

# The settlement and burial site of the Tumulus culture at Zohor

Sídliště a pohřebiště mohylové kultury v Zohoru

– Pavol Bobek\*, Kristian Elschek –

## KEYWORDS

Western Slovakia – Záhorie – Middle Bronze Age – Tumulus culture – settlement – grave

## ABSTRACT

During the research conducted at the polycultural site in Zohor at the Piesky site (western Slovakia) between 1995 and 2008–2010, settlement features from the Middle Bronze Age were examined, along with various others. They were exclusively pottery. With the exception of one feature from the Middle Phase, most belong to the Late Middle Bronze Age and the Blučina stage. A similar dispersion of dating was indicated by the detector finds from the surveyed area. In 2022, a Tumulus culture grave was uncovered during the excavation of adjacent plots. This represents the first clear discovery of a settlement and its contemporaneous burial site from the Middle Bronze Age in southwest Slovakia. Despite the considerable area surveyed, no other graves have been found in the immediate vicinity. However, it can be assumed that this site was originally part of a larger burial area. The grave pit, which was relatively shallow and rectangular in plan, showed no traces of a mound. The grave inventory comprised three vessels and a collection of bronze objects. In addition to two typical bracelets of Tumulus cultures, there was an atypical knife and an object resembling a rather large fishing hook. Based on the arrangement of the inventory within the grave pit, it is likely that this was originally a skeleton grave, with the remains not preserved due to unfavourable soil conditions. The pottery and bracelets suggest that the grave dates to the later part of the Middle Bronze Age.

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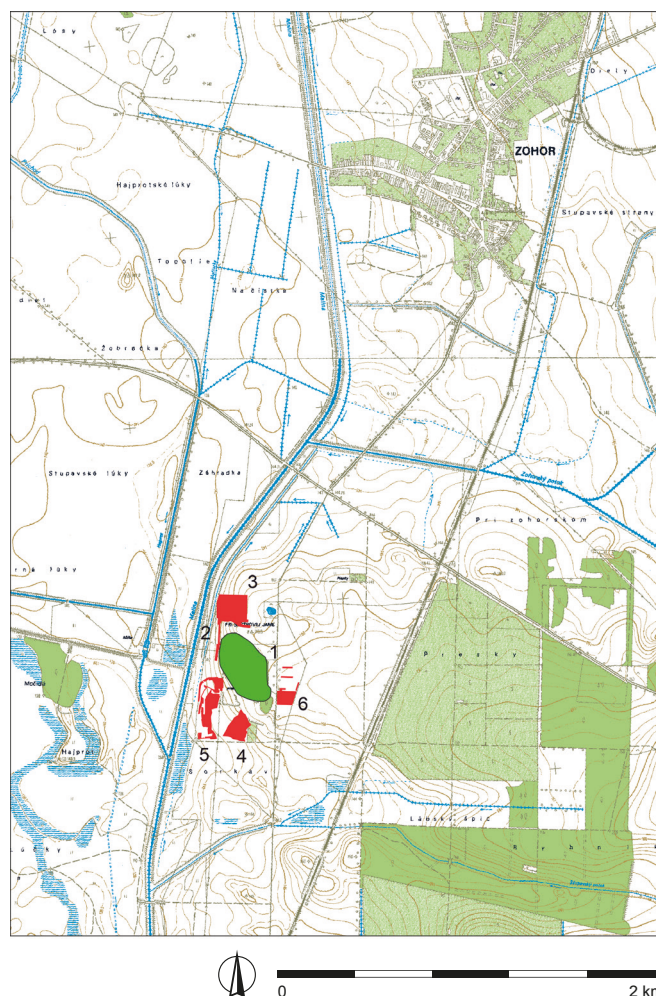
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## 1. Introduction

The Piesky site is situated within the cadastral area of Zohor village (western Slovakia), southwest of its built-up area. It occupies a gravel-sand elevation overlooking the River Morava's floodplain, which in this region is characterised by an extensive network of oxbow lakes and alluvial meadows (Fig. 1). Research at this site began in the 1940s, following the discovery of



**Fig. 1.** Location of site and surveyed areas. 1 – Area damaged by gravel extraction; 2 – research in 1995; 3 – research in 2008; 4 – research in 2009; 5 – research in 2010; 6 – research in 2022. Base map RPI ZM. Author P. Bobek, K. Elschek.

**Obr. 1.** Lokalizace nálezů a zkoumaných ploch. 1 – Plocha poškozená těžbou štěrku; 2 – výzkum v roce 1995; 3 – výzkum v roce 2008; 4 – výzkum v roce 2009; 5 – výzkum v roce 2010; 6 – výzkum v roce 2022. Podkladová mapa RPI ZM. Autoři P. Bobek, K. Elschek.

princely graves from the Roman period during gravel extraction (Elschek 2014, 15). Subsequent research was primarily limited to sections disturbed or imminently threatened by extraction (Fig. 1:1). In 1957, a disturbed feature dating to the transition between the Early and Middle Bronze Age was investigated in a gravel pit profile at the Stará štrkovňa I site (Pichlerová 1962). Subsequent exploitation in 1963 revealed a burial ground from the transition of the Middle and Late Bronze Age. During the same year, settlement features from the Bronze Age were also investigated at the Nová štrkovňa II site. In 1972, research continued at the adjacent Nová štrkovňa III site, where further features from the same period were examined (Studeníková 1978, 9). In 1978 and 1982, an Early Bronze Age grave and features from the early phase of the Late Bronze Age were investigated in the western part of the site (Kraskovská, Studeníková 1996; Studeníková 1983). Extensive rescue excavations were conducted in 1995 and from 2008 to 2010 (Fig. 1:2–5). These excavations revealed a preserved portion of the elevation upon which the settlement is located. In 2009, a burialground from the Early Bronze Age (Daňová, Elschek 2014) and numerous features from the Neolithic, Eneolithic, Bronze Age, La Tène, Roman, and Medieval periods were discovered. Accidental finds and metal objects indirectly indicate settlement during the Hallstatt period as well (Elschek 2014, 16–36). Research at the site and its surroundings continued after 2016 (Matyasowszky et al. 2022), with the most recent excavation taking place in 2022 (Fig. 1:6).

The significance of this site in the Záhorie region, now largely destroyed or investigated, is demonstrated by the abundance of features and graves, as well as its polycultural nature.

## 2. Methods

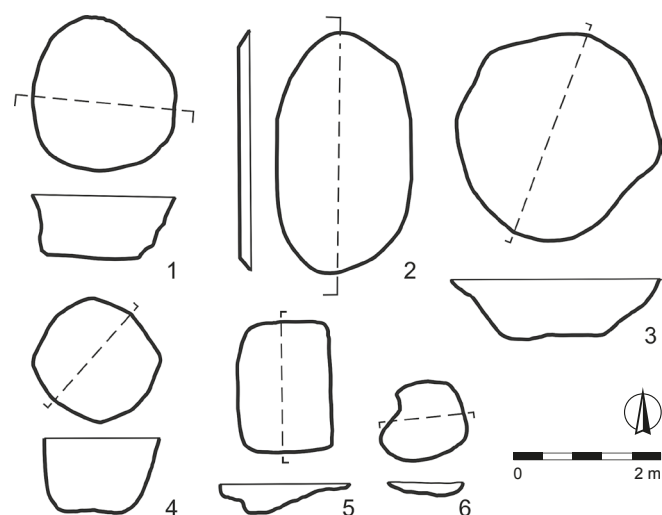
Archaeological research proceeded as a rescue excavation of undisturbed areas in connection with the gradual expansion of a waste landfill. Throughout the intended area of the landfill, a reconnaissance survey was undertaken in 1995 across nearly 16 ha to pinpoint areas suitable for investigation. In the same year, the zones situated to the north and south of the original extraction hollow in the central part of the elevation were subjected to comprehensive surface examination (Fig. 1:2; 2:1). Subsequent areas, extending northward and southward, were progressively revealed between 2008 and 2010 (Fig. 1:3–5; 2:1, 2). This resulted in the total investigation of a territory encompassing approximately 5.7 ha. In 2022, a smaller rescue excavation was conducted in the area east of these previously examined zones, during which feature (grave) 302/2 was identified (Fig. 1:6; 2:3).

The extent of the research endeavour, alongside persistent staffing limitations, has led to the research documentation exhibiting a schematic character in certain regards. Graphic documentation is confined to the upper boundary of the plan view and the profile (Fig. 3). Photographic documentation is of limited quality and frequently incomplete, with more detailed records of the archaeological contexts largely lacking. The informative potential



**Fig. 2.** Surveyed areas with MDTC features. 1 – Researches in 1995 and 2008; 2 – research in 2010; c – research in 2022. Authors P. Bobek, K. Elschek.

**Obr. 2.** Zkoumané plochy s objekty středodunajské mohylové kultury. 1 – Výzkumy v letech 1995 a 2008; 2 – výzkum v roce 2010; 3 – výzkum v roce 2022. Autor P. Bobek, K. Elschek.



**Fig. 3.** Plans and section profiles of the investigated features. 1 – Feature 55/08; 2 – feature 125/09; 3 – feature 205/10; 4 – feature 207/10; 5 – feature 235/10; 6 – feature 237/10. Author P. Bobek, K. Elschek.

**Obr. 3.** Plány a profily zkoumaných objektů. 1 – Objekt 55/08; 2 – objekt 125/09; 3 – objekt 205/10; 4 – objekt 207/10; 5 – objekt 235/10; 6 – objekt 237/10. Autor P. Bobek, K. Elschek.

of the locality is further reduced by the absence of animal skeletal remains. The uncertain location of earlier research conducted by L. Kraskovská and E. Studeníková, which occurred on the margins of the incrementally expanding extraction hollows (Fig. 1:1; Kraskovská, Studeníková 1996, 123, 124; Studeníková 1978, 9–11), also presents a challenge for the overall evaluation of the site. During the excavations, more than 600 postholes/stakeholes were also investigated. However, the polycultural nature of the site and the extent of the settlement do not allow for their chronological classification, as almost all were without finds.

The settlement features at the Piesky site have yielded no direct finds of metal objects. Consequently, the dating of the locality is directly dependent on the morphological analysis of ceramic vessels. This analysis primarily relies on the typological scheme presented in the doctoral thesis of P. Bobek (2018, 109–168). Despite the relatively short chronological span, the changes in form and decoration on the Middle Danube Tumulus Culture (hereafter MDTC) pottery are quite dynamic and often permit relatively precise dating.

To ascertain the material composition of the metallic objects from feature (burial) 302/2, a sample of the core was extracted from the finds. The points of sample extraction via drilling were in inconspicuous areas of the artefacts. The samples were subjected to analysis using a Niton XL3 XRF Analyzer, and the measurement was performed by V. Mezey of the Institute of Archaeology of the Slovak Academy of Sciences. The measured data are presented within the catalogue of finds.

### 3. Settlement

Archaeological research in 1995 and 2008–2010 was conducted on three extensive areas north and south of the original quarry (Fig. 1:2–5). During these research seasons, 66 settlement features from the Bronze Age were investigated, dating from the Early Bronze Age to the transition between the Late and Final Bronze Age (Bobek 2018, 24, 256–261). The present study focuses on the find assemblages of the MDTC that did not contain elements associated with Urnfield cultures, particularly those characteristic of the Blučina stage (Říhový 1982, 86, 87). Bronze finds, discovered using a metal detector during the site's research in 2008–2010, provide supplementary information

for dating the site (Bobek, Elschek 2020). Other investigated features, dated to the Blučina stage and the Late Bronze Age, will be the subject of a separate publication.

#### 3.1 Feature 74/95

During the cleaning of an extraction pit's edge, a significantly damaged feature was recorded as a concentration of sherds within an area approximately 40 cm in diameter. A remnant of the feature's base was observed (Fig. 2:1).

##### Finds:

1. Amphora. A fragment of a rim with a slightly conical neck and a hint of edge moulding. Finely smoothed surface. Rim Ø 22.5 cm (Fig. 4:1).
2. Pot. A fragment of an everted and rounded rim. Roughened surface. Rim Ø 18 cm (Fig. 4:2).
3. Amphora. A fragment of a rounded rim. Smoothed surface (Fig. 4:3).
4. Amphora (?). A fragment of a body decorated with vertical engravings. Smoothed surface (Fig. 4:4).
5. Amphora. A fragment of neck attachment.
6. Pot (?). A fragment of a body decorated with vertical engraving. Smoothed surface (Fig. 4:5).
7. Fragment of a thin-walled vessel's base. Polished surface. Base Ø 4.5 cm (Fig. 4:6).
8. Pot (?). A fragment of a base. Roughened surface (Fig. 4:7).
9. Atypical ceramic fragments (25 pcs).

#### 3.2 Feature 55/08

A round pit with sloping conical walls and a flat base. The primary fill comprised an inverted cone of grey-brown clay, with sandy layers along the edges, indicative of the gradual collapse of the feature's opening. The base was filled with brown-black clay. Ø 195 cm, depth 95 cm (Fig. 2:1; 3:1).

##### Finds:

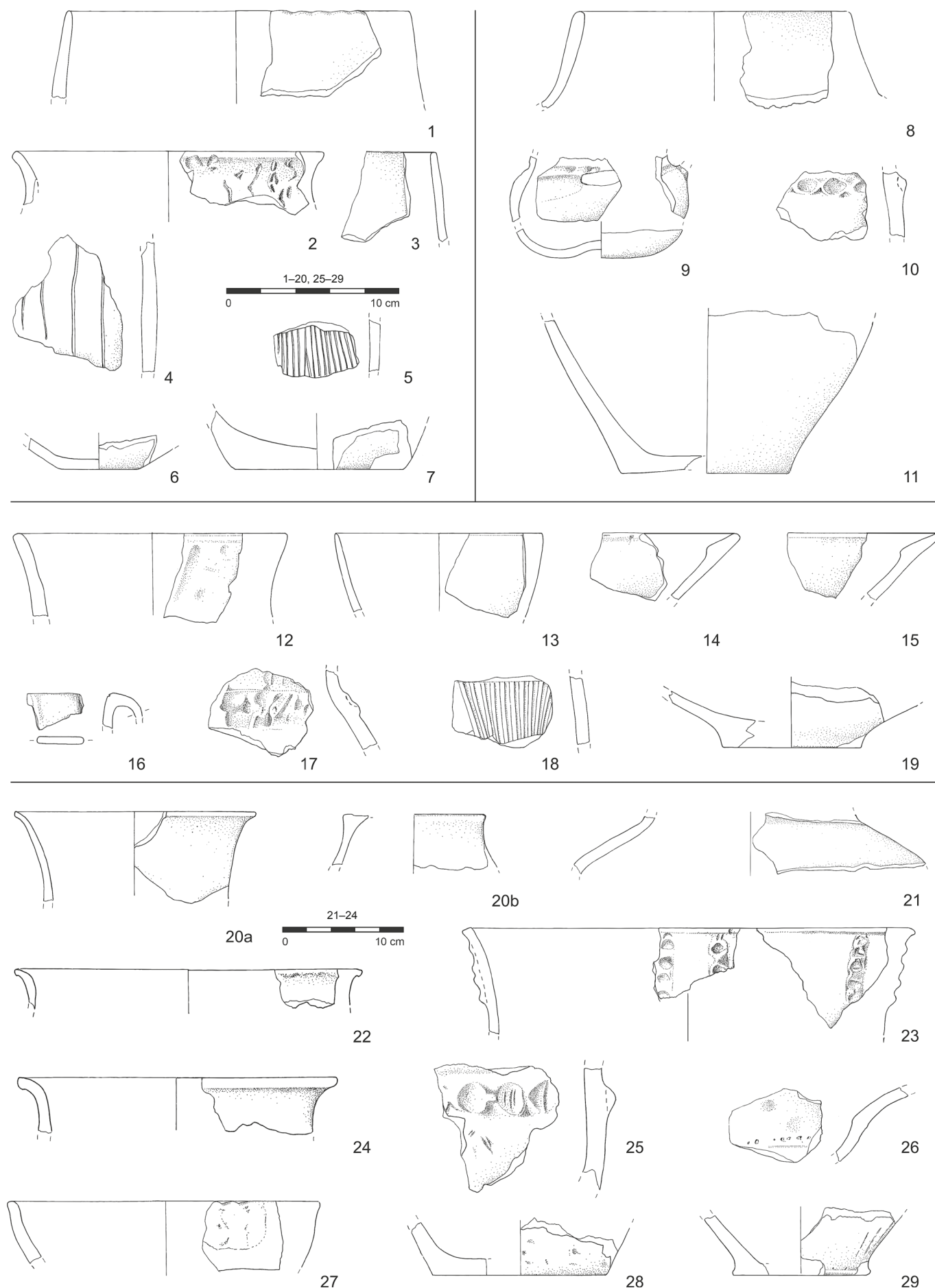
1. Amphora. A fragment of an amphora's rim and conical neck. Heavily burnt, originally smoothed surface. Rim Ø 16 cm, height (preserved) 5.5 cm (Fig. 4:8).
2. Amphora. A fragment of the lower body and base. Finely smoothed surface. Base Ø 9.8 cm, height (preserved) 9.4 cm (Fig. 4:11).
3. Pot (?). A fragment with a moulded plastic rim. Partially burnt. Roughened surface (Fig. 4:10).
4. Jug. A fragment of a body and base. Offset neck attachment with a lower handle attachment. Wide, bulbous body, distinctly indented base. Polished surface. Neck attachment Ø 9 cm, indented base part Ø 3.8 cm (Fig. 4:9).
5. Atypical ceramic fragments (29 pcs).

#### 3.3 Feature 125/09

An oval feature with sloping walls and a flat base. Dimensions: length 320 cm, width 190 cm, depth 15 cm (Fig. 2:1; 3:2).

##### Finds:

1. Amphora. A fragment of a rounded rim and funnel-shaped flared neck. Smoothed surface. Rim Ø 16 cm, height (preserved) 5.2 cm (Fig. 4:12).
2. Amphora (?). A fragment of an amphora's body decorated with dense vertical engraving. Smoothed surface (Fig. 4:18).
3. Pot. A fragment of a neck attachment with a moulded plastic rim. Roughened surface (Fig. 4:17).
4. Jug (?). A fragment of a handle attachment to the upper rim. Smoothed surface (Fig. 4:16).



**Fig. 4.** A selection of the ceramic assemblage. 1–7 – Feature 74/95; 8–11 – feature 55/08; 12–19 – feature 125/09; 20–29 – feature 205/10. Drawing by J. Marettová.

**Obr. 4.** Výběr keramických náleží. 1–7 – Objekt 74/95; 8–11 – objekt 55/08; 12–19 – objekt 125/09; 20–29 – objekt 205/10. Kresba J. Marettová.

5. Bowl. A fragment of a thin-walled conical shape. Narrowed rim. Finely smoothed surface. Rim Ø 12 cm, height (preserved) 4.8 cm (Fig. 4:13).
6. Bowl. A fragment of a thickened rim with an internal stepped offset. Smoothed surface (Fig. 4:14).
7. Bowl. A fragment of a thickened rim with an internal stepped offset. Polished surface (Fig. 4:15).
8. Bowl or vessel with a compressed body. A fragment of an offset base. Smoothed surface. Base Ø 8 cm (Fig. 4:19).
9. Fragments of a larger vessel. Vertically finger-impressed surface (3 pcs).
10. Atypical ceramic fragments (11 pcs).

### 3.4 Feature 205/10

An irregular circular feature with a conical profile and a flat base. Dimensions: length 290 cm, width 280 cm, depth 75 cm (Fig. 2:2; 3:3).

#### Finds:

- 1a, b. Footed amphora in fragments. The rim is everted; the neck is funnel-shaped flared. The foot is conical, with inwardly curved walls. Finely smoothed surface. Rim Ø 5.4 cm, base Ø 8.2 cm, foot pedestal Ø 9.6 cm (Fig. 4:20a–b).
2. Amphora. A body fragment. Neck-to-body interface with a hint of a sharp edge. Finely smoothed surface. Neck-to-body interface Ø 18 cm (Fig. 4:21).
3. Pot base fragment. Sharp transition to the base. Irregularly roughened surface. Base Ø 10 cm (Fig. 4:28).
4. Pot. A fragment of a base. Irregular, roughly smoothed surface, with a hint of vertical straw marks. Base Ø 8 cm, height (preserved) 4 cm (Fig. 4:29).
5. Storage vessel fragment. The rim is everted, terminally rounded. Irregular, roughly smoothed surface. Rim Ø 30 cm (Fig. 4:22).
6. Storage vessel rim and neck fragments. The rim is slightly everted and terminally trimmed. Vertical moulded plastic ribs extend from the rim. Irregular, roughly smoothed surface. Rim Ø 39.4 cm (Fig. 4:23).
7. Storage vessel rim and neck fragments. The rim is everted and terminally trimmed. A sherd from the body indicates a smooth neck-to-body interface and a bulbous bulge. Flat base. Damaged, roughly smoothed surface. Rim Ø 27.6 cm (Fig. 4:24).
8. Storage vessel body fragment decorated with a moulded plastic rib. Irregular, roughly smoothed surface (Fig. 4:25).
9. Fragments of a conical bowl with bulging walls. The rim is slightly everted, terminally rounded. Smoothed surface. Rim Ø 18 cm (Fig. 4:27).
10. Bowl. A fragment with a widely open rim. Smoothed interior, roughened body exterior (Fig. 4:26).
11. Atypical ceramic fragments (3 pcs).

### 3.5 Feature 207/10

A circular feature with a slightly conical profile and a flat base. The base and lower fill exhibited significant signs of burning. Dimensions: length 165 cm, width 160 cm, depth 100 cm (Fig. 2:2; 3:4).

#### Finds:

1. Amphora with a rounded rim and a cylindrical neck. Bulbous body, with a bulge in the upper third. Rounded transition to the base. Two strap handles below the neck-to-body interface. The neck-to-body interface is emphasised by a shallow engraving. The decoration consists of a horizontal line of vertical oval pits below the neck-to-body interface, with vertical

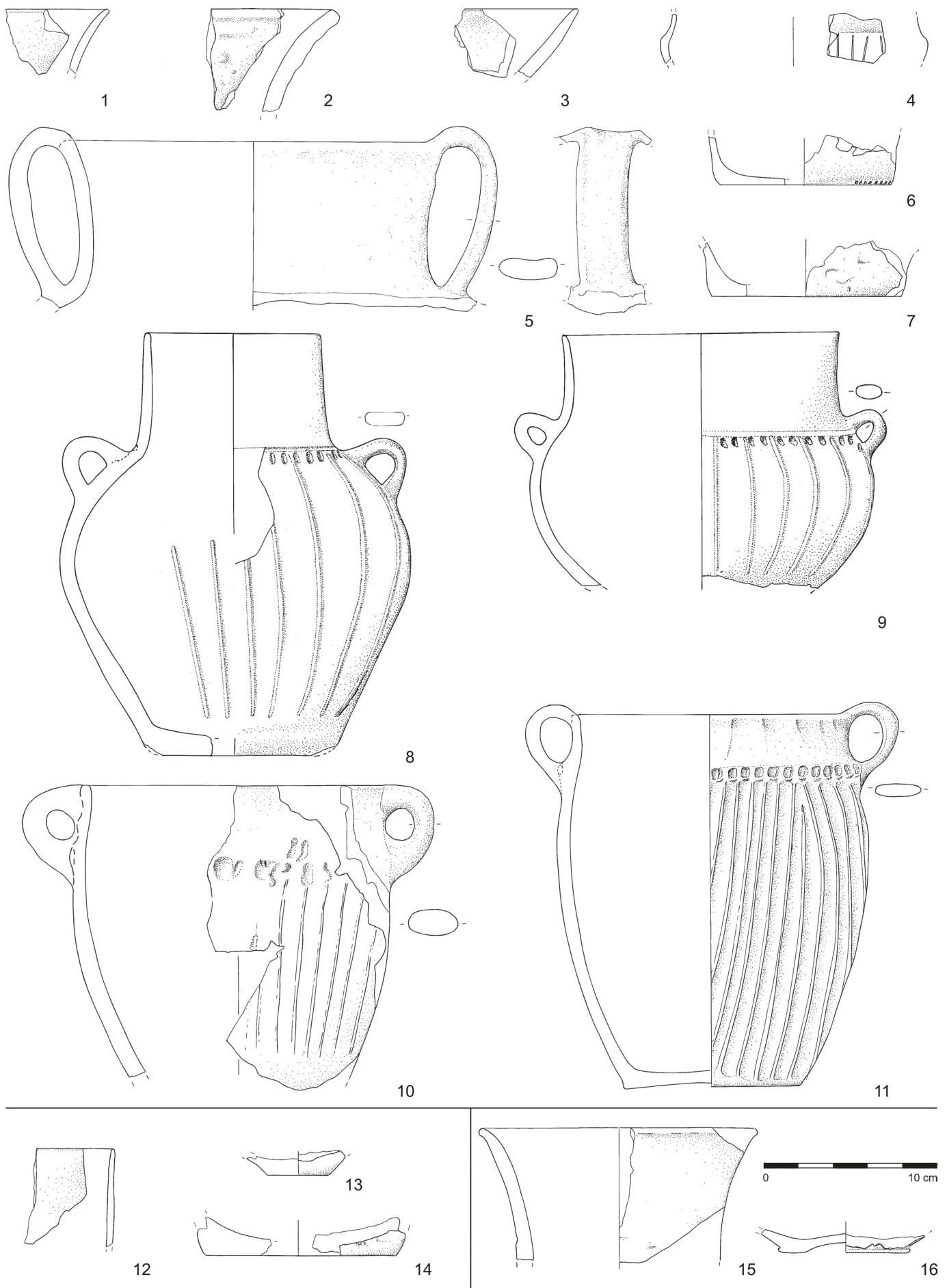
- shallow and narrow engravings below. Finely smoothed surface. Fragmentarily preserved complete vessel. Rim Ø 10 cm, bulge Ø 20.3 cm, base Ø 10 cm, height 24.5 cm (Fig. 5:8).
2. Amphora with a rounded rim and a wide cylindrical neck. Bulbous body, with a bulge in the upper third. Fractured base. Two strap handles below the neck-to-body interface. The neck-to-body interface is emphasised by a shallow engraving. The decoration consists of a horizontal line of vertical oval pits below the neck-to-body interface, with vertical shallow and narrow engravings below. Finely smoothed surface. Fragmentarily preserved nearly complete vessel. Rim Ø 16 cm, bulge Ø 20 cm, base Ø 10 cm, height (preserved) 14.8 cm (Fig. 5:9).
3. Amphora. Large two-handled amphora neck. Terminally rounded rim. Slightly funnel-shaped flared neck. Two opposing strap handles extend from the rim and attach to the body below the neck-to-body interface. Smoothed surface. Rim Ø 21.5 cm, neck height 8.6 cm (Fig. 5:5).
4. Amphora (?). Offset base fragment. Flaring visible in the upper sherd section. A line of small pits on the rounded base edge. Base Ø 10 cm, height (preserved) 2.9 cm (Fig. 5:6).
5. Pot with a wide orifice. Terminally rounded, slightly everted rim. Indistinct neck-to-body interface. Largest bulge in the upper third of the vessel. Two opposing handles extend from the rim and attach to the neck-to-body interface, emphasised by a moulded plastic rib. Damaged neck and body surface, originally vertically finger-impressed. Rim Ø 17.6 cm, bulge (max.) Ø 18.4 cm, height (preserved) 17.6 cm (Fig. 5:10).
6. Ovoid pot. Terminally trimmed rim. Slightly flared neck. Largest bulge in the second third of the height. Base with a hint of an offset, inwardly curved. The handle extends from the rim and attaches to the neck-to-body interface, emphasised by a moulded plastic rib. A second handle is questionable, as one-third of the vessel is missing. Vertically finger-impressed neck and body surface. Rim Ø 16.2 cm, bulge (max.) Ø 19 cm, base Ø 10.2 cm, height 21.6 cm (Fig. 5:11).
7. Pot base fragment. Irregular, roughened surface. Base Ø 10.9 cm (Fig. 5:7).
8. Storage vessel (?). A fragment of a terminally trimmed rim, funnel-shaped flared neck. Roughly smoothed surface. Calcined (Fig. 5:2).
9. Conical bowl. A fragment of a terminally slightly narrowed and rounded rim. Finely smoothed to polished surface (Fig. 5:3).
10. Cup (?). A funnel-shaped flared neck fragment. Terminally narrowed and rounded rim. Polished surface (Fig. 5:1).
11. Cup. A fragment with an offset bulge. Lower part decorated with vertical engravings. Polished surface. Bulge Ø 14 cm (Fig. 5:4).
12. Atypical ceramic fragments (21 pcs).

### 3.6 Feature 235/10

The feature had a quadratic shape with rounded corners. The base sloped gradually towards the southern wall, which featured a stepped profile. Dimensions: length 180 cm, width 130 cm, depth 40 cm (Fig. 2:2; 3:5).

#### Finds:

1. Amphora. A fragment of a terminally rounded rim. Polished surface (Fig. 5:12).
2. Vessel base with a hint of an offset. Polished surface. Possible connection to the previous fragment. Base Ø 3.5 cm (Fig. 5:13).
3. Pot (?). A base fragment. Roughly smoothed surface. Base Ø 11 cm (Fig. 5:14).
4. Atypical ceramic fragments (5 pcs).



**Fig. 5.** A selection of the ceramic assemblage. 1–11 – Feature 207/10; 12–14 – feature 235/10; 15, 16 – feature 237/10. Drawing by J. Marettová.

**Obr. 5.** Výběr keramických nálezů. 1–11 – Objekt 207/10; 12–14 – objekt 235/10; 15, 16 – objekt 237/10. Kresba J. Marettová.

### 3.7 Feature 237/10

A shallow feature with an irregular plan and a bowl-shaped profile. Dimensions: length 120 cm, width 110 cm, depth 15 cm (Fig. 2:2; 3:6).

#### Finds:

1. Amphora. Neck fragment. Slightly everted, terminally rounded rim. Funnel-shaped flared neck. Smoothed surface. Rim Ø 16 cm (Fig. 5:15).
2. Bowl (?). Offset and expanded base fragment. Distinctly inwardly indented base. Finely smoothed surface. Base Ø 7.5 cm (Fig. 5:16).
3. Atypical ceramic fragments (4 pcs).

### 4. Potential Burial Ground

In 2022, the Institute of Archaeology of the Slovak Academy of Sciences, was alerted to earthworks on the land of J. Lazár from Láb. During the subsequent rescue excavation of the exposed area, four features were identified on cadastral parcels KN-C 24133–24137 (Fig. 1:6; 2:3). In addition to two undated post-holes, two elongated rectangular features of similar dimensions, resembling grave pits, were investigated. While the initial assumption was confirmed in the first case, no finds were discovered in the second feature. Potential traces of barrows were not detected due to significant damage to the topsoil layer in the examined area.

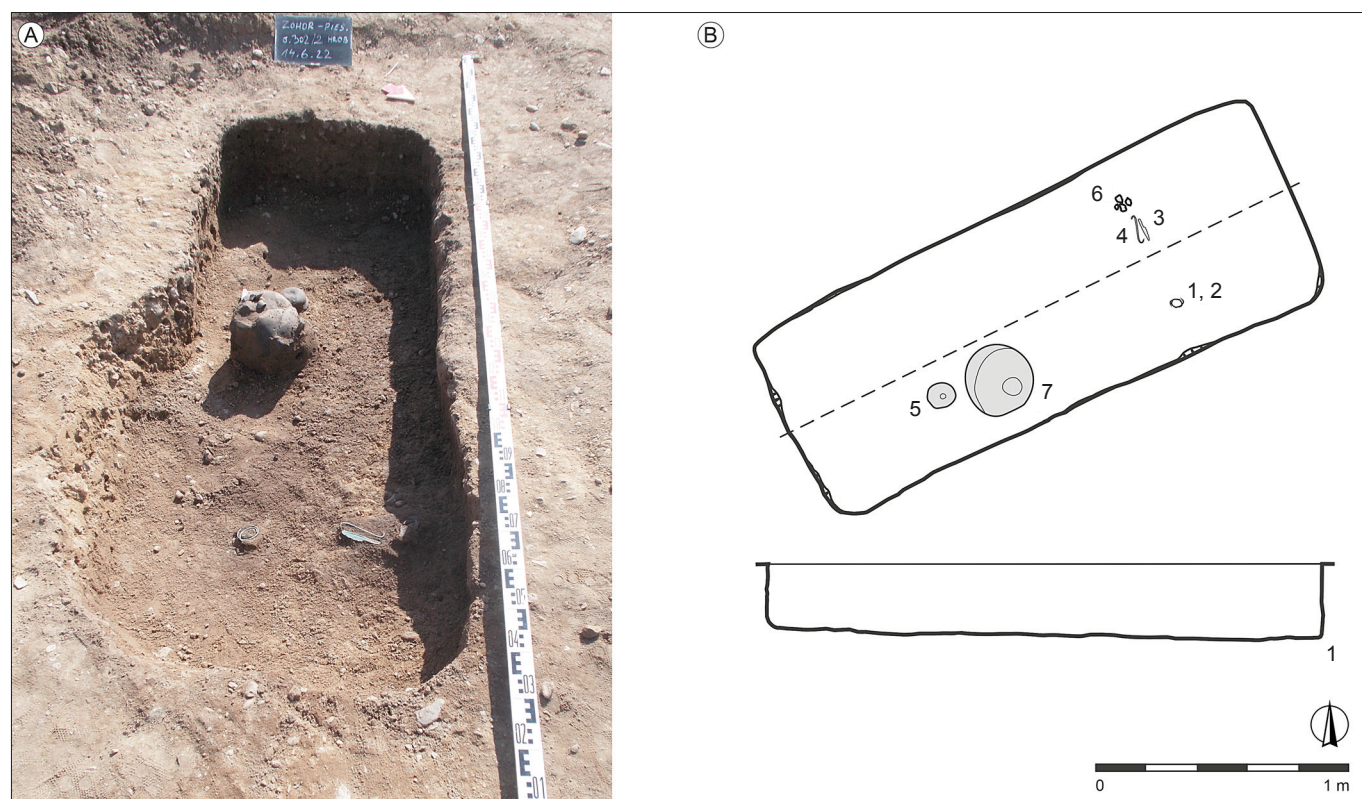
#### 4.1 Feature (Burial) 302/2

The grave pit had an elongated rectangular shape with rounded corners, oriented NE–SW. The fill consisted of a mixture of humic clay and gravel-sand. Skeletal remains were absent from the grave pit, and the position of the buried individual is indirectly indicated only by the finds. Almost in the central part

of the pit, an amphora (1) and a cup (3), both inverted, were discovered. In the northeastern part of the pit, a pair of bracelets (4a, b) and, near to them, a knife (5), hook (6) and small amphora (2) were located. The placement of these objects suggests that the buried individual was oriented with the head to the NE, likely in a lateral position with the hands near the head. Dimensions: length 220 cm, width 86 cm, depth 29 cm (Fig. 6).

#### Finds:

1. Amphora. The rim is distinctly everted, with a sharp internal break. The neck is funnel-shaped flared. The body is slightly compressed, with an emphasised bulge. The transition to the base is smooth, distinctly concave, the base is flat. One strap handle is located on the largest bulge. The neck-to-body interface to the body is smooth, emphasised by a pair of horizontal parallel engravings. Decoration consists of plastic protrusions framed by a trio of horseshoe-shaped engravings just below the largest bulge. Rim Ø 17.6 cm, bulge Ø 22.4 cm, base Ø 9.6 cm, height 23.8 cm (Fig. 7:7).
2. Small amphora. The rim is straight, rounded. The transition of the conical neck to the body is emphasised by a slight offset. The largest body bulge is in the upper third. The transition to the base is smooth. The base is shaped into a low foot, with a distinct inward curve. A vertically perforated handle (originally two?) is located on the shoulders. Rim Ø 3.7 cm, bulge Ø 6.5 cm, base Ø 3 cm, height 7.4 cm (Fig. 7:6).
3. Cup. The rim is straight; the neck is funnel-shaped flared. The neck-to-body interface to the rounded, low compressed body is emphasised by an offset. The base is inwardly curved. A strap handle originally extended from the rim and attached to the neck-to-body interface. Rim Ø (max.) 12 cm, base Ø 5 cm, height 5.1 cm (Fig. 7:5).



**Fig. 6.** Feature (grave) 302/2. A – the burial after excavation; B – plan view of the burial. Find numbers are consistent with the numbering in Fig. 7 and 8. Photo, and drawing by K. Elšček.

**Obr. 6.** Objekt (hrob) 302/2. A – hrob po prozkoumání; B – plán hrobu. Čísła nálezů odpovídají číslům na obr. 7 a 8. Foto a kresba K. Elšček.

- 4a, b. Two nearly identical bracelets made from a bronze rod with a lenticular cross-section. The body is decorated with bundles of transverse engravings. Rod  $\varnothing$  0.5 cm; bracelet  $\varnothing$  (max.) 6.3 cm, weight: a–13.35 g; b–10.4 g. Chemical composition (%): a–Cu 89.28; Sn 9.71; Sb 0.17; Pb 0.1; Ni 0.2; trace elements 0.54; b–Cu 91.39; Sn 7.69; Sb 0.04; Pb 0.031; Ni 0.5; trace elements 0.35 (Fig. 7:1, 2; 8:1, 2).
5. Bronze knife with a short blade, wide back, and short solid handle. A distinct engraving runs along the upper third from the blade to the handle. Length 11.3 cm, thickness (max.) 0.4 cm, weight 21.25 g. Chemical composition (%): Cu 91.32; Sn 7.96; Sb 0.17; Pb 0.05; trace elements 0.5 (Fig. 7:3; 8:3).
6. Hooked object made from a round bronze rod. One end is bent 180° and flattened to a quadratric cross-section, with an originally rounded termination. The other end is bent 135° and pointed at the end. Length 12.1 cm, rod  $\varnothing$  0.4 cm, weight 13.7 g. Chemical composition (%): Cu 92.42; Sn 6.8; Sb 0.19; Pb 0.1; trace elements 0.49 (Fig. 7:4; 8:4).

## 4.2 Feature (Grave?) 303/3

In the plan view, the feature had the shape of an elongated rectangle with convex walls and rounded corners, oriented NE–SW. The fill comprised a mixture of humic clay and gravel-sand. No archaeological finds were recovered. Dimensions: length 222 cm, width 120 cm, depth 28 cm (Fig. 2:3).

## 5. Ceramic Analysis

### 5.1 Amphorae

Amphorae with cylindrical or slightly conical necks represent a universal form of the MDTC. Two well-preserved examples appeared in feature 207/10 at the Piesky site (Fig. 5:8, 9). On both, the transition from neck to body is emphasised by an engraving, below which a horizontal line of vertical oval pits is present. The body is decorated with vertical narrow engravings. Analogies from Slovakia are primarily known in fragmentary form. They have been found at the Bratislava-Mlynská dolina settlement in feature 3/84 (Bartík, Egyházy-Jurovská 1998, obr. 6:1, 4) and in feature 3/2001 in Lozorno (Bartík et al. 2013, tab. 36:15). Analogies outside the territory of Slovakia with similar decoration are sporadic (Nekvasil 1975, tab. 77:3; Fojtík, Parma 2018, obr. 5.12). Their dating can be based on finds from feature 3/2001 in Lozorno, where this type was associated with numerous ceramics with engraved decoration, dated to the Maisbirbaum-Zohor stage (Bartík et al. 2013, tab. 36; 37). According to S. Stuchlík (1993, Fig. 175:6, 15, 21), ceramic vessels with analogous ornamentation from Moravia are dated to the earlier and middle periods of the MDTC. Fragments from feature 235/10 (Fig. 5:12, 13) can also be included in the group of amphorae with cylindrical or slightly conical necks. Due to the absence of associated finds, they cannot be dated more precisely.

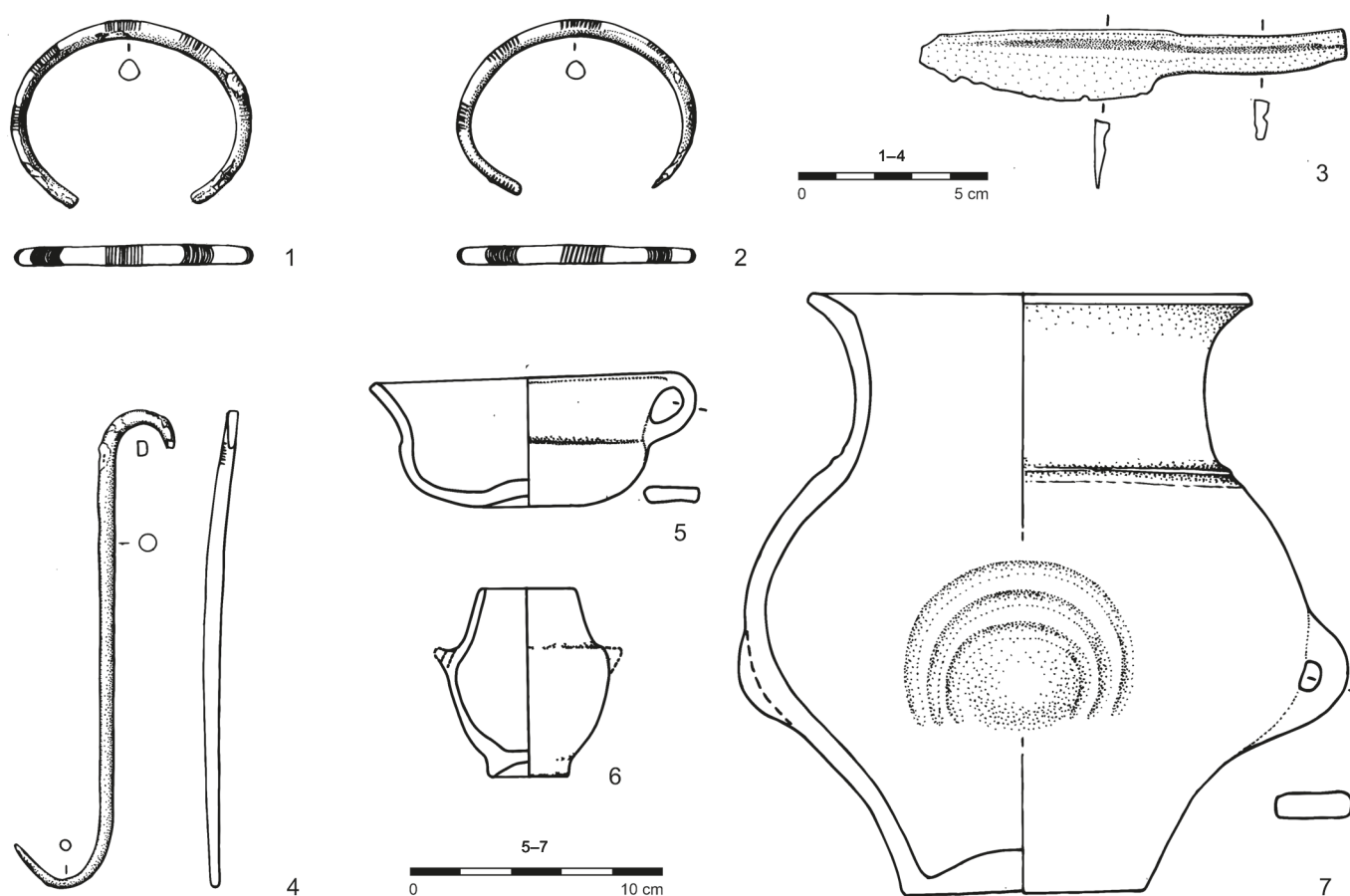


Fig. 7. The assemblage from the feature (grave) 302/2. 1–4 – Bronze; 5–7 – ceramics. Drawing by Z. Nagyová.

Obr. 7. Nálezy z objektu (hrobu) 302/2. 1–4 – Bronz; 5–7 – keramika. Kresba Z. Nagyová.

In feature 207/10, a vessel fragment appeared (Fig. 5:5), representing a form seemingly atypical within the ceramic production of the MDTC. These amphorae are characterised by large handles, extending from the rim and attached to the body below the neck-to-body interface. There is usually a pair of pointed protrusions between them. While this vessel type is frequently categorised as bowls or pots in the literature (Říhovský 1982, 16; Stuchlík 2006, 198; Bláhová-Sklenářová 2018, 633–634), it constitutes a local form of amphorae, primarily found in south-western Slovakia. Their origins can be traced to prototypes from the Maďarovce culture milieu (most prominent forms e.g. Budinský-Krička 1947, XIVa:4; Točík 1978: Taf. CII:7; CXXIX:6; CXXXIX:12; CLXXXIV:18; CLXXXVII:20). Within the Tumulus culture context, this type has long been known from a hoard discovered at Zohor. These specimens are characterised by a unique extension of the rim into lobes, and two of them also have engraved decoration (Eisner 1940, Abb. 1:8; 3; 4; Bartík, Hajnalová 2004, obr. 9:1–4). Two additional examples originate from the Veselé settlement. While the first, from the feature designated as PSZ 24: pit 9–12, was only partially preserved, a complete vessel of similar form was stored in the Balneological Museum in Piešťany (Bartík 1996, tab. 21:1; 25:3). A variant with a roughened lower body half is known from the Hostouň settlement, though it is comparatively shorter than these aforementioned analogies (Beneš 1959, 28, 39, obr. 22:1; Bláhová-Sklenářová 2018, obr. 1:3). These forms also occur in burial contexts. One find is from Buková (Točík, Vladár 1971, obr. 29:4) and an analogous vessel was in grave III in mound 8 from Borotice, featuring engraved decoration in the form of punctures below the neck and a vertical bundle of engravings bordered by punctures (Stuchlík 2006, obr. 50:2). A similarly shaped amphora from Slavětín exhibited a roughened body surface (Hájek 1947, 68, tab. IV:1). Related forms are also known from the Tisza region, where they occur more frequently and often served as urns. The primary distinction from the MDTC examples is their elaborate decoration, though undecorated specimens are also present (Kovács 1966, 22. kép: 11; 1970, 1. ábra: 15–17, 22; 3:16; 4:9; 1975, pl. 18:180.1; 24:259–1). In addition to those mentioned, numerous other analogies are cited in the literature (see Stuchlík 2006, 198; Bláhová-Sklenářová 2018, 633–634), but either they are finds with more or less different tectonics, mutual proportions of height and width, or with a low neck. A critical morphological factor is the overall height, typically around 30 cm. A critical morphological factor is the overall height, typically around 30 cm, indicating relatively large vessels in the MDTC production. The dating to the end of the BB2(C1) stage and the beginning of BC2 is relatively unambiguous based on the Zohor hoard, the associated inventory from feature 207/10 at Zohor settlement, and the dating of the end of burial at the Borotice burial ground (Stuchlík 2006, 225–226). This type appears to have occurred within a limited chronological horizon and may reflect the persistence of older Maďarovce culture forms. Their presence in Bohemia, where older prototypes are absent, might be attributed to the expansion of the MDTC into that region (Plesl 1974, 349). In eastern Hungary, their development was undoubtedly local, originating within the Carpathian Basin (Říhovský 1982, 14, 15).

Analogies to the amphora with funnel-shaped flared rim from feature (burial) 302/2 (Fig. 7:7) appear mainly in ceramic hoards and graves. These relatively uncommon forms within the MDTC bear resemblance to the ceramic production of Carpathian Tumulus culture groups. However, they differ from these finds by their funnel-shaped flared neck and the absence of a characteristic offset at the neck-to-body interface (compare, e.g. Točík 1964, tab. XI:6; XVII:11; XXII:6). This type of

amphora, in addition to the funnel-shaped flared neck, is characterised by a lower-shaped and compressed body, often with a sharper-shaped bulge. The decoration consists of pointed protrusions below the neck-to-body interface, sometimes also on the bulge. A handle or a pair of handles is located eccentrically on the body, typically near the bulge. The most notable examples come from the Zohor hoard. All are decorated with pits below the neck-to-body interface, and horseshoe-shaped framing of the protrusions on the bulge also appears on them (Eisner 1940, Abb. 1:9; 2:1, 2; Bartík, Hajnalová 2004, obr. 8:1–3). Analogies are known from the Franzhausen, Lednice, Maisbirbaum, Mutěnice and Zwerndorf an der March ceramic hoards, dated to the later phase of the Middle Bronze Age (Willvonseder 1937, Taf. 16:3; Doneus 1991, Abb. 4:1; Lindinger 1998–1999, Abb. 4:3, 4, 6, 12, 15, 16, 18, 23, 24, 32, 40–44, 49–51; Neugebauer et al. 1998–1999, Abb. 26:4, 10–13; Palátová, Salaš 2002, tab. 3:5; 5:5, 6; 9:6). From the mentioned examples, a wide range of possible body formations is evident, however, with recurring elements in the form of protrusions, eccentrically placed handles, and a flared rim. A significant number of similar forms are also found in the Pitten burial ground (Benkovský-Pivovarová 1991, Taf. 4:8; 11:2, 5; 15:2; 28:5; 49:1; 51:1; 52:10) and have also been discovered at Borotice (Stuchlík 2006, obr. 116:1), Jetzelsdorf (Russ 2004, Abb. 36), and Winklarn (Willvonseder 1937, Taf. 35:3).

Among the atypical forms is a small amphora from feature (burial) 302/2 (Fig. 7:6). In addition to its size, the vertically perforated handles are also unusual. A similar find comes from the cultural layer in Sládkovičovo, dated to the early phase of the MDTC (Bartík 2000, 20, obr. 3:10). Atypical vertically perforated handles appear sporadically throughout the Middle and into the Late Bronze Age.

The classification of the neck and foot fragment from feature 205/10, which appear to belong to a single vessel based on material and colour (Fig. 4:20a–b), is less certain. Footed amphorae with funnel-shaped flared openings occur very rarely (Bartík, Hajnalová 2004, obr. 7:4) and it cannot be excluded that the sherds come from another type of vessel.

Fragments of conical necks from features 74/95 (Fig. 4:1, 3) and 55/08 (Fig. 4:8), as well as flared amphorae rims from features 125/09 (Fig. 4:12) and 237/10 (Fig. 5:15), cannot be classified typologically more precisely. Similar rim forms are found throughout the Middle Bronze Age, and without additional diagnostic features, more exact dating is not possible (for details see Říhovský 1982, 14, 15). This also applies to the amphora shoulder fragments from feature 205/10 (Fig. 4:21), body fragments decorated with vertical engravings from features 74/95 (Fig. 4:4) and 125/09 (Fig. 4:18), or the lower part with the base from features 55/08 (Fig. 4:11) and 207/10 (Fig. 5:6).

## 5.2 Pots

Pots represent a continuously occurring form throughout the Bronze Age. They are typically found in a highly fragmented state, making it challenging to differentiate them from fragments of certain amphora types. Furthermore, frequent rough processing, when combined with fragmentation, obscures distinctions from storage vessels, as both types often share similar surface treatments. The most reliable identifying feature is often the presence of a handle spanning the rim and the neck-to-body interface of the vessel. Pots with a bulbous and higher-shaped body are a standard type of utilitarian ceramic in the Middle Bronze Age. Variants with a smoothed surface or roughened with vertical finger impressions appear. A common decorative element is a moulded plastic rib at the neck-to-body transition.

At Zohor, the type with a plastic rib and vertical finger impressions was discovered in features 125/09 and 207/10 (Fig. 4:17; 5:10, 11), and a fragment is also known from a surface collection (Studeníková 1983, obr. 140:9). A rim sherd from feature 74/95 (Fig. 4:2) can also be assigned to this or a similar type (e.g. Bartík 1996, tab. 21:3; 2003, obr. 13:2), and their occurrence appears to be limited to the middle and later phases of the MDTC.

Based on thickness and material, bases from feature 205/10 (Fig. 4:28, 29) can be attributed to undated pots. This vessel group likely includes a partially burned fragment with a roughened surface and a moulded plastic rib from feature 55/08 (Fig. 4:10) or a vertically engraved body and base fragments from feature 74/95 (Fig. 4:5, 7) and feature 235/10 (Fig. 5:14).

### 5.3 Storage Vessels

These ceramic finds exhibit a wide variability of shapes and are typically found in a highly fragmented state. A specific decoration consisting of moulded plastic ribs is present on a rim fragment from feature 205/10 (Fig. 4:23). Similar applications have been observed on finds from the MDTC environment as well as surrounding areas. Examples include fragments from Chorvátsky Grob (Bartík 2011, obr. 7:1, 2), Großkadolz (Neugebauer 1996, 96), Lozorno (Bartík et al. 2013, tab. 13:1), Pilismarót (Száthmári 1980, obr. 4:1) and Radčice (Chvojka, Michálek 2004, tab. 26:1, 2). This decorative element appears as early as the beginning of the Middle Bronze Age (e.g. Stuchlík 1971, obr. 2:17) and survives until the Late Bronze Age (e.g. Ilon 2014, Taf. 1:14; Smejtek 2007, tab. 26:6).

The typological classification of another fragment from feature 205/10, featuring a widely flared opening and a large diameter (Fig. 4:22), remains uncertain. Its size suggests a storage vessel, but the surface treatment aligns more closely to amphorae or large bowls. The classification of the second rim fragment of a large vessel from this feature is clearer (Fig. 4:24). The preserved neck-to-body interface fragment and body sherds indicate a bag-like shape, without a significant neck-to-body offset.

A fragment with a moulded plastic rib from feature 205/10 (Fig. 4:25) cannot be classified typologically unambiguously. Its sherd thickness and functional surface treatment with vertical finger impressions suggest a storage vessel. However, the classification as a storage vessel is also ambiguous in the case of a burnt rim fragment of a larger vessel from feature 207/10 (Fig. 5:2).

### 5.4 Jugs

Jugs with a low body and a high neck are among the most typical forms of the MDTC. The Zohor-Piesky site yielded a single example from feature 55/08 (Fig. 4:9). Compared to similar finds of this ceramic type, it has a significantly rounder bulge and an unusual base with an inward indentation. An analogous form with these characteristics is from feature 8S from Veselé (Bartík 1996, tab. 5:1), and an indented base also appeared on a jug from Kopčany (Pichlerová, Gabriš 1959, 794). The oldest MDTC jugs from Mistelbach (Willvonseder 1937, Taf. 3:1, 2) or Ordacsehi (Kiss 2011, tab. 4:2) have similar tectonics. Later variants typically feature engraved or plastic decoration, and the body is significantly compressed or even deformed. Despite the relatively archaic body form, this find can be dated to the later phase of the MDTC.

A handle to the rim attachment fragment from feature 125/09 (Fig. 4:16), whose width suggests that it does not come from a cup, can tentatively be assigned to jugs.

### 5.5 Bowls

Conical bowls with slightly convex walls from features 125/09, 205/10, and 207/10 (Fig. 4:13, 27; 5:3) represent a widely dated type. However, similar finds are uncommon in assemblages from the Middle Bronze Age (e.g. Benkovský-Pivovarová 1991, Taf. 21:85:1; 46:163:15), and their occurrence is primarily associated with the Blučina stage and the earlier phase of the Late Bronze Age (e.g. Bartík, Egyházy-Jurovská 1998, obr. 8:12, 9:2, 12:4).

Another type of vessel present in the assemblage are bowls with a characteristic thickened rim with an offset on the inside. This feature allows for the reliable identification of Tumulus culture bowls, even in highly fragmented material, as it is unique to this ceramic type. The only difficulty lies in distinguishing between fragments of bowls without lobes and those with them. In Zohor, they appeared in features 125/09 (Fig. 4:14, 15) and 7/78 (Kraskovská, Studeníková 1996, obr. 10:11). At the Bratislava-Mlynská dolina settlement, fragments were preserved in features 3/84, 163/87, and in the cultural layer (Bartík, Egyházy-Jurovská 1998, obr. 6:5, 7, 10, 11; 12:12, 13; 14:7), in feature 371 from Bratislava-Rusovce (Bartík 2003, obr. 15:10), in feature 115, position 3/2001, and from a surface collection in Lozorno (Bartík et al. 2013, tab. 15:5; 22:3; 24:3, 12; 37:1), as well as in features designated pit IV, 8S, 28S, 34S, and 72Z in Veselé (Bartík 1996, tab. 2:6; 5:6; 13:9; 14:9; 15:9). A bowl from the cultural layer in Gajary is also from this type (Marková, Elschek 2002, obr. 90:11). The mentioned finds and analogous shapes from the Brno-Horní Heršpice settlement (Stuchlík 1996, obr. 9:12) and from the Maisbirbaum hoard (Willvonseder 1937, Taf. 20:1) date them to the later phase of the Middle Bronze Age.

A fragment from feature 205/10 (Fig. 4:26) originates from a bowl with a widely flared rim. This type appears as early as the Maisbirbaum-Zohor stage but reaches its peak in the Late Bronze Age (Říhovský 1982, 17). A similar fragment from the nearby Lozorno settlement is dated to the Blučina stage (Bartík et al. 2013, tab. 7:5).

A base of an undetermined type of bowl with a smoothed surface from feature 125/09 (Fig. 4:19), a fragment of an offset and flared base from feature 237/10 (Fig. 5:16), or a base of a thin-walled polished vessel from feature 74/95 (Fig. 4:6) can also be categorised as bowls of an unspecified type.

### 5.6 Cups

A large and relatively diverse group consists of cups, appearing in relatively large numbers throughout the Central Danube region. In the collection of finds from Zohor, at least two types are present, which, although they appear almost identical in shape, differ in details.

The cup from feature (burial) 302/2 represents a common shape with a low-shaped body, offset neck, and strap handle (Fig. 7:5). The occurrence of this type is primarily associated with the areas of MDTC. Analogous finds with a slightly offset undecorated neck appear in settlements (e.g. Bartík 1996, tab. 4:4; 5:2; 10:4; 16:4, 9; Marková, Elschek 2002, obr. 89:8; Chvojka, Michálek 2004, tab. 7:4; Šabatová 2006, obr. 2:10, 14; König, Vrtel 2018, obr. 95:2, 4), in graves (e.g. Hrubý 1950, tab. 1:3, 6; Podborský 1964, obr. 14:2; Plachá, Furmánek 1975, obr. 8:3; 9:3; Pichlerová 1976, obr. 7:3, 5; 9:2; 10:7, 8), and hoards (Hrubý 1950, tab. 10:7; 22:4, 5; 27:4; Lauermann, Hahnel 1998–1999, Taf. 1:1–6; Palátová, Salaš 2002, tab. 4:6; 23:5; Lindinger 2003, Taf. 1:4, 6–8; Fojtík, Parma 2018, obr. 5.11). Their occurrence is associated with the middle and later phases of the Middle Bronze Age. They are gradually replaced by a type with an edged bulge.

The second type present in the assemblage are cups with a sharply edged bulge and a curved neck, primarily occurring in the later phases of the Middle and the earlier stages of the Late Bronze Age. Older variants typically exhibit a broader body and, less frequently, engraved decoration. In the case of the find from feature 207/10 (Fig. 5:4), this offset is only indicated and indistinct, and the width-to-height ratio could not be determined. The diagnostic element, therefore, remains the presence of engraved decoration on the lower portion of the vessel. This consisted of straight vertical lines, originally extending from the bulge to the base. Similar decoration is rare and is usually supplemented by additional engraved ornament. It appears on cups of the Maisbirbaum-Zohor stage (Willvonseder 1937, Taf. 22:1; Podborský 1960, obr. 219:4; 1964, obr. 13:2; Lauermaun 1990, Taf. 3:4; Stuchlík 1990, obr. 2:4; 2006, obr. 52:9; 86:12; Doneus 1991, Abb. 9; Bartík, Egyházy-Jurovská 1998, obr. 5:2; Lauermaun, Hahnel 1998–1999, Taf. 1:12; Lindinger 2003, Taf. 1:1), but also on other vessel types from this chronological stage (e.g. Doneus 1991, Abb. 1:4; Willvonseder 1937, Taf. 10:6). Equally sporadic is analogous decoration consisting of narrow engravings, occurring within the same period (e.g. Pichlerová 1963, obr. 2:16; Maurer, Vasicek 1972, Abb. 72; Melzer 1981, Abb. 290; Bartík 1991, obr. 3:2; 4:6; Russ 2004, Abb. 33; Šabatová 2006, obr. 2:17, 23; Trebsche 2017, Abb. 4).

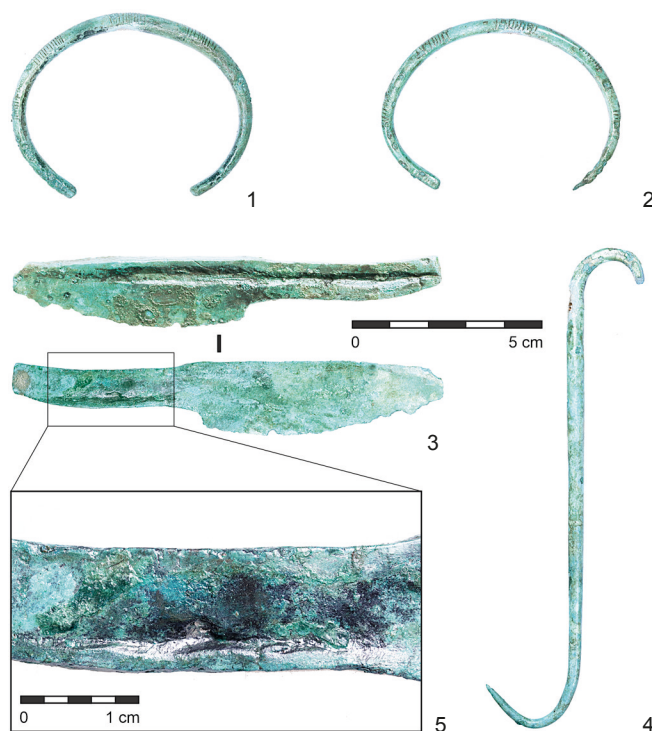
A neck fragment from a thin-walled vessel, found in feature 207/10 (Fig. 5:1) likely also among these cups of an indeterminate typology.

## 6. Bronze artefacts

No metal artefacts were recovered from the settlement features, which is consistent with findings at other MDTC settlements. A metal detector survey during the 1995, 2008–2010 excavations documented a few artefacts from this period (Bobek, Elschek 2020, 39–40, obr. 2:3, 5, 6; tab. I:8, 11, 12). The assemblage from the grave comprising personal jewellery and working tools, represents an unusual collection for the Tumulus culture. Archaeometric analysis did not reveal significant deviations in terms of the metal's chemical composition, and from this perspective, the finds correspond to standard Bronze Age artefacts.

### 6.1 Bracelets

The pair of decorated rod bracelets (Fig. 7:1, 2; 8:1, 2) represents a relatively standard find within Tumulus cultures. Both specimens are crafted from rods with an oval cross-section rod, displaying a tendency towards a lenticular shape due to deformation. Bracelets made from round rods, decorated with bundles of transverse engravings, primarily appear in assemblages from the middle and later stages of the Tumulus culture. Their occurrence continues into the Late Bronze Age (Furmánek 1973, 121; Salaš 2005, 90). This type of bracelet does not represent a chronologically diagnostic form. Contemporaneously, from the BB2(C1) phase onwards, a variant made from a lenticular cross-section rod emerges, and its occurrence terminates alongside the former (Furmánek 1973, 121–122). Bracelets with an ambiguous cross-section, similar to those from feature (burial) 302/2 from Zohor, appeared in trench L in mound 12 and in grave 35/72 from Smolenice (Dušek 1980, obr. 3:17; tab. V:8, 11). In the latter, another bracelet with a triangular cross-section and a knife from the later phase of the Middle Bronze Age (type Egelsheim/Smolenice; Chebenová 2012, 11; Veliačik 2012, 292) were in the inventory. Apart from rare exceptions and surface finds, they are typically discovered in skeletal graves as matched pairs. At the Smolenice burial ground, they are prevalent in the later phase of the Middle Bronze Age. Apart from the disturbed grave 115/72



**Fig. 8.** A collection of bronze artefacts recovered from grave 302/2. Photo by D. Oravkinová.

**Obr. 8.** Kolečce bronzových artefaktů získaných z hrobu 302/2. Foto D. Oravkinová.

and surface finds, they are associated with male attributes in the form of knives, daggers, and arrowheads (Dušek 1980, tab. I:6, V:6, VIII:24, 27, 28, XII:27).

### 6.2 Knife

The knife from feature (burial) 302/2 (Fig. 7:3; 8:3) cannot be directly classified into any known type. In addition to the relatively short blade, the distinct engraving extending from the blade to the handle is also an atypical feature. The possibility that this knife represents a variant of the Brunn type cannot be definitively excluded. However, the find does not satisfy the established classification criteria for this type. For the earliest types of knives, one of the main characteristics is a more or less curved back of the blade, which is absent on the mentioned find (Jiráň 2002, 15–18, Taf. 1; Říhovský 1972, 10–12, Taf. 1; Veliačik 2012, 287). This tool was most likely created by re-forging a sickle or more likely its fragment of a tip. In such a case, part of the sickle blade was forged into a robust rod-like handle with sort of rectangular cross-section, which would also correspond to the traces of forging (Fig. 8:5). Sickles with a single engraving and a similar cross-section as the mentioned find appear precisely in the Middle Bronze Age (e.g. Furmánek 1973, obr. 34:2, 4, 6, 8; 46:12; 51:9; Furmánek, Novotná 2006, 17, 18, Taf. 1:10, 11). A knife, also likely created by modifying a sickle blade, was discovered in grave 3 from mound 1 from Pörrndorf in Lower Bavaria. Apart from the blade shape, it also differs from standard knives by its unilateral profile (Hochstetter 1980, 68, 149, Taf. 80:19). A similarly modified tool is known from mound 2, grave 1 from Schweindorf in Lower Saxony (Ludwig-Lukanow 1983, 46, Taf. 8:A3). In this case, the sickle modification at the handle was only partially completed. Repairs and modifications of damaged sickles have also been documented in hoards (Salaš 2005, 55).

### 6.3 Hook

The bronze hook (Fig. 7:4; 8:4) lacks published analogies from the Bronze Age in Central Europe. While it resembles a fishing hook, it attains relatively large dimensions. Apart from its size, it also differs from known Bronze Age hook finds in shape. The closest analogies are random finds from the River Scheldt in Belgium, housed in the STAM museum in Ghent. Several objects from the museum's collection, dated to the Iron Age, have an almost identical shape and reach slightly smaller dimensions (STAM). A similarly shaped hook of smaller dimensions, interpreted as part of a belt, was found in mound 2 in Gruorn-Reisach (Pirling et al. 1980, 60, Taf. 21:E). Formally or in size similar pieces also sporadically appeared at other Bronze Age sites (e.g. Preidel 1928, 197; Schöbel 1996, Taf. 25:21; 42:34; 72:18, 24; Plachá, Paulík 2000, tab. VI:9; Blažek et al. 2003, vitrína X:27–29; Kytlicová 2007, Taf. 121:32; Szabó 2016; 2019, 147–155; Parma, Fojtík 2023, obr. 73).

Within the Tumulus culture context, graves containing fishing hooks are very rare. In Slovakia, a smaller hook was found in grave 60 in Salka (Točík 1964, Abb. 9:38), and two more are reported from grave 3 from Martovce (Točík 1976, 98). From the Pörrndorf barrow burial ground in Lower Saxony, an S-shaped hook comes from grave 1 from mound 4 (Hochstetter 1980, Taf. 86:5). Their occurrence at settlements is sporadic; a typical hook find is from Uherský Brod (Hrubý 1950, tab. 62:18; 1958, obr. 9:21; Furmánek 1973, obr. 46:9). Individual pieces have also appeared in hoards from Kamenín (Janšák 1938, tab. 6:10) and Hradisko (Salaš 2005, tab. 6:27; Parma, Fojtík 2023, obr. 73).

Due to its dimensions, the hook must have been used for catching or processing large fish (see also Szabó 2016, 182; 2019, 154–155). The site is approximately 2.7 km from the present course of the River Morava and about 13.3 km from its confluence with the Danube. Considering the location of the settlement directly on an elevated terrace above the floodplain, it can be assumed that the River Morava and its side branches were even closer in the Bronze Age, likely within hundreds of meters. Moreover, the site was bordered by at least two other minor watercourses. Direct osteological finds are unavailable from the Zohor settlement, so there is no direct evidence of fishing. However, indications that large fish species were caught during the Bronze Age are provided by sporadic finds from the fortified settlement of the Maďarovce culture in Šurany-Nitriansky hrádok (Hajnalová 2012, 53), the example of a find from Dvorníky-Posádka, where a worked catfish bone was found (*Silurus* sp.; Bartík, Šefčáková 1999, 205, Abb. 5:a), or bones of large fish species from a well in Gánovce (Ambros 1959, 54).

Chronologically, they are practically insignificant, and various modifications of the typical shape and dimensions appear throughout the Bronze Age (Salaš 2005, 56). Differences, but without chronological or typological significance, are only in the processing of the tip (presence or absence of a barb), cross-section, and shaping of the upper end or catcher (straight, straight with a hole, slightly twisted, coiled into an eyelet). However, it appears that different types occurred simultaneously.

## 7. Discussion

### 7.1 Settlement

The MDTC settlement, investigated at the Piesky site in Zohor, belongs to typical lowland unfortified sites with a broad areal extent. Analogous situations in other regions indicate a consistent pattern, characterised by the dispersal of settlement over large areas (Čujanová-Jílková 1973, 523; Parma 2015, 250–253). A notable exception remains the settlement of the Hradisko-Podzámske site in Veselý, where features were concentrated within a fortification from the Early Bronze Age (Bartík 1996).

The investigated features are standard settlement pits, generally of undetermined function. The most common forms are features with a more or less regular round or oval shape (features 125/09 and 205/10; Fig. 3:2, 3), with individual examples exhibiting a regular shape with a stepped profile (feature 235/10; Fig. 3:5) and an irregular shape (feature 237/10; Fig. 3:6). Feature 74/95 was damaged by quarrying and was only recorded as a basal remnant. The exceptions are settlement features 55/08 and 207/10, which, based on their shape and depth, can be considered typical Middle Bronze Age storage pits (Fig. 3:1, 4).

The finds from the Zohor settlement generally represent a relatively standard assemblage of settlement ceramics from the later phase of MDTC development. Amphorae and pots are predominantly represented, while table ceramics (cups and jugs) have a comparatively low representation. Find assemblages from the features reached a high degree of fragmentation. The lowest degree was observed in feature 207/10 (55%).

Chronologically, the earliest find assemblage originates from feature 207/10 (Fig. 5:1–11), with vessel shapes and decorative elements of the Maisbirbaum-Zohor stage. Finds from feature 55/08, including a jug with an archaic body shape (Fig. 4:9) no longer present in the latest MDTC assemblages, can also be assigned to this stage. Finds from other features mostly represent later dated forms or those with extended lifespans.

Of particular interest is the occurrence of paired vessel types (amphorae and pots) in feature 207/10 (Fig. 5:8–11), positioned in the central portion of the feature fill. At first glance, it resembles a ceramic hoard. However, its composition would be relatively atypical, as vessels associated with a drinking service were absent. The relationship between the sherd material and the complete vessel finds remains unclear from the find context description. Given the find composition, a food offering is plausible (Palátová, Salaš 2002, 104–107), which would be further supported by the placement of vessels within a storage pit. A paired structure of find composition with vessels of different types but similar function was observed in the pit content from Hostouň. Several of these vessels also showed traces of burning (Bláhová-Sklenářová 2018). These differed from the content of feature 207/10 primarily in the greater diversity of species represented. In the material from this feature, burning was evident on a single sherd, and a heavily burned layer was located at the bottom and partially along the lower feature walls. Despite these differences, a similar interpretation cannot be dismissed, namely that this assemblage is related to unspecified rituals (Bláhová-Sklenářová 2018, 636–641).

### 7.2 Potential burial ground

Feature (burial) 302/2 is an example of a less typical flat sunken grave within the MDTC (e.g. Kalousek 1959; Nekvasil 1959; Godiš, Haruštiak 2020). In all documented cases, the remains were placed in a rectangular plan pit with rounded corners, reaching a shallow depth. The possibility of a mound having originally been heaped over them cannot be discounted (similarly Stuchlík 2006, 154). At the Šamorín-Šamot site, some graves were closely spaced (Godiš, Haruštiak 2020, 53), which also does not exclude a possible mound.

The orientation of the grave pit and the presumed position of the buried in the NE-SW direction deviates from the conventional practice. It has been recorded in graves 16/72, 80/72, and 81/72 at the Smolenice burial ground (Dušek 1980, 346, 348, 349, tab. IV:4–6; VIII:21–28). In all cases, these were skeletal graves whose inventory did not significantly differ from other burials. However, it is noteworthy that, apart from grave 81/72, which was without finds, the remaining two contained artefacts

associated with males (dagger, arrowheads). Further support for this observation comes from the discovery of an adult male skeleton exhibiting a corresponding orientation within the double burial 800/2 from Mikulov (Šabatová et al. 2020, 199–205, 226).

In the case of feature 303/3 at the Piesky site, a formal similarity and identical orientation are striking. Based on these characteristics, despite the absence of any finds, it can be inferred that it was also a grave.

The dating of feature (burial) 302/2 cannot be reliably established based on the bronze artefacts, as these are either forms with extended lifespans or atypical objects. From the ceramic inventory, the amphora stands out as the most distinctive form. The occurrence of this vessel type in several ceramic hoards quite unambiguously dates it to the Maisbirbaum-Zohor stage. This is also consistent with the find of a cup featuring an offset neck. The grave, therefore, most likely correlates with the earlier phase of settlement, represented by feature 207/10.

### 7.3 Relationship between settlement area and burial ground

The large scale of the investigated area at the Piesky site in Zohor allowed for the documentation of the relationship between a settlement and a potential burial ground. Feature (grave) 302/2 was located 320 meters from the nearest MDTC settlement feature (Fig. 9). Furthermore, the first discovered MDTC grave from the Piesky site is considered to be feature 2 (cremation grave 1/72) excavated in 1972. Within a disturbed pit of irregular oval shape, a basin-shaped profile, and a depth of 76 cm, a deep footed bowl and a cup sherd were found. Skeletal remains were not found in the fill (Studeníková 1978, 18, obr. 4, 5, 15:1). According to the description, the find spot was situated south of the area investigated in 1995 (Fig. 1:1; 9). However, considering the feature's shape and dimensions, its interpretation as a grave is questionable. The feature's location is not precisely marked, but given the position of the quarry pit, it was 300–400 meters from the clearly identified feature (grave) 302/2.

The situation observed in Zohor, where the MDTC burial ground was immediately adjacent to the settlement, is not the first of its kind in Slovakia. During the excavation of mound VI from Hallstatt period in Dunajská Lužná-Nové Košariská, Middle Bronze Age graves were discovered beneath its covering. Northwest of them, at approximately 500 m, disturbed features were found, containing material comparable to MDTC ceramics (Pichlerová 1976, 25–26). Since these were fragments of utilitarian ceramics, alternative dating cannot be excluded in this instance.

The majority of currently known MDTC settlements in Slovakia have been investigated in recent decades (Bartík 1991; 2003; 2006; 2011; Bartík, Egyházy-Jurovská 1998; Bartík et al. 2013; Bobek et al. 2024, 35–36). Their number is currently about double that of known burial grounds. Settlements associated with the investigated barrow burial grounds in Buková, Bratislava-Devín, and Smolenice remain unknown. The nearest settlement sites are several kilometres away.

Sporadic evidence of the spatial relationship between residential and burial areas has also been documented in Moravia. In Olomouc-Slavonín, the plans of two above-ground structures were recorded in the immediate vicinity of contemporary graves, only 37 m away (Šmíd 1998). A disturbed grave and an MDTC settlement in Těšetice located approximately 1 km apart (Podborský 1960; 1964). In Jiřkovice, a skeletal grave and settlement features were investigated, but the situation has not been published in detail (Hrubý 1950, tab. 16–20; Kalousek 1973–1974, 163–164). The most recent recorded case is the Mikulov site,



**Fig. 9.** Schematic depiction of the spatial arrangement of the settlement and presumed burial area. The location of feature 2 (cremation grave 1/72) is only approximate. Source of the ALS product RPI ALS. Author P. Bobek, K. Elschek.

**Obr. 9.** Schematické znázornění prostorového uspořádání sídlištního a předpokládaného pohřebištního areálu. Lokalizace objektu 2 (žárový hrob 1/72) je přibližná. Zdroj LLS produktu RPI ALS. Autor P. Bobek, K. Elschek.

where double burial 800 was 300 m from an MDTC settlement feature (Jüttner 1928; Šabatová et al. 2020, 223). Like in Slovakia, contemporary settlements are not known for large barrow burial grounds in Moravia, although their presence nearby is presumed (e.g. Stuchlík 2006, 158, obr. 16).

The same situation currently prevails for the Tumulus culture in the Czech Republic (e.g. Čujanová-Jílková 1973, 524; Jiráň ed. 2008, 91). However, here too, instances occur where both areas are close (see Michálek 1999, 121; Fröhlich et al. 2008, 122, obr. 1) or their proximity is predicted (Kuna 2008, 122).

Based on the aforementioned examples, it is possible to hypothesise that settlements and burial grounds in the MDTC, even the Tumulus cultures in Central Europe, were in close proximity (see also Hochstetter 1980, 30). The current situation, where the burial grounds belonging to known settlements are mostly unknown, would thus reflect the state of research rather than the historical reality. A certain contribution to this situation undoubtedly stems from the focus of the many researches on Tumulus burial grounds exclusively on identified tumuli or the area demarcated by the tumulus cemetery (e.g. Dušek 1980, 341; Stuchlík 2006, 13–15; Bobek 2018, 75).

## 8. Conclusion

The investigated MDTC settlement in Zohor represents a typical settlement type of this culture. It is characterised by a broad territorial extent and a limited number of features. Considering the size of the settled area and the dispersion of features, it can be assumed that the excavations at the Piesky site documented settlement areas from two phases within stage C, according to K. Willvonseder (1937, 262–271). The earlier phase can be associated with the Maisbirbaum-Zohor stage, to which feature 207/10 and likely also feature 55/08 belong, due to their archaic ceramic character. Feature (burial) 302/2 can also be assigned to this phase of settlement. The later phase, without influences from the Urnfield cultures, is represented by the remaining features. However, their spatial delineation within the examined areas is not possible due to the low number of features and their mutual overlap. Regarding the internal structure, the settlement does not exhibit any significant features that would permit its reconstruction. Apart from the atypical contents of feature 207/10, none of the examined pits yielded finds that would allow further conclusions.

Regarding the numerous postholes at the site, its polycultural character and the even dispersion of features from various chronological periods cause a significant complication. Nearly all postholes were devoid of archaeological finds, rendering any dating of potential structures merely hypothetical. Like other sites investigated through extensive area excavation (e.g. Bartík 2003; 2006; Bartík et al. 2013; Parma, Šmíd 2013, 94–196), a correlation is evident between the documented duration of settlement within the relative chronology and the areal extent of the excavation. The results of earlier researches indicate that the central part of the elevation was also originally settled.

Dating sites solely based on ceramic finds is complicated by the prolonged survival of some forms. In the case of Middle Bronze Age ceramics, a large number of types and local variants also emerge. Their classification is often problematic and possible only on the basis of more distinct formal features. However, it is probable that with an increasing number of finds, it will become possible to refine the dating of other vessel types. The chronological classification of finds primarily to the later section of the MDTC, aligns with the nearest settlements in Bratislava-Devínska Nová Ves (Elschek, Bárta 1998), Bratislava-Mlynská dolina (Bartík, Egyházy-Jurovská 1998), Bratislava-Rusovce (Bartík 2003; 2006), and Lozorno (Bartík et al. 2013). Significantly, the site's geographical context includes the discovery of ceramic hoards from Zohor (Eisner 1940; Bartík, Hajnalová 2004, 12, obr. 6–9) and Lozorno (Bartík, Hajnalová 2004, 9–11, obr. 3–5) within the same region (Fig. 10).

Like other sites, in the case of the Zohor-Piesky site, it is possible to assume that there was a certain continuity of settlement from the Early to the Late Bronze Age. Unlike the settlement area, which occupied a larger part of the examined terrain, the burial area's shift at the onset of the Late Bronze Age is evident. Based on the situation at the Piesky site in Zohor, as well as the limited analogous situations from Bohemia and Moravia, it can be hypothesised for the Tumulus culture in Central Europe that burial grounds were in close proximity to settlements.

The investigated MDTC feature (burial) 302/2 aligns with the group of skeletal graves with an atypical orientation, known from the Smolenice (Dušek 1980, 346, 348–349) and Mikulov (Šabatová et al. 2020) burial ground. In addition to this, they are linked by either the paired wearing of thin rod bracelets or accompanying finds traditionally attributed with male attributes. Chronologically, feature (burial) 302/2 can be directly related to the contemporary settlement at the site.



**Fig. 10.** Contemporaneous MDTC localities in the vicinity of the Zohor-Piesky site. 1 – Zohor, Piesky site; 2 – Zohor, Podbrežské džíle site (the location is only approximate); 3 – Lozorno, Široké diely site; 4 – Bratislava-Devínska Nová Ves, Dlhý kopec-Útočnica site (after Eisner 1940; Elschek, Bárta 1998; Bartík et al. 2013). Base map RPI OSM. Author P. Bobek.

**Obr. 10.** Náleziská stredodunajské mohylové kultúry v okolí lokality Zohor-Piesky. 1 – Zohor, poloha Piesky; 2 – Zohor, poloha Podbrežské díly (lokalizácia je približná); 3 – Lozorno, poloha Široké díly; 4 – Bratislava-Devínska Nová Ves, poloha Dlhý kopec – Útočnica (podľa Eisner 1940; Elschek, Bárta 1998; Bartík et al. 2013). Podkladová mapa RPI OSM. Autor P. Bobek.

Despite intensive excavations, the Zohor-Piesky site continues to yield new discoveries and information regarding Bronze Age settlement. Excavations of settlement features at the base of the elevation (Matyasowszky et al. 2022) or the discovery of a grave (or graves?) from 2022 indicate that the site had a significantly broader extent than initially estimated, and further discoveries are anticipated in the future.

## CRedit authorship contribution statement

Pavol Bobek: Writing – review & editing, Writing – original draft, Visualization, Investigation, Conceptualization.

Kristian Elschek: Visualization, Investigation.

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# Note

- 1 The publication states a depth of 176 cm, which does not correspond to the aspect ratio of the feature (Studeníková 1978, 18, obr. 5).

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## Resumé

Polykulturní lokalita Piesky v katastrálním území obce Zohor patří k nejdéle zkoumaným archeologickým nalezištím na Slovensku. Během výzkumů byly, mimo jiné, odkryty také objekty ze střední doby bronzové. Příspěvek se zaměřuje na nálezy celky středodunajské mohylové kultury, které neobsahovaly nálezy s prvky kultury popelnicových polí. Sídliště patří ke standardnímu typu tohoto období, vyznačujícím se malým počtem objektů na rozsáhlé ploše (obr. 2: 1–3; Čujanová-Jílková 1973, 523; Parma 2015, 250–253). Z hlediska tvaru a funkce zkoumaných

objektů šlo většinou o jámy neurčité funkce (obr. 3: 2, 3, 5, 6). Výjimkou jsou objekty 55/08 a 207/10 (obr. 3: 1, 4), které lze zařadit mezi zásobní jámy. Ve výplni analyzovaných objektů se vyskytovala výhradně keramika. Početnější soubory byly v objektech 205/10 a 207/10. Zatímco v případě objektu 205/10 šlo převážně o fragmenty užitkové keramiky (obr. 4: 20–29), ve výplni objektu 207/10 byly zjištěny čtyři téměř celé nádoby (obr. 5: 8–11). Jejich společné uložení připomíná keramický depot, avšak na základě druhového zastoupení je lze interpretovat spíše jako potravinovou oběť nebo součást blíže nespecifikovaného rituálu (srov. Bláhová-Sklenářová 2018, 636–641). Nálezy z ostatních jam představovaly většinou tvary s delším přežíváním. Na základě datování nálezů byla tato poloha osídlena ve dvou fázích v rámci stupně BC.

V roce 2022 byly na nedalekých plochách prozkoumány další objekty (obr. 1: 6; 2: 3). V jednom případě byl zjištěn hrob (obr. 6), v jehož blízkosti se nacházel objekt podobného charakteru bez nálezů. V hrobu se vedle keramiky středodunajské mohylové kultury objevila netradiční kolekce předmětů. Kromě dvou náramků obsahoval také nůž a rozměrný bronzový hák (obr. 6: 4; 7: 4). Na základě analogických předmětů z jiných lokalit šlo pravděpodobně o hák na lov nebo zpracování ryb. Tuto interpretaci podporuje i blízkost řeky Moravy a jejích četných zaniklých ramen. Nůž nepatří k žádnému známému typu a podle stop na povrchu vznikl pravděpodobně překováním srpu (obr. 7: 3; 8: 3, 5). Typická amfora (obr. 7: 7), známá zejména z depotů (Bartík, Hajnalová 2004, obr. 8: 1–3; Eisner 1940, Abb. 1: 9; 2: 1, 2; Doneus 1991, Abb. 4: 1; Lindinger 1998–1999, Abb. 4: 3, 4, 6, 12, 15, 16, 18, 23, 24, 32, 40–44, 49–51; Neugebauer et al. 1998–1999, Abb. 26: 4, 10–13; Palátová, Salaš 2002, tab. 3: 5; 5: 5, 6; 9: 6; Willvonseder 1937, Taf. 16: 3), datuje tento hrob do stupně Maisbirbaum-Zohor.

Lokalita představuje ojedinělý případ jednoznačně prokazaného současného sídliště a pohřebiště. Na základě několika analogických situací v okolních regionech (Fröhlich et al. 2008, 122, obr. 1; Michálek 1999, 121; Podborský 1960; 1964; Šabatová et al. 2020, 223; Šmíd 1998) lze vyslovit hypotézu, že sídliště a pohřebiště byla ve střední době bronzové situována v těsné blízkosti.

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