the mouth's rim (Pl. II: 9).
13. Fragment of a vessel body with two plastic cannelures and a row of scratches on the other side of the fragment (Pl. II: 11).
14. Fragment of a vessel body with two rows of cuts (Pl. III: 1).
15. Fragment of a vessel body with two round protrusions under which vertical rows of cuts are situated (Pl. III: 2).
16. Fragment of a vessel body with a plastic cordon and twig ornament (Pl. III: 3).
17. Fragment of a vessel body with twig ornament (Pl. III: 4).
18. Vessel's tunnel handle, decorated with a row of scratches on the inside (Pl. III: 5).
19. Rim sherd of a vessel with a tunnel handle (Pl. III: 6).
20. Fragment of a body of a bowl with a row of scratches (Pl. III: 9).
21. Part of a bottom and body of a vessel (Pl. III: 8).
22. Fragment of a vessel body with a row of scratches (Pl. III: 9).
23. Part of a cup with vertical fluting on the belly and a strap handle reaching above the mouth's rim (Pl. IV: 1).
24. Part of a cup with vertical fluting (Pl. IV: 2, 3).
25. Fragment of the belly of an amphora with fluting divided by a vertical plastic cordon (Pl. IV: 4, 8).
26. Fragment of a belly of a vessel with fluting (Pl. IV: 5).
27. Fragment of a handle from a vessel with vertical fluting (Pl. IV: 6).
28. Fragment of a vessel handle decorated by impressions on the edges, a slashed plastic cordon runs in the middle of the handle (Pl. IV: 7).
29. Almost complete cup with suggested handle (Pl. IV: 9).
30. Fragment of the interface of the neck and belly of a cup with vertical fluting (Pl. IV: 10, 11).
31. Part of a jug with suggested handle (Pl. IV: 12).
32. Sherd from a vessel body with vertical cannelures (Pl. IV: 14).
33. Part of a bipartite bottom of a bowl (Pl. IV: 15).

Evaluation of finds

Pot-shaped vessels

Pot-shaped vessels preserved in fragments are rather frequently represented. Material of the pots consists of clay with addition of small stones or organic additives, mainly with smoothed body surface finish. The presented collection contains mostly edge sherds of pot-shaped vessels with simple plastic cordons under the mouths' rims of oval (Pl. I: 3–8), prolonged (Pl. I: 1) or slashed shape (Pl. I: 2). Simple and multiple plastic decoration under the rim is typical especially of the

Boleráz group, i. e. stage I of the Baden culture, which remains in stage IIa and gradually changes into two-three rows of scratches, impressions or incisions under the rim (*Cheben 1984*, 168, 169). Such decoration with rows of scratches/incisions is detected also on pottery fragments in the evaluated collection (Pl. II: 1, 6, 10) which can be assigned to pot-shaped vessels.

Besides plastic cordons, twig ornament which was detected also in the pottery inventory of the studied site is applied on some vessel shapes of the Baden culture. In the pottery collection, this ornament occurs either on pot-shaped or amphora-shaped vessels. Pottery fragments covered with horizontal twig which could have been incrustated with white paint have been detected on the settlement (Pl. III: 4); a fragment from feature 93 in Bíňa can be mentioned as an analogous shape (*Cheben 1984*, fig. 10: 15) as well as pottery fragments from Zemplínske Hradište, Vyšné Hosáky site (*Horváthová 2010*, pl. LXXVII: 1, 3). Decoration consisting of various variations of the twig ornament occurs on vessels in stage II and disappears in the following Baden III stage (*Nevizánsky 1999*, 70). A fragment of a bottom with partly preserved vessel body can be classified as a pot-shaped vessel (Pl. III: 8). In general, a decorative motif which is widely used in the youngest stages of the Baden culture is applied on pots.

Bowls

Bowls are most frequently represented in the studied area; they can be classified into two categories – conical bowls with rounded walls and S-profiled bowls with funnel-shaped necks. Their material contains finely washed clay with smoothed, sometimes burnished surface finish. Larger and predominantly thick-walled bowls were conical, with rounded walls whose decoration consisted of a horizontal row of shallow impressions under the mouth's rim (Pl. II: 9). A slightly thinner exemplar is represented by a fragment of a conical bowl decorated with three rows of scratches under the rim (Pl. I: 10).

Bowls with S-shaped profiles and funnel-shaped mouths are used along the whole Danube river (*Němejcová-Pavúková 1981*, 274). They appear in various sizes with various decoration. Various types of incisions, scratches or impressions situated on the interface of the vessel's neck and body and arranged mostly in one horizontal line are the most commonly used decorative motif (Pl. I: 9; II: 5, 7). Arrangement in two rows is not an exception (Pl. II: 8; III: 1). Besides outer decoration, inner surface decoration occurs on some funnel-

shaped bowls. It is located over the whole inner side of the mouth. Decoration consists of obliquely fluted triangles fitting in various directions, so-called wolf teeth (Pl. II: 4). Similarly shaped and decorated vessels are known from Červený Hrádok, feature 7/70 (Němejcová-Pavúková 1974, 265, fig. 7: 1) as well as from the investigation in Bíňa (Cheben 1984, fig. 3: 2, 8). Fragments of pottery with tunnel handles on the interface of vessel's body and neck can be classified among the bowls with S-shaped profiles and funnel-shaped necks (Pl. III: 6, 7). In one case, such fragment is enriched in inner decoration situated on the interface of the vessel's body and neck in form of a horizontal row of scratches (Pl. III: 5). We could also include a fragment decorated with two ribs on the outside and with inner decoration in form of a horizontal row of scratches among bowl shapes (Pl. II: 11). A fragment from Nevizánsky is closest to it with its decoration (Němejcová-Pavúková 1981, fig. 10: 9). Similar decoration is rather frequent in the Ezero culture, where it usually occurs in groups, mainly under the rims from the outside of the bowls with inverted non-profiled rims (Němejcová-Pavúková 1981, 275, fig. 10: 4, 5). Bottom part of a bipartite bowl comes from the studied area as well (Pl. IV: 15). A similar bowl shape comes from feature 102 at the locality of Kamenín, Kiskukoricás site (Nevizánsky 1999, fig. 8: 10c). Divided bowls start to occur among pottery shapes of the Baden culture as late as stage Baden III (Nevizánsky 1999, 70).

Amphora-shaped vessels

Amphora-shaped vessels are less frequently represented at the site. The material which they are made of consists of finely washed clay with smoothed surface. They are represented mostly by fragments of vessel bodies – from the interface of the neck and shoulders as well as from the maximum diameter of the vessel. Decorative elements applied on the pottery fragments include vertical fluting in combination with variably placed plastic cordons, mostly finger-pressed (Pl. IV: 4, 8). Similarity with the decoration on a pottery fragment from the presented settlement can be observed on the pottery material, specifically a jug, from Zemplínske Hradište, Vyšné Hosáky site (Horváthová 2010, pl. LXXV: 4). Other fragments bear decorative elements in form of three plastic cordons (Pl. II: 3) below which engraved decoration is situated (Pl. II: 2). A sherd from feature 7/W from the site of Červený Hrádok can be mentioned as an analogous shape to the engraved decoration below plastic cordons (Němejcová-Pavúková 1974, fig. 5: 1).

Cups and small jugs

Only seven fragments from this category of pottery are in the aggregate of finds from Lontov. With regard to the fragmentary condition of some exemplars, it is not always possible to distinguish between a small cup and a small jug. The simplest variant is a cup of conical shape (Pl. IV: 9). Cup with vertical fluting on the belly with strap handle and probably unpreserved pointed protuberance above the handle is another variant (Pl. IV: 1). The protuberance above the handle is flattened from the inside, sometimes it is flat or even plate-shaped (Cheben 1984, 162). These shapes of cups (with pointed protuberances) occur in stage Baden II. Similar shapes can be found at the settlement in Bajč-Vlkanovo (Nevizánsky 1999, 70, fig. 4: 9, 10). A rim sherd with vertical fluting can be included among cups of a similar variant (Pl. IV: 2). The category of jugs might include part of an undecorated exemplar with chipped off strap handle (Pl. IV: 12). Besides this undecorated exemplar, three fragments of bodies with vertical fluting from the collection of finds could be classified in the category of small jugs (Pl. IV: 3, 10, 11).

Dippers

Only one exemplar from the pottery inventory from the studied site can be classified in this category. It is part of a dipper with rounded walls and flat bottom with suggested strap handle (Pl. IV: 13). An analogous shape comes from Spišské Podhradie/Žehra-Dreveník (Horváthová 2010, 51, fig. 13: F3). Another similar exemplar comes from Southwestern Slovakia, the locality of Kamenín, Kiskukoricás site, which was found in feature 20 together with other three conical dippers with flat bottoms (Nevizánsky 1999, fig. 9: 2, 3, 5, 6). The development line of dippers was continuous at this site, i. e. from conical shapes with flat bottoms to exemplars with rounded walls and narrow or pointed bottoms which are an expression of the youngest stage of the Baden culture (Nevizánsky 1999, 75).

The Early Bronze age

The Hatvan culture

The Early Bronze Age is represented by finds of the Hatvan culture. The presented collection consists mostly of fragments from thick-walled pottery with honeycombed decoration but it contains also thin-walled pottery fragments from probably amphora-shaped vessels.

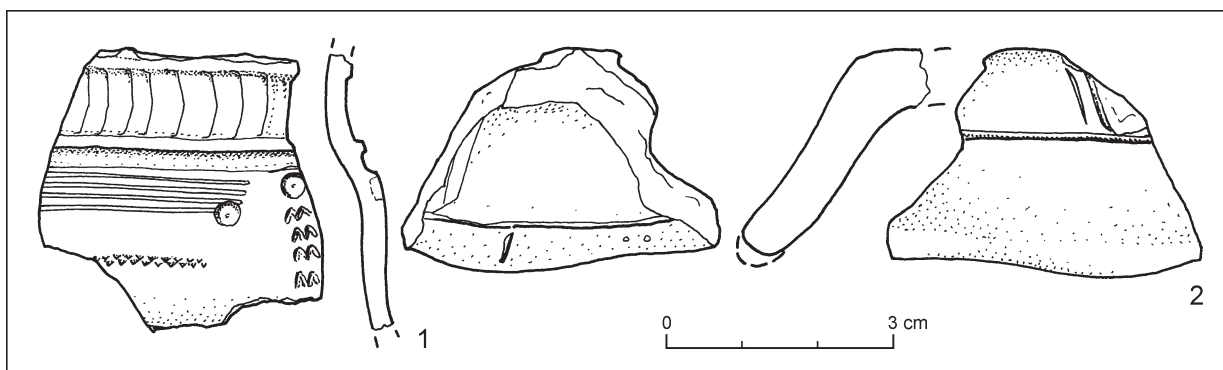


Fig. 4. Lontov, U Litaša site. Pottery of the North Pannonian culture.

Finds

1. Rim fragment from a vessel with roughened surface (Pl. V: 1).
2. Rim sherds of vessels with brushed decoration (Pl. V: 2–5).
3. Fragments from vessel bodies with honeycombed decoration (Pl. V: 10–14).
4. Fragments of vessel handles with honeycombed decoration (Pl. V: 9, 15).
5. Fragment of a bottom with suggested vessel body with honeycombed decoration (Pl. V: 19).
6. Fragment of a vessel body with brushing (Pl. V: 7).
7. Rim sherd of a vessel with plastic finger-pressed tape just below the mouth's rim (Pl. V: 6).
8. Sherd of a vessel body with slashed plastic, brushed surface (Pl. V: 18).
9. Fragment of a vessel body with slashed plastic cordons below which engraved lines in form of a triangle are situated (Pl. V: 8).
10. Fragment of a vessel body with brushed bottom part (Pl. V: 17).
11. Fragment from a vessel body with a protuberance on the bend below which the surface is decorated with engraved lines (Pl. V: 16).

North Pannonian culture

Besides finds of the Hatvan culture from the Early Bronze Age, several fragments of pottery dated to the North Pannonian culture were obtained from the site. First fragment represents part of a vessel body which is typical of the later/final stage of the North Pannonian culture (Fig. 4: 2). Second fragment comes probably from a miniature bowl or a small lid decorated with engraved decoration (Fig. 4: 1).

Finds

1. Rim sherd of a miniature vessel with engraved decoration on the outer as well as inner surface (Fig. 4: 1).
2. Fragment of a vessel body decorated with engraved and stamped decoration (Fig. 4: 2).

The Late and Final Bronze age

The Urnfield culture

Together with pottery fragments from the Early Bronze Age, finds from the Urnfield culture were also detected in the studied area. Pottery material consists mostly of sherds and rim sherds of amphora-shaped vessels as well as variously profiled bowls or cups.

Finds

1. Sherd from an amphora neck with horizontal fluting in the lower part (Pl. VI: 1, 2).
2. Rim sherd from a vessel with a cut mouth's rim (Pl. VI: 3).
3. Sherd from the interface of a horizontally fluted neck and body of an amphora with vertical fluting (Pl. VI: 4).
4. Rim sherd of an amphora with everted and horizontally fluted mouth's rim (Pl. VI: 6, 7, 9).
5. Rim sherd of a bowl with everted and horizontally angular mouth's rim (Pl. VI: 8).
6. Rim sherd from a bowl with a cut mouth's rim (Pl. VI: 5).
7. Rim sherd of a vessel (Pl. VI: 10).
8. Rim sherd of vessel with an everted cut mouth's rim (Pl. VI: 11).
9. Tongue shaped protuberance from the rim of a vessel's mouth (Pl. VII: 1, 2).
10. Part of a profiled cup with a handle. The curve of the vessel decorated with small oval protuberances in combination with two cuts (Pl. VII: 3).
11. Fragment from the interface of the neck and belly of a vessel, a small oval plastic protuberance on the curve (Pl. VII: 4).
12. Fragment from a belly of a vessel with plastic oval protuberance (Pl. VII: 5).
13. Fragment from the interface of the neck and belly of a bowl with a small oval protuberance, a bunch of fine flutings below the maximum diameter (Pl. VII: 6).
14. Rim sherd of a conical bowl with inverted mouth's rim (Pl. VII: 7).



Fig. 5. Lontov, U Litaša site. Sickle casting mould (lower and upper part).

15. Rim sherd of a conical bowl with and inverted and horizontally angular mouth's rim (Pl. VII: 8).
16. Fragment of a vessel body with obliquely fluted surface with suggested neck (Pl. VII: 9).
17. Part of a bowl with slightly everted mouth's rim (Pl. VII: 10).

Evaluation of finds

Amphora-shaped vessels

Fragments of amphora-shaped vessels are the most frequently represented shape in the presented collection. Material comprises finely washed clay, some fragments were enriched with added small stones, with smoothed surface. Fragments of amphoras bear distinct bands of horizontal flutings in the lower parts of necks (Pl. VI: 1, 2, 4). Such decoration of amphoras, i. e. distinguished neck and body, starts to occur since the Late Bronze Age, in stage HA2 (*Kujovský 2018*). Fragments of amphoras with funnel-shaped necks and horizontally angulated mouth's inner rims could be classified in the pottery of Central Danubian origin (Pl. VI: 6, 7, 9). Besides these fragments, a fragment from the shoulders of an amphora with oblique angulation (Pl. VII: 9) as well as fragments of lobe-shaped protuberances (Pl. VII: 1–2) could be of the same provenance.

Bowls

Another group is represented by fragments of bowls made of finely washed clay, with smoothed surfaces. It is a small collection made mostly of fragments of conical bowls with inverted mouth's rims (Pl. VII: 7). The group of pottery of the Central Danubian origin might include a fragment of a conical bowl with horizontal angulation of the body (Pl. VII: 8). Together with these sherds, part of a conical bowl with slightly concave walls comes from the collection (Pl. VII: 10). It is similar in shape to the bowl from burial 2/75 from the burial ground in Medovarce (*Bátora 1978*, 246, fig. 3: 3). Similar bowls, however, can be found also in the territory of Moravia (*Parma 2011*, pl. 14: 4; 49: 6; 59: 10). A rim sherd with horizontal angulation of the mouth's inner rim could be classified in the group of bowl-shaped vessels (Pl. VI: 8).

Cups

Besides fragments of amphora-shaped vessels and bowls, fragments of profiled cups were also collected within the studied area. Fragments with a small oval protuberance on the belly could be classified in this group of pottery as well (Pl. VII: 4–6). Fragment of a profiled cup decorated with small flutings and small circular protuberances can be assigned in the younger phase of the Urnfield culture (Pl. VII: 3).

Tab. 1. Lontov, U Litaša site. Spectral analysis of the casting mould and the bronze axe.

Element	Casting mould 1 st Measurement	Casting mould 2 nd Measurement	Axe
Sb	0	0	1.128
Sn	1.836	0.193	20.132
Cd	0	0	0
Pd	0	0	0
Ag	0	0	0
Ru	0	0	0
Mo	0	0	0
Nb	0	0	0
Zr	0.241	0.044	0.013
Bi	0.197	0.034	0
Pb	22.83	3.558	3.171
Se	0	0	0
Au	0	0	0
W	0	0	0
Zn	4.812	1.159	0.378
Cu	0.466	0.193	71.049
Ni	0	0	1.231
Co	0	0	0
Fe	13.105	5.237	2.247
Mn	0.428	0.242	0
Cr	0.298	0.186	0
V	0.227	0.187	0
Ti	1.541	0.992	0.516
Al	9.873	14.485	0
S	0	0	–
P	0	0	–
Si	44.126	63.651	–
Mg	0	9.829	–

Documents of metallurgy

Metal founding is documented at the studied site by an almost complete find of a casting mould with a fragment of the top board (Fig. 5). It is a casting mould used for making bronze sickles (Pl. VIII: 1, 2). The oldest exemplars of sickles appear as early as the end of the Early Bronze Age, also in the so-called Koszider horizon depots. Eight casting moulds in total and their fragments come from six sites from Slovakia. They are mostly settlement finds, such as from the sites in Ducové, Pobedim, Radzovce, Včelince and Veselé. One find comes from the burial ground in Vyšný Kubín I. Two types of sickles were casted in the moulds – sickles with buttons which are more frequent and sickles with tongue-shaped handles; both types are reinforced with a rib (*Barčíková 2009, 21*).

The casting mould from the studied settlement was made of fine-grain sandstone. The mould has

a unique form, it is semi-circular with the size of 19 x 15 x 2.8 cm with regularly arcuately finished rim. Negative of the sickle with a tongue-shaped handle and a tang is on the inner face of the mould; its size is 13.5 x 3.5 cm. Fragment of the top board is also made of fine-grain sandstone with regularly arcuately finished edge has an imprint of part of a sickle blade with reinforced back. All moulds are one-sided since their other parts were made of flat stones without the relief of the casted artifact. Fragment of a bronze axe was discovered with a casting mould (Pl. VIII: 3). The axe was submitted to spectral analysis which was carried out by an X-ray fluorescence spectrometer Thermo scientific XL3f-91027. This analyzer of precious metals is designed for non-destructive analyses of archaeological finds which is able to determine exact percentage of elements immediately, leaving no traces of use. The results of the spectral analysis of the artifact showed that it is a high quality bronze object (Tab. 1) as exclusively bronze alloys with Sn proportion under 20 % are relevant for technical practice. Alloys with higher proportion of Sn are breakable as a result of creation of intermediary phases and their mechanical properties get worse. As little as 1 % of tin increases its heat resistance. The casting mould itself was also subject to spectral analysis. The analysis detected a trace amount of Sn and Cu in the mould (Tab. 1).

NAD KOSTOLOM SITE

In 2016, a circular shape – a roundel of a considerable size – was detected in the cadastral area of the village of Lontov by means of the GoogleEarth service and consecutive aerial photos. A GoogleEarth photo from 2013 shows it as a regular tripple circular ditch with one gap. The newly discovered site is situated 500 m southeast of the Church of St. Anne on a slight elevation with altitude of 152–155 m. In the west, the terrain slopes down to the stream of Jelšovka, which is approx. 460 m far. Situating of the circular shape to the given spot provides a good view of the wide surroundings.

Magnetometric measuring using a multichannel magnetometer with vertical probes (14-channel system from the SENSYS company) measured an area of 24.1 ha (Fig. 6: 1, 2). Evaluation of the measured data resulted in a map of magnetic anomalies. On the map, gapped concentric circles were clearly visible; it is a system of three ditches. Diameter of the outer ditch (outer size) reaches 234 x 247 m, diameter of the central ditch

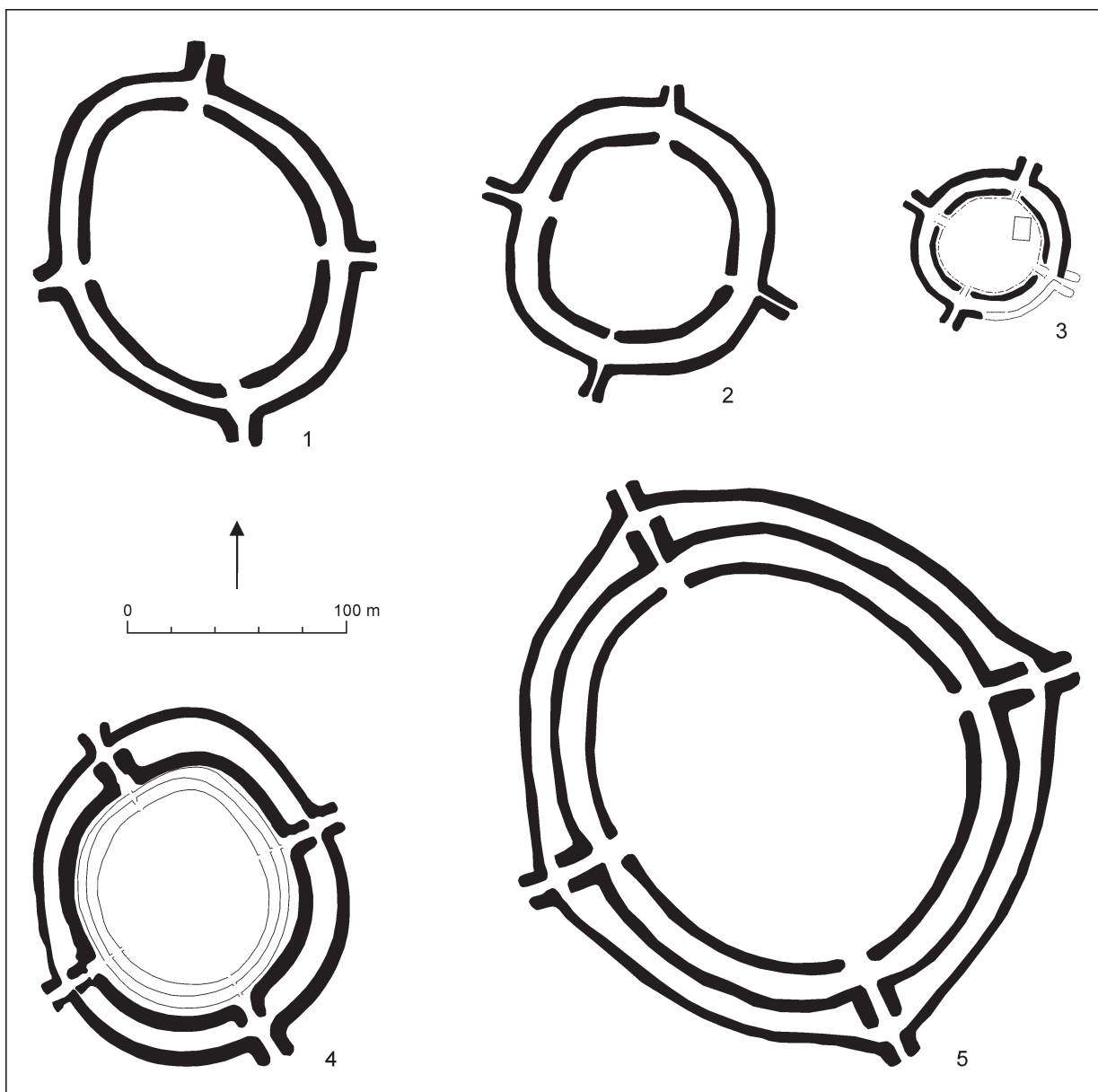


Fig. 7. Roundel in Lontov and constructionally similar roundels in southwest Slovakia. 1 – Horné Otrokovce; 2 – Podhorany-Mechenice; 3 – Bučany; 4 – Svodín; 5 – Lontov. Roundels 1–4 – edited according *Kuzma 2005*.

is 194 x 205 m and the inner ditch's diameter is 171 x 186 m. Width of the outer, central and the inner ditches is approx. 5 m. The roundel has four regularly distributed entrances. The inner ditch has a simple entrance gap. The central and the outer ditches have leaf door on all four entrances (out-jutting arms) which are 9 m long and 5 m wide. The size of the entrances in the fortification between the outer and the central ditches is 5 m and the width of the entrance in the inner ditch is 9 m. Distance between the inner and the central ditches is 9 m. Distance between the central and the outer ditches is approx. 8 m. In the northwestern part, 46 m from the roundel, there is part of probably

another unfinished ditch which is approx. 6 m wide and is divided into two parts. Large settlement pits were discovered in the ditch's gaps. This ditch is situated between the northern and the western entrances to the roundel. An important finding brought by the magnetometric measuring was that the approx. 30 m off the outer ditch around the roundel were not disturbed by any settlement pits. The circumference of this area is copied by large circular to oval features of several tens of meters. They could have been construction pits of clay pits associated with the construction of the roundel. No palisades were detected by magnetometric measuring within the roundel.

Measuring of two continuous lines (ditches) situated west of the roundel was a surprising finding. These two parallel ditches can be associated with the roundel itself and interpreted as a 'road' leading to it, since they lead directly to the western entrance of the circular shape. It is a unique find in Slovakia so far, as previous magnetometric measurements focused on measuring of the feature itself (the roundel or the circular shape), not on the area in its wider surroundings. Width of the road (including the ditches) is approx. 22 m. The ditches themselves are 4–4.5 m wide. 250 m of the road's length were detected and we are certain that it goes further. Numerous magnetic anomalies interpreted as archaeological features were detected in the inner area as well as outside the circular shape. Pits of regular circular or oval groundplans and large or smaller sizes prevail. Several large oval features were detected in the inner area of the roundel. Southeast of the northern entrance near the inner ditch, a rectangular feature was detected. It was interpreted as a long house with a manger with the size of 30 x 14 m; it was divided into two parts (into 17 and 12 m along the longer axis) by a cross-wall. It is interesting that the house's orientation is identical with the orientation of the entrances in the inner area.

As for the size, the Lontov roundel with its size of 247 x 234 m can be classified among the large ones, according to the classification of V. Podborský (1988, 246). It is the second largest roundel recorded in Slovakia so far (Fig. 7: 5). According to the design and number of entrances, roundels can be classified into three types (Podborský 1988, 243). The inner ditch of the Lontov roundel can be classified as the Kothingeichendorf-Těšetice type. This type includes mainly ditches with simple entrances. Other two ditches belong to the Bučany-Svodín type, which is characterized by ditches with leaf corridors usually oriented out of the feature. The construction is similar to the roundels discovered in Bučany (Fig. 7: 3), Horné Otrokovce (Fig. 7: 1) and Podhorany-Mechenice (Fig. 7: 2). The roundels there, however, only have one outer ditch with leaf corridors, besides a simple inner ditch. The roundel in Svodín 2 is the most similar one (Fig. 7: 4). They also have identical NW – SE orientation, while the above mentioned circular shapes are NE – SW oriented.

Like in many other roundels, only a small amount of pottery material or other archaeological material was collected. It can be roughly dated to the Eneolithic – Lengyel period. Exact dating as well as the roundel's construction phases could be solved by an archaeological investigation.

CIRCULAR SHAPES/ROUNDELS IN SW SLOVAKIA

Detection and verification of circular shapes in the territory of Slovakia occurred at the end of the 1980s. Results obtained from aerial prospecting helped to detect more than 50 circular or almost circular shapes whose sizes vary from approx. 60 m to 300 m. In such case, however, not all circular shapes can be dated to the late Stone Age. It can be often assumed with certainty – although there is lack of collection finds – that double and multiple circular shapes with diameters of more than 60 m belong to the Lengyel culture (Kuzma 2005, 54).

According to their size, J. Kovárník (1986, 157) divided roundels into small (avg. 50–70 m), medium (avg. 80–150 m) and large (avg. 300 m) ones. Similar classification was created by V. Podborský (1988, 246), who divided them into three groups according to the outer ditch; small and large features have also their extreme values: small (avg. 40–70 m), medium (avg. 80–120 m) and large roundels (avg. 140–300 m). Besides this classification, he divided roundels into three types on the basis of design and number of entrances (Podborský 1988, 243, 244).

From the territory of Slovakia, mainly roundels which can be classified among large – approx. 300 m (Bajtava, Golianov, Hosťovce), medium – 80–150 m (Cífer, Horné Otrokovce, Podhorany-Mechenice, Prašník, Ružindol-Borová, Svodín 2 and Žitavce) and small roundels – 50–70 m (Borovce, Bučany, Kľačany, Kočín, Šurany-Nitriansky Hrádok, Svodín 1) are known among the recorded rounded shapes dated to the Stone Age. Almost all mentioned roundels (Fig. 8) were detected by aerial prospecting, or orthophotography. Four circular shapes were discovered in a classical way – the roundels in Šurany-Nitriansky Hrádok, Svodín 1 and 2, Bučany and Žilkovce, where area excavations were carried out.

The circular shapes identified in the cadastral area of the village of Demandice was not classified as a roundel. No pottery material from the late Stone Age was confirmed in the studied area even after repeated systematic collections. With regard to the prevailing pottery material from the Early Bronze Age, this is a fortified settlement of the Hatvan culture.

Detection of a large roundel in the cadastral area of the village of Lontov in the south of Western Slovakia brings new questions to the topic. We can say it is the easternmost situated roundel in Slovakia so far.

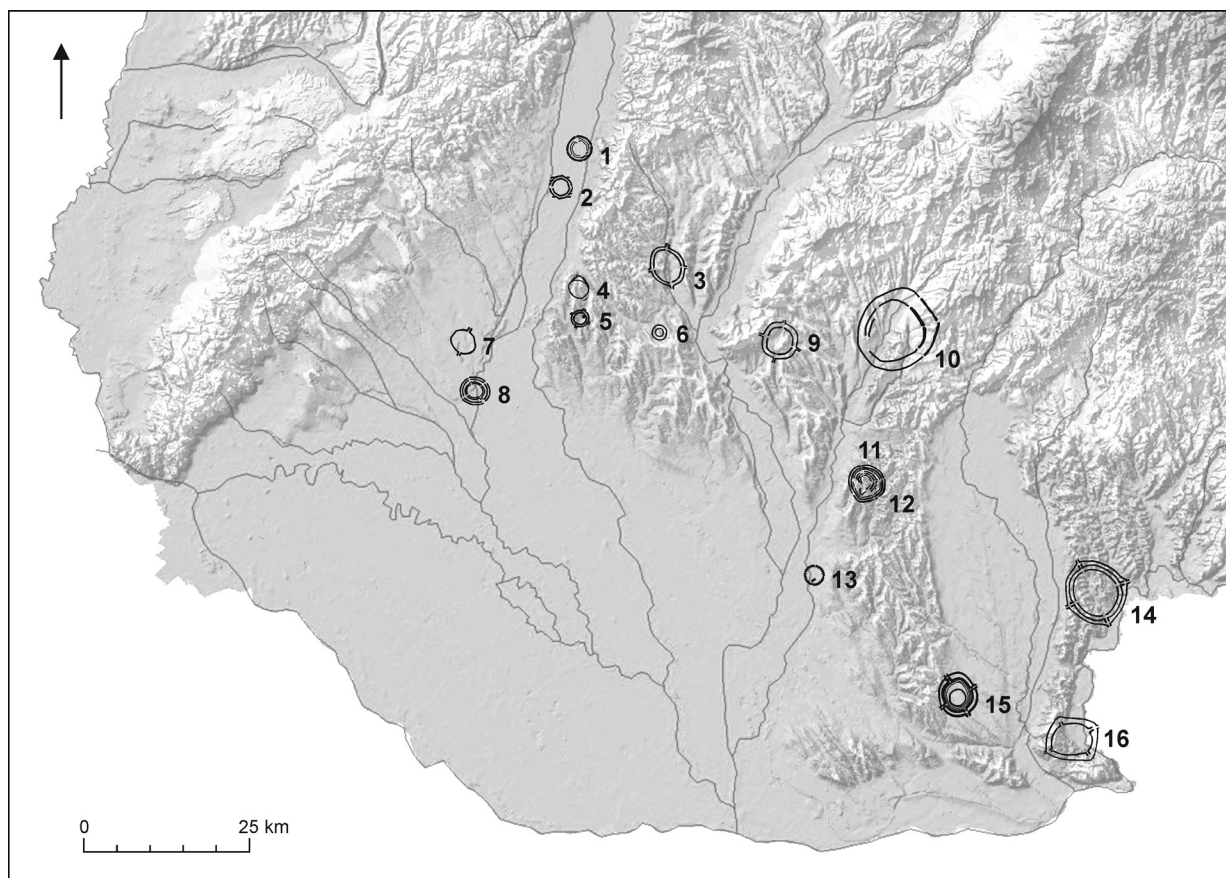


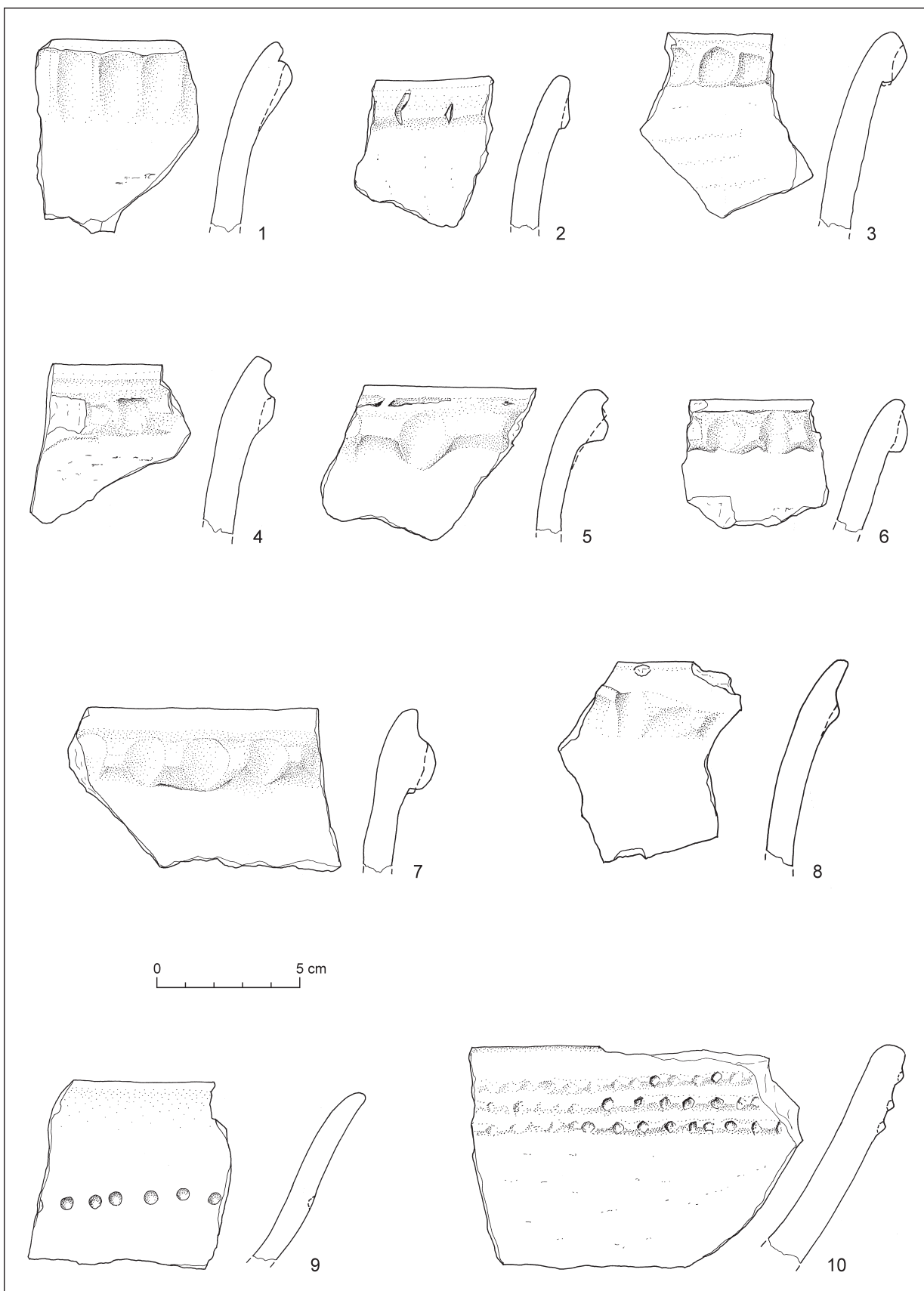
Fig. 8. Geophysically measured circular shapes/roundels from the Lengyel culture in southwest Slovakia. 1 – Prašník (Piešťany dist.); 2 – Kočín (Piešťany dist.); 3 – Horné Otrokovce (Hlohovec dist.); 4 – Žilkovce (Hlohovec dist.); 5 – Bučany (Trnava dist.); 6 – Kľačany (Hlohovec dist.); 7 – Ružindol-Borová (Trnava dist.); 8 – Cífer (Trnava dist.); 9 – Podhorany (Nitra dist.); 10 – Hostie (Zlaté Moravce dist.); 11 – Golianovo (Nitra dist.); 12 – Žitavce (Nitra dist.); 13 – Nitriansky Hrádok (Nové Zámky dist.); 14 – Lontov (Levice dist.); 15 – Svodín (Nové Zámky dist.); 16 – Bajtava (Nové Zámky dist.). Roundels 1–13, 15, 16 edited according Kuzma 2005 and Tirpák 2011.

CONCLUSION

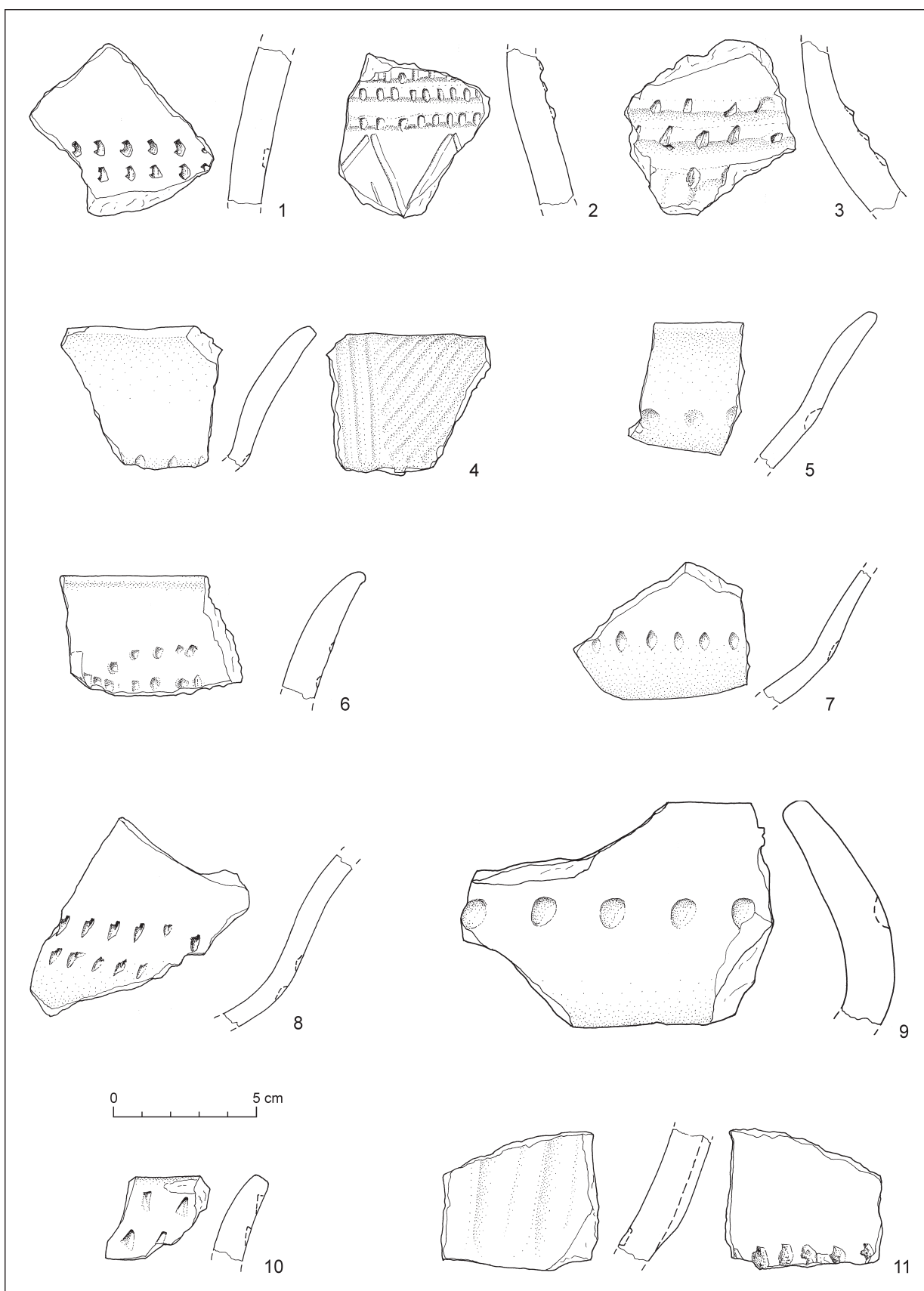
Archaeological prospecting carried out by non-destructive methods along the lower stream of the Ipel' river, in the cadastral area of the village of Lontov, has brought a lot of new information which extended the archaeological investigations in the studied region. Searching for archaeological finds using classical methods such as surface collections provided surface evidence in form of distribution of artifacts at the studied sites and detection of settlements from various historical periods. On the basis of the presented material collected from a hillfort site called U Litaša, the settlement can be dated in the late Stone Age. Besides a few sherds of the Late Linear Pottery culture/Želiezovce group which could be associated with the Bükk culture, settlement from the end of the late Stone Age was most frequently represented. Results of the analysis of the decorative style applied on pottery sherds confirmed settlement from

the older phase of the Baden culture (stage Baden II), which continued in the following stage – Baden III. Part of the collected finds confirm settlement in the next period as well. Material from the Hatvan culture, North Pannonian culture as well as from the Urnfield culture, i. e. the older period of the Bronze Age, was collected. The find of a complete casting mould for sickles was one of the most important finds of this prospecting. Unfortunately, no significant material was collected from the second studied site called Nad kostolom, thus, it can be roughly dated on the basis of geophysically measured roundel to the Lengyel culture period.

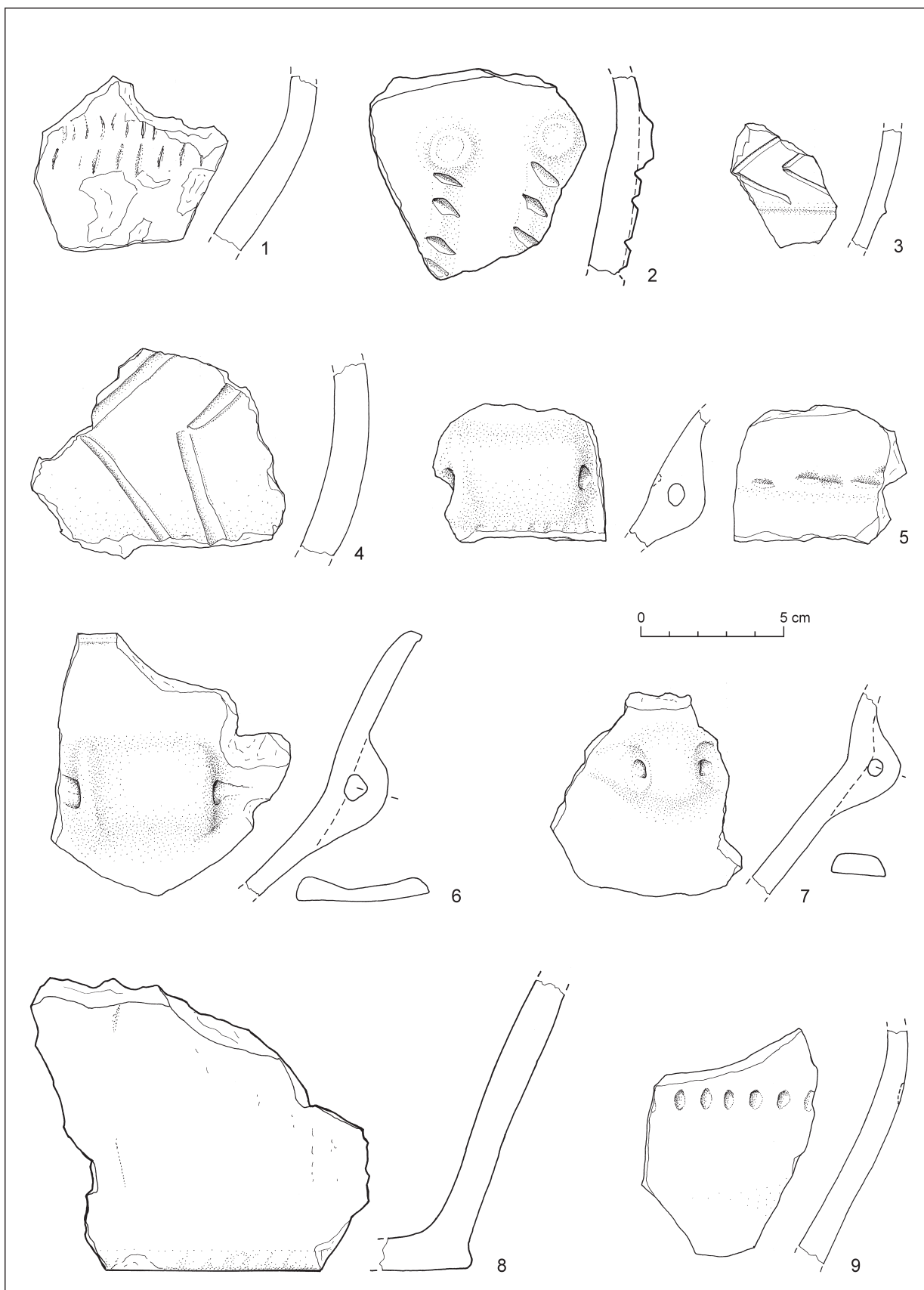
In the recent years, geophysical measuring proved its undisputable dominance and effectivity at localization of new sites (Cheben 2015; Tirpák 2011, 5). It is documented by both measured sites in the cadastral area of the village. Interesting results were brought from both sites, where several fortification systems with various groundplans were detected.



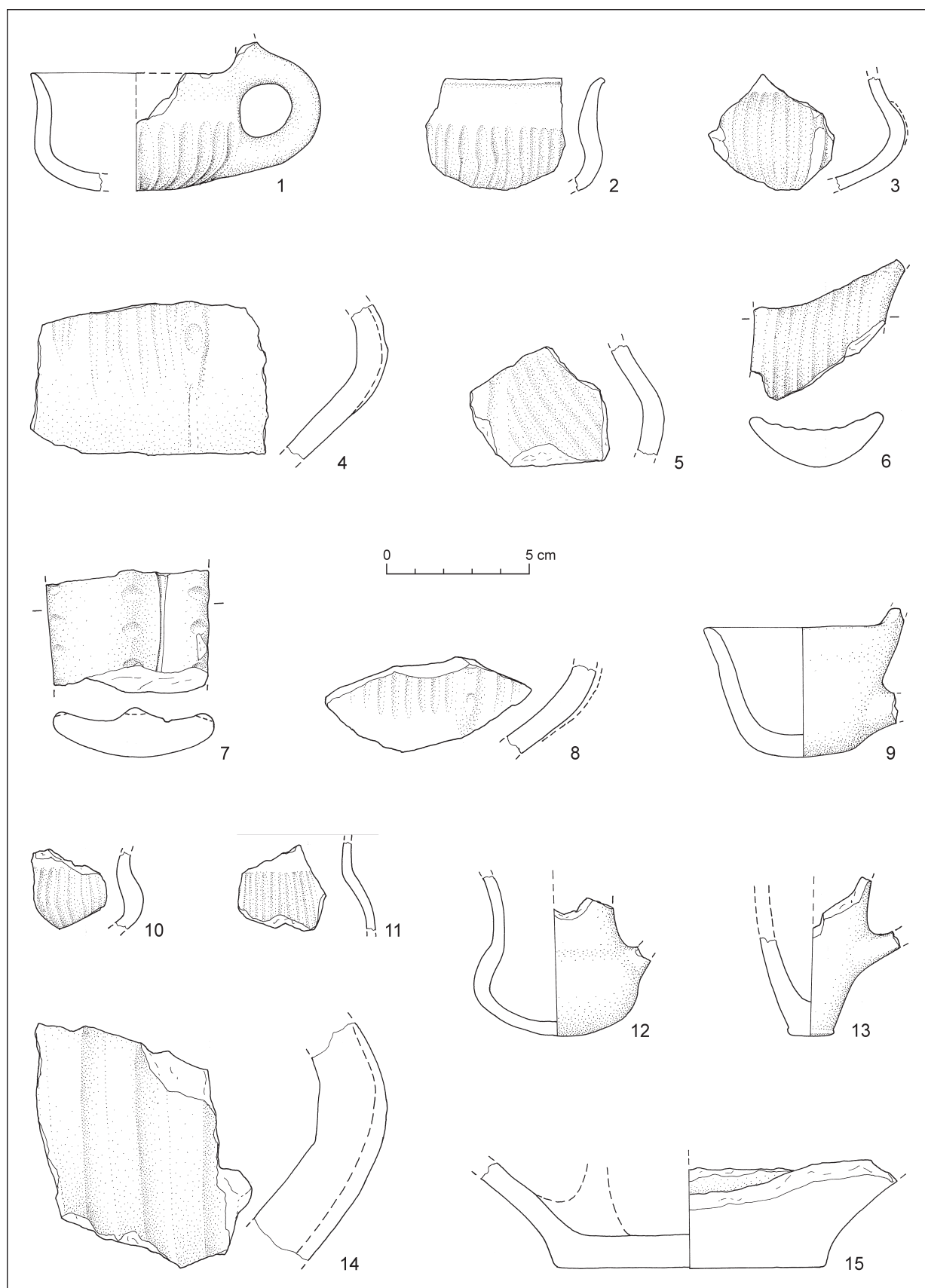
Pl. I. Lontov, U Litaša site. Selected pottery material of the Baden culture.



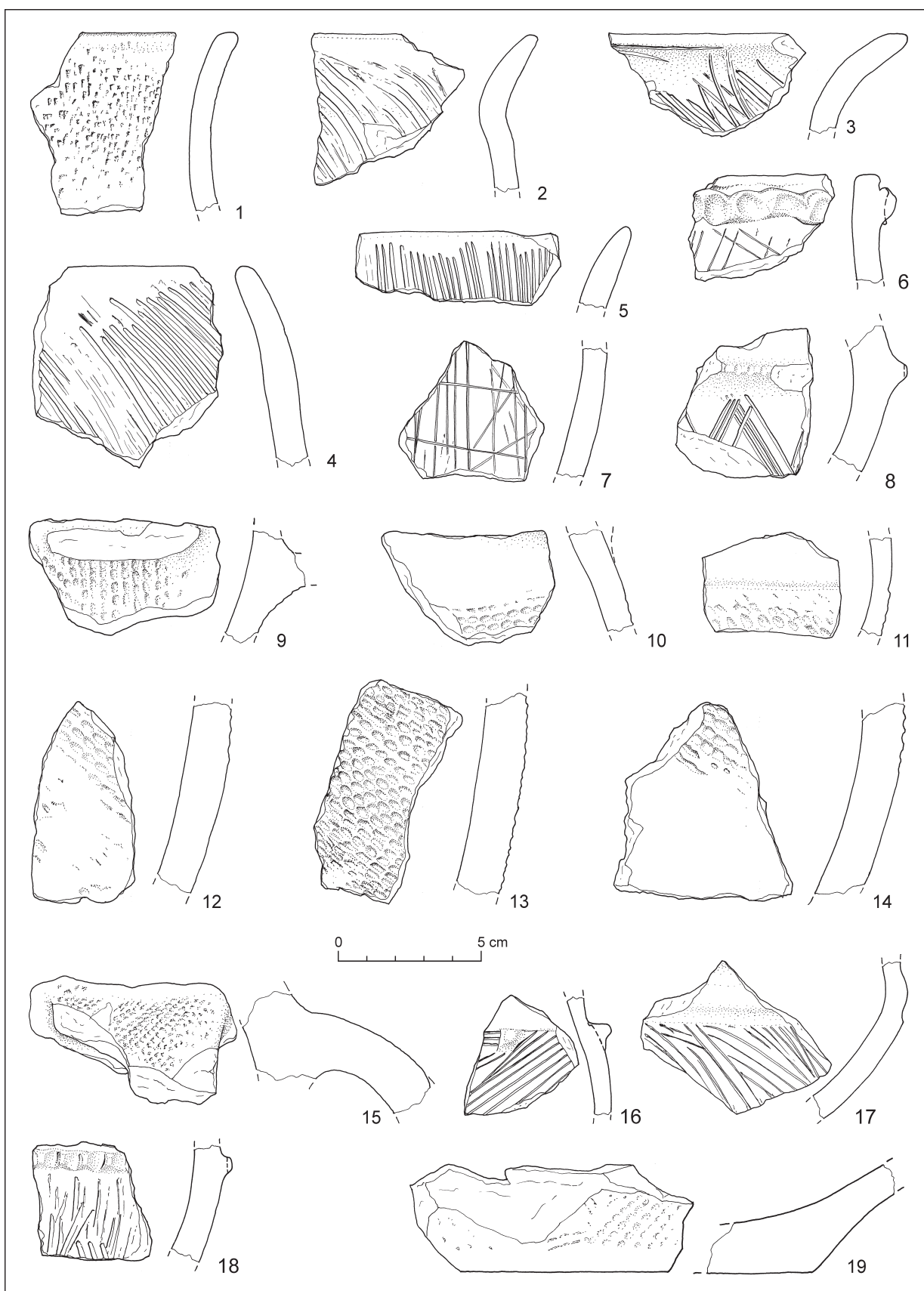
Pl. II. Lontov, U Litaša site. Selected pottery material of the Baden culture.



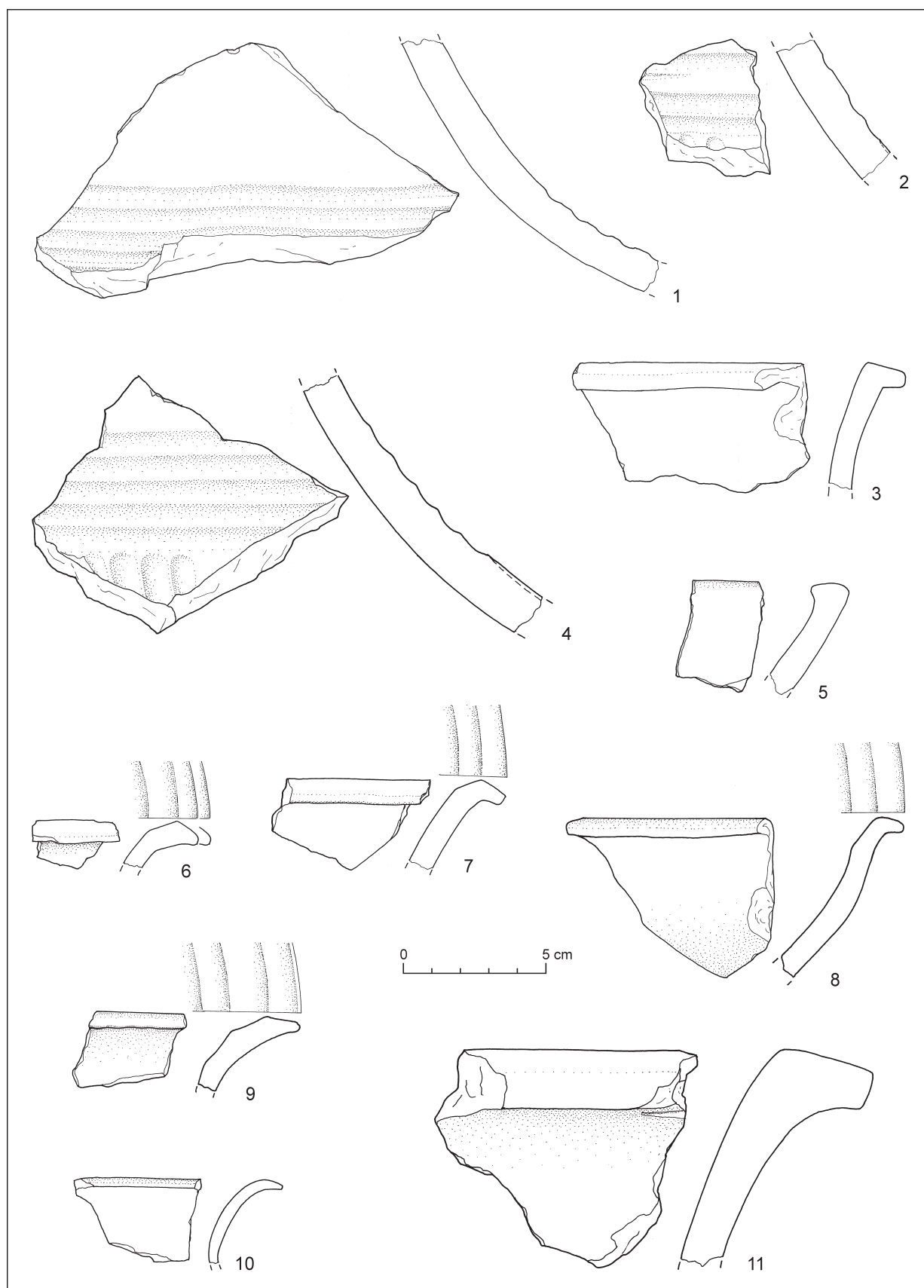
Pl. III. Lontov, U Litaša site. Selected pottery material of the Baden culture.



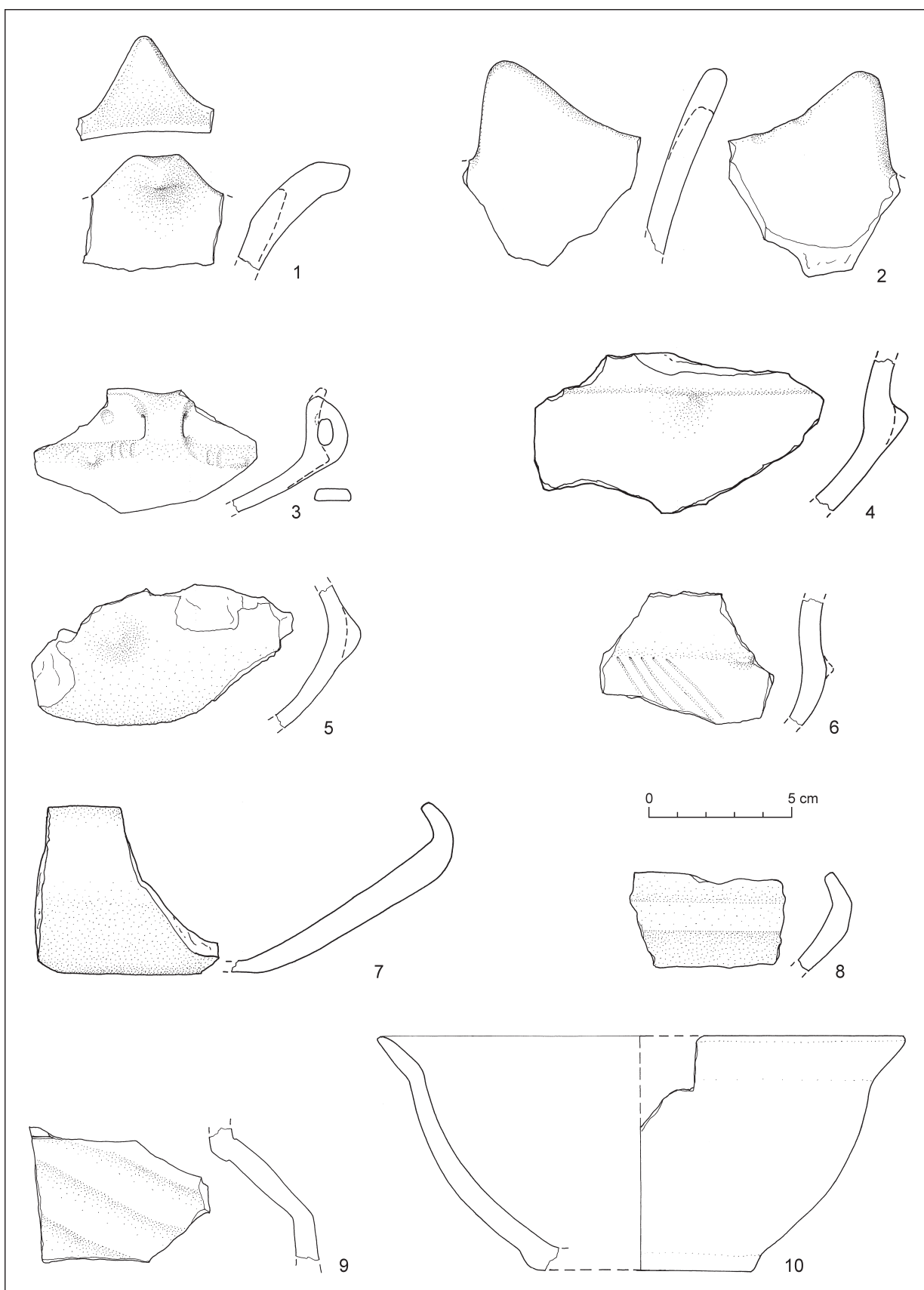
Pl. IV. Lontov, U Litaša site. Selected pottery material of the Baden culture.



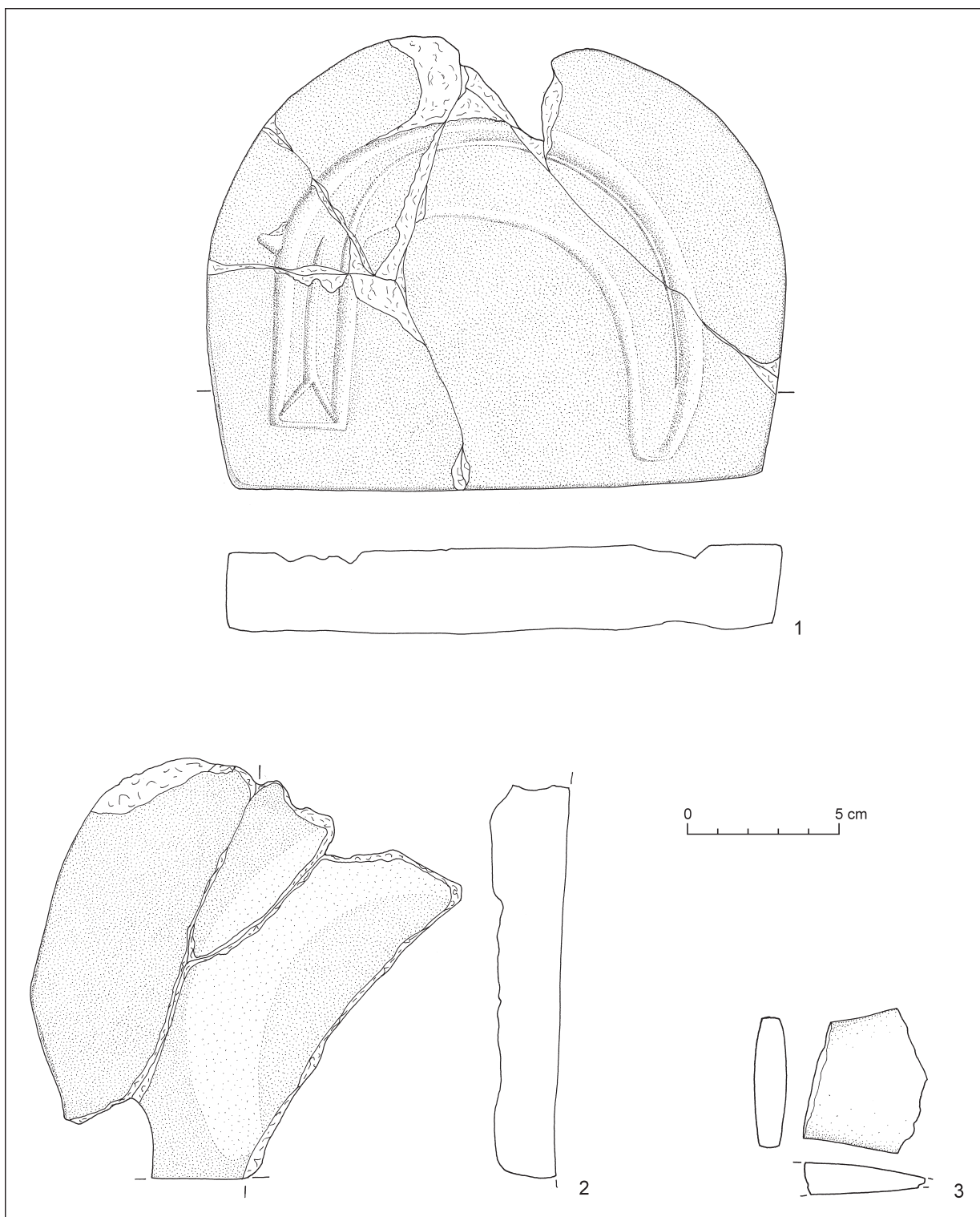
Pl. V. Lontov, U Litaša site. Selected pottery material of the Hatvan culture.



Pl. VI. Lontov, U Litaša site. Selected pottery material of the Urnfield culture.



Pl. VII. Lontov, U Litaša site. Selected pottery material of the Urnfield culture.



Pl. VIII. Lontov, U Litaša site. 1 – sickle casting mould – lower part; 2 – top board of the casting mould; 3 – fragment of a bronze axe.

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Nedeštruktívny výskum v katastrálnom území obce Lontov

Povrchová, letecká a geofyzikálna prospekcia

Petra Chebenová – Michal Cheben

SÚHRN

V roku 2016 sa v katastrálnom území obce Lontov uskutočnila komplexná archeologická prospekcia s cieľom overiť a vyhľadať nové archeologické lokality. Na výskum boli využité metódy nedeštruktívnej archeológie (letecký prieskum, geofyzikálne meranie pomocou magnetometra a systematické povrchové prieskumy), uskutočnené na

dvoch polohách v katastri obce, vzdialené od seba približne 1 km; poloha U Litaša a poloha Nad kostolom. Archeologická prospekcia priniesla mnoho nových poznatkov, ktoré rozšírili archeologické bádania v skúmanom regióne. Vyhľadávanie archeologických nálezov klasickým spôsobom, ako je metóda povrchového zberu, poskytl

na skúmaných lokalitách povrchové dôkazy tak v podobe rozptýlenia artefaktov, ako aj v detekcii sídlisk z rôznych dejinných období.

Na ostrožnej polohe U Litaša sa geofyzikálnym výskumom zistili až tri opevnenia rôznych pôdorysov. V severovýchodnej časti, na výraznej terénnej elevácii, sa zachytil polkruhový opevnený areál I, ktorý tvorí priekopa a palisáda. Vyzbieraný keramický materiál v okolí opevnenia poukazuje na osídlenie zo staršej doby bronzovej (hatvanská kultúra). Ďalší opevnený areál II sa nachádza južne, ani nie 70 m od opevnenia zo staršej doby bronzovej. Rovnako aj toto opevnenie bolo vybudované na výraznej terénnej vlne. Ide o fortifikačný systém, ktorý tvoria dve priekopy a palisáda. Vstup do opevnenia sa geofyzikálnym meraním nezachytil. V tomto prípade možno uvažovať o drevených mostoch, ktoré mohli byť vybudované cez priekopy. Ďalšou možnosťou je, že vstup bol situovaný z východnej strany opevneného objektu, ktorej časť bola zničená eróziou. Okolo celého kvadratického opevnenia sa na mape magnetických anomálií objavila výrazná úzka líniová štruktúra v tvare polkruhu, ktorá sa interpretuje ako palisáda. Z tohto priestoru sa podarilo vyzbierať črepový materiál hlavne z neskorej doby kamennej, čo by mohlo poukazovať na osídlenie badenskej kultúry. Posledné zachytené opevnenie III s kvadratickým pôdorysom sa nachádza v južnej časti meranej plochy, približne 100 m od predchádzajúceho objektu. Táto fortifikácia bola taktiež umiestnená na výraznej terénnej elevácii. Priekopa sa v južnej a čiastočne vo východnej časti nezachovala, pravdepodobne v dôsledku erózie. Datovanie opevnenia nie je nateraz jasné, a to z dôvodu absencie signifikantného keramického materiálu v jeho priestore. Mohlo by ísť buď o hospodársky objekt, ako napríklad ohrada pre zvieratá, alebo ide o opevnenie, ktoré plnilo vojenskú funkciu. V každom prípade možno opisovaný objekt predbežne datovať do obdobia stredoveku až novoveku. Okrem opevnených areálov sa na skúmanej ploche zachytili dve výrazné rovnobežné líniové magnetické anomálie prechádzajúce cez celú meranú plochu v smere sever – juh. Je pravdepodobné, že ide o najmladšie objekty (priekopy/jarok) na lokalite. V tomto prípade možno uvažovať aj o ceste. V priestore opevnených areálov I až III, ako aj v ich okolí sa zachytilo nespočetné množstvo magnetických anomálií, ktoré možno interpretovať ako sídliskové objekty. Prevládajú objekty pravidelného kruhového alebo oválneho

pôdorysu s rôznymi rozmermi. Na mape magnetických anomálií sa nedali jednoznačne určiť plochy alebo miesta, kde by sa mohlo uvažovať o zástavbe.

Na základe prezentovaného materiálu je možné sídlisko datovať od mladšej doby kamennej. Okrem pár črepov kultúry lineárnej keramiky/železovskej skupiny, ktoré možno priradiť bukovohorskej kultúre, malo na sídlisku najväčšie zastúpenie osídlenie z konca doby kamennej. Keramický materiál poukazuje na osídlenie badenskej kultúry. Výsledky analýzy výzdobného štýlu uplatneného na keramických zlomkoch potvrdili osídlenie zo staršej fázy badenskej kultúry (stupeň Baden II), ktoré pokračovalo aj v nasledujúcom stupni Baden III. Časť zozbieraných nálezov potvrdzuje osídlenie aj v nasledujúcom období. Z doby bronzovej sa zozbieral materiál z jej staršieho časového úseku, a to tak z hatvanskej kultúry, severopanónskej kultúry, ako aj z doby popolnicových polí. Jedným z najvýznamnejších nálezov tejto prospekcie bolo nájdenie takmer celej odlievacej formy na kosáky.

Na druhej skúmanej polohe Nad kostolom sa okrem trojpriekopového rondelu podarilo zachytiť dve súvislé línie (priekopy) nachádzajúce sa na západnej strane rondelu. Tieto dve rovnobežné priekopy možno interpretovať ako prístupovú cestu, nakoľko vedú priamo do západného vstupu kruhového útvaru. Na Slovensku ide o prvý takýto objav, keďže sa doterajšie magnetometrické merania väčšinou sústredili iba na samotný objekt (rondel, resp. kruhový útvar). Vo vnútri ako aj mimo kruhového útvaru sa zachytili archeologické objekty prevažne pravidelného kruhového alebo oválneho pôdorysu veľkých i menších rozmerov. Východne od severného vstupu je nevýrazne viditeľný objekt obdĺžnikového pôdorysu (predeleného na dve časti). Či ide naozaj o žlab dlhého domu potvrdí až archeologický výskum. Magnetometrom zaznamenaný kruhovitý útvar z katastra obce sa radí medzi veľké rondely a je druhým najväčším spomedzi všetkých doteraz geofyzikálne zdokumentovaných rondelov na území Slovenska. Zo skúmanej polohy sa nepodarilo vyzbierať žiadny signifikantný materiál, preto ho rámcovo možno datovať do obdobia lengyelskej kultúry.

Za posledné roky ukázalo geofyzikálne meranie svoju nepopierateľnú prednosť a efektívnosť pri lokalizácii nových nálezísk. Svedčia o tom aj obe skúmané plochy v katastri obce Lontov, ktorých namerané dáta priniesli až prekvapujúce výsledky.