

G E S T A

A Miskolci Egyetem Történettudományi Intézetének folyóirata

2018. XVII/2. szám

Proceedings of the

Settlement layouts, systems and structure of the Otomani-Füzesabony Cultural Complex
International Archaeological Conference, 7-9 June 2018, University of Miskolc

Edited by

Klára P. Fischl

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PROBLEMS OF THE LATE HATVAN PERIOD AT THE SOUTHERN FOOTHILLS OF THE BÜKK MOUNTAINS. A CASE STUDY OF BOGÁCS-PAZSAGPUSZTA AND NOVAJ-FÖLDVÁR

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Kivonat *A cikkben két középső bronzkori tell település szerkezetét és leletanyagát vizsgálom, melyek Északkelet-Magyarországon, a Bükk-hegység déli lábánál találhatóak. Célom elsősorban a késő hatvani (középső bronzkor 3) leletanyag bemutatása és értékelése a Bogács-pázsagpusztai leleteken keresztül. Előbb a Hatvan-kultúra középső bronzkori tovább élésének kutatástörténetét foglalom össze, ezután pedig bemutatom Bogács-Pázsagpuszta és Novaj-Földvár lelőhelyét szerkezetük és kerámiastílusuk által.*

Kulcsszavak *Kárpát-medence, Északkelet-Magyarország, középső bronzkor, Hatvan-kultúra, Füzesabony-kultúra, tell település*

Keywords *Carpathian Basin, North-eastern Hungary, Middle Bronze Age, Hatvan Culture, Füzesabony Culture, tell settlement*

Introduction

The sites are located at the Southern foothills of the Bükk mountains in North-eastern Hungary (Fig. 1). The area's settlement system is well known owing to the BORBAS project (Kienlin et al. 2018: Fig. 1-2).

The characteristic of the settlements in this region is that there is an intensive, central, multi-layered part, which has a circular enclosure. However, the settlements has a horizontal settlement section at the outer side of the ditch (Kienlin et al. 2018).

The interested area's geographic structure is characterized by stream valleys, which streams comes from the Bükk mountains and goes to the Tisza river. Both settlements are on the same microregion, which name is Egri-Bükkalja. In addition, there are one more known Middle Bronze Age settlement in this microregion: Tard-Tatárdomb (Fig. 1 no. 5) a settlement of the Hatvan and Füzesabony Culture (Fischl et al. 2014).

The investigated zone is the part of the Hatvan Culture's distribution territory in the third period of the Early Bronze Age. During the Middle Bronze Age, there is the Eastern „boundary” of the Hatvan/Late Hatvan ceramic style and the Southwestern „border” of the Füzesabony Culture's territory. Füzesabony-Öregdomb (Fig. 1 no. 1) is the westernmost settlement of the

Füzesabony Culture and it was inhabited until the beginning of the Middle Bronze Age's third phase (Szathmári 2011, 492).

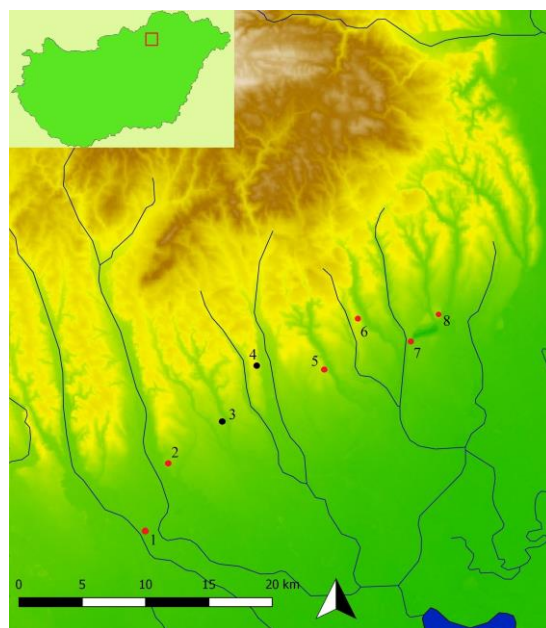


Figure 1. Middle Bronze Age settlements at the Southern foothills of the Bükk mountains: 1. Füzesabony-Öregdomb, 2. Maklár-Baglyashalom, 3. Novaj-Földvár, 4. Bogács-Pázsagpuszta, 5. Tard-Tatárdomb, 6. Tibolddaróc-Bércút, 7. Bükkábrány-Kálvária, 8. Vatta-Testhalom

Research history of the Hatvan Culture's continuity into the second part of the Middle Bronze Age

However, the Hatvan Culture is one of the oldest known prehistoric culture in the Carpathian Basin, the case of the research is corresponds with the twentieth century's state. Therefore, there is many unclear subject about the culture. Although, the aim of this study is to investigate the late Hatvan period, hence I summarized the research history of this theme.

Important to mention, that Nándor Kalicz thought, the Hatvan Culture's life ends at latest in the first period of the Middle Bronze Age (Kalicz 1968: 110–114; Kalicz 1984: 201–205).

István Bóna mentioned in 1975, that the Hatvan Culture preserved its own identity at the Körös river's firth area until the end of the Middle Bronze Age (Bóna 1975: 168–170). Moreover, he noted that the ceramic style of Jászdózsa-Kápolnahalom and Tószeg-Laposhalom were determined by Hatvan elements, rather than Füzesabony components in the Koszider period (Bóna 1975: 169).

The researchers—especially Judit Tárnoki and Ilona Stanczik—started to investigate the Hatvan Culture's survival into the second part of the Middle Bronze Age in the 1980s.

In 1982, Ilona Stanczik and Marietta Csányi notes, that Tószeg-Laposhalom was not the part of the Füzesabony Culutre's territory (Csányi & Stanczik 1982: 253).

Then, Ilona Stanczik noticed that Jászdózsa-Kápolnahalom was not occupied by the Füzesabony Culture, but the upper layers of the settlement are corresponds with the Füzesabony period (Stanczik 1988: 73–74) in time. Moreover, she thought that after the destruction of the typical Hatvan layers by fire, at least partly the previous population could moved back to the settlement (Stanczik 1988: 71, 73–74).

Tibor Kovács published a study about the Bronze Age of the Ipoly-Zagyva region, in 1989 (Kovács 1989). He noted that, when the Füzesabony Culture appeared, the Hatvan Culture was forced back in the Western part of their initial territory, which is at North: the county of the Nyitra, Zsitva, Garam and Ipoly rivers and the Kassa basin, at Southwest: the line of Szolnok and Kunszentmárton, at East: the line of the Hortobágy and the Berettyó river and at Southeast: the lower part of the Körös river's right bank (Kovács 1989:

4). In another study, Kovács noted that the material of Dunakeszi-Kopolya contains late Hatvan bowls with four or five handle; moreover, the ceramic style of the site is greatly similar tot he materials of Bag and Tószeg (Kovács 1989a: 63–65).

István Bóna noticed that the Hatvan ceramic style revived in the second part of the Middle Bronze Age (Bóna 1992: 36).

Judit Tárnoki studied this theme by Törökszentmiklós-Terehalom and Buják-Tarisznyapart. In her dissertation, she made a quartered chronology to the Hatvan Culture, which starts in the third part of the Early Bronze Age and ends in the third period of the Middle Bronze Age (Tárnoki 1996: 92–96). Accordingly, she dated the multi-layered Middle Bronze Age settlement of Törökszentmiklós from the first phase until the third period (Early Bronze Age 1 – Middle Bronze Age 2), while she dated the horizontal settlement of Buják to the fourth phase, which is corresponds with the Koszider period (Tárnoki 1996: 92–93). Furthermore, she outlined the Hatvan Culture's territory in the second part of the Middle Bronze Age. This zone was described in the Gödöllő-Piliny-Vác area (Tárnoki 1986: 139–143). Moreover, she thought that the Galga valley was a „buffer zone” between the Füzesabony and Vátya Cultures in the second part of the Midlle Bronze Age (Tárnoki 1988: 144).

According to Klára P. Fischl, we will able to separate territorial groups in the Hatvan Culture's Koszider period, such as in the Vátya Culture (Fischl 1997: 20). Furthermore, she noted that Szelevény-Menyasszonypart was the settlement of the Hatvan Culture and it was occupied until the third period of the Middle Bronze Age (Fischl 1997: 21).

Lately, Szilvia Guba published a study about the settlements of Zagyvapálfalva-Homokbánya and Pásztó-Csontfalva. From the former mentioned site, she noted a significant Füzesabony influence in the ceramic style, but those could be Hatvan products, from the second part of the Middle Bronze Age. Furthermore, she thinks Pásztó was occupied by the Hatvan Culture and she dated this settlement to the Koszider period (Guba 2009: 137).

In 2010, there was an excavation at the site of Vatta, Telek-oldal-dűlő, which is a Middle Bronze Age biritual cemetery of the Füzesabony Culture. Vatta has a similar location like Bogács and these are very close to each other. That's why interesting that the excavator observed Hatvan influence on a

few graves' vessels (Somogyi 2010: 396).

Recently, Sziliva Guba summarized the state of the Hatvan Culture's research in Nógrád county (Guba 2016) and the ISzAP project (Ipoly-Szécsény Archaeological Project) found more Hatvan site, in the Szécsény basin (Fábián et al. 2016) and hopefully they can increase our knowledge about the Hatvan Culture.

Bogács-Pázsagpuszta

The Bronze Age settlement of Bogács-Pázsagpuszta is located in the Eastern part of plateau with North-South orientation (Fig. 1, no. 4). The multi-layered settlement is protected by the Eastern slope of the terrace and the valleys around the plateau. The site is around 3 km away in beeline to South from the modern town of Bogács.

The size of the settlement is around 4 ha. Thereout is surrounded by double circular enclosures ca. 0,15 ha and there is an outside part of the settlement, which could be ca 0.25 ha. Nándor Kalicz mentioned on his monography and he noted that it was occupied by the Hatvan Culture (Kalicz 1968: 119), and he published a few finds (Kalicz 1968: LXXIII/4, 7; CXVI/13, 16).

Former research

There was an excavation under the direction of Judit Koós (Herman Ottó Museum) and Ildikó Szathmári (National Museum of Hungary) in 1988 and 1989. There were excavated 280 m² at the central part of the settlement (see below the report about the excavation).

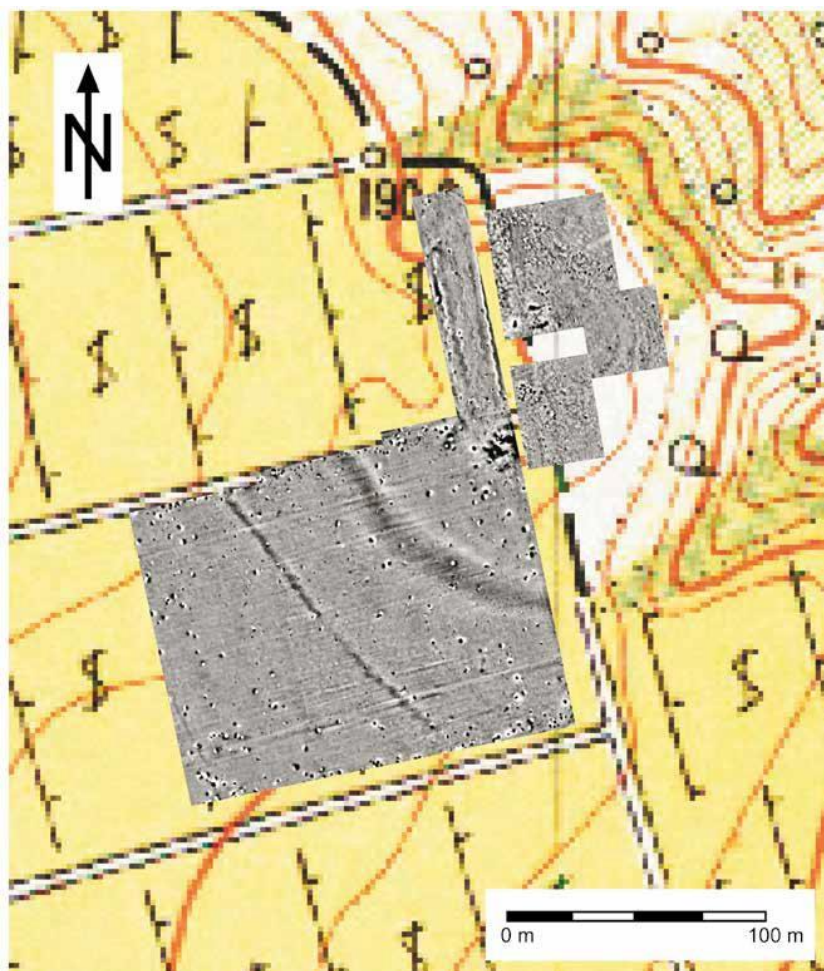


Figure 2. Magnetometry of Bogács-Pázsagpuszta after Kienlin et al. 2018, Fig. III-11

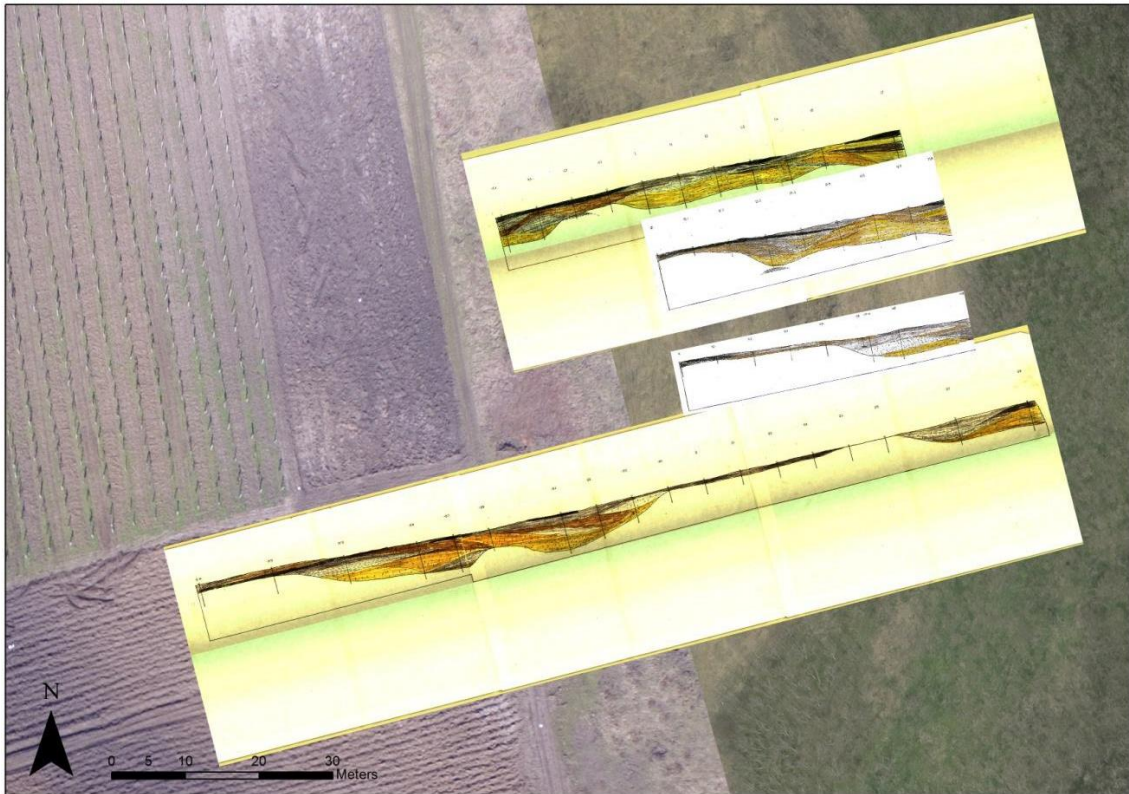


Figure 4. The reconstructed stratigraphy of Bogács-Pázsagpuszta by the geological drillings after Gulyás (2016, Abb. 8), made by Klára P. Fischl

In 2015 and 2016, there was geophysical surveys on ca. 2.4 ha by the BORBAS project. On the result, a part of the outer enclosure is viewable (Fig. 2), which is ca. 10-15 m wide. Moreover, there is observable a short part of the inner ditch. The interpretation of the other anomalies are ambiguous, because of the bad preservation and this place is used as a vineyard.

In 2016, there was taken aerial photography by the Herman Otto Museum of Miskolc (Kienlin et al. 2018: Fig. II-10) and from this a 3D modell from the site was made too (Fig. 3).

Furthermore, there was a systematic field survey on ca. 0,71 ha. During this there was collected around 18,656 ceramic sherds (Kienlin et al. 2018: 155). From the result of the field survey it is clear, that there was a settlement part at the outer side of the circular enclosures. At the same time, there was a metal detecting on ca. 1,1 ha (Kienlin et al. 2018: 155) and there was found a few bronze finds (see below).

In the same year, there was geological drillings by the help of Endre Dobos (University of Miskolc, Institute of Geography and

Geoinformatics). The aim was to prove the correctness of the drillings which was done in 1988 by András Varga (Móra Ferenc Museum).

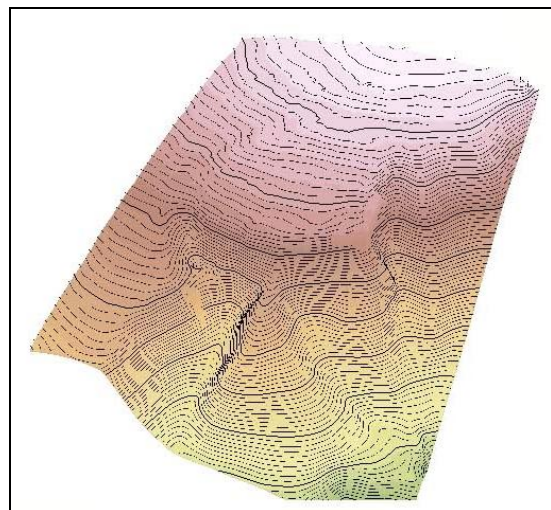


Figure 3. Bogács-Pázsagpuszta's 3D modell, made by Tamás Pusztai

Accordingly, in the center of the settlement, there is a homogeneous subsoil without anthropogenic impact under the humus layer (-80 cm). Around this zone, there is a ca. 4 m thick stratigraphic layers (Fig. 4). There are two possible interpretations. The first, that the central part was surrounded by a circular enclosure and the plateau is sloping to West–East. Therefore, the anthropogenic layers could have slid into the manmade enclosure because of the erosion. The second explanation is that the ditch was filled in purposely by people, to use that place as living space. There are two examples to this idea in this region, namely in Ároktő-Dongóhalom (Fischl 2006) and Tard-Tatárdomb (Fischl et al. 2014).

All in all, it seems certain that there were two life periods of the settlement (Kienlin et al. 2018, 156). The first, when the settlement was found (probably in the third period of the Early Bronze Age) and there was a circular enclosure around the central part. We can conclude to the onetime existence of this enclosure by the result of the geological drillings. In the second period there could be double circular enclosures around the central settlement part. The outer ditch (Fig. 2) belongs to this phase and there could be a parallel inner ditch, but we can conclude this latter just by the drillings.

Lately, Klára P. Fischl and Tobias Kienlin summarized the known datas about the site, in the catalogue of the BORBAS project (Kienlin et al. 2018: 155–162).

Report of the 1988-1989's excavation

During the first year of the excavation, there were set four, 10x5 m sized trenches in the core of the settlement. In the next year, there were another four square, but their size was 10x2 m. We do not know the exact places all of the trenches, because of a local geodesy system was used by the documentation. The mostly imaginable places of the trenches shows Fig. 5.

In 1988, they have found a dug-in building of which size was 3x3,5 m. It had rounded corners and four plastered clay floor levels. Above the first, a child's burial was found that could be dated most likely to the Middle Ages and it was dug into a Bronze Age kiln. The top of the first level was ashy and the floor was ca. -90 cm deep. At the south-eastern part of the building there were five postholes side by side placed in a row and in the

middle was a kiln (Fig. 6).

The north-western side of the surface was disturbed by pits, but there could be postholes too. They have found daub and sherds in large number. The next level was -100-120 cm deep (Fig. 7). There was a hearth at the Southern corner of the building and there were two postholes at the south-eastern side. The third level was not clean-cut because of the dense filling, but it could have been observed in the cross section at -170 cm deep (Fig. 8). They have found eight net weights in -200 cm deep. The last, fourth level was found as a regularly plastered clay floor in ca. -250 cm deep. The sides of the building was covered with wooden boards up to 50 cm height and beneath these was also plastered clay. Moreover, they have found a beat, which diameter was 10 cm, and the bottom of the building was slightly dug into the subsoil. Finally, there was no other house or building near and, from ca. -100 cm deep, there was only the subsoil around the object.

Important to mention a few words about the building, because its size and structure is fairly unusual in the Middle Bronze Age. The known houses/buildings of the Hatvan Culture has different sizes and structures (none of them were dug-in house and those has a framework of woven rods and twigs covered and plastered with clay). The size of the surface can change between 17.5 and 100 m² (Kalicz 1968: 134–143). Usually, their width is between 4 and 6 m and their length is between 8 and 11 m. Ilona Stanczik found similar sized, square shaped building at the IV. level (Koszider period) on Jászdózsa-Kápolnahalom, which was 5x5 m (Stanczik 1988: 23–40), but there was not wooden boards at the bottom of the walls. We have not many data about the inner structures of the Füzesabony Culture's settlements. In Füzesabony-Öregdomb, there were a smaller (4x5–6 m) and a larger (5x12–14 m) house type (Szathmári 1992: 135–136). In Košice-Barca/Bárca (Sk.) there were a 4,8x6 m and a 4,8x12 m sized type (Gašaj 2002: 21–51). Furthermore, we do not know any similar buildings from the Middle Bronze Age Carpathian basin.

Probably it could had economic role in the life of the settlement after the opinion of the excavators. It is suggested by the kilns and the wooden boards on the wall at the bottom, which could have been used against the rodents or the wetness.

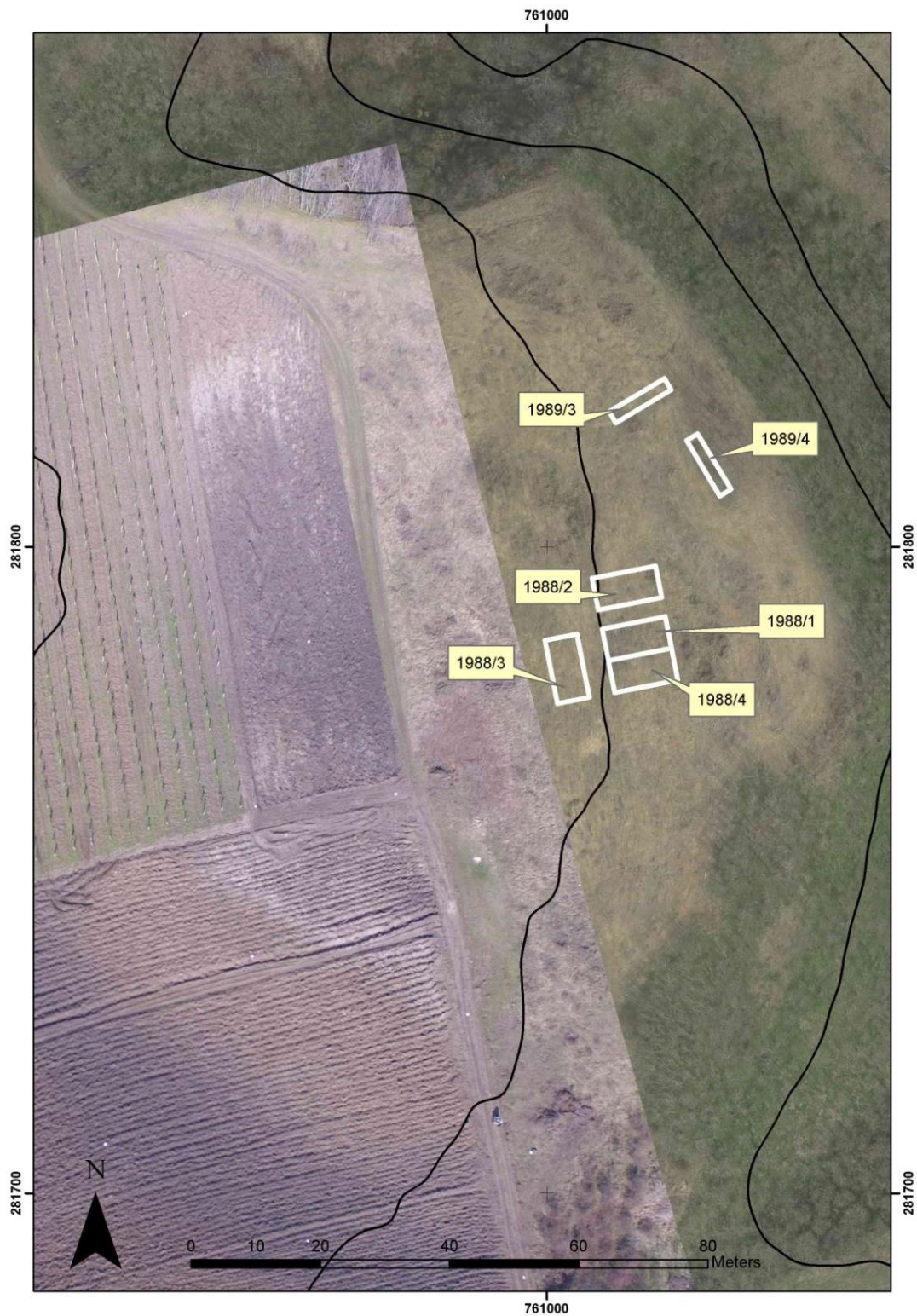


Figure 5. The location of the excavation trenches at Bogács-Pázsagpuszta after Gulyás (2016, Abb. 5) made by Klára P. Fischl

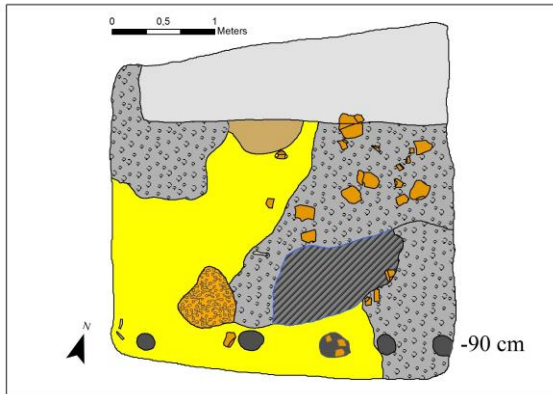


Figure 6: The first level of the building ca. -90 cm deep, mady by Klára P. Fischl

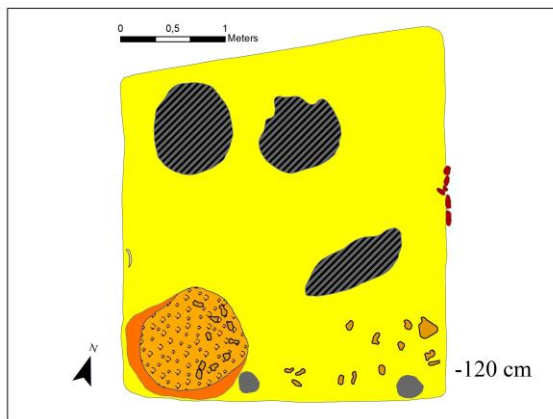


Figure 7: The second level of the building ca. -120 cm deep, mady by Klára P. Fischl

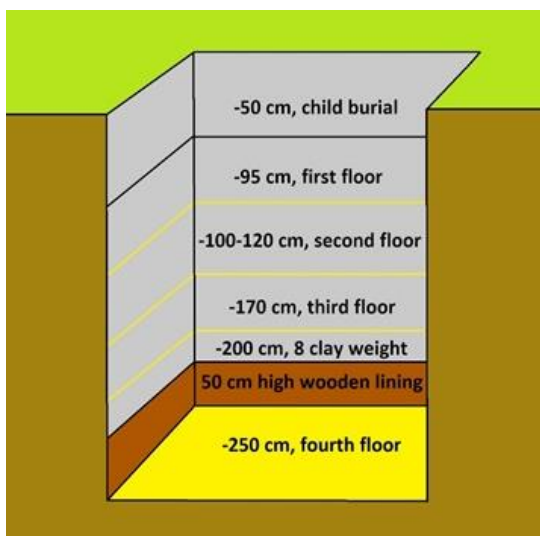


Figure 8: The excavated building's reconstructed layers

One more possible explanation can be considered, because of the observed structure, the wooden boards, the beam at the bottom, the dug-in construction and the high number of the excavated material (more than 4000 sherds and finds from this object), could be interpreted as a well. We know a Neolithic well, which useage was closed by a burned layer with a lot of daub from Polgár-Csőszhalom (Sebők et al. 2013). Furthermore, there was found an Early Bronze Age well at Gánovce/Gánóc (Sk.), which had wooden construction at the bottom and there were found many sherds, molten bronze finds and human and animal bones, which were burned and broken (Vlček & Hájek 1963).

In 1988, they have found a small part of a ditch, which had a V-shaped profile and it was ca. 1,1 m deep, but it is unclear that it was made or used, during the Middle Bronze Age.

In the next year, they have excavated a part of a house in the fourth trench, which had plastered clay floor. The width of the house was ca. 5–6 m, its orientation was East-West and it could have been a rectangle shaped which is typical in the Middle Bronze Age. Under the floor of the house, they have found disturbed soil and a few sherds and finds, but they have not found any features or surfaces. They found the subsoil by drillings in ca. -4–5 m deep.

Finally, they have found a part of a kiln in the second trench. There were two postholes nearby and the traces of two burned beam, but only a small part was in the trench; therefore, it is unclear that it was a house or a roofed hearth.

Material

After the excavation, the material of the 1988's excavation was mixed; therefore, these stratigraphic position is not identifiable. The 1989's material's exact classification to trenches and objects is known, but we must note the geographic and anthropogenic impacts which affected to the site.

Decorated vessels

In the material of Bogács there is a characteristic, unique type vessel which has suddenly shrinking bottom, biconical body, curved neck, splayed rim and triangular handle on the neck (Fig. 9, 10, 11, 12/2). The neck and the body is often decorated with horizontal channels, channelled bosses,

channelled bosses surrounded by ticks or punctates, girland motifs by dual or triple channels, incisions, and/or crosshatched triangles. Furthermore, the surface is highly polished; however, sometimes there are irregular brushes under the belly line on a few vessels (Fig. 9/2, Fig. 11).

A few biconical vessel has vertical channel groups on the belly line (Fig. 9/2; 11/1, 2).



Figure 9. Decorated vessels from Bogács-Pázsagpuszta

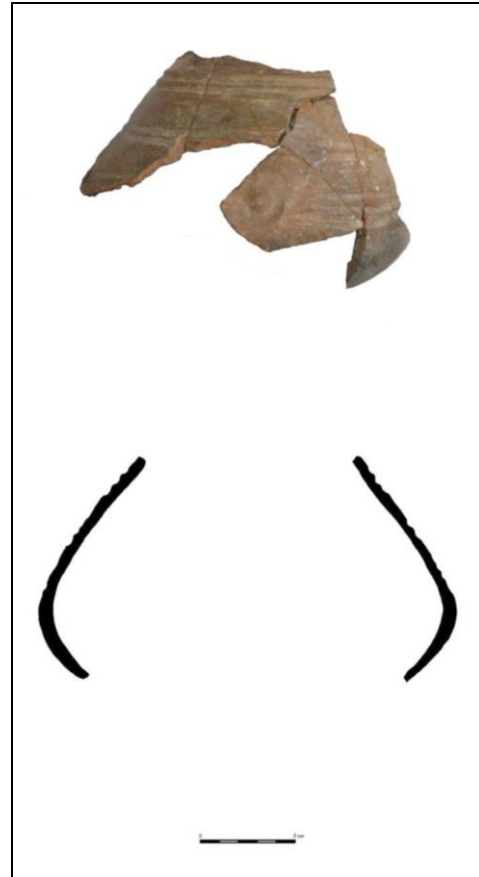


Figure 10. Decorated vessel from Bogács-Pázsagpuszta

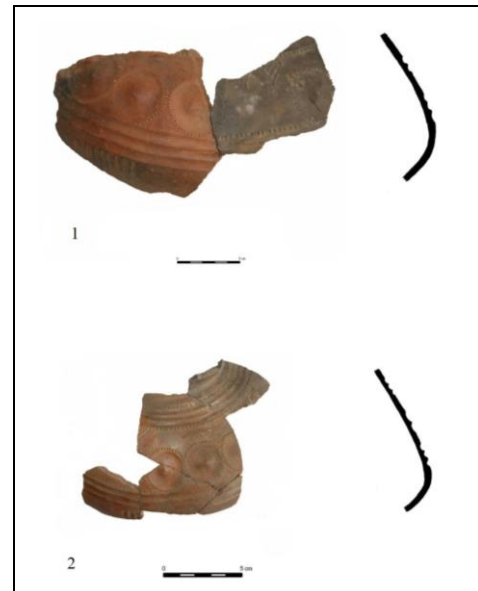


Figure 11. Decorated vessels from Bogács-Pázsagpuszta

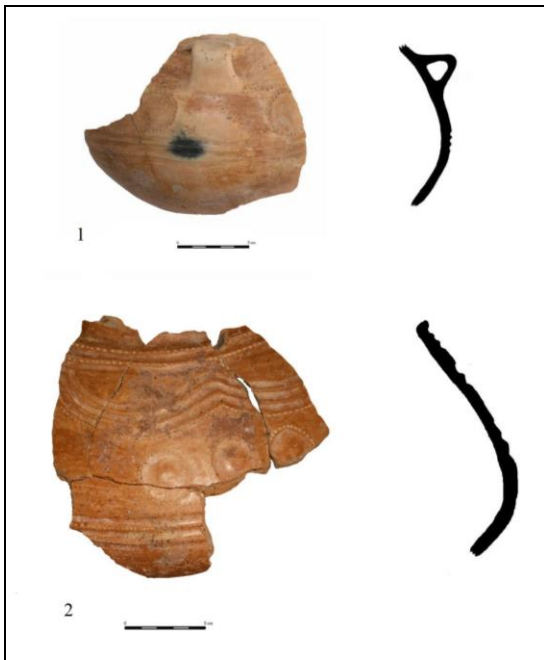


Figure 12. Decorated vessels from Bogács-Pázsagpuszta

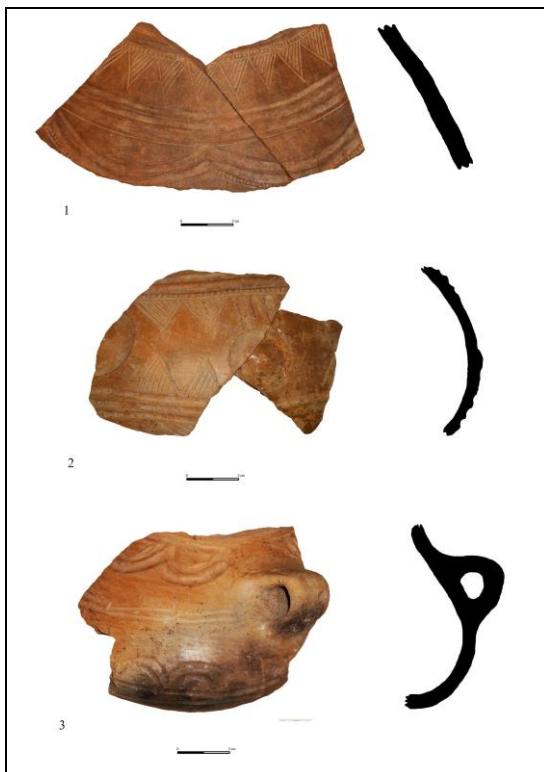


Figure 13. Decorated vessels from Bogács-Pázsagpuszta



Figure 14. Decorated vessels from Bogács-Pázsagpuszta

According to Judit Tárnoki, the channelled bosses were appeared in the Hatvan ceramic style as the influence of the Füzesabony Culture, in the second part of the Middle Bronze Age (Tárnoki 1996: 40). Among these, a few of them is surrounded by ticks or punctates. This combination becomes frequently in the Middle Bronze Age's third period (Koszider period) in the Hatvan pottery.

Moreover, according to Judit Tárnoki it was the influence of the Vátya Culture (Tárnoki 1996: 72). This type's best analogy was found at Vatta, Telekoldal-dűlő from an urngrave (Somogyi 2010: 393-397, back cover photo). There are similar shaped or decorated vessels in Jászdózsa-Kápolnahalom (Stanczik 1988: 37/1, 93/2, 3, 4, 105/3, 121/1), Buják-Tarisznyapart, Kerekdomb (Tárnoki 1996: Tab. 56; Tárnoki 2010: 2/2), Túrkeve-Terehalom (Tárnoki 2013: 9/5), but these are not exact analogies, because only the decorations or the forms are similar. Finally, there is a similar form in the Otomani/Gyulavarsánd ceramic style (Németi & Molnár 2007; Bóna 1975: Taf 152/4, 16), but the ornaments are different. In my opinion, this biconical shaped vessels could be a characteristic form in the late Hatvan ceramic style in a given geographical unit. It could have appeared in the second phase of the Middle Bronze and it can be the part of the Hatvan pottery until the end of the culture.

Among the decorated pots, there is a globular

vessel type (Fig. 12/1; 5), which has the similar, before mentioned ornaments, such as channels, ticks, punctates, girland motifs by two or three channels, channelled bosses, channelled bosses surrounded by ticks or punctates and crosshatched triangles. There is no intact vessel from this type; therefore, the full form is unclear, but there could be handles on or above the belly line. Globular vessels are common in the Middle Bronze Age. However, the combination of the ornaments on the vessels are typical late Hatvan (Middle Bronze Age 2–3) characteristics.

There is an S-shaped pot type, with splayed rim and two handles on the neck (Tab. 6). This shape is common, but the decoration of this pot is fairly rich. There are crosshatched triangles and girland motifs on the neck and channelled bosses on the belly, separated by vertical channels. Its analogies are from Vámosgyörk-Atkári lapos (Kalicz 1968: LXXXIX/23) and Sarkad (Bóna 1975: Taf. 146/11). There are similar forms at Túrkeve-Terehalom's layer 2 (Tárnoki 2013: 9/5), Hatvan-Ifjúság útja 21 (Somogyvári 1984: V/4) and Tarnaméra-Uszoda (Kalicz 1968: LXXXII/4).

Amphoras

Among this type, there is a completely restored amphora (Fig. 15/1), but besides this there are quite a lot fragments (Fig. 15/2; 16/1, 2, 3). Their characteristics are the globular body with two handles, corniculated neck and splayed rim. Usually, there is a zigzag-shaped ribbing in the belly from handle-to-handle. Below this, the surface is brushed or there is textile decoration on it. Above this, the surface is usually smoothed. Also common the moustache motif at the handles (Fig. 16/1) or at W-shaped cordons (Fig. 16/2), what is typical Hatvan ornament.

Finally, there is a cylindrical shaped storing pot with suddenly shrinking bottom (Fig. 16/4), which could have served for grain storage. Their rims are finger impressed and its surface is brushed.

Pots

The egg-shaped pots with sharp or less sharp shoulder and corniculated neck is typical in the Hatvan Culture (Fig. 17/1, 2). Often, there are smaller knob groups on the neck and the rim is usually finger or fingernailed impressed. Usually, their surface is brushed, but these could have been made with textile decoration.



Figure 15. Amphoras from Bogács-Pázsagpuszta

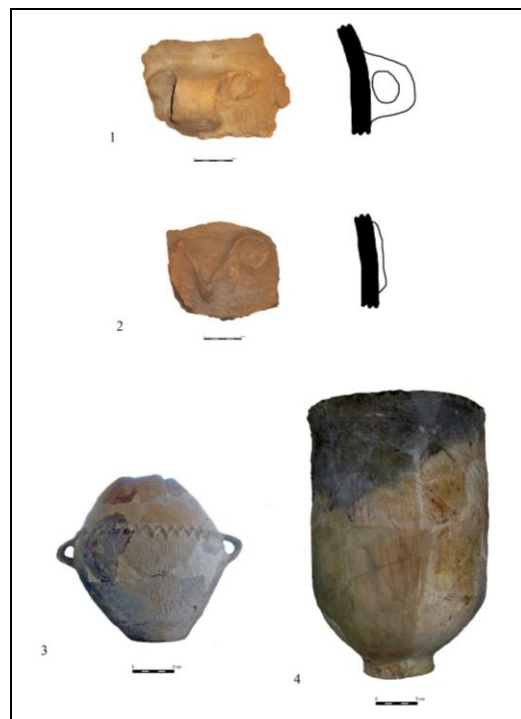


Figure 16. Amphoras from Bogács-Pázsagpuszta



Figure 17. Pots from Bogács-Pázsagpuszta



Figure 18. „Dishpots” from Bogács-Pázsagpuszta

This type is dated to the Early Bronze Age 3 – Middle Bronze Age 1 phase (Fischl 2006: 150).

A common pot type is a longish, drawn barrel-, or cylindrical-shaped form with straight rim. Often, there are finger or nail impressed ribs on or under the rim (Fig. 17/3). Their surface could be brushed or there could be comb decoration on it. This form is common in every tell culture in the second part of the Middle Bronze Age (Fischl 2006: 154).

„Dishpots”

The characteristic of this type is, that its height and its rim diameter is equal. In this material, there is a type with slightly splayed rim, curved neck and globular body (Fig. 18/2). This is an early type, its analogies can be found among others in Ároktő-Dongóhalom (Fischl 2006: 30/37).

The other type has curved neck, sharp shoulder and suddenly shrinking bottom (Fig. 18/1). There are irregular incisions on the belly. There is an analogy at Tarnaméra-Uszoda (Kalicz 1968: LXXXII/4) and this shape is on Kalicz’s tables as 2a1 type (Kalicz 1968: CXXVIII).

Bowls

There were excavated swedish helmet bowls in large number, which is the characteristic type of the Hatvan Culture (Bóna 1975: 67; Bóna & Nováki 1982: 79). These bowls’ ornaments are greatly rich. The similar decorations observable as on the decorated vessels such as channels, channelled bosses, girland motifs by dual or triple channels, lens decorations, incisions, ticks, punctates, crosshatched triangles and the combination of these ornaments (Fig. 19, 20, 21, 22, 23). Moreover, one of them has S-spiral surrounded by incisions (Fig. 24/1). These bowls’ surface is highly polished. Usually, there are concentric circle motifs on the bottom of the bowls. Every swedish helmet bowl is unique and their sizes are different too.

One bowl has an ornament at the bottom, which could be interpret as sun motifs. This is the largest swedish helmet bowl and it has zigzag motif made by dual channels and the outer part is crosshatched (Fig. 23).



Figure 19. Bowl from Bogács-Pázsagpuszta



Figure 21. Bowl from Bogács-Pázsagpuszta



Figure 20. Bowl from Bogács-Pázsagpuszta



Figure 22. Bowl from Bogács-Pázsagpuszta



Figure 23. Bowl from Bogács-Pázsagpuszta

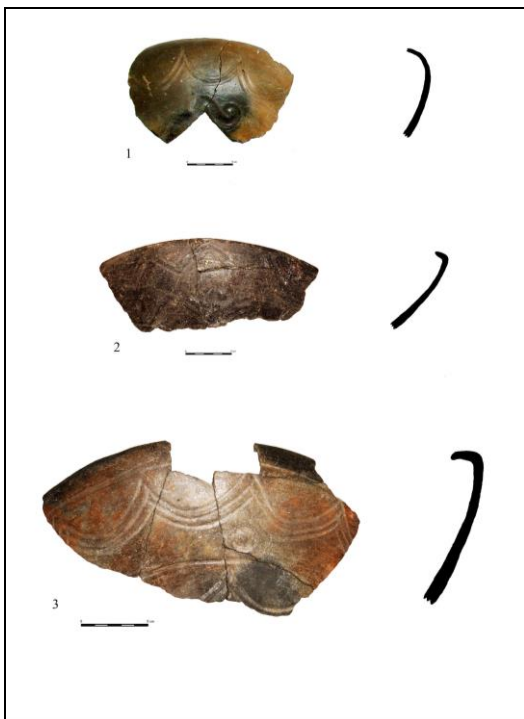


Figure 24. Bowl from Bogács-Pázsagpuszta



Figure 25. Bowl from Bogács-Pázsagpuszta



Figure 26. Vessels of distinct type from Bogács-Pázsagpuszta

This Swedish helmet bowls has analogies at Tiszakeszi-Szódadomb (Kalicz 1968: LXXII/6) and Törökszentmiklós-Terehalom (Tárnoki 1996: 25/3). There is a greatly similar bowl at Vatta (Somogyi 2010, back cover photo), which has analogous ornaments like one of the Bogács' bowls (Fig. 21). Furthermore, There are a few bowls from Tószeg-Laposhalom, which has similar style by the form and the ornaments (Bóna 1980: abb 17–21)

Frequent are the spherical shaped and the shirred rims bowls too. Among these, there are smooth, polished and decorated (zigzag and girland motifs, lens, channelled bosses...etc.) ones (Fig. 24/2, 3).

There are a few spherical shaped coarse bowls, with two or four handles and brushed surface or textile decoration (Fig. 25). The rims often finger or nail impressed.

Moreover, there is only a few collared (strong horizontal rib on the shoulder), truncated cope shaped bowls, which type is frequent in the Füzesabony Culture (Fig. 26/1). In the late Füzesabony C – after the periodisation of I. Bóna – period the shoulder is larger and decorated with channels, lens and incisions.

Mugs/jugs

The material contains a few mugs which could be dated to the early and classical phase (Early Bronze Age 3 – Middle Bronze Age 1) of the Hatvan Culture. There is a type with long neck, globular body and sharp shoulder (Fig. 27/1). This one is a common form in the Hatvan ceramic style. The shape is the same at the Tab. 19/2's mug, but it has rich decorations. Under the shoulder, there are two, parallel incised line with stabbed dots between them. Below this, there are small, channelled bosses and incised lines with arched motif and between them there are vertical lines.

Another thype of the Hatvan ceramic style is with the splayed rim, curved neck and spherical belly. (Tab. 19/3). Its decorations are channelled bosses surrounded by stabbed dots (Gulyás 2016: 16–18).

The Hatvan type mugs of Bogács, occurred in Nándor Kalicz 1968's monography as type 1 and 3 (Kalicz 1968: CXXIX).

Furthermore, there is an S-shaped, undecorated mug with a handle (Fig. 27/4).

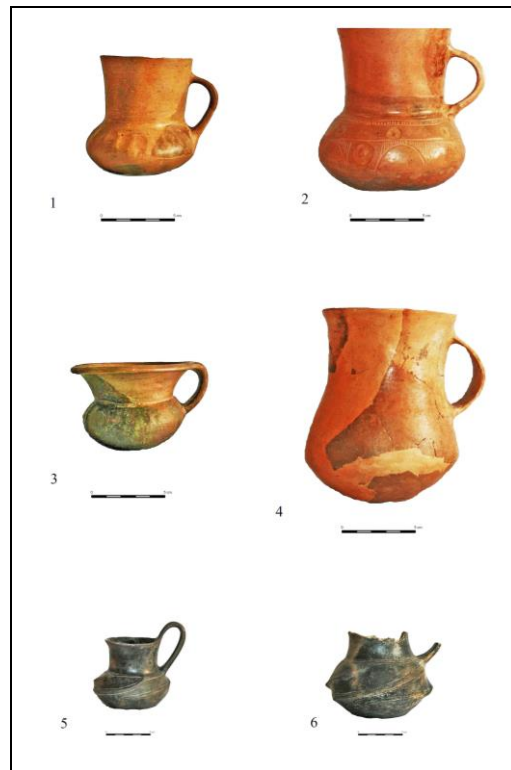


Figure 27. Mugs and jugs from Bogács-Pázsagpuszta

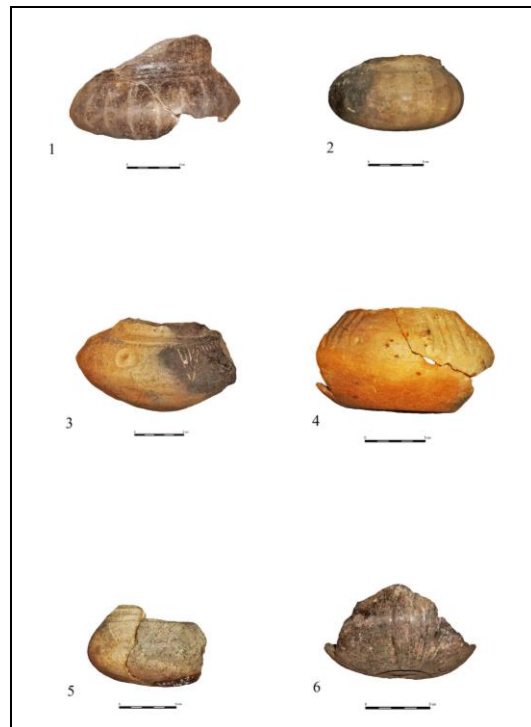


Figure 28. Mugs and jugs from Bogács-Pázsagpuszta

This form similar to the mugs of the Somogyvár-Vinkovci Culture (Kulcsár 2009: Fig. 49, 1/12), but the place of the handle is different. This type is not typical in the Hatvan Culture, its analogy is at Zagyvapálfalva-Homokbánya (Guba 2009: Taf. 2/5).

The mugs with spirals on their body is typical in the Füzesabony Culture (Fig. 27/5, 6). Two of them has spherical body and cylindrical neck. These are common in the Füzesabony Culture's early (A) and classical (B) periods. The analogies are there at the most Füzesabony Culture site. For example from Gelej, Kanális-dűlő (Kemenczei 1978: Taf. I/6, 10, 14) and Emőd-Istvánmajor (Koós 1991: 46/3).

In the material, most of the mugs has spherical or oblated spherical body. This type is common in the Füzesabony ceramic style, rather than in the Hatvan. The decoration of this is various, there are not two with the same decoration. Most common ornament is the vertical channelling of the body (Fig. 28/1, 2). Among others, there are mugs with horizontal channels, incisions and incised hatched triangles (Fig. 28/3), with vertical channel groups, when the wingers lower part ends in a loop (Fig. 28/4) and one of them with crosshatched triangles and horizontal channels at the neck (Fig. 28/5).

There are a few mugs with biconical body. One of them have vertical channel groups (Fig. 28/6) on the body.

The mugs with spherical and oblated spherical body could be dated by their ornaments. The oldest ones are those, which have vertical channeling and spirals on the body. This is the characteristic of the early phase of the Füzesabony Culture (Tárnoki 1996: 46).

According to Frigyes Kőszegi, those spirals which edges are scratched and the spirals are followed by incised lines, could be dated to the Füzesabony B (classical) and C (late) period and he thought that this ornament was typical around the Füzesabony region (Kőszegi 1968: 118–119).

Those mugs, which has vertical channels or incisions, channelled bosses, lens or crosshatched triangles or those which has horizontal channels on the upper part of the body could be dated to the Füzesabony C phase.

Other domestic ceramics

There are a few portable hearthes in the material. Most of these are highly fragmented; therefore, the classification is not possible. However, there is a

fragment which is a part of an roast type portable hearth (Fig. 26/2). In addition this type is typical in the Hatvan Culture (Fischl et al. 2001: 169).

There were found many pickling pots which are highly fragmented. The characteristic of this type is that knobs were placed on the inner side of the pot and this side's surface often brushed too. Probably, it was used to fermentation or to pickling (Szathmári 2009).

Furthermore, there were many strainer vessels, but those were highly fragmented too. There is one truncated cope shaped (Fig. 26/3), which could had been completely restored.

Finally, there are two lids which belongs to different types. One of them is a truncated cope shaped lid (Fig. 29). There are four knobs on one side and a handle on the other side. Analogies known from Vatta-Testhalom (Kalicz 1968: LXVI/5, 7). The other is a straight shape with a handle boss (Fig. 18/3). These analogies are known from Tiszalúc-Dankadomb (Kalicz 1968: LI/10, 11). Both type occurred on Kalicz's table. The latter as a 11c1 type (Kalicz 1968: CXXIX) and the former as the 11c4 type (Kalicz 1968: CXXIX).

Small finds

During the excavation in 1989, they have found an undecorated violin-shaped figurine (Fig. 30/2) under the humus layer. There is a similar type on the 1984's Kalicz table (Kalicz 1984, Tafel LVII/2). These two figurines are from Benzúrfalva-Majorhegy, from the Early Bronze Age, Hatvan Culture (Csányi and Tárnoki 1992, 207. 452–453), which has similar stylized form and there is no decoration on these. However, there are decorated figurines too, from the Middle Bronze Age, Aszód-Domonyvölgy (Kovács 1984: Taf. LXIX/1, 2; Csányi & Tárnoki 1992: 207, 454–455). Moreover, there are three decorated figurines from Vatta (Király et al. 2014: Tab. III/24–26).

This type could be present from the Middle Bronze Age and those became frequently in the beginning of the Late Bronze Age in the Carpathian Basin (Király et al. 2014: 320-321). Tibor Kovács thought, these are the heritage of the Urnfield Culture (Kovács 1977). Judit Koós noted that these figurines were known from the eastern part of the Carpathian basin to the Dniester river during the HaA-HaB periods (Koós 2011: 156).



Figure 29. Lid from Bogács-Pázsagpuszta

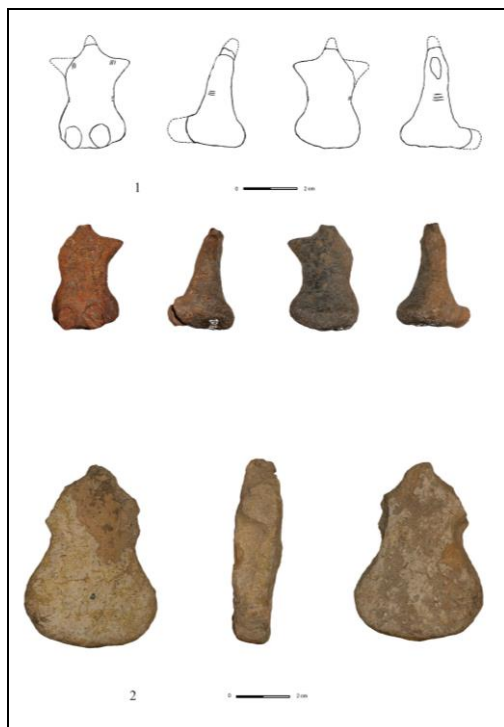


Figure 30. Figurines from Bogács-Pázsagpuszta

The figurine from Bogács is undecorated, but most of the Middle and Late Bronze Age violin-shaped idols are decorated (Király – Koós – Tarbay 2014). Therefore, it could be an older figurine (from the Early and/or Middle Bronze Age) or this is just an undecorated type.

In 2016, there was found a „sitting figurine” as a stray find. Its head and limbs are schematic and on its waist and on the shoulders are 3–4 small incisions (Fig. 30/1), which could show their „clothes”. I have found the best analogy in the collection of the Herman Otto Museum (Koós 2011). Their site is unknown, but Judit Koós mentioned an analogy in an Early Iron Age fortified settlement, at Belsk, Ukraine (Koós 2011, 157).

There was found a four-legged, small „altar” – in the fourth trench in ca. -230–250 cm deep – which was perforated twice and its flat side is polished (Fig. 31). It has an analogy at Jászdózsakápolnahalom’s layer IV. (Koszider period) (Stanczik 1988, Tab. 66/17) and a fragmented one also from here (Stanczik 1988, 122/3). Moreover, there are similar altars at Békés-Várdomb (Banner – Bóna 1974, Taf. 23/1, 2, 3, 7) too.

At Bogács, there were found several clay animal figurines (Fig. 32/5, 6, 7) which are known from almost every Middle Bronze Age settlements.

There were found a few clay wagon wheel models and spindle-weights too (Fig. 32/8, 9). Moreover, there were excavated numerous secondary polished, circular sherds. It has two types: one of them is which are not perforated, the other one was perforated in the middle. The previous type can be interpreted as a spindle-weights (Parditka 2006, 128).

There were many firedogs/net weights too. Important to note, those eight pieces which were found in the building ca. -200 cm deep (see above).

All of them has truncated cope shape and perforated. Their size is various, there are smaller and larger ones too. Each of them are undecorated. Finally, there were two miniature, perforated clay axe fragments (Fig. 32/3, 4). Their surfaces are highly polished and both of them were found in the 4. trench ca. -80 cm deep in 1989.

Metal artifacts

During the excavation, there was not found any metal artifacts. However, we have found a few bronze finds by the metal detector in 2016. Two of

them are cast, piked, tanged arrowheads (Fig. 33/1, 2). Moreover, there were also found two perforated bronze knobs (Fig. 33/3, 4). Similar arrowheads and knobs were found on Middle Bronze Age settlements of Central Hungary (Szeverényi & Kulcsár 2012: 329–332) and on Emőd-Nagyhalom. There was also found a bronze flanged axe.



Figure 31. „Altar” from Bogács-Pazsagpuszta

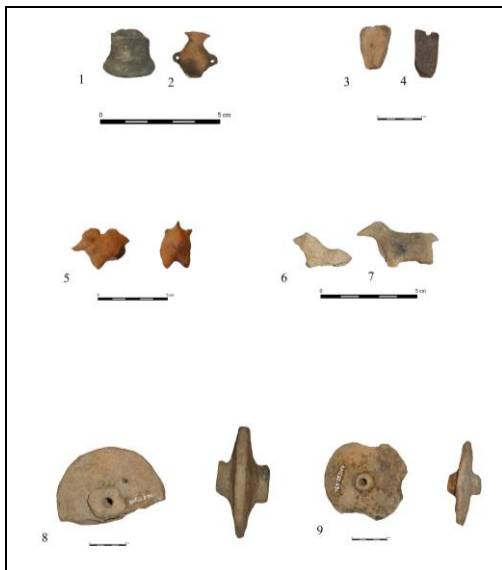


Figure 32. Small finds from Bogács-Pazsagpuszta



Figure 33. Metal artifacts and mould from Bogács-Pazsagpuszta

There were found a bronze pin's mould (Fig. 33/5) in 1989. The classification is not possible, because the fragment is too small.

Novaj-Földvár

The Bronze Age tell settlement of Novaj-Földvár is located in the Eastern part of a plateau with North-South direction (Fig. 1, no. 3; Fig. 34). To the East, there is the Novaji-stream, and to the West, the Ostoros-stream. It has similar lying as Bogács. The settlement is ca. 6-7 beeline kilometers from Bogács-Pazsagpuszta (Fig. 1, no. 3-4).

Nándor Kalicz mentioned the site in his monography and noted, it was also a settlement of the Füzesabony Culture (Kalicz 1968: 119 no. 44). The research history of the settlement was summarized by Gyula Nováki (Nováki et al. 2009: 49). Lately, the site was summarized by the BORBAS project's settlement catalogue (Kienlin et al. 2018: 221–227).

The settlement has a circular enclosure, which is observable at the result of the geophysics (Fig. 34–35), around the multi-layered settlement part. This enclosure's width ca. 12-16 m. The central part's size is around 0,46 ha. Around this, there is an intensive outer settlement on ca. 0,5 ha. (Kienlin et al. 2018: 222).

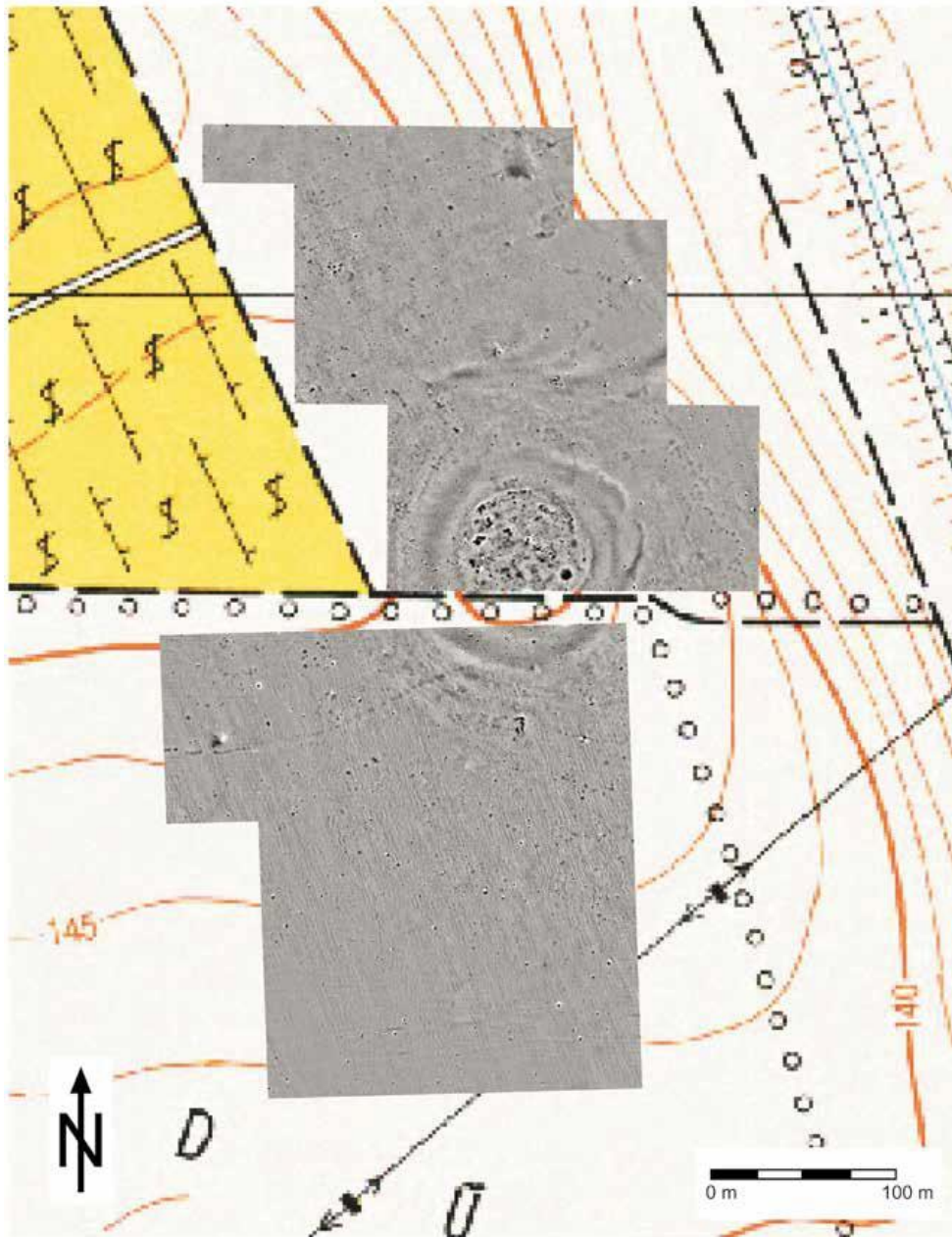


Figure 34. Magnetometry of Novaj-Földvár after Kienlin et al. 2018 Fig. III-65



Figure 35. Aerial photograph from Novaj-Földvár (photo: Civertán Bt.)

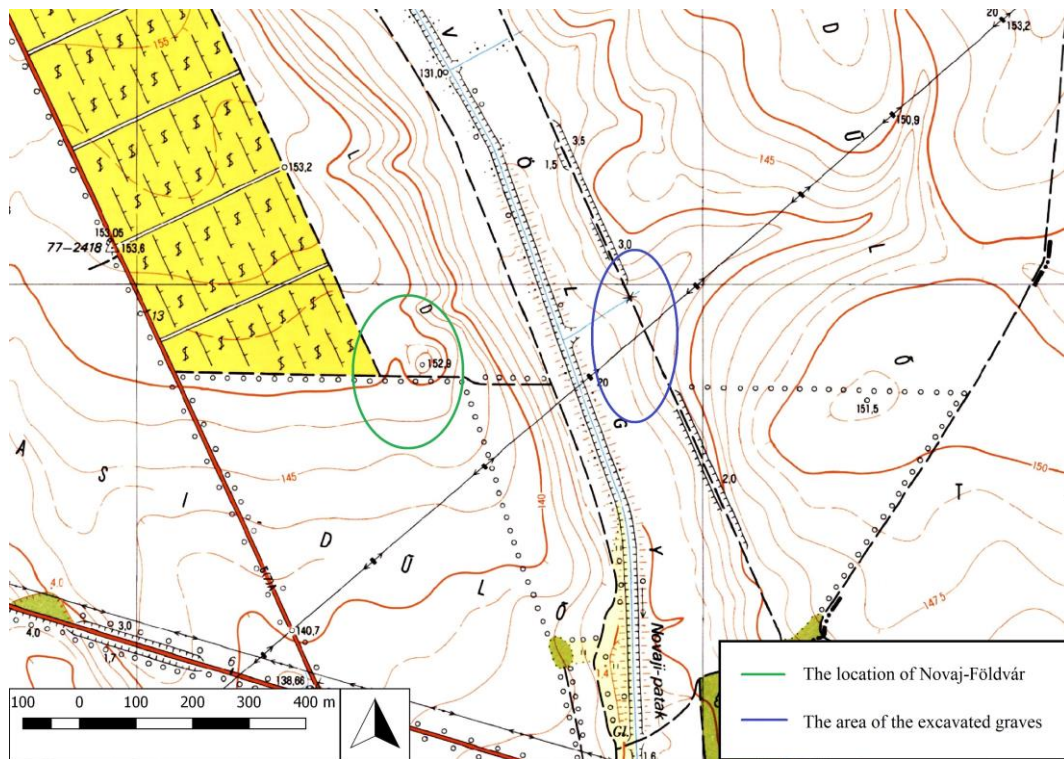


Figure 36. The location of Novaj-Földvár and the excavated graves

Researches at Novaj-Földvár

An excavaton was held in the summer of 1981 and 1982 by the direction of Ágnes Somogyvári (Dobó István Museum). The exploration was went on a section, which size was 10x5 m and it was placed in the central part of the settlement. There were found two houses, which has postholes, kilns and plastered clay floors. During the excavation, they did not dig till the subsoil, only get on ca. 1 m (4 spit), so most of the ceramics are dated to the Füzesabony C period. However, it is probably, that the settlement came to be during in the last period of the Early Bronze Age (Hatvan culture), same as the other Bronze Age settlement in this area.

In 1982, they have found 8 graves next to the settlement, on the other side of the Novaji-stream (Fig. 36). Most of the graves were in a bad condition, but probably there is a large Füzesabony cemetery.

The processing of the material from the excavation is still in progress, as soon as the work will be complete, we will get a more accurate aspect.

However it is clear at now, that the characteristics of the ceramic material shows late Füzesabony (C phase) attributes. The mugs and jugs often have a foot ring or a pedestal (Fig. 37/3, 4). Their necks are often articulated by horizontal channels and incised lines. Their shoulder lines are not so pronounced, and their rims are outcurving (Fig. 37/5). On their bodies are bosses or spherical section bosses and their necks are cylindrical.

The bowls are often spherical shaped, shirred rims bowls and thick, ribbed shoulered bowls (Fig. 37/1, 2).

Conclusion

Bogács-Pazsagpuszta and Novaj-Földvár shows the similar characteristics like the other settlements in this region.

Novaj could have been founded in the Early Bronze Age third period by the Hatvan Culture (Nováki et al. 2009: 49). The excavated material of 1981 and 1982 shows typical late Füzesabony forms and decorations (see above). Accordingly, the site was occupied until the third phase of the Middle Bronze Age (Koszider period).

When the processing of this material will be complete we will can make specify chronology and we can compare the ceramic style with Bogács-Pazsagpuszta.

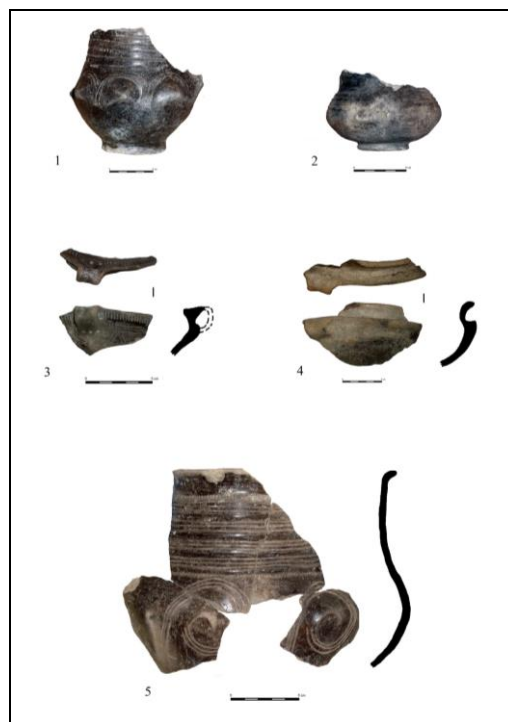


Figure 37. Ceramics from Novaj-Földvár

The Bogács' material chronologization by layer is not completely possible and it could be deceptive because of the bad condition of the settlement. However, it is presumptive that the site was founded by the Hatvan Culture in the third phase of the Early Bronze Age. In this time, there could have been a circular enclosure around the multi-layered settlement part and an outer settlement part too. Then, the structure of the settlement could have been changed in the beginning of the Middle Bronze Age, when the Füzesabony Culture appeared in the North-eastern part of the Carpathian basin (Kalicz 1984: 201-205; Fischl 2006: 164). At this time, the circular enclosure could have been filled in and there were made a double circular enclosure; however, we have to count with a settlement part at the outside part of the enclosures. After this change, at least partly, the earlier Hatvanian population could have been lived in the settlement until the third phase of the Middle Bronze Age (Koszider period), such as at Jászdózsa-Kápolnahalom (Stanczik 1988: 71, 73–74). In order to get a more unambiguous idea about the structure of Bogács-Pazsagpuszta, it would be necessary to do modern excavations and observations.

The ceramic finds shows duality in Bogács. In

lower number, but there are forms and decorations from the Füzesabony ceramic style from each phase of the culture. However, the presence and the characteristics of late Hatvan ceramic style is much more prominent and significant. The forms (for example biconical vessel with triangle handles or swedish helmet bowls) and the decorations (among other the horizontal and vertical channels on the necks and channel groups, girland motifs, channelled bosses, channelled bosses surrounded by ticks or punctates, crosshatched triangles, lens decorations) and these combinations make it sure. Furthermore, the analogies of the ceramics shows to sites like Jászdózsza-Kápolnahalom, Buják-Tarisznyapart, Kerekdomb or Törökszentmiklós-Terehalom, where the Hatvan Culture preserved its independence in the second part of the Middle Bronze Age. However, the material of Bogács-Pazsagpuszta prove that we have to consider, that there is a significant Hatvan influence and continuity at the Southern foothills of the Bükk mountains in the second part of the Middle Bronze Age. It seems, that beside the characteristic Füzesabony ceramic style we have to take account an independent late Hatvan identity, especially on this region (the Southern foothills of the Bükk mountains and the Northern part of the Great Hungarian Plain), until the end of the Middle Bronze Age. A further site can prove this which name is Vatta, Telek-oldal-dűlő and this cemetery's material shows strong Hatvan influence (Somogyi 2010: 396, back cover photo). Finally, when the research proceed, we can separate different regional groups here. The investigation of these sites at this region would be important because here, we can compare the Hatvan and Füzesabony ceramic styles; moreover, their lifestyles and their connections in the same area, close to each other.

Acknowledgement

I would like to express my gratitude to Judit Koós and Ágnes Somogyvári, who allowed me to process the materials of Bogács-Pazsagpuszta and Novaj-Földvár. Since this article was partly made from my BA and MA thesis, hence I am very grateful to Klára P. Fischl and Gábor V. Szabó, who were my supervisors and supported me during my work.

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MIDDLE BRONZE AGE SETTLEMENT NETWORK IN THE NEIGHBOURHOOD OF POLGÁR

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Kivonat A Polgár mikrorégió ("Polgár Sziget") a Felső-Tisza-vidék azon geopolitikai szempontból kulcsfontosságú területére esik, amely nemcsak a neolitikum és a rézkor időszakában, de a középső bronzkor folyamán is összeköttetést biztosít az Alföld K-I területei és Erdély, valamint DK-Szlovákia és Kis-Lengyelország régiói között. A mikrorégió bronzkori telljeit kivétel nélkül Hatvan kerámiát készítő közösségek alapították, melyeket a Füzesabony stílusú kerámiával jellemezhető rétegek követnek és zárnak le. A telkekhez tartozó temetőket a települések közvetlen közelében sikerült azonosítani. A temetők gazdagsága (arany- és borostyánékszerek, bronzfegyverek és tárgyak), valamint a telkek központjában fémkereső műszerrel talált aranyékszerek egyértelműen utalnak az erődítésekkel övezett telkek kiemelt szerepére. Ez a kiemelt szerep a Tiszán átvezető gázlók felügyelete lehetett, melyeken keresztül az Erdély felől Kis-Lengyelország felé vezető kereskedelmi utak vezethettek. A kutatások jelenlegi állása alapján úgy tűnik, hogy a Polgár mikrorégió középső bronzkori települési rendszere egy jól átgondolt, a környezeti adottságokhoz maximálisan igazodó struktúra. A további - a korábbi és az újabb kutatások eredményeként előkerült - lelőhelyek (köztük a "kérdéses lelőhelyek" körébe tartozók) pontos értékelése és a bronzkori településhálózatban betöltött szerepük meghatározása további vizsgálatokat igényel.

Kulcsszavak középső bronzkor; településhálózat, településszerkezet, Polgár mikrorégió, Kárpát-medence ÉK-i rész

Keywords Middle Bronze Age; settlement network, settlement structure, Polgár microregion, NE part of the Carpathian Basin

Introduction

The first Bronze Age discoveries from the Polgár microregion are connected to famous archaeologists such as Ida B. Kutzián and Nándor Kalicz. They came to light during the 1950s at important sites such as the well-known Copper Age cemetery of Polgár, Basa-tanya and the Füzesabony cemetery from Tiszapalkonya, Power Station (B. Kutzián 1963; Kovács 1979: 57). Although some tell-settlements (Kiscsósshalom, Borjúhalom and Bosnyákdomb) mentioned from this microregion were assigned to the Hatvan culture in the monograph of Nándor Kalicz (Kalicz 1968: 126–127; nr. 175, 176, 177; Abb.4.), the first sounding excavations started only at the end of the 1980s thanks to Márta Sz. Máthé. After the researches of Kalicz, Ibolya M. Nepper carried out

field surveys in 1971 in connection with the historical monograph of Polgár. In this study, she also mentioned these three larger sites of the Hatvan culture on the ground of Kalicz's site catalogue, but she did not know the Füzesabony sites from the vicinity of Polgár (M. Nepper 1974a: 18).

Between 1991 and 2004, the Polgár microregion was investigated within the framework of the Upper Tisza Project (UTP). This international project was an interdisciplinary Anglo-Hungarian landscape archaeology project, with the cooperation of the University of Durham/Dept. of Archaeology and Eötvös Loránd University/Institute of Archaeological Science, Budapest (UTP website). Between 1993 and 2003, preventive archaeological excavations took place in the Polgár microregion in connection to the M3

motorway project. It was the largest archaeological project ever in the microregion, which opened up new perspectives (both from a quantitative and a qualitative point of view) for the study of the Pre- and Protohistory of the Polgár region.

Ten years ago, András Füzesi carried out intensive field surveys between Polgár and Tiszacsege in order to examine the structure and development of the Neolithic settlement network of the microregion (Füzesi 2009). A little later Zsuzsa Siklósi launched a research project also affecting the Polgár microregion to investigate the landscape and sociocultural changes from the Late Neolithic to the Middle Copper Age (Raczky et al. 2014: 323–331, Fig. 3–4). After such inspiring precedents, in the spring of 2018 we have planned a new non-destructive research project on the already well-known and newly discovered Bronze Age settlements in the Polgár microregion. This research consists of field survey, geodesic survey and modelling, metal detector and geophysical surveys, and aerial photography, as well. The main goal of this project is to get a more precise picture of the Middle Bronze Age settlement network and layout of this microregion with new tools and methods and with collecting and using the earlier, retrospective data.

Polgár, Kenderföld-Kiscsözshalom tell

The site also called "Szödhalom" on the map of First Habsburg military survey. After the first field surveys of József Petróczy, and then the fieldwalking of Ibolya M. Nepper on this site (M. Nepper & Sz.Máthé 1973: 50; M. Nepper 1974a: 18; M. Nepper 1974b: 415, nr.13), the first excavations at this Bronze Age tell settlement were conducted between 1989 and 1995 by Márta Sz. Máthé and Magdolna Vicze (Fig. 1.1).

Two joining 5 x 10 m trenches were opened. The method of this research was almost identical with the tell excavations conducted in the Berettyó region. A small trench was cut into the southwestern part of the tell in order to clarify the stratigraphic sequence and chronological situation of the site. This research provided significantly more information neither about the inner structure of this tell settlement, nor about the location of the associated Bronze Age burial place(s). The material of this sounding excavation is yet unpublished. The first Early Bronze Age settlers on

this loessy elevation on the bank of the Hódos brook belonged to the Nyírség culture with some pits. The tell of Kiscsözshalom was founded in the last phase of the EBA by a Hatvan community. After the Hatvan settling, already in the MBA there was a partial change in the ceramic style and an important change in the settlement structure: wide and deep ditch were charged and we could observe traces of new houses above it in the later phases of the tell, which connected to the appearance of Füzesabony style ceramics on the settlement (Fig. 2. 1). Meanwhile, the site was surveyed by the Upper Tisza Project in 1991 and 1996, where this site was named as "Polgár 001" (UTP e-book, database 1).

In connection with the sounding excavations at Kiscsözshalom, Pál Sümegi carried out geological corings on the tell. He found that the Polgár microregion, the so-called "Polgár Island" has highly segregated, loess-covered lag-surfaces, which were ideal for human settling from the Neolithic during later Prehistory (Sümegi et al. 2005; Füzesi et al. 2016: 3–6). The higher surfaces are surrounded with lower-lying backswamp areas studded with infilled Pleistocene palaeochannels of the Tisza River. These must have been under at least temporary inundation when the floods turned the settlement site into a system of islands, as in the case of the Kiscsözshalom and Ásott-halom tells as well. This island-like feature was even more accentuated by the preparation of a semi-circular ditch system surrounding the central core of the settlements and charging waters into the Tisza valley during the floods (Sümegi 2009; Sümegi 2013; Sümegi et al 2013). Highly similar economic strategies can be assumed for the numerous Middle Bronze Age tell settlement sites found on Pleistocene lag-surfaces, fossil alluvial fans in the Tisza, Sajó and Hernád valleys, as well as other parts of the Great Hungarian Plains (see e.g.: Sümegi et al. 1998; Tóth et al. 2005). This implies an intensive communication across and on the rivers by boats. Otherwise, thanks to the similar palaeoecological conditions, similar cultural and economic exploitation practices might have emerged as a result of a kind of environmental determination, as well. The watercourses must have been important water supplies, and the meadows were ideal for stock farming.

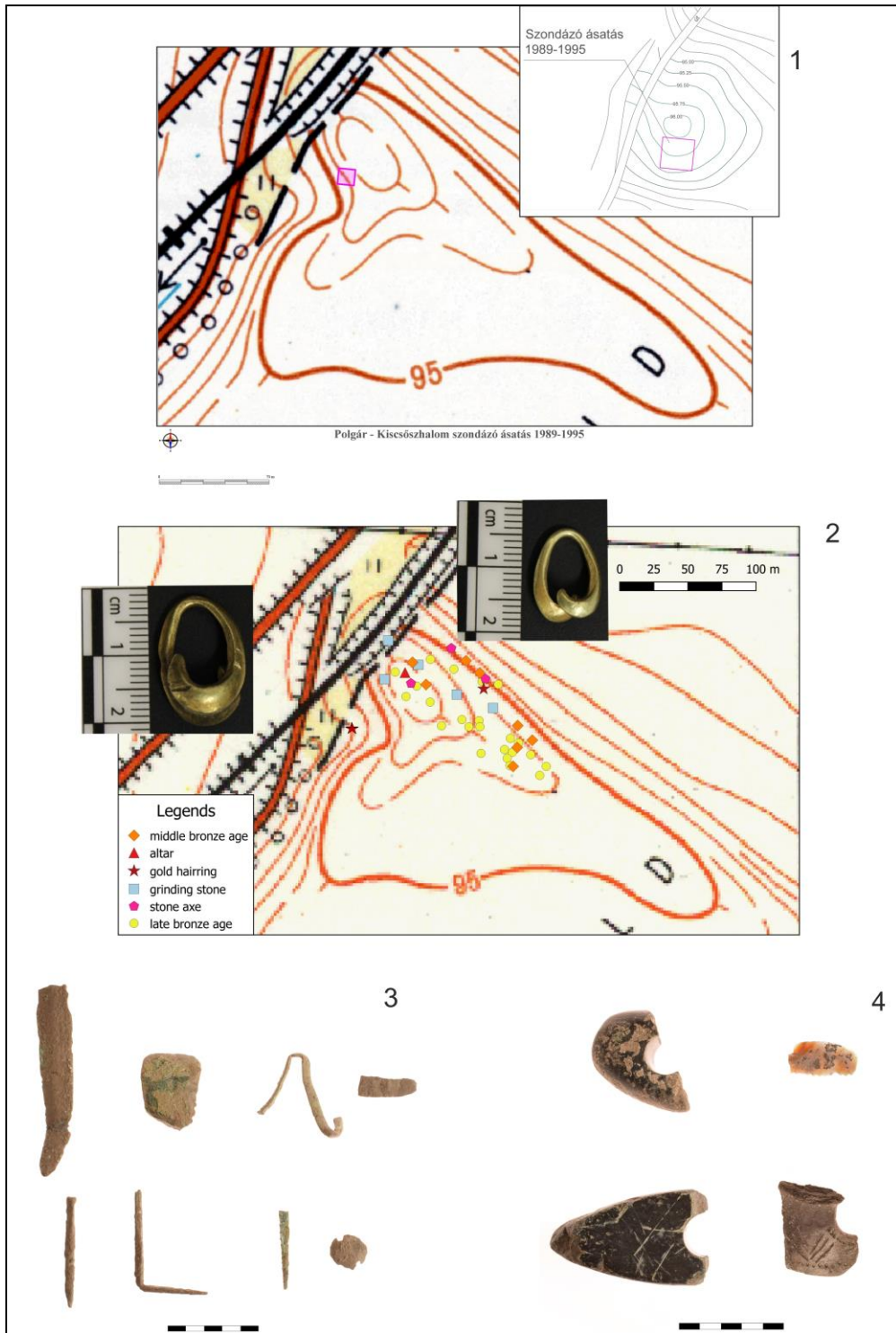


Figure 1. 1 – Detail of the EOV map with the contour of the sounding excavation on Polgár-Kenderfőldék, Kiscsőszhalom tell (1989-1995) (Map made by Róbert Ortutai, Déri Múzeum); 2 – Map (cut-out of EOV) of the surface collection with metal detector from Polgár-Kenderfőldék, Kiscsőszhalom tell (Map made by Marianna Bálint); 3 – Selected findmaterial from the surface collection (Photos made by Ákos Jurás, Déri Múzeum)

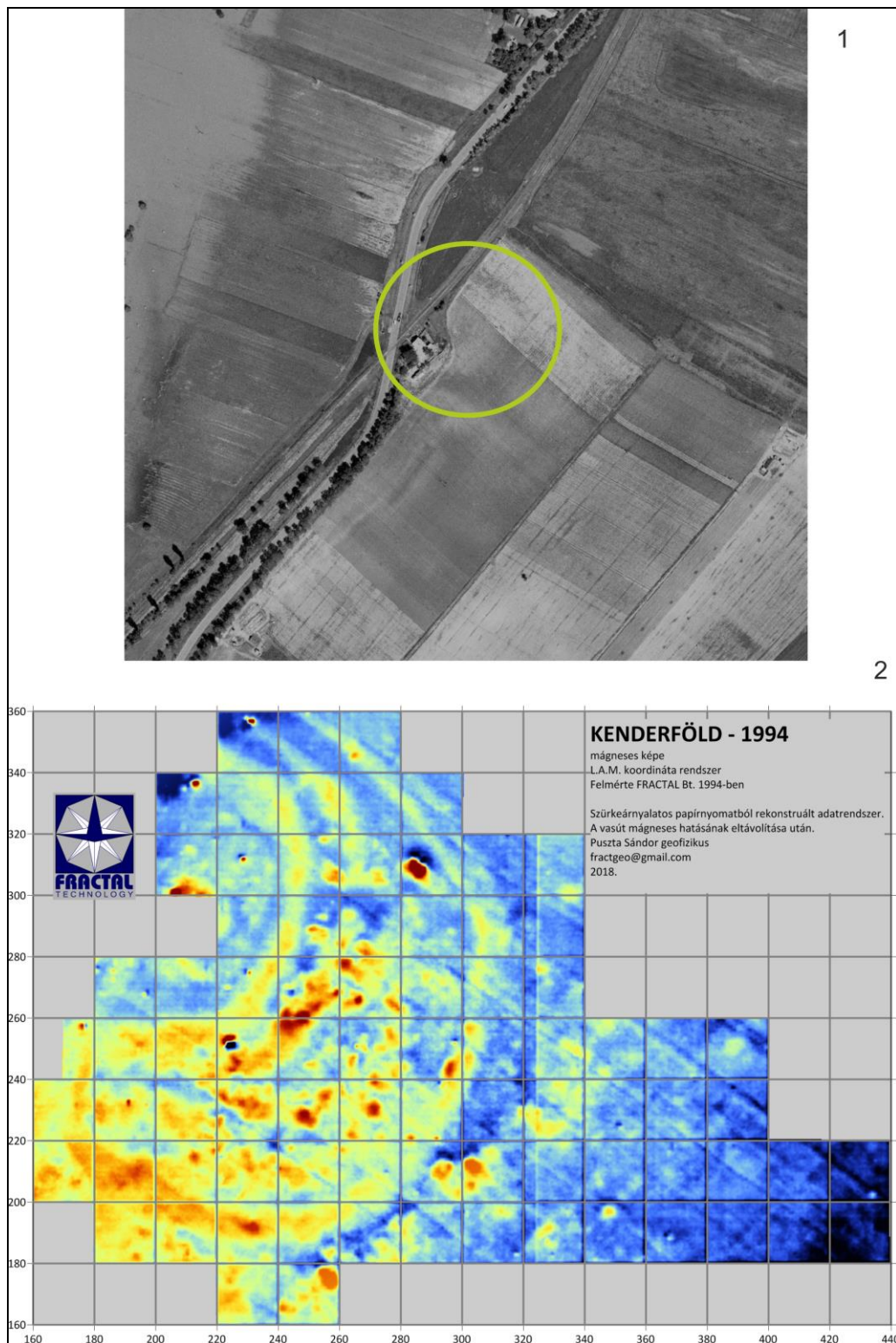


Figure 2. 1 – Detail of the B&W aerial photo of the Polgár-Kenderföldek, Kiscsőszhalom tell (source: FÖMI 1965_0414_4655); 2 – Magnetogramm of the Polgár-Kiscsőszhalom tell made by Sándor Pusztá (Fractal Bt.) in 1994

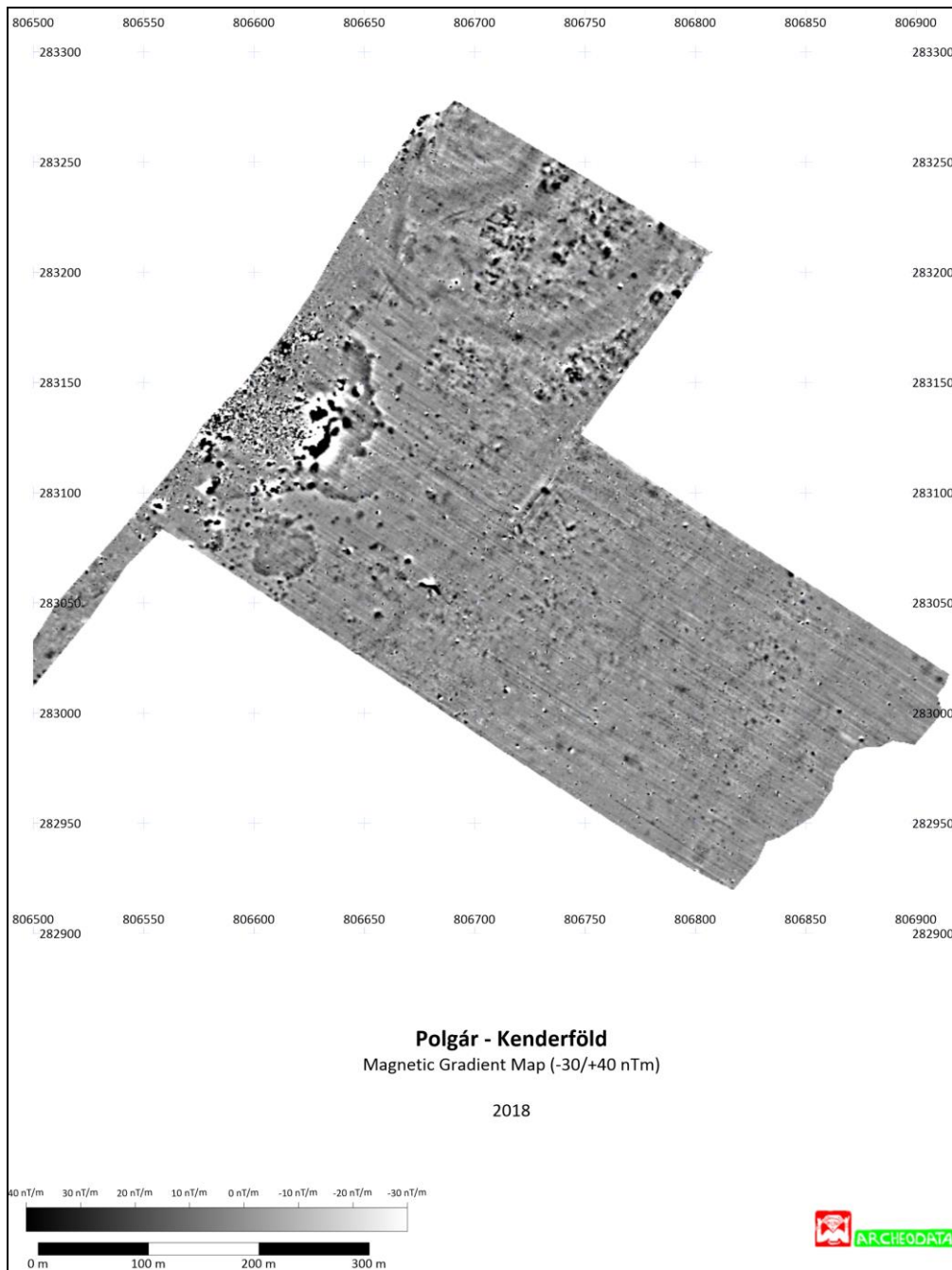


Figure 3. Magnetogramm of the southern part of Polgár-Kiscsözshalom tell made by Gábor Márkus (Archeodata 1998 Bt.) in 2018

The elevated high terraces and hills offered protection, while the gallery forests of the floodplain served as important wood resources. There seems to be an increase in the versatility of the vegetation around the Bronze Age settlements, including the tell settlements, compared to the

background areas, as a result of the newly appearing plant species connected to crop cultivation and stock farming (Sümegei 2009; Sümegei 2013). Before the final year of the excavation in 1994, Sándor Pusztai has made a geophysical survey, which shows us a multiple

fortification/ditch-system (Fig. 2.2). In 2018 Gábor Márkus has made a partial geophysical survey on the site, which shows more details: the burnt remains of the houses between the ditches, and further South the features of the outer settlement (Fig. 3).

Surprisingly or not this structure with the more and more expanding ditches is very similar to the geophysical picture of Carei-Bobald (Németi & Molnár 2012: Fig. 62–63). Of course, at this moment we are not able to date each separate ditches. We can summarize that the metall detector examination was very-very useful and it has given us brand new finds and information about the sites. In the case of the Kiscsősshalom tell István Bacskai has found a new piece of golden Lockenring and some very important little bronze finds (buttons, fragments of sickle, awl, punches, dagger) (Fig. 1. 2–4). Between 1999–2001 connected to the M3 motorway construction-works some very rich Füzesabony cemeteries were discovered and partly excavated by Gábor V. Szabó and János Dani in the Polgár microregion. Firstly the cemetery of the Kiscsősshalom tell-settlement from Kenderföldek was found, with some very rich graves (Dani et al. 2000; Dani et al. 2003; Dani & V.Szabó 2004) (Fig. 12. 1; Fig. 13)!

Polgár-Ásott-halom and Király-épart (Site 29/M3)

The Ásott-halom tell is situated in the southwestern part of Polgár, right beside the Király Brook (an earlier Tisza channel) (Fig. 4. 1). The tell was surveyed by the Upper Tisza Project in 1991 under the name "Polgár 038" (UTP e-book, database 2), then geophysical survey was carried out in 1994 also by Sándor Pusztai (Fig. 6.1). The recent magnetometric prospection made by Gábor Márkus suggests a spatially well-structured fortified tell with a multiple ditch-system and an outer palisade. Next to the core area the burnt debris of rectangular houses are clearly visible (Fig. 6. 2). The inner core of the tell is clearly visible and it shows the same structure: circular, semi-circular wide ditch as in the case of Kiscsősshalom, or at other tells from the Borsod Plain (Szakáld-Testhalom, Tard-Tatárdomb, Emőd-Nagyhalom etc.). The outer ditch was probably connected to the LBA Period, on the basis of evidence of a narrow cross-section cut through it in 1997 by Béla Kriveczky. Approx. 10 % of the find material from this cross-section and

some cremation graves next to the tell prove, that the tell-founder was also a Hatvan community, which was followed by Füzesabony layers (Fig. 5. 2–3). The very efficient metal detector survey of István Bacskai has resulted a golden Noppenring and some little fragmented bronze artefacts (Fig. 4. 2; Fig. 5. 1). The gold wire was found very close to the Noppenring approx. 10 years ago, and is kept in a private collection.

We have found two cemeteries belonging to the Ásott-halom tell: one is very close to the tell (Site 29/M3 motorway project) and the other was situated a little bit further to the East, on a sand dune (Homok-dűlő) (Dani 2004) (Fig. 12: 1; Fig. 13).

Polgár-Papp Tanya (Site 1/M3)

In the work of I. Nepper, an important Bronze Age site can be found, named after the owner of the farm and parcel as "Papp Vendel tanyája" (Fig. 12. 1; Fig. 13). She dated the finds from this site to the period of the Tumulus culture (M. Nepper 1974a: 19; Table 6/2-3; M. Nepper 1974b: 415, nr.15). From the same site Károly Mesterházy also published a cup and a bronze pin with twisted neck and rolled end as "originated probably from a cremation grave" (Mesterházy 1970: Table I/1, Fig. 21). Checked on the map it became obvious that this site is identical with Site 1 of the M3 motorway project, under the name "Király-épart" (Hajdú & Nagy 1999: 144–146). On the ground of the published finds, we cannot exclude that at this huge site a MBA cemetery existed before the Tumulus culture.

Polgár-Downtown, Building of the secondary grammar school

In 1965, Károly Mesterházy received Bronze Age finds from the downtown of Polgár, which came to light during the construction works of the new secondary school (Fig. 12. 1; Fig. 13). Beyond a Medieval coin hoard, among the stray finds from this site a typical MBA decorated mug with a funnel-shaped neck and with vertical channels on its body can be found. Judging from the almost intact condition of the vessel, this could be a grave good, in this case we can reconstruct there a MBA burial place. (Mesterházy 1966: 52, Fig.8/1; Archaeological Collection of the Déri Museum; Inv.nr.: IV:66.1.14).

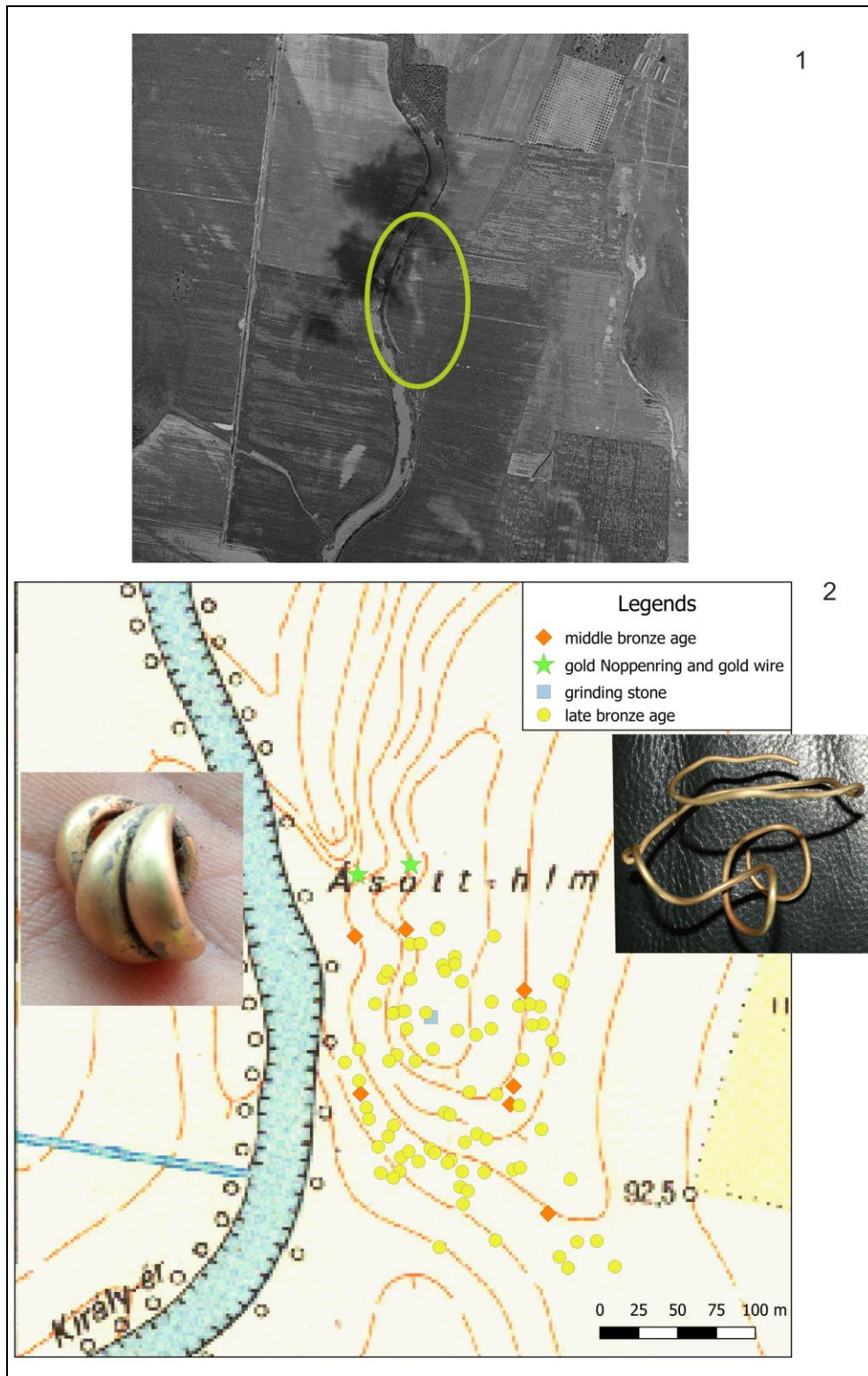


Figure 4. 1 – Detail of the B&W aerial photo of the Polgár-Ásott-halom tell (source: FÖMI 1965_0414_4680); 2 - Cut-out of EO map with the result of the metal detector survey (Map made by Marianna Bálint)

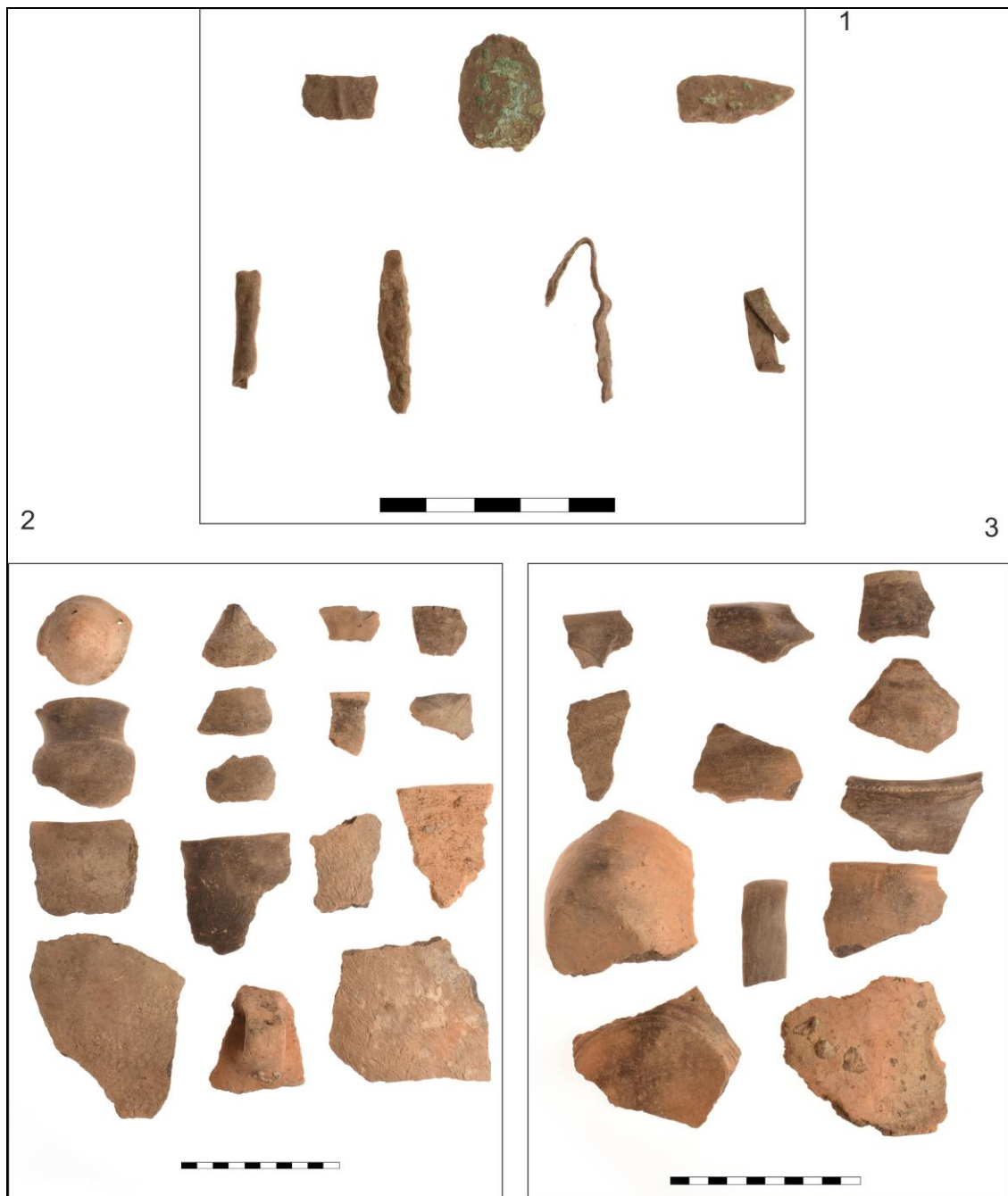


Figure 5. 1 – Selected findmaterial from the surface collection of Polgár-Ásott-halom tell; 2 – Hatvan style ceramic from the cross-section of the 2nd ditch of Polgár-Ásott-halom tell (1997; Courtesy of B. Kriveczky.); 3 – Classical MBA (Füzesabony) ceramic from the cross-section of the 2nd ditch of Polgár-Ásott-halom tell (1997; Courtesy of B. Kriveczky.) (Photos made by Ákos Jurás, Déri Múzeum)

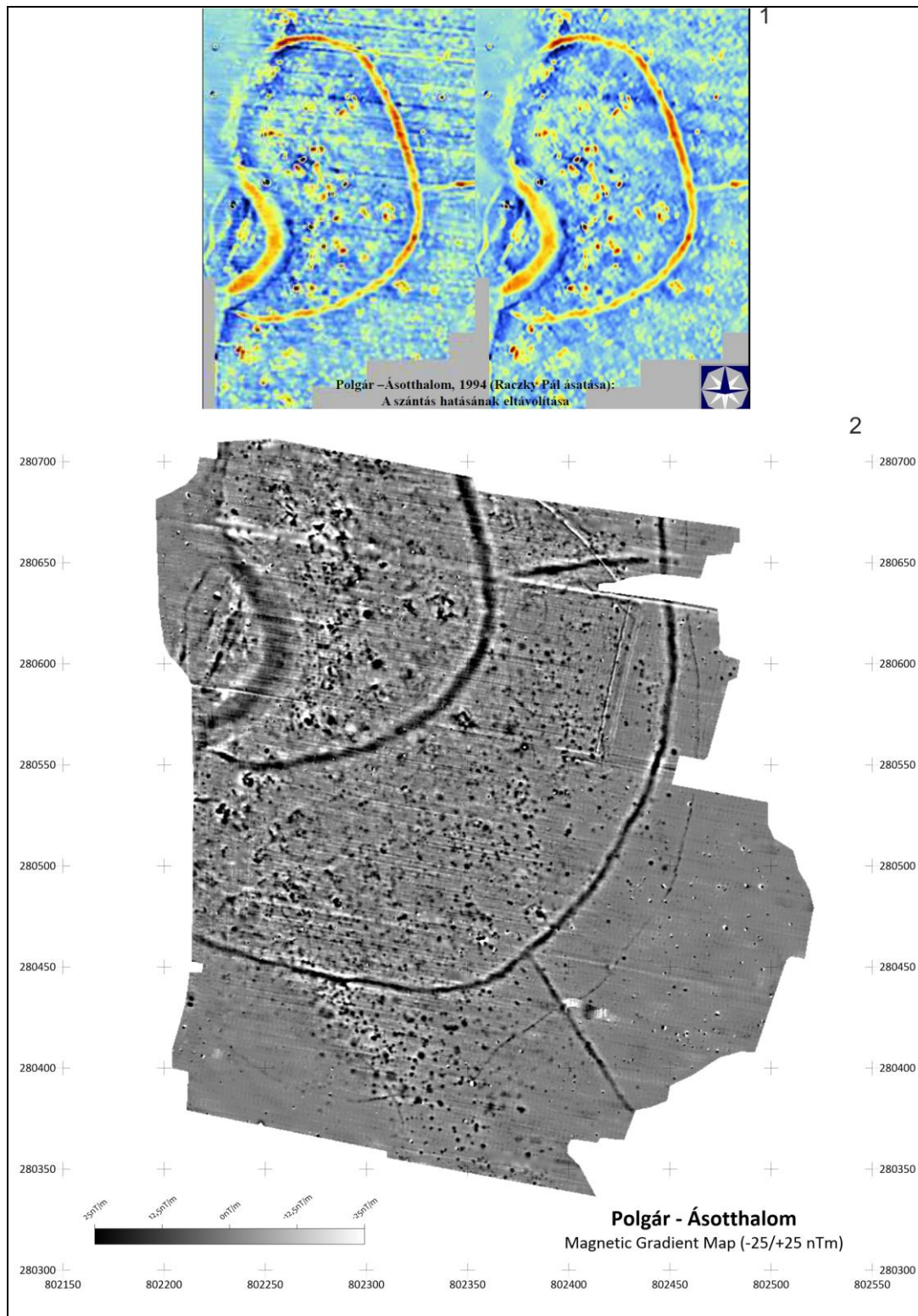


Figure 6. 1 – Magnetogramm of the Ásott-halom tell made by Sándor Pusztai (Fractal Bt.) in 1994; 2 – Magnetogramm of the Ásott-halom tell made by Gábor Márkus (Archeodata 1998 Bt.) in 2018

Polgár-Görbetó-dűlő

In 2001, connecting to the motorway construction works, a clay extraction site was established North of the Polgár-Görbeháza road, on a shallow ridge at the eastern end of the Görbetó paleochannel (Fig. 13). During the archaeological monitoring of the mining activity Gábor Márkus and János Dani have found so intact MBA finds (Füzesabony style) and human bones, from which we can assume here a burial place.

Folyás-Bivalyhalom

A few years ago, new Bronze Age settlements were found thanks to the intensive field surveys of Gábor Márkus and András Füzesi. To tell the truth, Bivalyhalom in the western part of Folyás was actually only rediscovered at this time, since it had already been identified and mentioned previously (M. Nepper & Sz. Máthé 1973 : 52; M. Nepper 1974b : 414, nr.8; M. Nepper et al. 1981: 47, note 13). This tell is situated next to the Farkas brook (Fig. 7. 2), which was also an earlier Tisza riverbed. On the aerial photo made in the 1960s the heart of the tell surrounded by a circular ditch is clearly visible (Fig. 7. 1). István Bacskai found here a few small bronze objects (fragments of pendants, sheet, bands) and two different types of gold Noppenrings (situated very close to each other) with a metal detector (Fig. 7. 2; Fig. 8. 1). We collected lots of grinding stones (Fig. 8. 2) and a human cranium from the surface of the tell and from animal nests, fox and badger holes. The sherds collected from the surface belong to the Hatvan and Füzesabony style (Fig. 9), clearly indicating for us the two main phases of the tell.

Újszentmargita-Tuka, Kunszög

Finally, even to the south, but along the left bank of the Tisza river, too, we have to call attention to a little tell-like settlement in the neighbourhood of Újszentmargita, next the road to Tuka. It is the mound of Kunszög, in the angle of the Árkus and Inta brooks (Fig. 10. 2). Probably Ibolya M. Nepper has found the same site during her field surveys in 1971 (M. Nepper 1974b: 416, nr.29). We found this embryonic settlement this spring, surrounded by water. But on the black-and-white aerial photo we can recognize a connected and also fortified outer settlement... (Fig. 10. 1) From this site we could collect only a few sherds, which can be dated to the end of the EBA (Hatvan and Otomani style material) (Fig. 11), and nothing else, with the

exception of the fragment of a beautiful ornamented gold sheet. It was probably a part of an oval disc, something similar to the well-known discs from Óbéba. The geophysical and geodesic surveys were a kind of 'mission impossible' on the last two sites, because the vegetation (forest with bushes) was so dense!

Questionable sites (Fig. 14)

Polgár-Bosnyákdomb

This site was mentioned by N. Kalicz as the findspot of the EBA Nyírség culture and the tell-settlement of the Hatvan culture (Kalicz 1968: 65, 127), and we can read practically the same in the UTP report (UTP e-book). Although, during the excavations of Pál Raczky and his team some Bronze Age finds came to light from the top of the site, the stratigraphy of this tell-like settlement does not support the previous idea (Anders et al. 2008: 261; Raczky & Anders 2009; Anders & Raczky 2009: 263).

Polgár-Kígyós-domb

The site is situated on the western periphery of Folyás (almost 5 km far from the centre of the village), next to the left bank of the Király brook. Now, the territory of the settlement is covered by forest. Not so far from the tell-site Ibolya M. Nepper has collected fragments of Neolithic coarse ware during her fieldwork in 1971 (M. Nepper & Sz. Máthé 1973: 52; Nepper 1974a: 15), this Middle Neolithic site was identified 35 years later by András Füzesi, too (Füzesi 2009: 379). Between 2002–2010 Gábor Márkus has conducted systematic field surveys for a better understanding of the Roman imperial settlement network on the left bank of the river Tisza from Tiszadob until Tiszacsege. He has discovered this fantastic huge Neolithic tell or tell-like settlement on the densely forested wide plateau (Raczky et al. 2014: 319, 323, note 2, Fig. 3; Füzesi et al. 2016: Fig. 4–5). We need further examinations in order to clarify whether there was a Bronze Age settlement on this site and its nature.

Polgár/Hajdúnánás-(Horti) Király-domb

In 1965, Károly Mesterházy collected Bronze Age finds (spindle whorl; clay wagon wheel; a flat, round lid and a fragmented stone axe) from the neighbourhood of the site, which show Middle Bronze Age character (Mesterházy 1966: 52, Fig. 35/5–7)

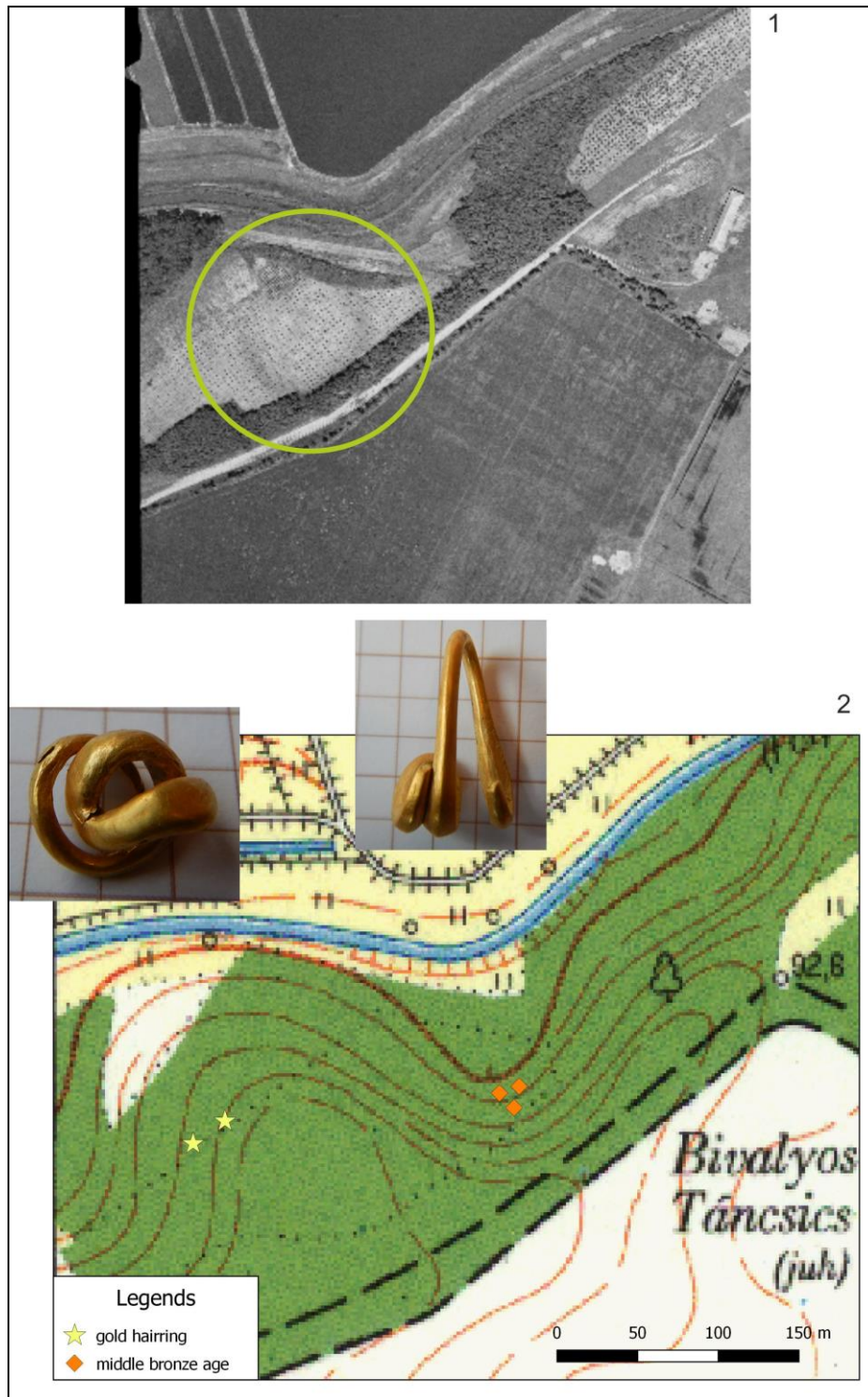


Figure 7. 1 – Detail of the B&W aerial photo of the Folyás-Bivalyhalom tell (source: FÖMI 1965_0414_4624); 2 – Cut-out of EOVS map with the Folyás-Bivalyhalom tell (Map made by: Marianna Bálint)



Figure 8. 1 – Selected bronze fragments from the surface collection of Folyás-Bivalyhalom; 2 – Grinding stones from the surface of the Bivalyhalom tell (Photos made by János Dani)

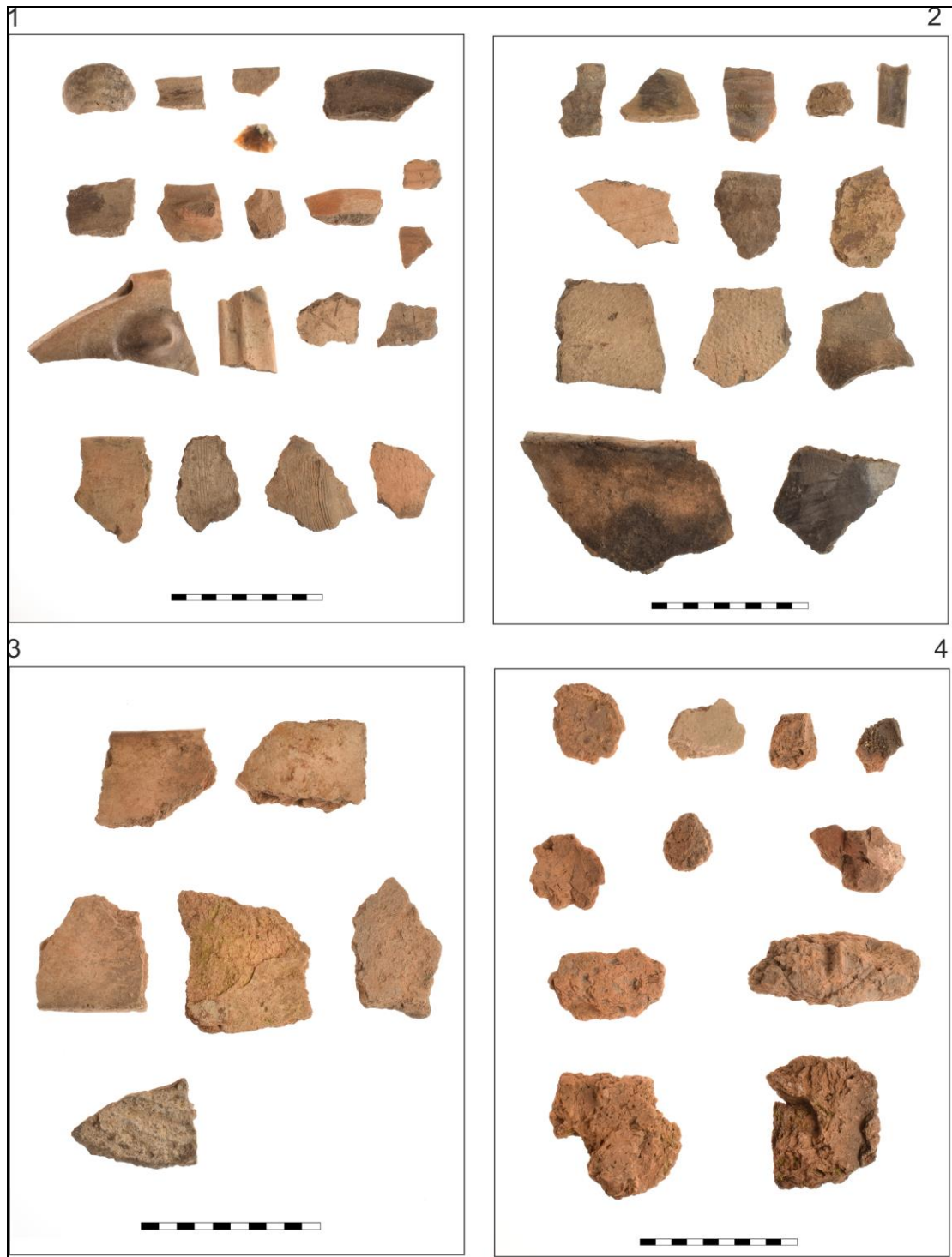


Figure 9. 1, 2 – Selected ceramic from the surface collection of the Folyás-Bivalyhalom tell; 3 – Fragments of a pyraunos; 4 - Wattle and daub fragments (Photos made by Ákos Jurás, Déri Múzeum)

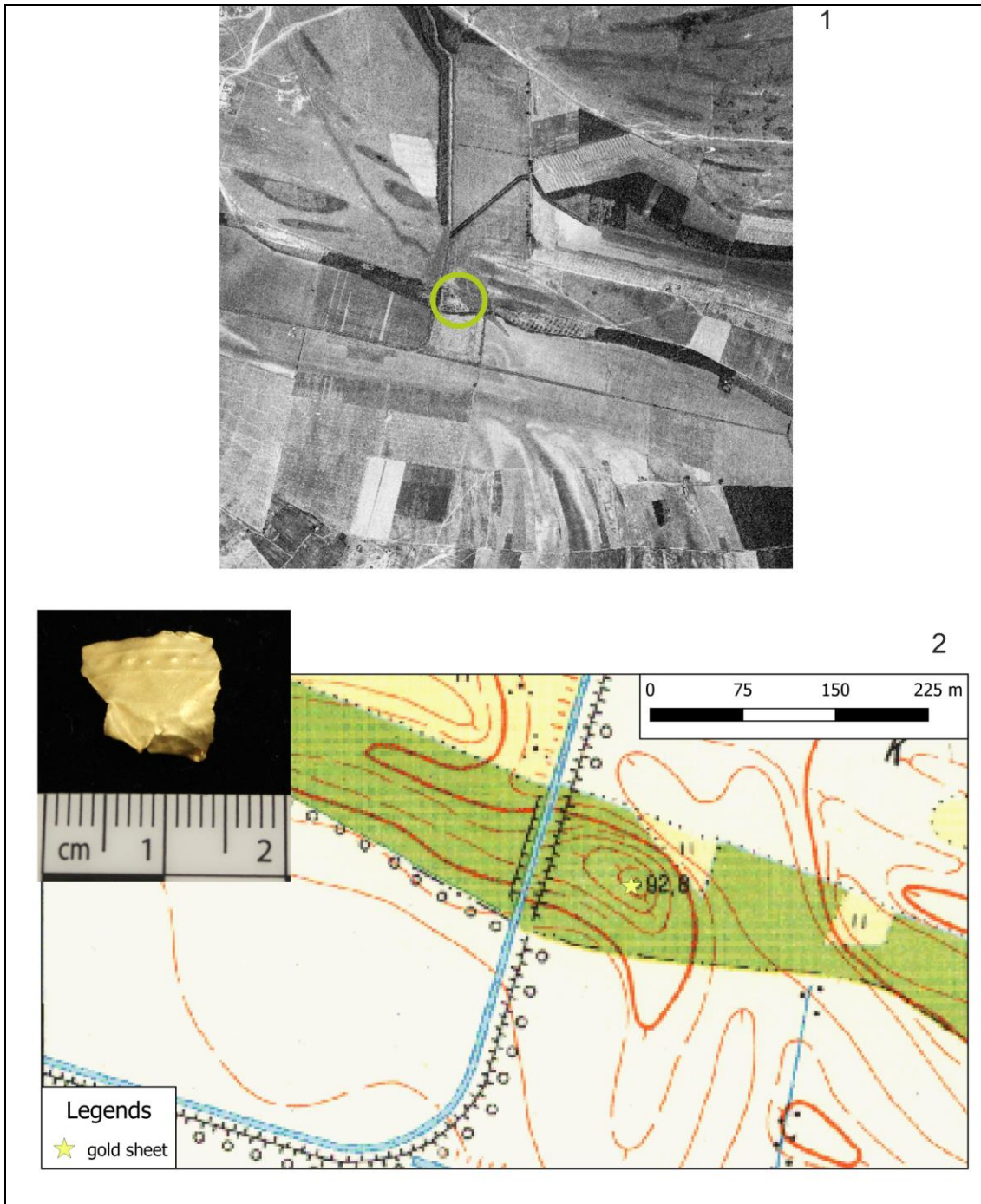


Figure 10. 1 – Detail of the B&W aerial photo of the Újszentmargita-Tuka, Kunszög tell-like settlement (source: FÖMI 1965_0458_5956); 2 – Cut-out of EO map with the result of the metal detector survey (Map made by: Marianna Bálint)

Archaeological Collection of the Déri Museum; Inv.nr.: IV:66.1.1–4). In fact, the Királydomb or Király-halom—situated on the borderline of Polgár and Hajdúnánás towns (some 11,3 km East from the centre of Polgár), on the South side of the road to Hajdúnánás—can be an EBA kurgan (M. Nepper et al. 1981: 41). Since then, there is no more exact information about this site.

Tiszadob-Reje Tanya

The site was also surveyed during the Upper Tisza Project under the name “Tiszadob 026”. The report of the UTP mentioned the following interesting things: „After medium-intensity discard of Middle Neolithic pottery and loss of a few Early Copper Age sherds, a Late Copper Age mortuary barrow was erected, followed by an Early Bronze Age flat site and a Middle – Late Bronze Age tell, with a possible Bronze Age flat cemetery on the edge of the flat site. This is the only place known in the whole of the Project study region in which a barrow precedes a tell on the same site.”(UTP e-book) Based on the description, the tell was surrounded by a circular ditch (UTP e-book, database 3). New field and magnetometric surveys are needed for the more exact description and characterisation of this site.

Újtikos-Tikos domb

Although the site itself has been known for decades (Kralovánszky 1965: 43; M. Nepper et al. 1981: 42), its exact chronological definition and interpretation is problematic and questionable. It was also surveyed during the Upper Tisza Project under the name “Újtikos 002” (UTP e-book, database 4). The UTP e-book reported about a certain debate on the chronology/emergence of this tell: „the mound of Újtikos 002 (Tikos Domb) – a low tell with a Medieval church on the top. In the absence of excavations at Tikos Domb, surface material can be used to date the mound, or part of the mound’s occupations. Nepper (1970a: 415, site 21) records for the site of Tikos 33. Magassi Pont Szilmeg, Bükk, Tiszapolgár and Roman Imperial pottery as well as an Arpadian village and church. However, in the UTP field survey, the main Medieval village site was at Újtikos 003, as defined by large quantities of Medieval ceramics. The UTP sherd collection from Tikos domb itself yielded no Bronze Age sherds but some Roman Imperial, Arpadian and Late Medieval sherds—

consistent with the Medieval church site—but the main bulk of material was dated to the Middle Neolithic. On this basis, the UTP interpretation is that Tikos Domb was a late Middle Neolithic tell (Chapman 1994: 1999). However, Raczky maintains that Tikos Domb is a Bronze Age tell on the grounds that (1) there is no Late Neolithic material there and (2) the only zone where Middle Neolithic tells can be expected is in the Southern Alföld. An additional point concerns the sherd collection in the Muzeul de Istorie, Cluj-Napoca, from an unknown place in the parish of Tikos, collected or excavated by an unknown person. In the absence of systematic fieldwalking, it may be supposed that the most likely Újtikos site from which this material could have derived would be Tikos Domb. The material is certainly Middle Neolithic in date, with the Bükk and Tiszadob styles of decoration, comparable to the UTP material collected from the tell. The question of the date of the emergence of this site as a tell can be settled only through excavations.”(UTP e-book).

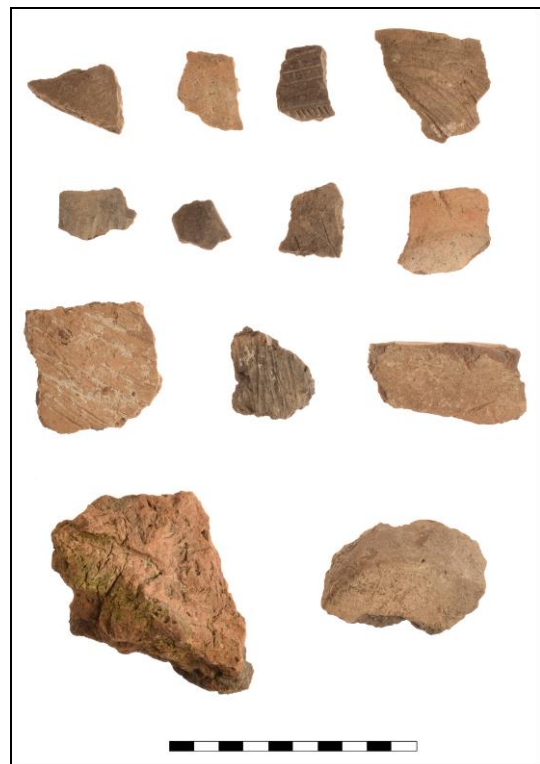


Figure 11. Selected ceramic from the surface collection of the Újszentmargita-Tuka, Kunszög tell-like settlement (Photo made by Ákos Jurás, Déri Múzeum)

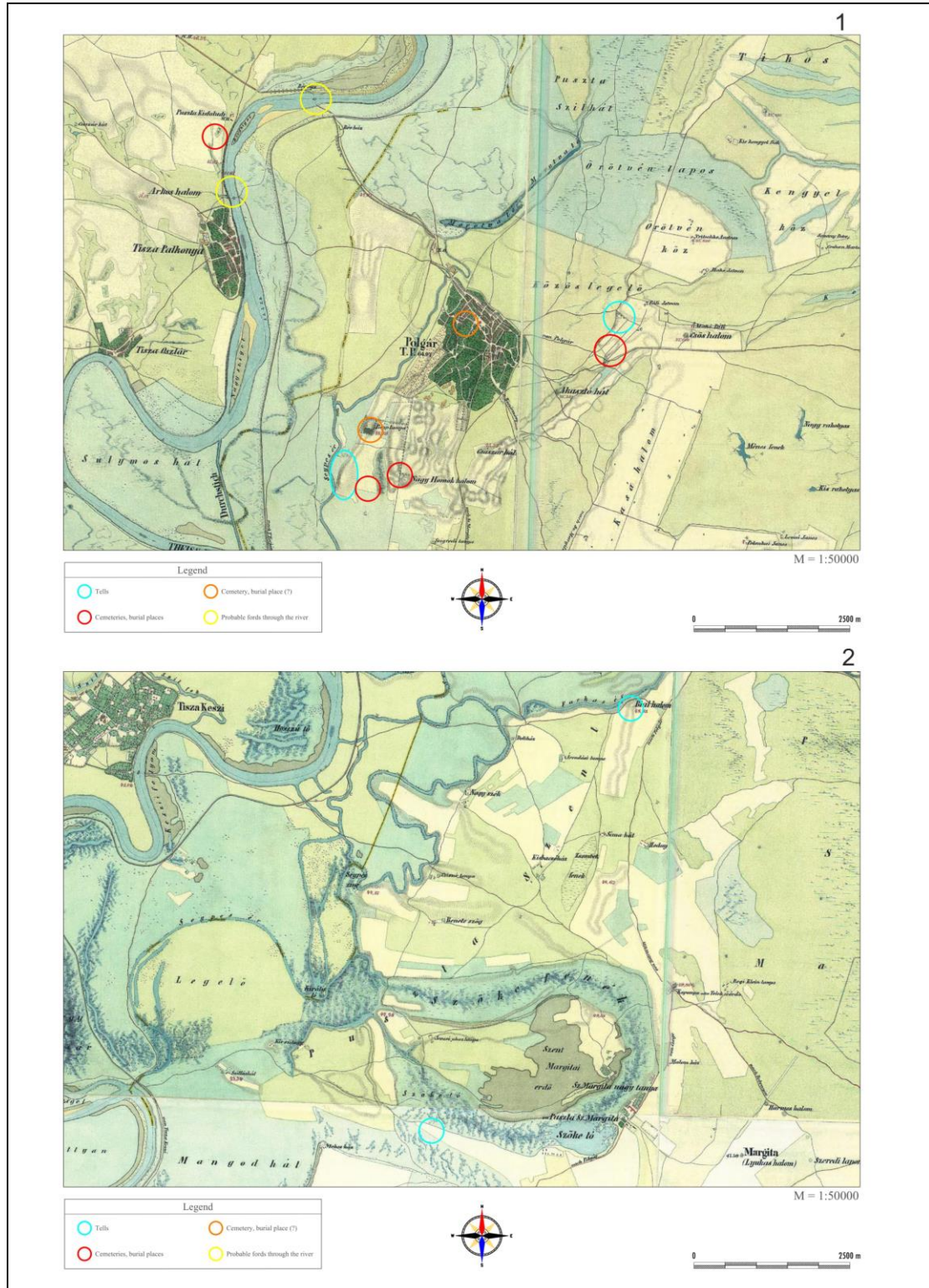


Figure 12. Details of the 2nd Habsburg military survey with the MBA sites in the Polgár microregion: 1– Polgár and its vicinity; 2 – Area between Folyás and Tiszacsege (Maps made by: Tímea Gulyás, Déri Múzeum)

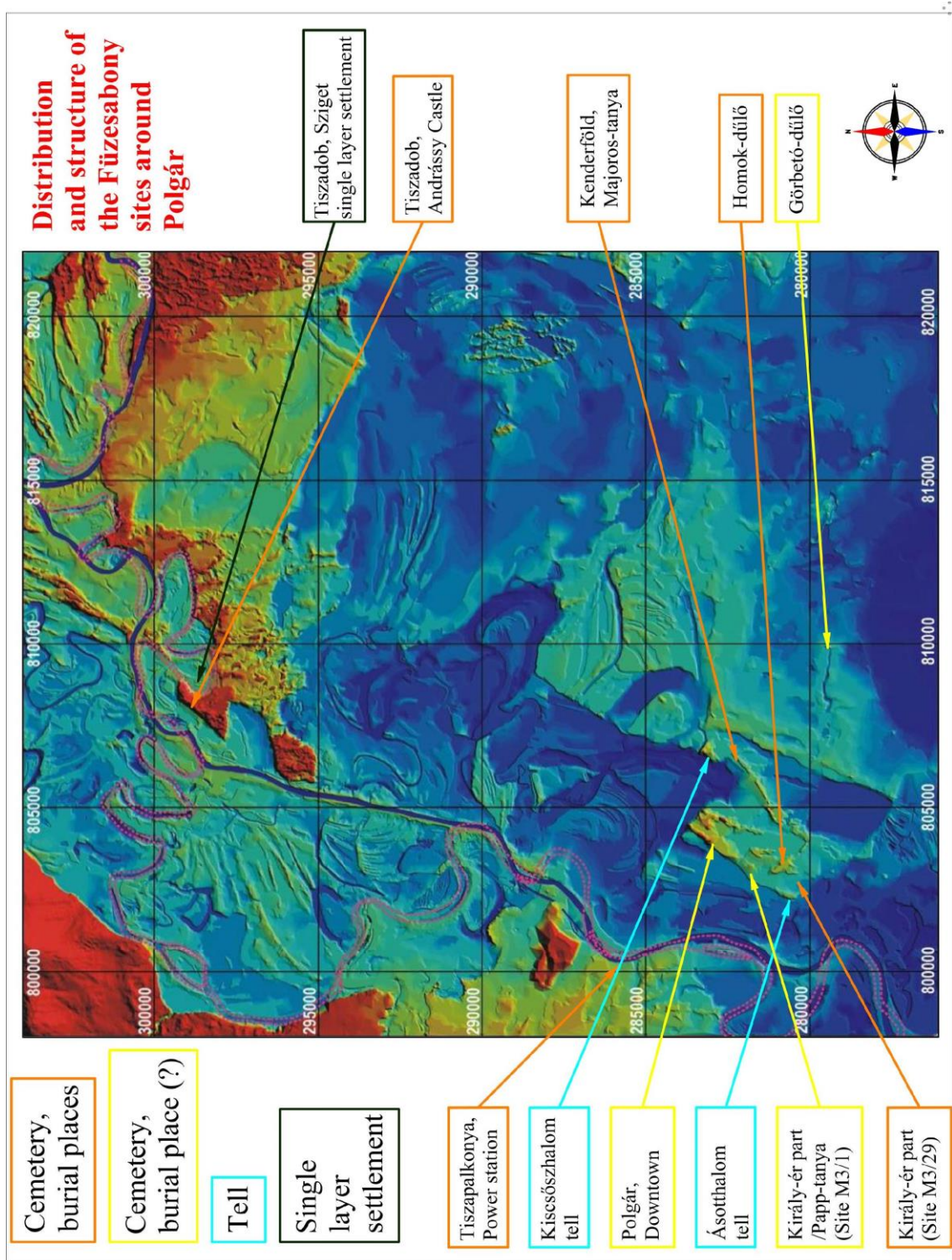


Figure. 13. DTM of the Tiszalök-Polgár area with MBA Füzesabony sites (Basic map after Tímár 2003; Map made by: Tímea Gulyás, Déri Múzeum)



Figure 14: Detail of the 2nd Habsburg military survey with the questionable sites mentioned in the text (Map made by: Tímea Gulyás, Déri Múzeum)

Polgár-Borjúhalom

Although this site was mentioned in the literature several times (Kalicz 1968: 126; nr. 176, Abb. 4; Nepper 1974a: 18; M. Nepper 1974b: 414, nr.4; M. Nepper et al. 1981: 47, note 11), we have not been able to identify this site among the toponymy originating from the historical maps of military surveys and from the cadastral map of the 19th century. Its exact location and identification not yet clear.

Summary

Summing up, the MBA settlement network of the Polgár microregion is an intentional, well-organized system. The settlements described here look very rich based on the collected stray finds (thinking, first of all, about gold jewellery) and the connected cemeteries. This cannot be a coincidence! Tells and their cemeteries are located on the very important trade-route from the direction of the Great Hungarian Plain and even further from Transylvania through the Košice Basin and Lesser Poland probably till the source of amber, the Baltic coastline. Therefore, the Bronze Age tells of the Polgár microregion could be not just centres of power, but controlling points of the river fords through the Tisza river; this could be one possible explanation for the richness of this particular microregion during the MBA.

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NONDESTRUCTIVE RESEARCHES OF ALSÓVADÁSZ-VÁRDOMB

ARCHAEOLOGICAL SITE: PRELIMINARY RESULTS

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Kivonat Alsóvadász a Cserehát dombvidék déli részén terül el, a Vadász patak partján Miskolctól északkeleti irányban kb. 25 kilométerre. A Vadász-patak völgyében található, eddig ismert tell települések, a Hernád-völgyének azonos korú településeihez hasonló mintát alkotnak. E rendszerben helyezkedik el a mai település délnyugati határában található dombtető összekeskenyedő nyúlványa, mely Várdomb néven ismeretes. E szabályos kör alakú, árokka körülvett területről sajnos kevés régészeti adattal rendelkezünk, hiszen bár több alkalommal kutatták, a dokumentációk java elveszett. 2018 tavaszán megkezdtük a település roncsolásmentes vizsgálatait, melyek újabb adatokkal bővítik a településről szerzett ismereteinket. Bár a kutatás még csak korai szakaszában jár, a további eredmények segítségünkre lesznek a település egykori életének komplexebb értelmezésében.

Kulcsszavak bronzkor, hatvani kultúra, tell település, roncsolásmentes kutatások, előzetes eredmények, Vadász-patak völgye

Keywords Bronze age, Hatvan culture, tell settlement, non-destructive research, preliminary results, valley of the Vadász stream

The geographical location of the site

We can observe similar settlement pattern structures on the Hernád plain and its embankments and in the valley of the Szerencs stream. Taking a look at the map, we can see a network formed by Bronze Age settlements, all roughly at 5-10 kilometres from each other (Fischl & Rebenda 2012a: 10. kép; Fischl & Bakos 2015: 1. kép). A similar pattern consisting of settlements from the same period can be found in the valley of the Vadász stream, right side tributary of the Hernád-valley; its known tell settlements so far include Alsóvadász- Várdomb and Felsővadász-Várdomb (Fig. 1).

The village of Alsóvadász is located in the Szikszó District of Borsod-Abaúj-Zemplén County, 25 kilometres northeast of Miskolc, at the southern side of the Cserehát hills, on the bank of the Vadász stream. The site is located at the southwestern edge of the present day settlement, at the area above the cemetery known as Várdomb. It is bordered by the wide North-South valley of the Vadász stream from the east and the western tributary of the stream known as Völgyárok from the south; flanked by these two valleys, the medium-height hill is at the south-eastern edge of a protrusion (Fig. 2–5).

Várdomb is separated by a near-perfect circular ditch from the rest of the hill. With a roughly 40 m diameter, the profile of the slightly domed plateau is unclear, its original dimensions could only be determined through excavation. The ditch remained most intact on the side closer to the protrusion, where it is 4–5 metres deep and 50 metres at its greatest width. On the western and eastern sides of the hill the ditch is only traceable in the form of a terrace. Unfortunately, despite having been researched many times before, we have little data on this site as most of the documentation was lost (Fig. 6).

Research history

The site is first mentioned in 1906 by József Hampel. According to his report, an excavation was led there by Lajos Márton, adding three hundred and sixty-four prehistoric artefacts to the collection of the National Museum; however we lack any other information on the excavation itself (Hampel 1906).

Nándor Kalicz classified Várdomb as a fortified settlement of the Hatvan culture (Kalicz 1968: 117).

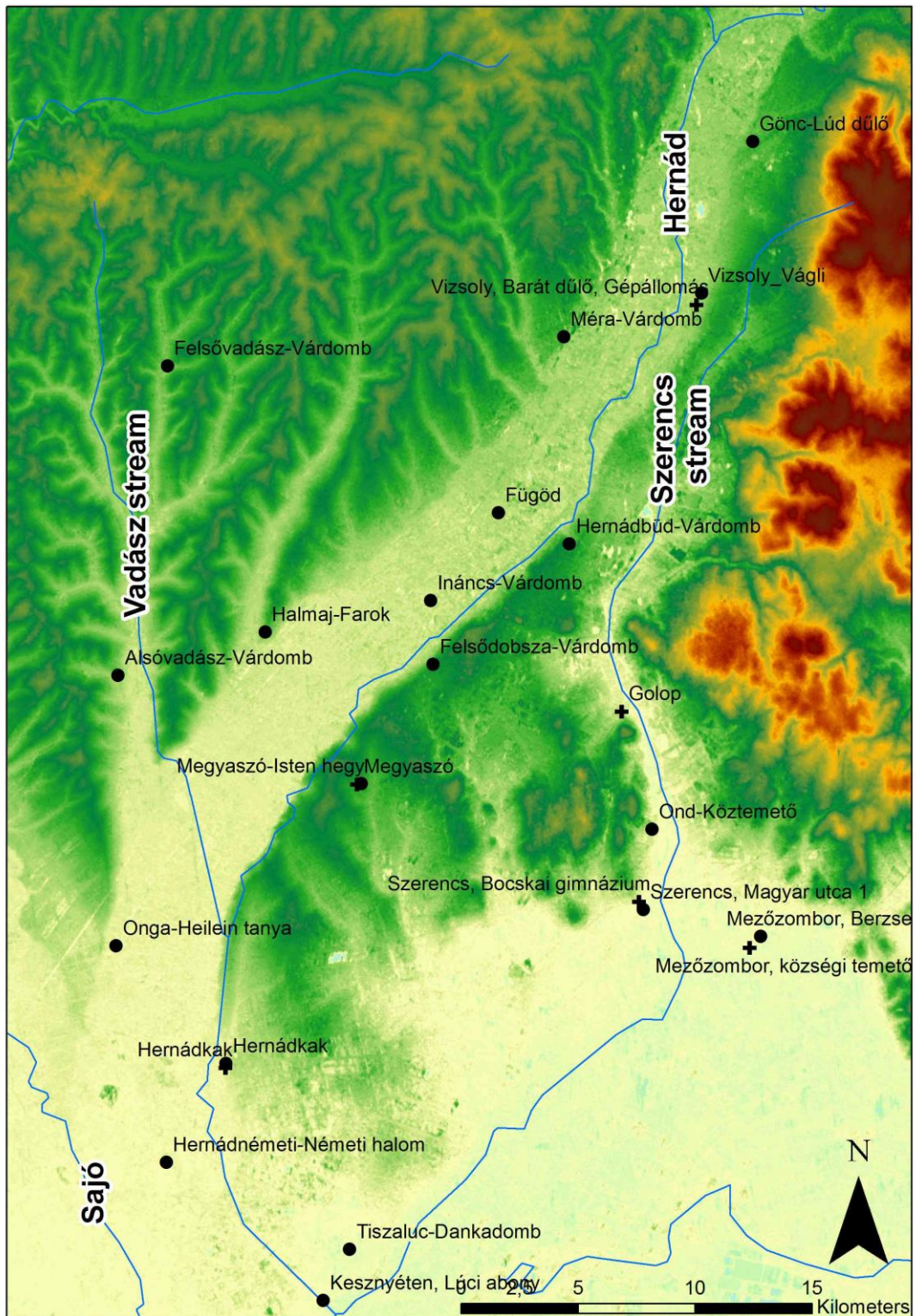


Figure 1. Bronze Age sites in the Hernád Valley and tributaries (made by Klára P. Fischl)



Figure 2. Location of the site on the 1. Military map

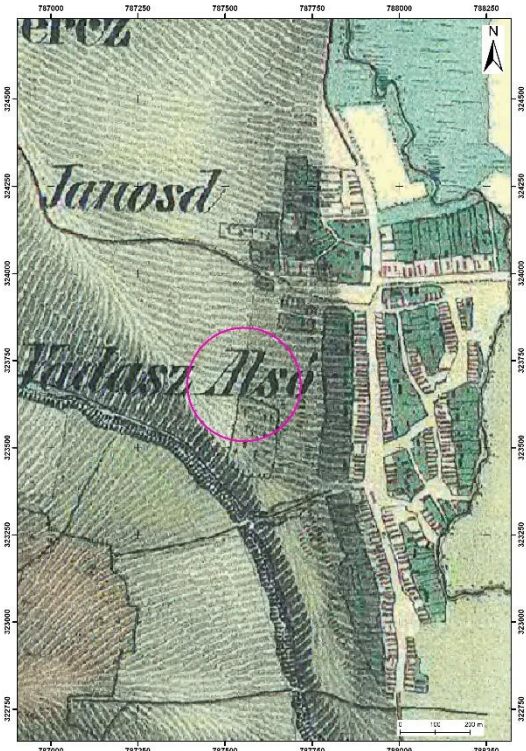


Figure 4. Location of the site on the 3. Military map



Figure 3. Location of the site on the 2. Military Map

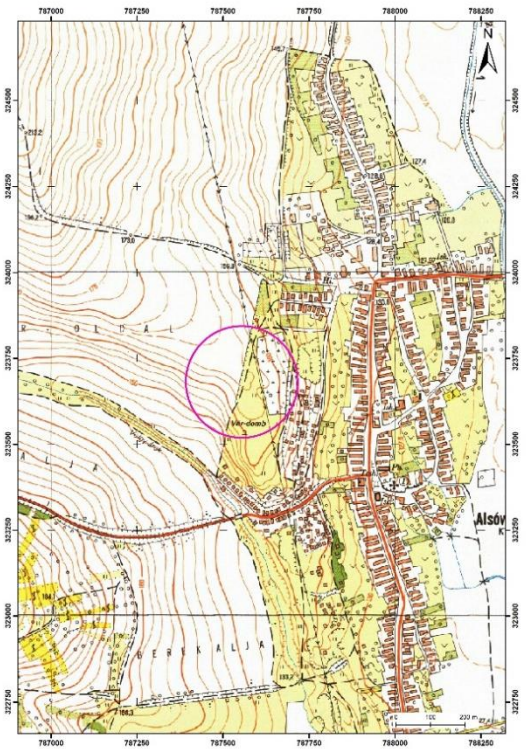


Figure 5. Location of the site on the topographical map

In October 1978, president of the waste management company (MÉH) president István Illés contacted the Herman Ottó Museum via letter that human bones and pottery sherds came to light during the earthworks of a planned shooting range at Várdomb. The site was disturbed 1.5 metres deep on a 10 x 20 metre area, unearthing polished and carved bone items, grindstones and ceramics characteristic of the Hatvan culture and the remains of a portable stove (Gádor et al. 1979).

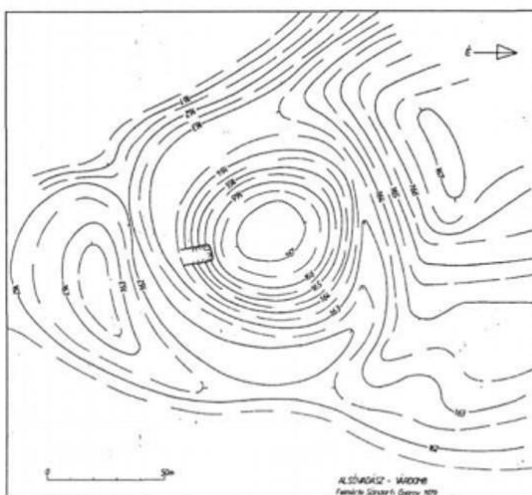


Figure 6. Site plan of Alsóvadász-Várdomb (Sárközy-Nováky 2001, 2. kép)

In the spring of 1979, Gyula Nováki and György Sándorfi completed a site-level survey of the site. In this years June, during a rescue excavation led by Katalin Simán, a 5x5 metre surface was excavated 3 metres deep down to the subsoil. Five separate settlement layers were identified during the excavation, which included a few house remains. Based on the finds, the topmost layer was classified as of Ottomány culture while other layers were deemed to be of Hatvan culture by Katalin Simán. The floors of the houses from this culture were renewed with daub, and rush imprint was observed on a house floor in found layer IV. The lowest layer, layer V, was only a few millimetres thick and without any assemblage (Simán 1980; Hellebrandt and Simán 1980). Finds came to light during this excavation can be found in the collection of the Herman Ottó Museum. Ildikó Szathmári started processing them (primarily Füzesabony finds after the Hungarian classification); in the future, I will be working on what has not been processed yet. Unfortunately the excavation record and

documentation were lost in this instance as well. In 1980 Emese Lovász, Mária L. Wolf, Katalin Simán and Judit S. Koós held an inspection visit at the site. They ascertained that near the earlier profile, the site was disturbed again which affected the top layer. They collected the pottery sherds which mostly originated from a stove (L. Wolf & Simán 1982).

Description of the finds

Finds from these two excavations are most pottery sherds; however they still include many items of interest: portable stove, miniature animal figures, spindle-whorl, spoon, stone axe fragments, stone tools, just to name a few. A souring vessel sherd came to light from one of the house remains. Based on these sherds a specialized household can be distinguished within the settlement, suggesting the presence of some kind of farm building (Fig. 7–8).

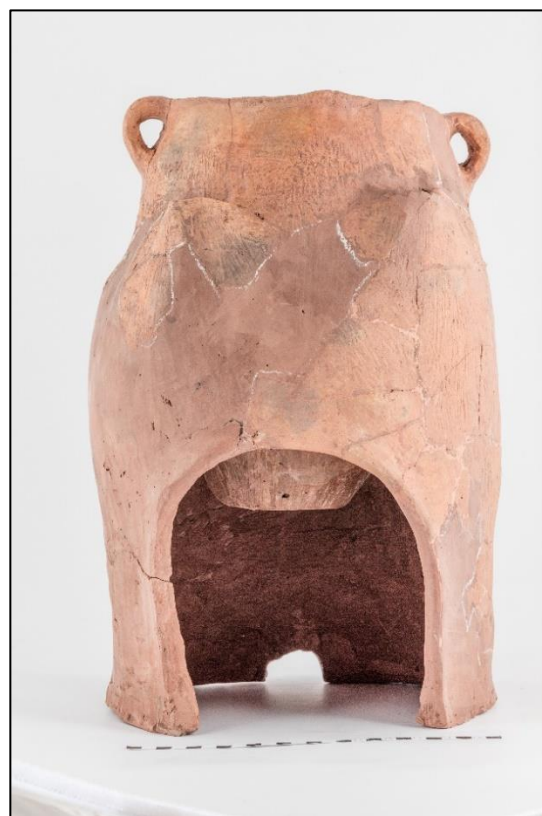


Figure. 7. Restored portable stove from the subhumus-layer I (photo Benedek Baranczó)

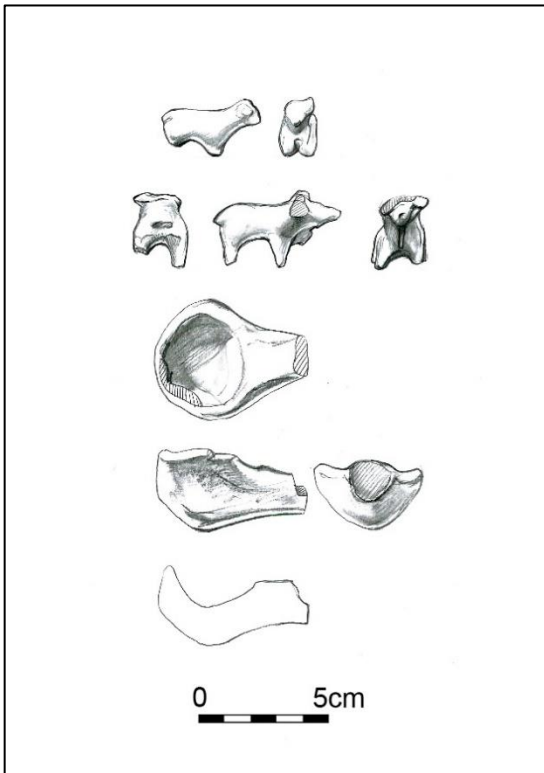


Figure 8. Miniature animal figures and clay spoon excavated by Lajos Márton (Hungarian National Museum 84.1905.70. 65.1905.65; 84.1905.50) (drawings Katalin Nagy)

The askos published by Ildikó Szathmári was from this site as well, the organic residue collected from its inside was put under thorough analysis (Fig. 9). János Csapó, professor at the department of chemistry in the University of Kaposvár, obtained the results from the amino-acid, as well as micro- and macro-analyses of the sample, which he compared to the residue from the askos/wineskin found at the Mezőcsát- Pástidomb site. The high degree of similarity between the two test results confirms that the material once stored in this vessel form must have been of animal origin. As laboratory measurements of the residue from Alsóvadász showed a high iron content, it is possible, that blood had also been present in the sample. (Szathmári 2003: 519–521; P. Fischl & Rebenda 2012b: 493).

Variations of ceramic sherd textile decorations can be well-observed on the material from the Hatvan layers, which appear particularly in the assemblage of the settlement. Further analysis on these can provide data on the technical questions in regards to the textile production of the period

(Fig. 10–11).

As mentioned previously, the topmost layer was classified as of Füzesabony culture while other layers were deemed to be of Hatvan culture. Further examination of the finds revealed however that, even though the majority of the ceramic material found below the upper Füzesabony layer is unequivocally from the Hatvan culture, it does contain some early Szaniszló-type finds as well, sherds of which appear in layer II and are considered to be uncommon in this region (Fig. 12–15) (Dani 2006). This is an interesting phenomenon because it can shed light on the changes, spread and usage of Middle Bronze Age ceramic styles.



Figure 9. Restored askos (photo Benedek Baranczó)

Current research and further opportunities

In spring 2018 we began non-destructive examinations at the settlement. Although the central core of the settlement is relatively intact, we found shallow digging-ins in it, filled with recent refuse. Such holes were reported by Károly Tankó as well in his 2006 survey. A deep cut can be found on the southern side of the hill, from the side of the ditch; Károly Tankó identified this as the shooting range mentioned in previous reports; he believes it was there where Katalin Simán conducted excavations in 1979. However, according to my information those excavations were carried out on the northern side (Tankó 2007).

There is a plateau ideal for settlement on the south-eastern edge of the hill outside of the ditch. This area is currently overgrown by shrubs and weeds, the site's spread towards that direction currently remains unclear.

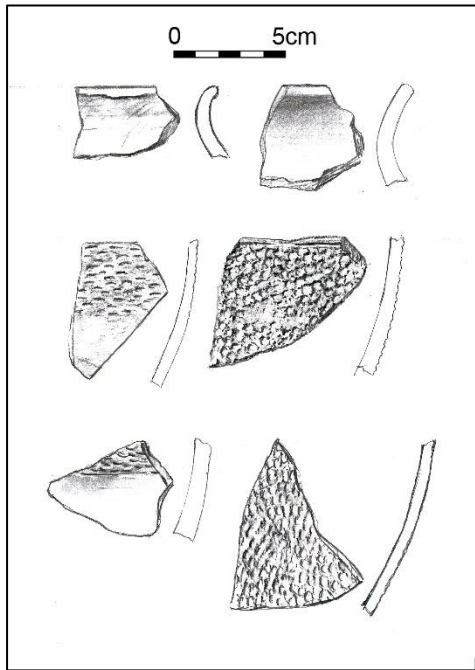


Figure 10. Ceramic sherds with textile decorations excavated by Katilin Simán (drawings Katalin Nagy)

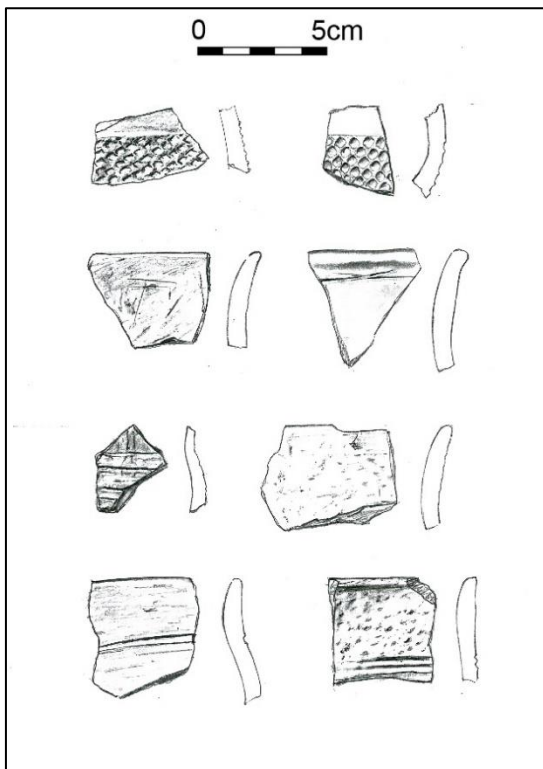


Figure 11. Ceramic sherds with textile decorations excavated by Katilin Simán (drawings Katalin Nagy)



Figure 12. Restored mug from the subhumus- layer I. (1979) (photo Benedek Baranczó)



Figure 13. Restored mug from the subhumus-layer I (1979) (photo Benedek Baranczó)

The East side of the outer settlement is where the present day cemetery is located, the side northwest has an apple orchard over it and the west-southwest side is currently arable land that is planted in. This area is known as Ver-oldal. During his 2006 survey, Károly Tankó localized an intensive site on a 50-60 metre long stretch in the arable land (Tankó 2007). Based on surface finds, the site can be well traced northwards along the fence, up until the mortuary. Bronze Age finds can also be collected on the other side, at the western half of the cemetery up until the northern corner of its fencing. Grassy lawn stretches between the cemetery fence and the apple orchard, crossed by a dirt road in North-West direction.

Currently only aerial photography via drone and performing geophysical survey of the settlement core are possible, due to the growing crops on the field at Ver-oldal.



Figure 14. Restored pot from the II/A layer (1979) (photo Benedek Baranczó)



Figure 15. Restored amphora from the subhumus-layer I (1979) (photo Benedek Baranczó)

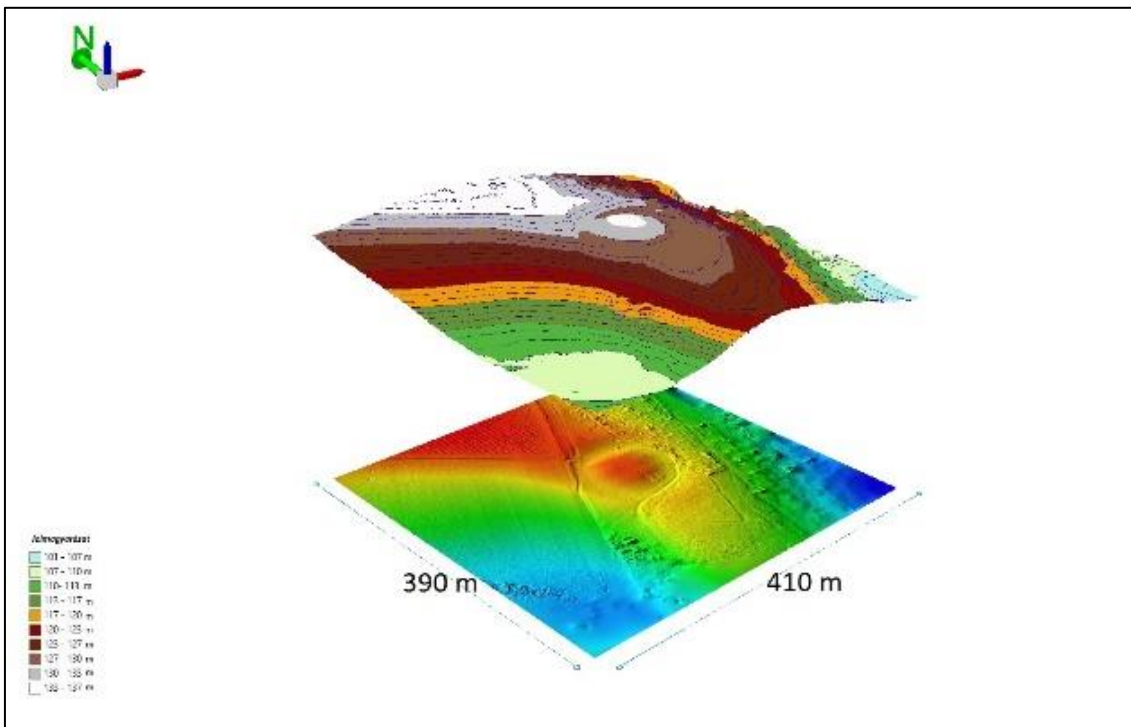


Figure 16. Level model of Alsóvadász-Várdomb (by Dániel Kiss and Szabolcs Honti)

These were further made difficult by the presence of a mobile base station and tower at north, on the highest point of the hill. Based on aerial photography we created the terrain model of the site, which outlines level data spectacularly (Fig. 16).

Even though we could only perform magnetometer survey on a small, 85 by 86.9 m area (Fig. 17–19), it provided a good outline on the ditch surrounding the central settlement core that was also visible on the aerial photography.

The surface is highly polluted due to recent usage and disturbance, which means that anomalies from the same period of the settlement are barely noticeable, if at all. The outer settlement area's soil discoloration over the surface disturbed by ploughing is well visible on satellite images (Fig. 20); moreover we can see its continuation over the apple orchard. We can only conduct further research and determine the size of the outer settlement after the crop has been harvested. The results of systematic surface finds collection, magnetometer surveys and the geophysical survey of the outer settlement, in conjunction with data from the processing of the ceramic material will aid us in getting a more complex read on the former life of the settlement.



Figure 18. The results of the geophysical survey projected onto a digital elevation model (made by Gábor Bakos, Szabolcs Honti, Dániel Kiss)

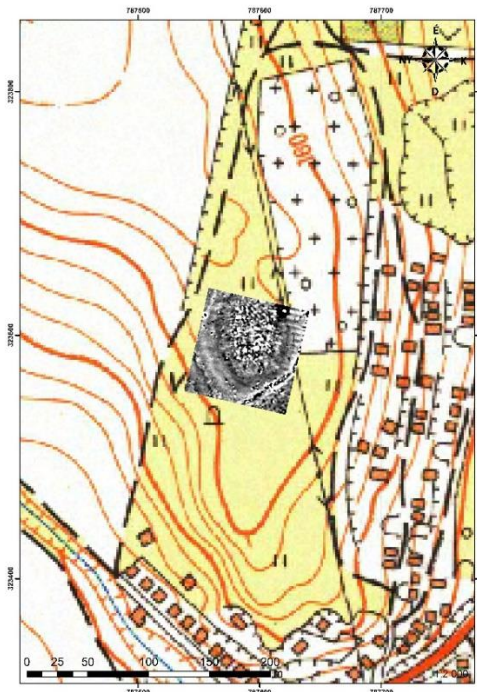


Figure 17. The results of the geophysical survey projected onto an 1:10 000 proportion EO map sheet 98-344 (made by Gábor Bakos, Szabolcs Honti, Dániel Kiss)

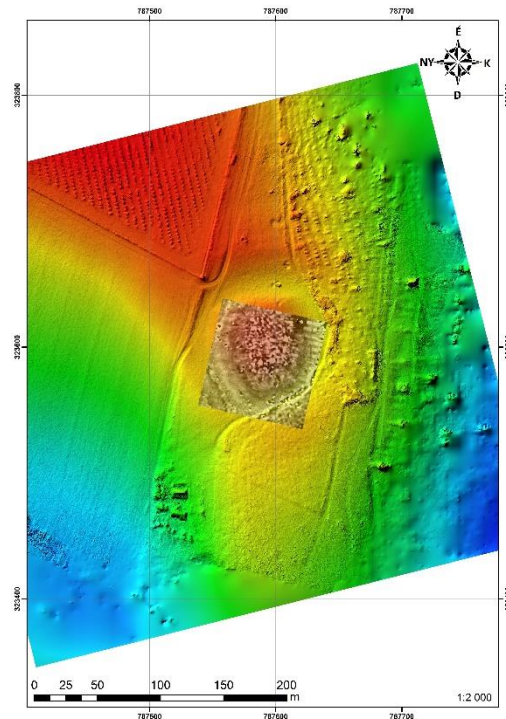


Figure 19. The results of the geophysical survey projected onto an orthophoto (made by Gábor Bakos, Szabolcs Honti, Dániel Kiss)

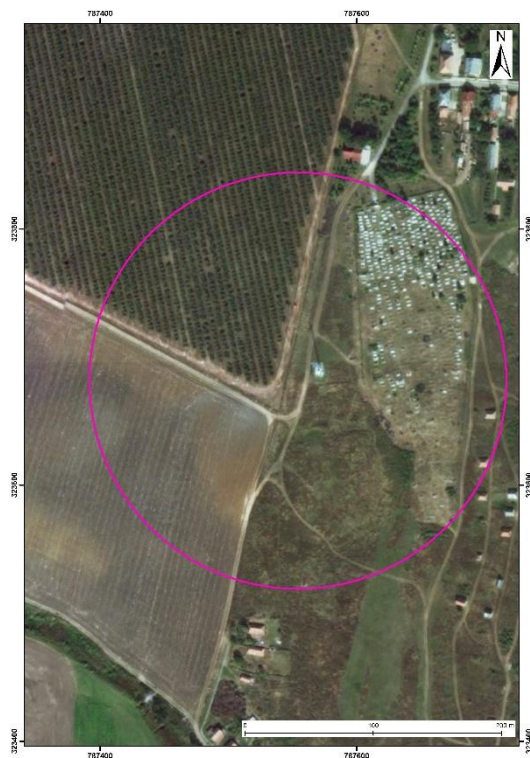


Figure 20. Soil marks of the outer settlement part west from the tell core

Summary

Although Alsóvadász-Várdomb site was examined many times in many waves in the past decades, and we have many interesting bronze age findings, our knowledge is very small about the settlement. We need more researches, processing work and data comparison to draw a complex image. That is what we started in 2018 with the help of my colleges. Our future plan is to continue the non-destructive methods to get more information about the structure, the border and the surface finds of the outer settlement.

I would like to screen the existing artefacts and examine what additional options do they offer to understand the prehistoric life of this settlement.

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PRELIMINARY REPORT FROM A PENDING EXCAVATION OF A MIDDLE BRONZE AGE
CEMETERY AT ENCS (NORTH-EASTERN HUNGARY)

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Kivonat *A cikkben egy középső bronzkori temető jelenleg is folyó feltárásáról adunk előzetes jelentést. Az Északkelet-Magyarországon, a Hernád-völgyében fekvő lelőhelyet az eddigi megfigyeléseink alapján kíséreljük meg bemutatni néhány képpel együtt. A leletmentés 2018 tavaszán indult és jelenleg is tart, az eddigi adatok szerint ez a Kárpát-medence legnagyobb sírszámú, feltárt Füzesabony-kultúrába tartozó temetője (továbbiakban OFCC).*

Kulcsszavak *Kárpát-medence, középső bronzkor, temető, Füzesabony-kultúra*

Keywords *Carpathian Basin, Middle Bronze Age, cemetery, Otomani-Füzesabony Cultural Complex*

The Site

The site of Encs – Mérnöki-teleptől délre is located near the modern city of Encs, in the Hernád Valley (Figure 1). There is started a rescue excavation in May of 2018, under the direction of Zoltán Farkas and Áron Dávid (Salisbury Ltd.), because of the M30 motorway construction work.

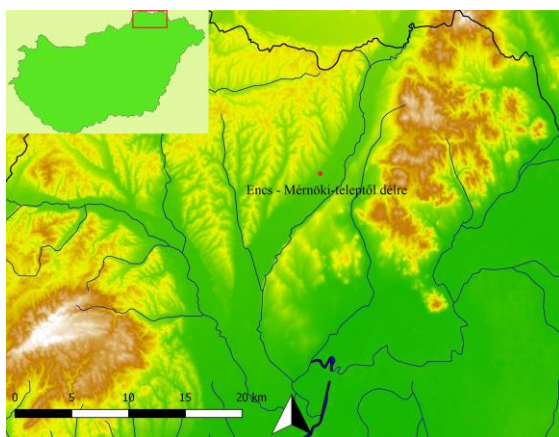


Figure. 1. The location of the site

The archaeological site was localised by geophysical survey, field walking and test excavation in 2017. After these, we could localise the site on around 8 ha. We have found a long, ditch-like object, but after we made a profile into this it seems likely, that it was an old stream channel, probably it was the part of the old Hernád

river. The western edge of the cemetery is at the foot of the terrace, we have found a few burials here too. The eastern edge is close to the modern city of Encs. The western part's name is Encs-Devecser-Dél, because it is on the other side of the number 3 main road; therefore, it was registered as a different archaeological site (Fig. 2).

We have found not only the Bronze Age cemetery on this site. There was a large, prehistoric borrow pit. Moreover, there was excavated a palisade at the northern bank of the old river channel, which were parallel with each other. In one of the postholes, we found a bronze, long-socketed double-edged arrowhead. Probably this could be younger than the Bronze Age burial ground.

The Middle Bronze Age cemetery

We excavated around 1200 graves on ca. 6 ha. (until November of 2018), which can be dated to the Middle Bronze Age, OFCC.

In the rites of the burials we have been observed a rigid order which is general at the burial grounds of the OFCC. However, this cemetery is differ from the North-South and South-North orientation, which is usual at the known, larger OFCC burial grounds. At Encs, the males' head were oriented to West, they were lying on their right side and their faces looks to South. The females' head were oriented to East, they were lying on their left side and their faces looks to South.

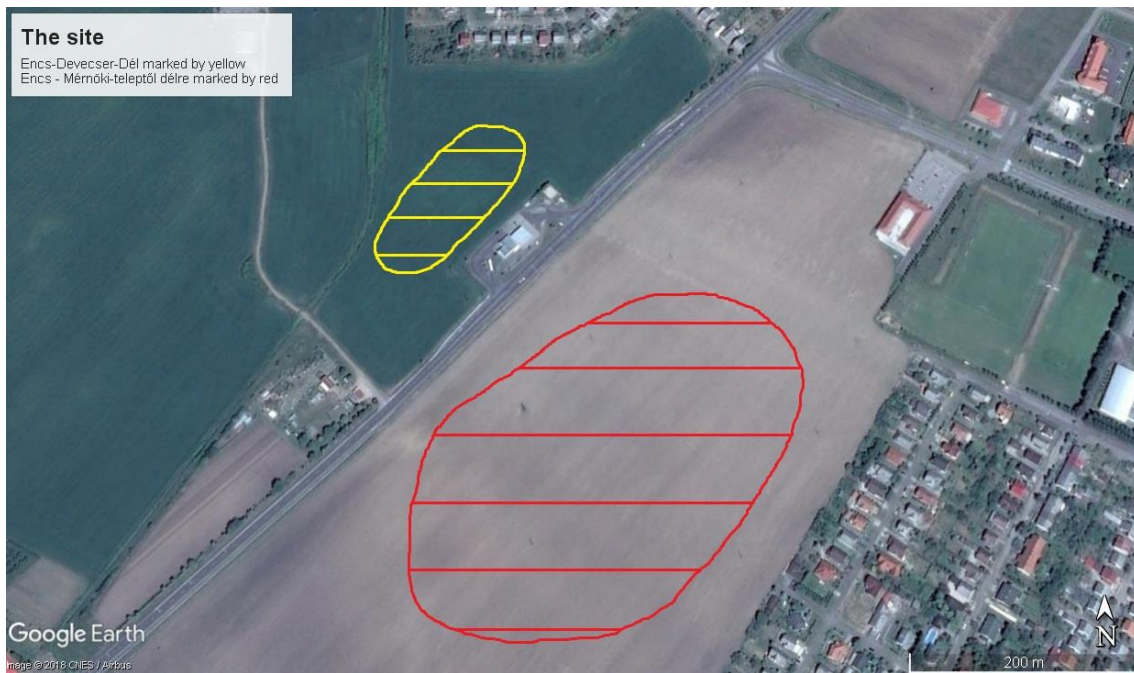


Figure 2. The site: Encs – Devecser-dél (marked by yellow) and Encs – Mernöki-teleptől délre (marked by red)



Figure 3. Grave S816



Figure 4. Grave S645



Figure 5. Grave S504

From the OFCC, we know three more cemeteries, which has similar orientation. These are at Bodrogszerdahely/Streda nad Bodrogom (Sk.) (Polla 1960: 340-341), Gelej (Kemenczei 1979) and Vatta (Somogyi 2010). The bodies were placed into the graves in a contracted position, when the knees were updrawn and the hands were

in front of the chest.

However, there were a few bodies in different positions. For example the S816 burial, whom left foot was straight, the deceased was lying on their abdomen and their hands were putting together in front of the face (Fig. 3).

We have excavated a few graves, which

contained two deceased. For example the S645 burial. In this, we found an adult and a child (Fig. 4). Furthermore, there were two adults in the number S504 burial (Fig. 5). We have found a few cremation graves. Actually, these burials' dating are difficult because the bottom 10-15 cm of the urns were revealable. Finally, we have excavated a few symbolic graves, which contained only the vessels and there were not human remains in these.



Figure 6. Grave S588

One of the richest grave in the cemetery is the S588 (Figure 6). According to the rite, it is a female's burial which was not robbed or disturbed. We observed a trace of a headdress on the head and there were two golden disc on the temporal part of the skull.

A „chain” joined to this, which were made by bronze spirals and tusk shells and it was connected to a large sized bronze pin, which was in the hand of the deceased. The burial contained other grave goods such as bronze hairrings, tusk shells, obsidian, a cup with kantharos handle, a bowl and

a vessel.

We observed the traces of log coffins in many graves, which appeared as calcic discoloration at the bottom. Moreover, we can assume funerary monuments on the onetime surface at a few graves. Namely, we found 3-4 columnholes near the corners of the graves (Figure 7), which can be interpret as a traces of these monuments.

The depth of the graves are various. Under the top-soil, these can change between 10 cm to 1,6 m.

The adult graves' depth are more various, but the infants' burials are usually shallower. The shape of the graves are various too. There is oval, roundish, square ones with linear or rounded angles and no regularities have been found yet.

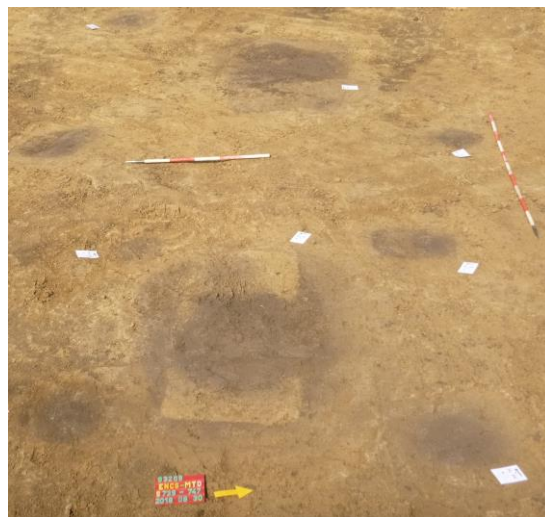


Figure 7. Possible traces of funerary monuments

The human bones are in a very bad condition, which is making difficult the excavation. It is apparent, that the graves were placed in groups, which groups contains 3-4 burials. Furthermore, it is clear that these groups were placed in rows, which direction is West-North or Northwest-Southeast.

Findings

Most of the graves—around 85-90%—have been robbed or disturbed; however, the quantity and the wealth of the grave goods are grand.

As usual at these large cemeteries, we have found graves without grave goods and graves with lots of funerary equipments. The excavated ceramics are general in the OFCC burial grounds.

These potteries were situating around by the hip, legs and feet. The burials contained one, two or three jugs or mugs. Usually, there is one bowl in the graves (spherical shaped bowls, inverted rim bowls, swedish helmet bowls). Finally, we found household pottery such as cooking pots in the graves.

After the first observations it seems, that the cemetery will cover the complete OFCC period in time and probably we will able to identify different burial groups in space and time.

In spite of the large percentage of the robbed graves, we have found many bronze and gold finds. The most common of them is the bronze spirals and pins. Among the former objects, we found it in lots of and various type (spherical headed pins, toggle-headed pins and wire pins). The hairrings are common too. Most of it were made of bronze (Fig. 8/3), but there were a few

gold hairrings too (Fig. 8/1). We have found one, which could be made of silver or electrum (Figure 8/2), but the analysis will help us to identify this find's material. Moreover, we found bronze bracelets, bronze fishhook, bronze knife, a bronze helve tubed axe with scored decoration on it (Fig. 9) and an axe with a stay for the shaft (Fig. 10).

We have excavated several paste and amber beads, tusk shells, and a few boar tusk pendants from the graves.

There were a few stone grave goods too. We have found a few stone tools, stone arrowheads and there was a base grinding stone on the deceased in one grave. The raw materials are limnoquartzite, a few obsidian, but other materials had been also excavated.

The animal bones are rare in the cemetery. We found a few bone awls and a skull of an aurochs in a disturbed burial.



Figure 8. Hairrings made of different material from Encs

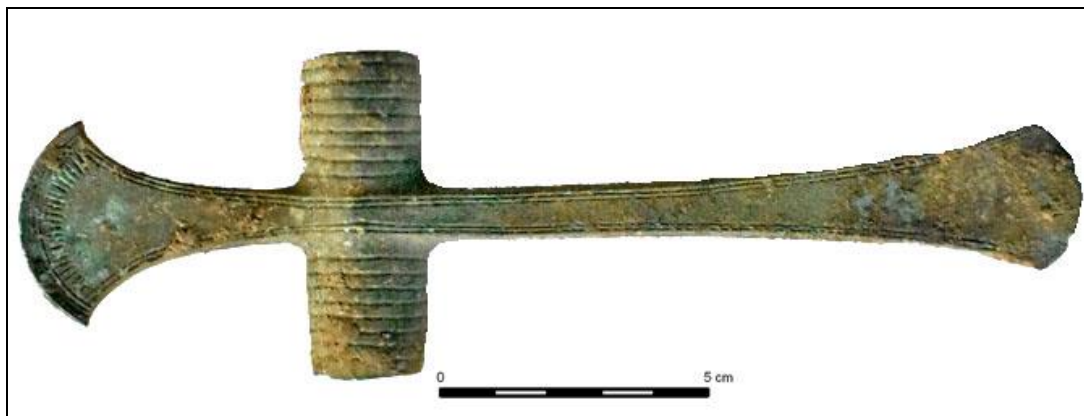


Figure 9. A bronze helve tubed axe

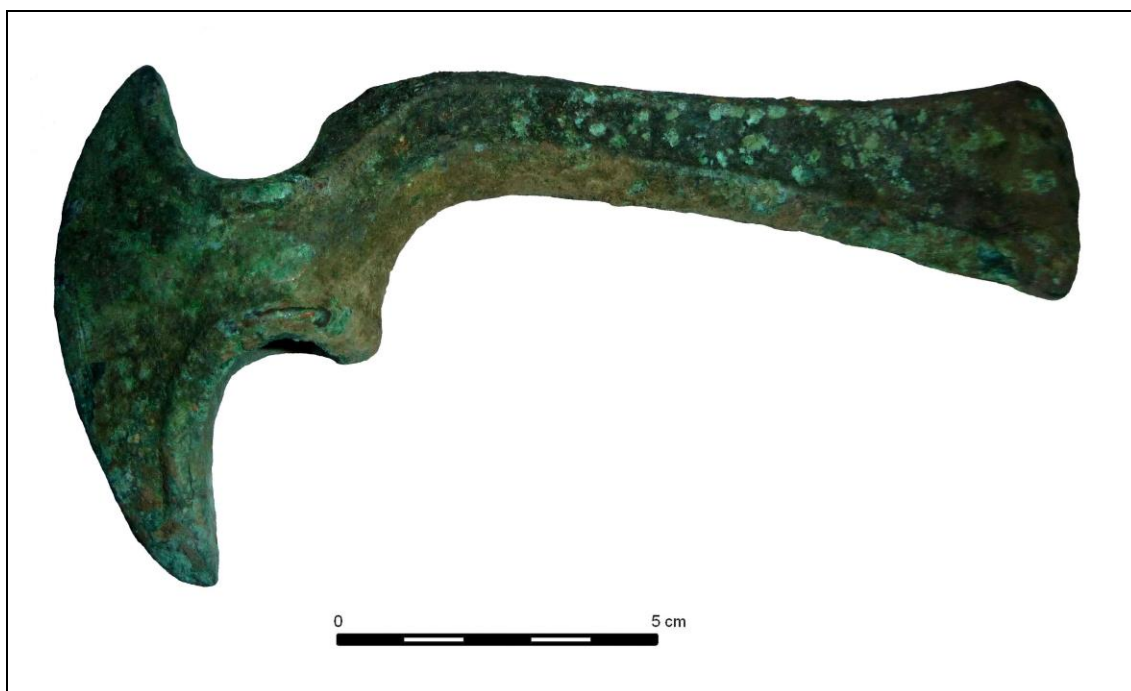


Figure 10. Axe with a stay for the shaft

Discussion

It seems, it could be the largest, excavated OFCC cemetery in the Carpathian Basin. Furthermore, the uniqueness of the site is the different orientation from other OFCC burial grounds. At the known large cemeteries from the OFCC such as Alsómislye/Nižná Myšľa (Sk) (Olexa & Novaček 2013, 2017), Hernádkak (Bóna 1975: Taf. 154–164; Schalk 1992), Megyaszó (Bóna 1975: Taf. 165–189; Schalk 1994), the cemeteries near Polgár (Dani & V. Szabó 2004: 96.) and Pusztaszikszó (Kőszegi 1968: 101–141) the graves were oriented to N-S/S-N or NW-SE/SE-NW, by the gender. We know three cemeteries which are similar to Encs in the rite (W-E or E-W). These are Bodrogszerdahely/Streda nad Bodrogom (Sk.) (Polla 1960: 340–341), Gelej (Kemenczei 1979) and Vatta (Somogyi 2010). Probably the excavation will be completed in 2019. After the restoration, the analyzing of the material can begin and then we can make a more accurate chronology and conclusions about the cemetery.

Acknowledgement

I would like to express my gratitude to the Salisbury Ltd., especially to Zoltán Farkas and

Áron Dávid for shared their observations with me and for allowed me to process the material.

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DEFENSIVE SETTLEMENTS OF THE OTOMANI-FÜZESABONY CULTURE IN THE WISŁOKA
RIVER BASIN.

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Abstrakt Wisłoka jest karpackim dopływem Wisły i wraz z Ropą i Jasiołką odwadnia północne stoki Karpat, czyli obszar Beskidu Niskiego i Pogórzy. Doliny tych rzek stanowią naturalne ciągi komunikacyjne. Przez wiele dziesięcioleci uważano, że na tym terenie w epoce brązu występowała kultura łużycka. Prawdziwy przełom nastąpił wraz z badaniami stanowiska nr 29 w Jaśle i stanowiska nr 1 w Trzcinicy, gm. Jasło, gdzie odkryto pierwsze osady kultury Otomani-Füzesabony (KO-F) w Polsce. Później były to również stanowiska w Łajscach, w Potoku oraz w Brzezówce.

Grodzisko Wały Królewskie w Trzcinicy jest jednym z najważniejszych stanowisk archeologicznych na terenie Polski. Zlokalizowane jest na cyplu wyniesionym ponad 30 metrów nad płaskie dno doliny rzeki Ropy. Wzniesienie posiada z trzech stron bardzo strome stoki, co powoduje że forma ta ma wybitne walory obronne. Miejsce to zostało ufortyfikowane już na przełomie III i II tysiąclecia przed Chrystusem, przez ludność grupy pleszowskiej kultury mierzanowickiej. Osada ta zajmowała około 56 – 60 arów powierzchni. Od strony południowej oraz zachodniej była otoczona walem, którego ściany zbudowane były z belek, układanych między dwoma słupami. Wnętrze wypełniała ziemia, a w wale tkwiła palisada. Datowana jest pomiędzy 2100 a 1650/1600 BC kiedy to została przejęta przez ludność KO-F. W pierwszej fazie osadniczej ludność KO-F przebudowała wał, zmieniając jego zewnętrzną ścianę na palisadową i zbudowała bramę oraz drogę od strony S, umożliwiającą zjazd w dolinę rzeki Ropy. Od strony północnej i wschodniej zbudowano palisadę. Po krótkim czasie jej trwania doszło do pożaru wału, spłonęła też brama od strony S. Po pożarze osadę odbudowano w oparciu o wzorce z poprzedniego założenia. Wał poszerzono, zasypano bramę i drogę od strony południowej. Umocnienia z pozostałych stron zachowały swój dawny charakter. Następnie osadę powiększono do 2 ha, dobudowując od strony zachodniej podgrodzie. Od strony wysoczyzny osadę zamykała płytka fosa. Praktycznie całość materiału zabytkowego pochodzącego z obronnej osady KO-F w Trzcinicy odkryto w warstwie kulturowej. Poza nielicznymi jamami zasobowymi nie stwierdzono we wnętrzu osady żadnych obiektów słupowych. Miejsce zabudowy sugeruje znacznie większą mięszczość warstwy kulturowej i duża ilość zabytków zlokalizowanych wzdłuż wałów grodu, jako strefa koncentracji ludzkiej aktywności. W trakcie badań odkryto także liczny materiał paleozoologiczny, węgle drzewne i szczątki roślin. Jedyne budynki które udało się zlokalizować na terenie grodu znajdował się na akropolu, w jego północno-zachodniej części. Dom ten związany był najprawdopodobniej z działalnością odlewniczą i wydobyto z niego bardzo liczny materiał zabytkowy. Daty radiowęglowe oraz materiał zabytkowy umożliwiają datowanie ufortyfikowanej osady KO-F w Trzcinicy na lata zamykające się pomiędzy 1650/1600 a 1350 BC. W tym miejscu, w latach 770/780 AD został wzniesiony przez Słowian potężny gród obronny.

Osada obronna w Brzezówce znajduje się 14 km na wschód w linii prostej od grodziska w Trzcinicy. Stanowisko zajmuje końcową część cypla wysoczyzny, który od strony północnej i południowej rozcięty jest wąwozami, a od strony wschodniej podcięty doliną rzeki Jasiołki. Obecnie na powierzchni widoczne są dwa człony umocnień, a być może obszar osady jest jeszcze większy i posiadał dwa podgrodzia. Badania prowadzone w latach 2015 i 2016 wykazały, że mamy do czynienia z ufortyfikowaną osadą ludności KO-F z podziałem na człon główny (akropol) i oddzielone od niego podgrodzie. Wielofazowe wały posiadały konstrukcję drewniano ziemną. Ściany wałów wykonane były z drewna, a wnętrze wypełnione było gliną i wzmocnione drewnianymi belkami. Szerokość obu wałów wynosiła 3,1 m. Prawdopodobnie pierwszą konstrukcją obronną na tym grodzisku była palisada, być może poprzedzona fosą. Materiał zabytkowy znajdował się w warstwach kulturowych. Odkryto dość liczne fragmenty naczyń glinianych i zabytki kamienne, które pozwalają wiązać grodzisko z KO-F. Stwierdzono także obecność

fragmentów ceramiki z młodszych faz epoki brązu i początków epoki żelaza, a także z wczesnego średniowiecza. Daty radiowęglowe uzyskane z belek wału pozwalają określić początek osady na XVIII/XVII stulecie BC.

W dorzeczu Wisłoki przebadano też trzy osady otwarte KO-F: Jasło st. 29, Potok st. 6 i Łajsce st. 15, związane z młodszymi fazami jej rozwoju i noszące wyraźne piętno oddziaływań kultury trzcinieckiej.

Słowa kluczowe *kultura Otomani-Füzesabony, KO-F, kultura mierzanowicka, grupa pleszowska, kultura trzciniecka, Karpaty, epoka brązu, Wisłoka, Trzcinica, Brzezówka, grodzisko, osada obronna*

Keywords *Otomani-Füzesabony Culture, OFC, Mierzanowice Culture, Pleszów Group, Trzciniec Culture, Carpathian Mountains, Bronze Age, Wisłoka river, Trzcinica, Brzezówka, Hillfort, Defensive settlement*

Introduction

Defensive settlements of Otomani-Füzesabony Culture (OFC) in the basin of Wisłoka river is a highly interesting cultural phenomenon. Wisłoka is the Carpathian tributary of the Vistula river and together with its tributaries: Ropa and Jasiołka, which reach Wisłoka on the territory of Jasło, it gathers the waters of the Carpathian mountainsides, located to the north of the main watershed being the border of the tributaries of the Vistula and Danube, that is to The Baltic and The Black Sea. Wisłoka and its tributaries are the natural communication routes, leading trade routes, since the Antiquity, which were connecting the Carpathian Basin to the huge Central European lowlands.

Geomorphic units are stretched in parallel, that is from the East to the West. The first unit starting from the Carpathian watershed is the mountain range of Low Beskids, creating a dip in the whole Carpathian massif. Then, to the north, there is a range of Central Beskid Foothills, which do not extend 600 m above sea level, and then the range of lowlands called the Central Carpathian Depression—Jasło-Sanok Valleys enclosed by the Carpathian Uplands, up to the foot of the Carpathians (Kondracki 2001).

To sum up, the area of the basin of Wisłoka is located on the Polish territory, in the northern foreground of the Western Carpathians, constituting the most northern area of the OFC culture.

For the first time, the OFC remains in the basin of Wisłoka were discovered by the Carpathian Archaeological Expedition (led by Andrzej Żaki), as far as in the 1950s. Through decades it was believed that the Lusatian culture prevailed in this area in the Bronze Age (Żaki 1956).

A real breakthrough however, in the research regarding OFC, not only in the basin of Wisłoka but in the whole Carpathians, occurred thanks to the work of Jan Gancarski, in the mid-1980s, together with the excavations carried out on the site no. 29 in Jasło. Jan Gancarski discovered numerous relicts on this site, with the significant OFC characteristics, and visible elements of the Trzciniec culture, during three excavations in 1985-1987 (Gancarski 1988, 1994).

Then, Gancarski identified fragments of ceramics with the OFC characteristics, among the materials from the research from 1950s and 1960s, led on the hillfort in Trzcinica (located 4 km from Jasło), which started a long-term research on the site. The research, started in 1991, is led until today, with intensification in the 1990s and between 2005–2009 (Gancarski 2011).

Gancarski broadened his interest in OFC, researching into open settlements located in the basin of Wisłoka – the site in Łajsce, south of Jasło, as well as in Potok, between Jasło and Krosno (Gancarski 2002).

In the recent years, there has been a significant progress in research methods, for example with the use of the LIDAR technology. Thanks to this method, a new archeological site located near Jasiołka river (the eastern tributary of Wisłoka), in Brzezówka, Tarnowiec district was discovered.

Gancarski led the excavations on this site in 2015 and 2016. The research showed that we are dealing with yet another OFC defensive settlement in the basin of Wisłoka, apart from Trzcinica.

Trzcinica, Jasło district

The hillfort in Trzcinica is one of the most important archaeological sites on the territory of Poland. As it was already mentioned, it is located in the area of the Jasło Basin, on a 30-metres-high

promontory, above the river Ropa, the left-bank tributary of Wisłoka (Fig. 1, 2).

The hill has three very steep sides (from the North, South and East) with a gradient of 20 to 40 percent, giving the hill its natural defensive values. Only from the western side, the promontory gently transforms into an upland (Gancarski 2011).

The place was fortified for the first time at the turn of the 21st century before Christ by the population of the Pleszów group of the Mierzanowice culture, which is a taxonomic unit described by Jan Machnik, characteristic for the western part of Polish Carpathians (Machnik 1967; Madej 1998). The settlement was taking up around 56 to 60 ares, located at the end of the promontory and from the southern side and partly from the western as well, it was surrounded by a rampart from one 1.8 to 2.5 meters wide (Fig. 3).

The walls of the embankment were made of logs, laid between poles and the construction was filled with clay.

There was a palisade stuck in the rampart and the distance between the poles amounted from 10 to 50 centimeters, while the poles were of 20 to 30 centimeters in diameter. It is probable, that initially the hillfort was protected only with a palisade. The artefacts, including very characteristic ceramics

decorated with impressed cord pattern, were only discovered in the occupation layer, located near the fortifications. The settlement dates back to 2100 to 1650/1600 before Christ, when it was taken over by the OFC population (Gancarski 1999; Calderoni et al. 1998–2000).

The character of this cultural change keeps being discussed, nevertheless, the OFC defensive settlement was undeniably functioning in the first settlement period in the spatial framework set up by the population of the Pleszów group of Mierzanowice culture. It seems that in the first period after the takeover of the settlement by the OFC population, they rebuilt fortifications, adding a palisade, or a fence from the northern and eastern sides, namely from the side of the steepest slopes, as showed by the arrangement of poles on the edge of the plateau occupied by the settlement just in front of the steep slope ending at the Ropa river (Fig. 4) (Gancarski 2011).

After a short period of the OFC first settlement's existence (100–150 years?), a fire emerged on the rampart, which is shown by the destructions identified in the rampart and at its foot. The gate from the southern side has been burnt as well (Fig. 5).

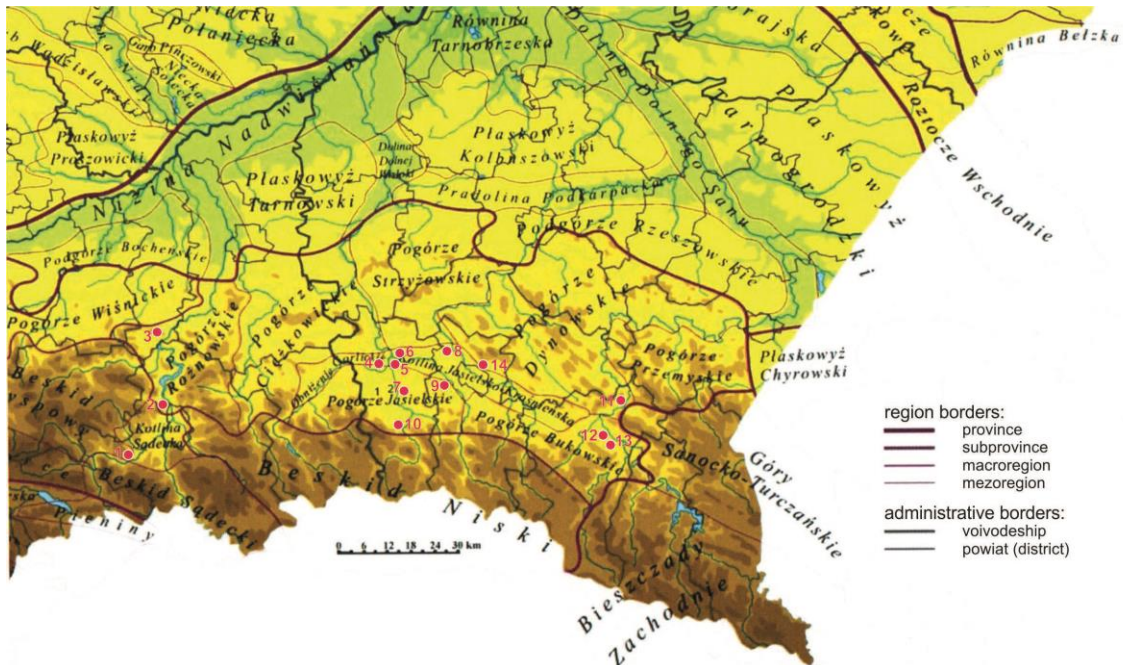


Figure 1. Map of the OFC sites in Poland. 1-Maszkowice, s.1, 2-Marcinkowice, s.1, 3-Czchów, s.10, 4-Trzcinica, s.1, 5-Jasło, s.29, 6-Kowalowy, s.1, 7-Lajsce, s.9, 8-Potok, s.6, 9-Brzezówka, s. 10, 10-Wietrzno-Bóbrka, s. 1, 11-Hłomcza, s.1, 12-Trepcza, s.2, 13-Sanok, s. 56, 14-Korczyzna, s.81.

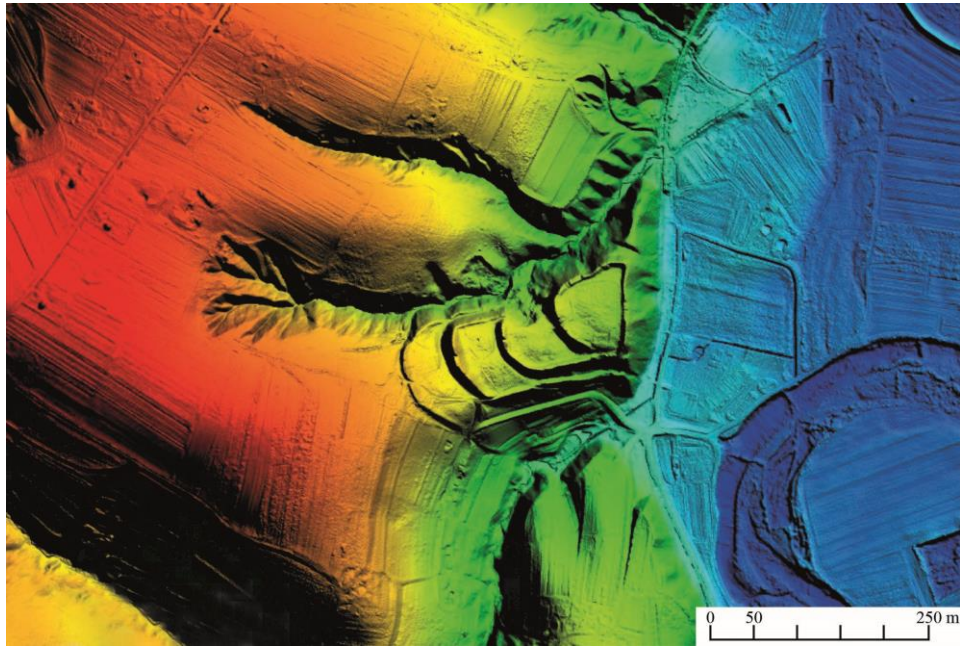


Figure 2. Trzcinica, site no. 1. LiDAR image of the hillfort

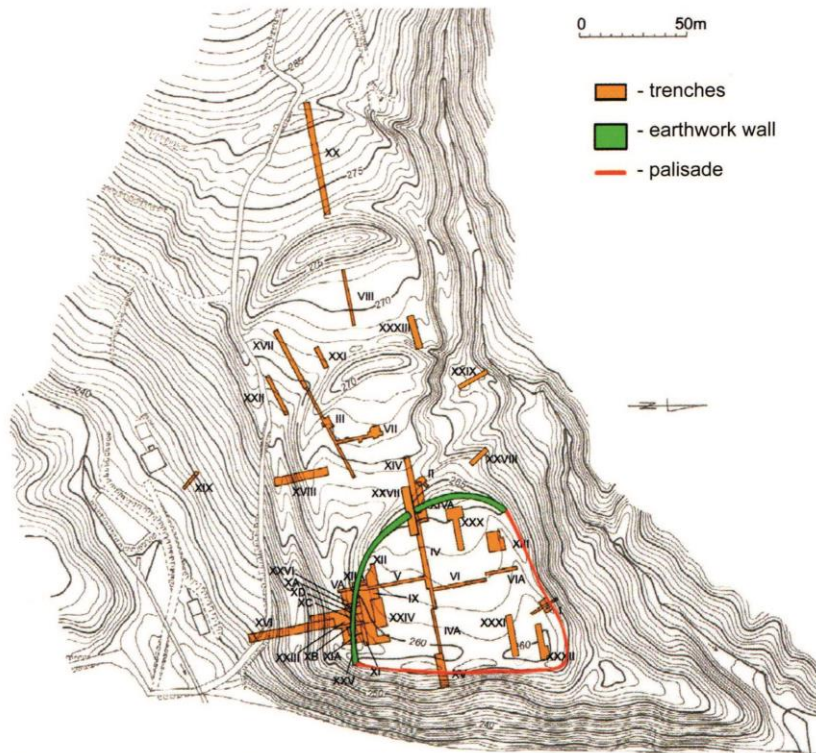


Figure 3. Trzcinica, site no. 1. Area of Pleszów group settlement

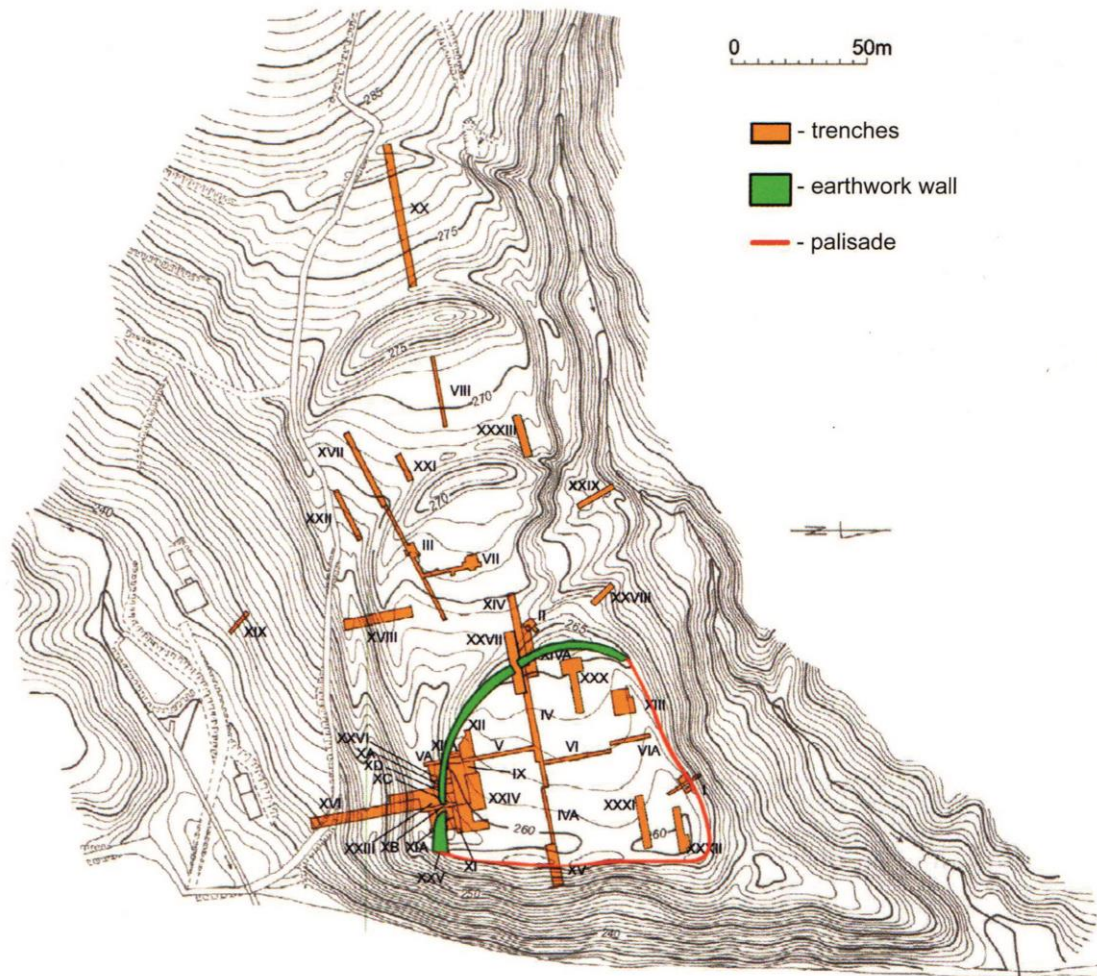


Figure 4. Trzcinica, site no. 1. Area of older phase of the OFC settlement (OFC-I)



Figure 5. Trzcinica, site no. 1. Trenches XB, C, XIA with a view onto the road, earthwork embankments and layers of the beginnings of bronze age settlements. View of the road, earthwork embankment and settlement layers from the beginnings of the Bronze Age (trench XC, D and XIA)

After the fire, the settlement was rebuilt, based on the earlier layout. The space in front of the burnt rampart was made out of logs which were placed next to each other, perpendicular to the axle of the rampart, with a clay embankment reaching the older rampart. The rampart was broadened by 2.5 to 2.7 meters. The gate was dismantled along with a road from the southern side. The fortifications from the other sides have preserved their old character. Then, the settlement was extended to 2 hectares, by adding another ward from the western side, thanks to which, the

original OFC settlement occupying the end of the upland's cape, became a unique acropolis (Fig. 8). From the western side, the settlement was surrounded by a shallow ditch 1.2 meters deep and 8-9 meters wide), cutting the promontory crosswise. From the southern side, there was a slightly hollowed ledge, 3-4 meters wide, protected with a palisade or a wooden wall, like the inside rampart (Fig. 6, 7, 8) (Gancarski 2011).

Practically, all the archaeological material originating from the OFC defensive settlement in Trzcinica was discovered in the occupation layer.

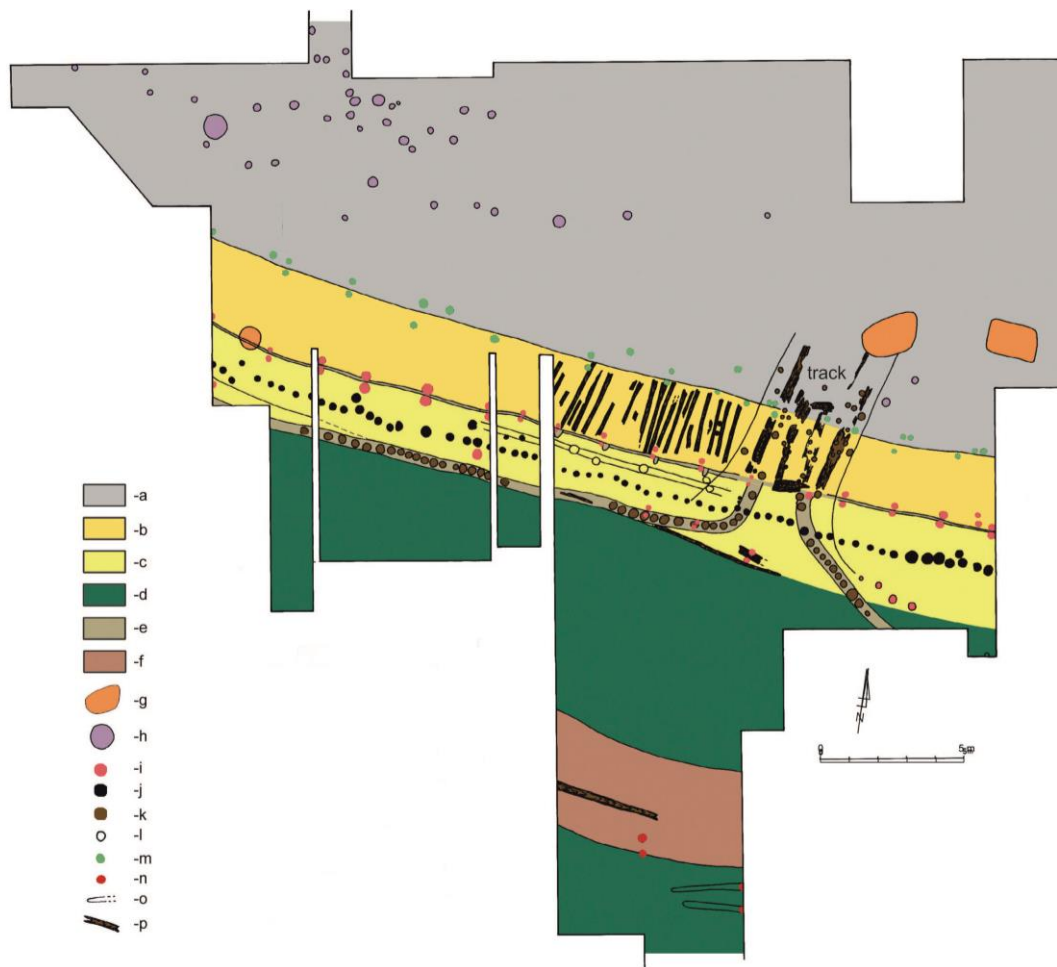


Figure 6. Trzcinica, site no. 1. Plan of the beginnings of Bronze Age fortifications. Trenches VA, XA, XC, XD, XI, XIA, XII, XXIII, XXIV, XXV, XXVI. Plan of the beginnings of Bronze Age fortifications, a - Pleszów group and OFC settlements, b- earthwork enlargement after the fire (OFC - younger phase), c - Pleszów group earthwork, d - stronghold slope, e- palisade grooves (OFC - younger phase) and earthwork face of Pleszów group, f – shelf on the slope (OFC – younger phase), g - Early Medieval objects, h - OFC objects, l - vestiges of posts of Pleszów group wall, j - vestiges of Pleszów Culture earthwork palisade, k - vestiges of posts of earthwork face palisade construction and vestige of wall reinforcing the road, l-vestiges of posts in the earthwork, m – vestiges of posts of younger earthwork face construction (OFC - younger phase), posts reinforcing shelf on the slope, o – vestiges of grooves or beams, p – vestiges of wooden beams.

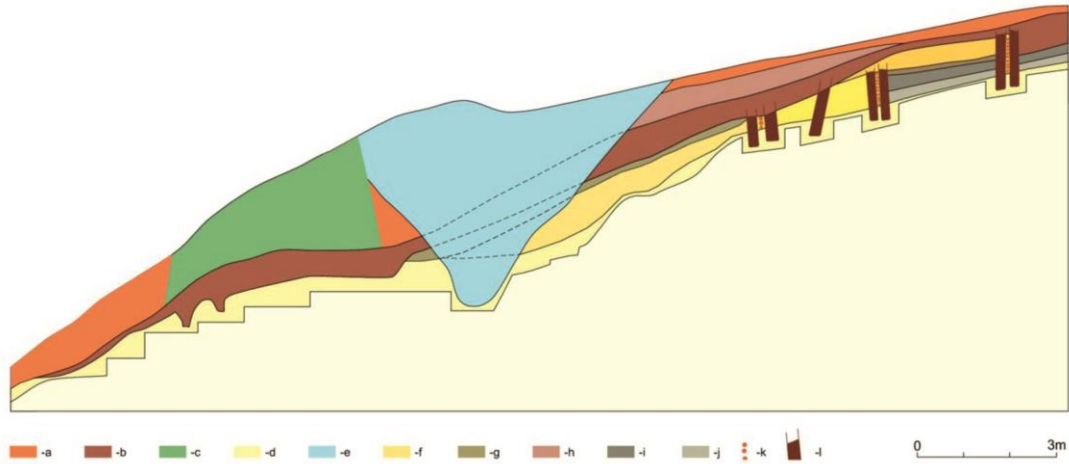


Figure 7. Trzcinica, site no. 1. Schematic cross section of the hillfort layers (south side). Schematic profile of the stronghold layers (south side), trenches XB and XVI: a – embankment of the Pleszów group earthwork; b – rain-wash from the oldest Pleszów Group earthwork; c – Pleszów group culture layer; d – culture layer of older OFC settlement; e – beams of the base of younger OFC earthwork; f – embankment of younger OFC earthwork; g – culture layer of younger OFC settlement; h – rain-wash from the Pleszów group settlement; i – culture layer of the youngest OFC settlement; j – rain-wash from the youngest OFC settlement, k – Early Mediaeval earthwork, l - Early Mediaeval ditch, m – Early Mediaeval layers, n – rock-bed, o – earthwork face beams, p – posts

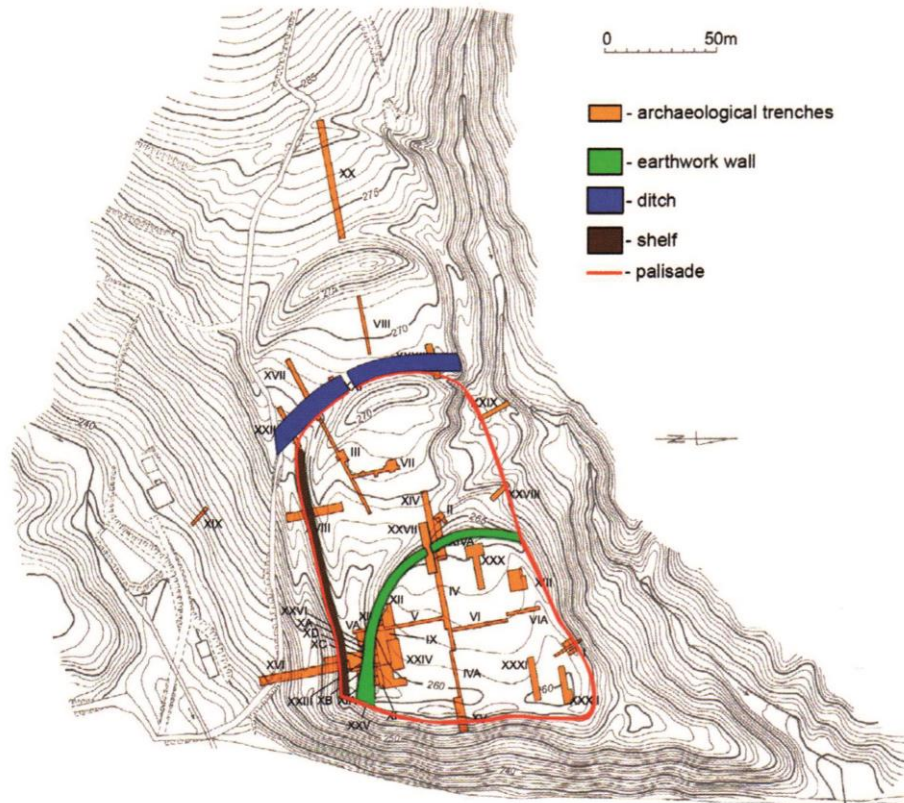


Figure 8. Trzcinica, site no. 1. Area of younger phase of the OFC settlement (OFC-II)



Figure 9. Trzcinica, site no. 1. Remains of the bronze caster's cottage

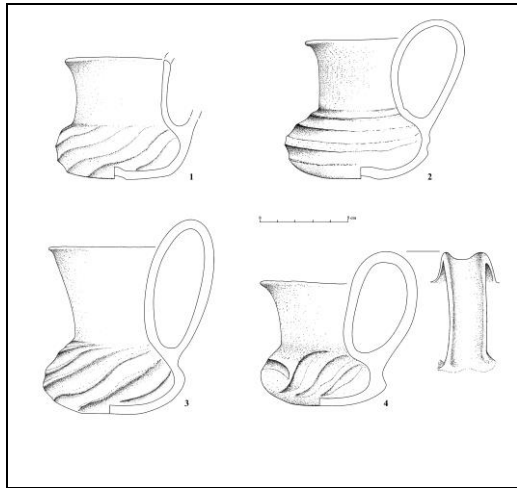


Figure 10. Trzcinica, site no. 1. The OFC pottery from bronze caster's cottage

Besides a few storage pits, there were no objects discovered in the interior of the settlement, which would indicate a construction made of logs. A larger amount of debris located along the ramparts of the stronghold suggests the location of buildings. The existence of housing near ramparts is also indicated by the concentration of stones along the southern rampart.

The only building which was placed on the ground of the hillfort in Trzcinica was located in acropolis, in its western part, near the fortifications. Its presence is showed by fragments of burnt floor and logs from the wall constructions. The object was of a quadrangular shape with an annex. The building was perhaps devoted to casting activities, as numerous artefact materials were discovered there, including a clay nozzle, pottery with knobbed decoration, miniature

pottery, fluted mugs, as well as innumerable bone tools, tools made of stone and burnt wheat seeds, millet or acorn. It is dated to the 1st settlement phase of the OFC in Trzcinica (Fig. 9–12) (Gancarski 2011).

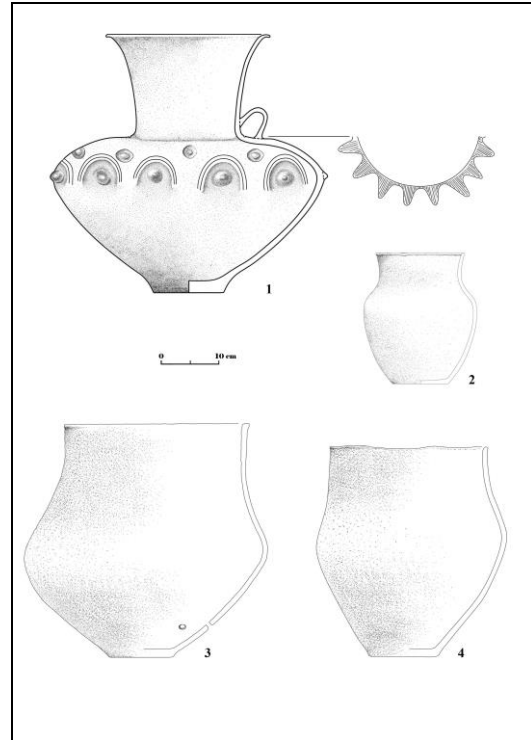


Figure 11. Trzcinica, site no. 1. The OFC pottery from bronze caster's cottage



Figure 12. Trzcinica, site no. 1. Vessel with the characteristics of the Trzciniec culture from bronze caster's cottage

Numerous radiocarbon dates and a very large amount of artefact material, including spiral-knobbed pottery, a flange axe, Hajdusámson-type battle axe, a clay idol, wheels from the clay carts, as well as animal figurines, indicate a strong connection of the local population in Trzcínica with the Carpathian Basin civilization, allowing dating of the fortified OFC settlement to the years between of 1650/1600 to 1350 before Christ (Fig. 13) (Gancarski 1999a).

Two thousand years after the end of the OFC fortified settlement in Trzcínica, on the relicts from the Bronze Age, in the years 770 to 780 after Christ, the Slavs built a huge hillfort, occupying a much bigger area than the OFC hillfort from the early Bronze Age (Gancarski and Poleski 2006).

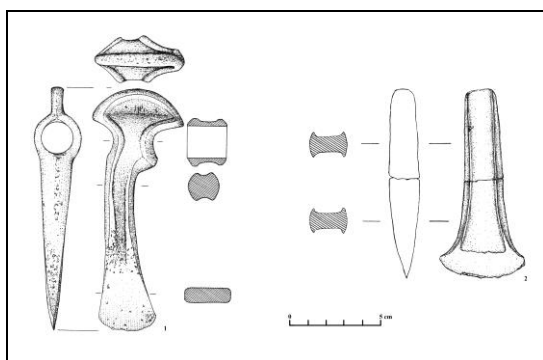


Figure 13. Trzcínica, site no. 1. Hajdusámson-type battle axe and ritually halved flange axe

Brzezówka, Tarnowiec district

Another settlement of a defensive character that can be connected with the OFC is the aforementioned settlement in Brzezówka, Tarnowiec district, located 14 kilometres from Trzcínica in a straight line, discovered thanks to the analysis of the LIDAR databases (Fig. 14) (Gancarski and Madej in print).

The site takes the end part of the upland promontory, which from the northern and southern side is cut by ravines and from the eastern side, the hill is undercut by the Jasiołka river valley. The height difference between the plateau, where the settlement was built, and the bottom of the valley is up to 30 meters. There are two ramparts (confirmed) on the surface, which may imply that the area was bigger and it had two additional wards.

The excavations in 2015 and 2016 conducted by J. Gancarski, proved that we are dealing with a

fortified settlement of the OFC population, a settlement which was divided into the main ward (acropolis) and a second ward. Probably, the first defensive construction on the hillfort was a wooden fortified palisade (Fig. 15–17).

The artefacts that were found in the occupation layers can be characterized by quite frequent spiral ornaments (Fig. 18). Radiocarbon dates acquired from logs of the bottom part of the rampart indicate, that the beginning of the settlement can possibly date back to the 18th/17th century before Christ (Fig. 19). At this moment in time we do not possess any data allowing us to date the end of this settlement.

It occurs that regarding this site, we are dealing with the early medieval phase, showed by the artifacts from the first half of the 11th century after Christ.

There was an established belief in the literature, that another defensive settlement in the Wisłoka basin was located in Wietrzno-Bóbrka on a hill above Jasiołka river. The OFC material was found on the early-medieval hillfort, during the research led by Andrzej Żaki and the Carpathian Archaeological Expedition in the 1950s. Nevertheless, verification excavations led by Jan Gancarski, both in the place where the old excavations were located, as well as in their neighborhood, did not show any signs of OFC remains in the area. The reason for that can also be the mix up of the materials.

Before we move to the conclusion, we have to mention OFC open settlements from the Wisłoka Basin, which are already known. Jan Gancarski has found and researched three sites of such kind: Jasło, site no. 29, Potok site no. 6, Łajsce site no. 9.

These sites are located more uphill, while only the site 29 in Jasło is connected with the basin of a big Carpathian river. Within each of the sites, the remains of the OFC settlements were located in the gully-shaped cavities in situ.

Occupation layer and storage pits, as well as clusters of stones were found in these places. They are most probably parts of building constructions (Gancarski 1988, 1994). These settlements are connected to the younger phase of OFC culture's development, most probably with the Bronze Age B1, and the artifacts have visible signs of influence of the Trzcíniec culture from the North, most notably, the ornaments of the horizontal ribs, characteristic of the Trzcíniec culture (Gancarski 1994).

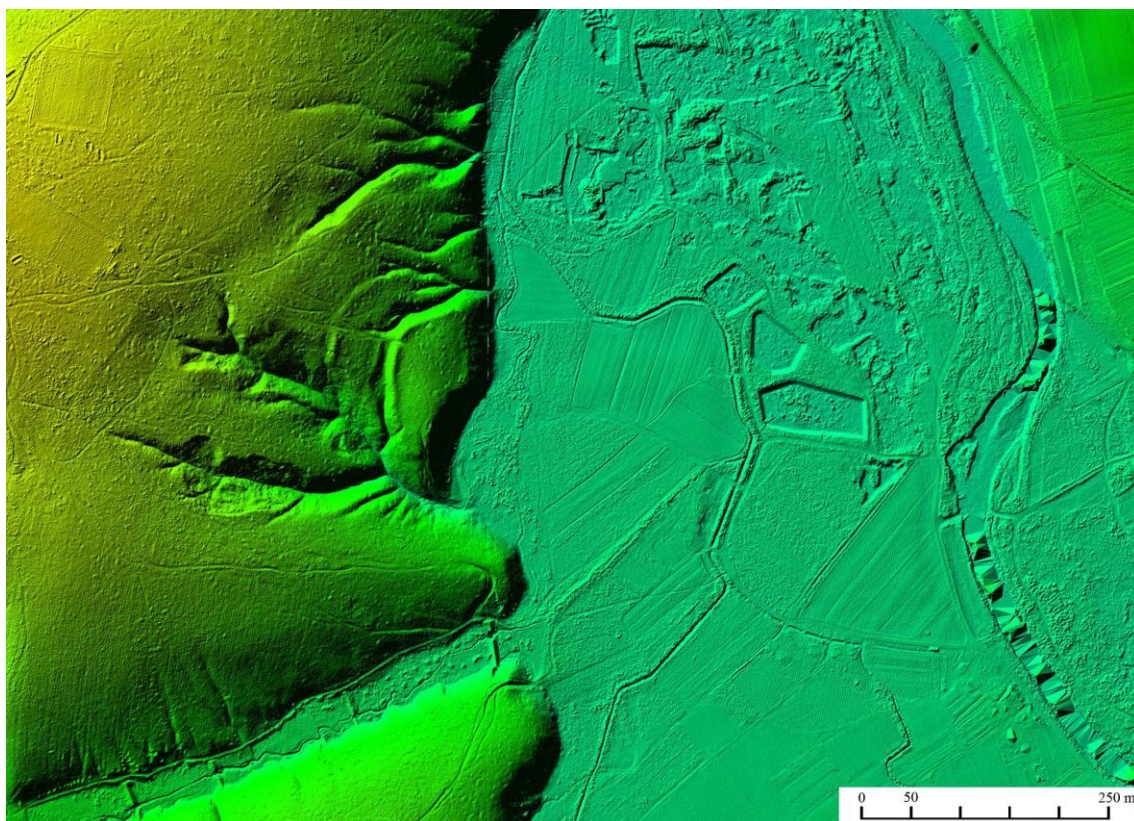


Figure 14. Brzeźówka, site no. 10. LiDAR image of the hillfort



Figure 15. Brzeźówka, site no. 10. Trench with the traces of the fortifications and the residual fire



Figure 16. Brzezówka, site no. 10. Eastern cross section of the main ward rampart



Figure 17. Brzezówka, site no. 10. Western cross section of the main ward rampart

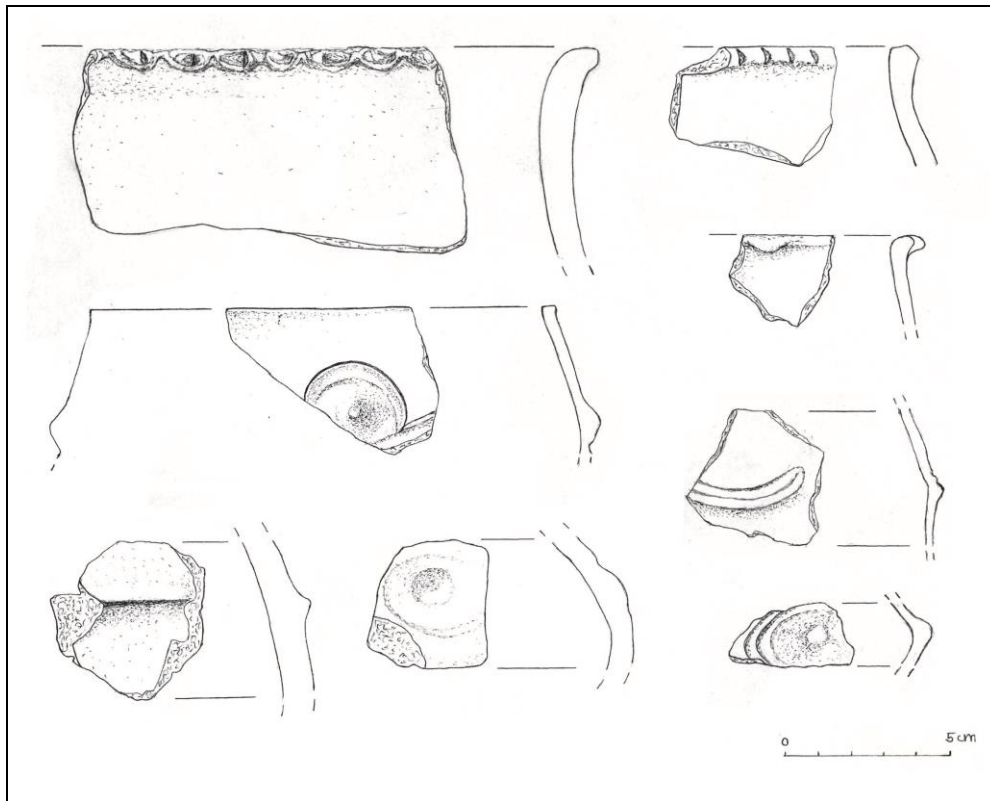


Figure 18. Brzezówka, site no. 10. OFC clay pottery fragments

Discussion

To sum up, the OFC defensive objects in the Wisłoka river basin were located on the naturally defensive promontories, near the biggest rivers of the region. The height difference in relation to the river measured up to 30 meters. The settlements were surrounded by fortifications made out of wood and soil, strengthened additionally by ditches from the side, where access to the settlement was the easiest.

Most of the materials were found in the occupation layers, what is characteristic of defensive settlements of all taxonomic units from the early Bronze Age of the Polish Carpathians (the case is similar when it comes to the Pleszów group of Mierzanowice culture).

It seems that the buildings of this kind were made of logs and located along the fortifications, indicated by the thickness of the occupation layer in these areas with the clusters of stones around and the location of the “caster’s house” in Trzcínica.

The OFC defensive settlements from Wisłoka river basin were of a multinomial structure, with an acropolis and outside wards. The outside settlement was most probably created in the younger phases of the hillfort’s existence.

It seems that there is also a chronological analogy between the hillforts in Trzcínica and Brzezówka. Most probably, the stronghold was populated by the OFC earlier than the settlement in Trzcínica, what would be shown by the presence of remains of the Pleszów group of Mierzanowice culture from the 18th and partly 17th centuries BC in the Wisłoka Basin, because in 18th century and for the most part of the 17th, the Trzcínica hillfort was inhabited by the people from the Pleszów group of Mierzanowice culture.

All of this shows that we are dealing with an extremely interesting cultural phenomenon, which has not been fully investigated. Nevertheless, the scale of the fortifications and the character of the discoveries are impressive. The Carpathian Troy Open-Air Museum was created thanks to the efforts of the director Jan Gancarski, utilizing the vast potential of the hillfort in Trzcínica.

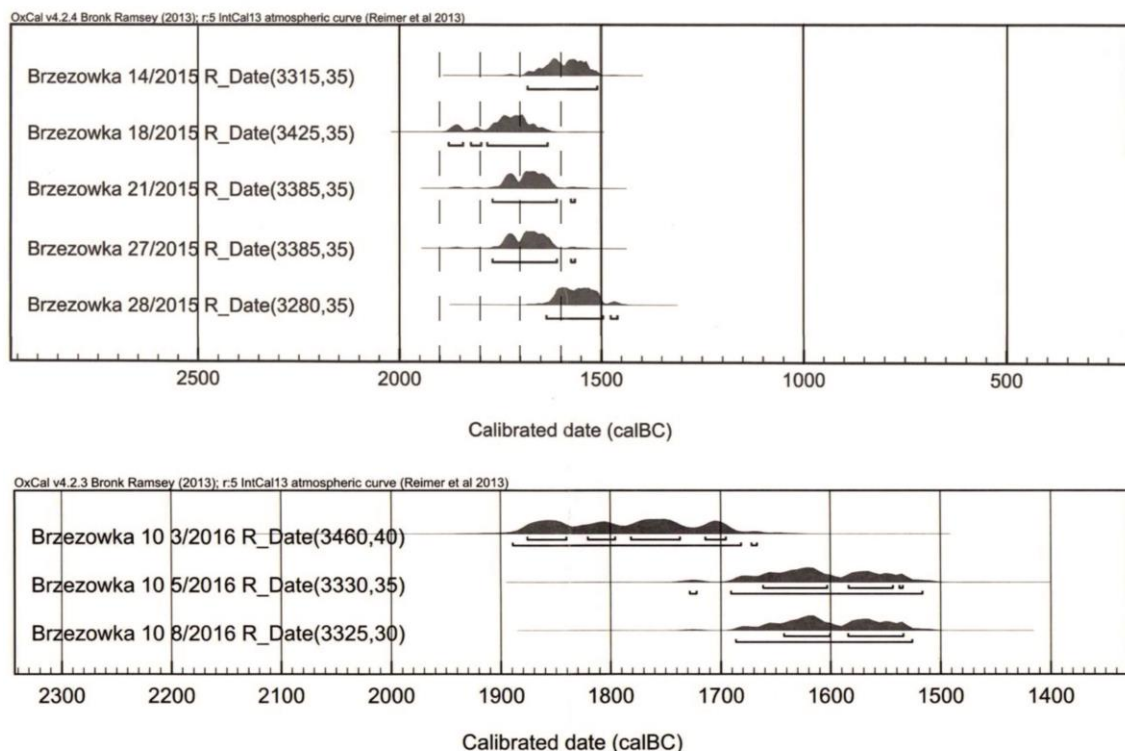


Figure 19. Brzezówka, site no. 10. Radiocarbon data

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SETTLEMENT LAYOUTS, SYSTEMS AND STRUCTURE OF THE OTOMANI-FÜZESABONY
CULTURAL COMPLEX

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Kivonat 2018. június 7–9 között került sor Miskolcon a *Settlement layouts, systems and structure of the Otomani-Füzesabony Cultural Complex (a továbbiakban OFCC) című nemzetközi konferencia megrendezésére. A konferencián az OFCC területét érintő öt ország kutatói mutatták be településkutatásaikat. A jelen kötet a konferencián elhangzott előadások egy részét tartalmazza. A bevezető tanulmány a konferencia és a kötet célját és felépítését járja körül.*

Kulcsszavak *OFCC, miskolci konferencia, településkutatás*

Keywords *Otomani-Füzesabony Cultural Complex, Conference at Miskolc, Settlement-researches*

Introduction

The international conference, Settlement layouts, system and structure of the Otomani-Füzesabony Cultural Complex (further OFCC) took place in Miskolc between the 7th and 9th of June 2018. This occasion was also a formal closing event for the research grant of The National Scholarship Programme of Slovak Republic with the title: *Bronze Age Settlement System of the Otomani-Füzesabony Ceramic Style across borders. A comparative study of Bronze Age societies in the Hernád Valley and beyond.* The Host institution of the grant was the Institute of Archaeology, Slovak Academy of Sciences.

Parallel to the conference the latest results from the years 2012–2018 of the BORBAS project (Borsod Plain Bronze Age Settlements) were also published: T. L. Kienlin, K. P. Fischl, T. Pusztai: *Borsod Region Bronze Age Settlement (BORBAS) Catalogue of the Early to Middle Bronze Age Tell Sites Covered by Magnetometry and Surface Survey.* Universitätsforschungen zur prähistorischen Archäologie 317, Bonn 2018. In the light of the newest researches, which put our knowledge about the OFCC settlements into a new context, organisation of an international conference was reasonable.

In addition many other aims and reasons motivated the organisation of the conference. OFCC research has always been the red-headed stepchild in the history of archaeology. This large cultural block stretches from Lesser Poland to the rivers Hernád and Tisza, and even to the river

Maros via the Tisza's right bank creeks, in the Eastern half of the Carpathian Basin namely across the territories of five present day nations.

Research history

The first summaries of ceramics with spiral knobs and helicoidal ribs (also known as turbanrand) decorations were named Otomani- (Romania, Nestor 1933), Hornopotiska- (Slovakia, Eisner 1933) and Füzesabony-Culture (Hungary, Tompa 1937) respectively. While Hungarian and Romanian research still clings to their own naming conventions to this day, Slovaks eventually adopted the use of the Otomani term (for further research history see Bader 1998, Thomas 2008). Even though the Hornopotiska Culture, which refers to the culture of the upper regions around the river Tisza, did not cover the entire range of the area, it still could have resolved the argument that has been dragged on for nearly half a century with its geographically focused approach; alas, it quickly went out of use. In addition to the insistence on national nomenclature, the fact that the first monography-like descriptions were made using Childe's definition of culture (Childe 1929) also makes the debate difficult to this day, since they categorized these prehistoric cultures based on the shapes and decorative motifs of their ceramics (Popescu 1944; Bóna 1975; Furmánek et al. 1999). The dubiousness of assessing these two "cultures" is reflected by the word choice in Bóna's monography, which was written in 1958 but only published in 1975, where he discusses

under the name “Culture of pots with spiral knobbed decorations” of the Füzesabony and so-called Gyulavarsánd—which is Otomani in reality—cultures together (Bóna 1975: 120–170). Resolving this issue is made more difficult by the lack of knowledge about burials from Otomani territories (Thomas 2008); according to Childe’s understanding of culture the characteristics of those provide the second most important frame of reference after typology.

Even though Hungarian material is closer to the sites excavated in Slovakia, both in terms of typology and burial traditions, due to the usage of the Otomani nomenclature the Slovaks reinforced the relation with the Romanian material more.

If we examine the subsystems of culture within the OFCC with methods of the processual archaeology, our results are not overlapping polygons. While following a ceramic-typological distinction we can separate two major groups, as suggested by Bóna, the so called Füzesabony és Gyulavarsánd units, on the contrary based on the burying habits we can distinguish between a north-western group marked by their more unified bipolar, gender specific rituals and a lesser known southern society, perhaps with funerary urns. In comparison with the southern tells in the northern region we only know settlements which were surrounded by massive ditch-rampart constructions.

Aim of the conference

However, by the investigation of the settlements fundamental patterns which tie these areas together were observed during the research. The selection of the sites for the settlements in the space, the digging of ditches around the core parts of the settlements, the existence of outer settlement zones and the detection of clusters within the living place emphasizes the similarities between northern and south-eastern areas. The location of the settlements in space, their inner, social organisation and their demarcation from the surrounding area may hide a cognitive background that binds the OFCC communities and area together, which is otherwise not unified through any means of research history.

This is one of the reasons why this conference is mainly about the settlements. The goal is to further research and compare the concept of space and the land use in the OFCC region.

I believe that this conference was the first

occasion that members from all five nations of the OFCC phenomenon are sitting at the same table. Previously there have been attempts to create joint international researches in the forms of conferences and publications. (Gancarski 1999—where the OFCC concept introduced; 2002)

The aim of the conference was to restart a conversation between colleagues working in the same fields and rethinking a cultural concept of the so called OFCC phenomenon.

The conference was supported by the National Cultural Fund of Hungary, the National Scholarship Programme of Slovak Republic, the University of Miskolc, the Commune of Borsodivánka and Lajos Tóth.

The following presentation was held on the open session (Fig. 1):

Klára P. Fischl: Introduction to the settlement structure of the OFCC in the Dél-Borsod flatland area; Füköh Dániel: Preliminary report from a pending excavation of a middle bronze age burial field at Encs (north-east Hungary); Dani János / Márkus Gábor / Bálint Marianna / Bacskai István: Early and middle Bronze Age settlement network around Polgár; Szathmári Ildikó / Guba Szilvia: New results on the settlement structure of the Füzesabony Bronze Age tell; Kertész Gabriella Nikolett: Nondestructive researches at Alsóvadász-Várdomb archaeological site; Mengyán Ákos: Problems of the late Hatvan period at the Southern foothills of the Bükk mountains; Jan Gancarski / Paweł Madej: Defensive settlements of the Otomani-Füzesabony Culture in the Wisłoka river basin; Johanna Jędrzyk / Marcin S. Przybyła: Bronze Age fortified settlement on Zyndram's Hill at Maszkowice (Polish Carpathians); Peter Romsauer: Frühbronzezeitliche befestigte Siedlung Košice-Barca I.; Ladislav Olexa: The Settlement II of Nižna Mišľa; Dominika Oravkinova: „All humans are equal, but some are more equal than others” Towards intra-site social organization at Spišský Štvrtok; Peter Tóth: Settlement strategies at the end of the Early Bronze Age in Eastern Slovakia; Zsolt Molnár / Liviu Marta: Landscape and habitat in north-western Transylvania. Archaeological researches of the Middle Bronze Age tell Carei-Bobald (Satu Mare County, RO); Florin Gogâltan / Gruița Fazecas: At the south-eastern edge of the Otomani-Füzesabony Cultural Complex; Alexandra Gavan / Marian Lie: Tell-site of Toboliu "Dambu Zanacănului" (Bihor County), Otomani-Füzesabony; Josyp V. Kobal’:



Figure 1. Participants of the conference



Figure 2. Participants of the excursion at Tiszabábolna-Fehérló tanya

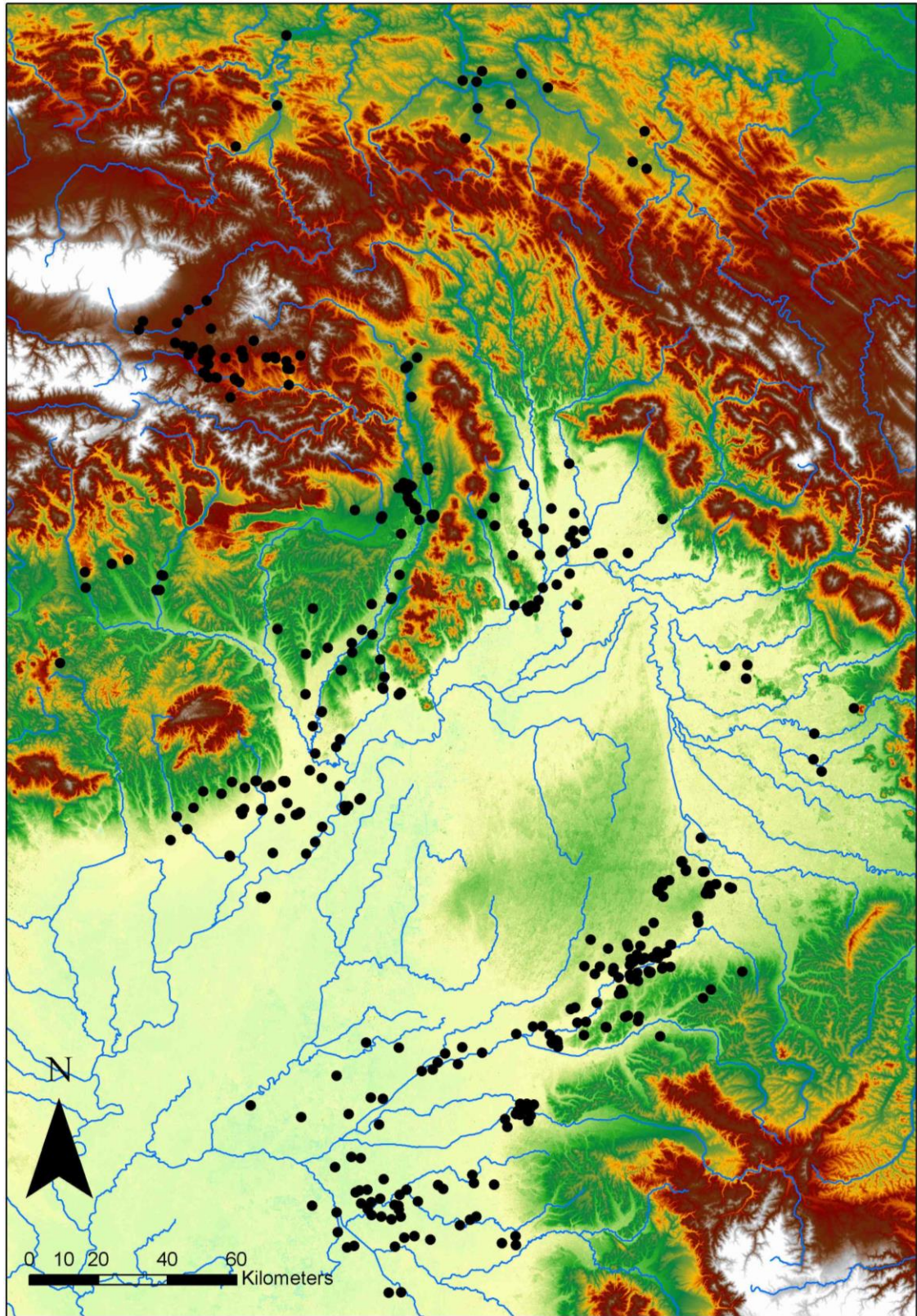


Figure 3. Distribution of the OFCC sites

Die mittlere Bronzezeit in der Transkarpatien (Ukrainine); Ilčišin Vasyl: Burial place of the Bronze Age horses in the Burial.mond near Husiatyn Ternopil region (by results of archeological excavations 2015). The layout of the settlement, which they have been working on, with descriptions and scale, information on the excavation and researches, the most important list of literature and the description and photos of some important finds and appearances. From this data standardized posters was created for comparison the data and to show how difficult it is to set up a unified model based on sites that are researched at different rates and with differing methods.

Near the posters about the presented sites (Alsóvadász-Várdomb, Carei-Bobald, Bogács-Pazsagpuszta, Borsodivánka-Nagyhalom, Brezówka 10, Füzesabony-Öregdomb, Košice-Barca I, Maklár-Baglyashalom, Novaj-Földvár, Szihalom-Árpád vár, Maszkowice-Góra Zyndrama, Nižna Mišľa-Várhegy, Spišský Štvrtok-Myšia Hôrka, Toboliu-Dambu Zanacanolui, Trzcínica 1 and one poster with the map about the south-eastern edge of the Otomani-Füzesabony Cultural Complex) we have also some others: Lucia Szabó: The pit 519 at Nižna Mišľa and its metallurgical finds and Nicklas Larsson: Méra I.

A little exhibition from the new finds of the cemetery at Encs was also organised by favour of the excavators Áron Dávid and Zoltán Farkas.

As a closing event of the conference a one-day trip took place in the South-Borsod Plain (Fig. 2). With those how joined us we visited the tell settlement of Borsodivánka-Nagyhalom, the island-like settlement of Tiszababolna-Fehérlótanya and the composite settlements of Tiszakeszi-Szódadomb with small core area, to gain experience and study the geographical attributes of the Dél-Borsod flatland and the settlements that were located here in the Bronze Age. The material of the conference will be published in the online journal, “Gesta” of the University Miskolc Institute of History. The reader holds this band in his/her hands. During the production of the manuscripts, so that the results from different teams and individuals can be part of a work that allows a comparison of every unit, the editor asked the followings from the authors:

A detailed research history, mentioning all used literature and sources. Marking the size of the settlement, the size of the excavated area, the types of already used research methods on the site (e.g.

excavation, non-invasive researches, geophysics, drilling Etc.), the type of the fortification (if such exists) and the data regarding to possible outer settlement part or satellite settlements.

If known the size of the site catchment area. A topographic map with the location of the site and it's layout. The mention of the used chronological system (5 phases after Nižna Mišľa, A–C phases after Bóna, 3-4-5 phases system of the Romanian literature/year...).

An important result of the above-mentioned projects is that an online database of the OFCC sites and a new map of these will be created. The uploading process of the database is running parallel to the publication of this volume. The map as it was at its state back to the day of the conference, contained 243 locations, this number raises ever since then. The participants of the conference also provided their data for this collecting process, some of them even took part in the uploading of the database into our cloud.

The map below (Fig. 3) shows the OFCC sites at the current stage of our researches.

At that site the organisers wish to thank to the authors published in this volume for the effort to contribute and to all of the participants of the conference *Settlement layouts, systems and structure of the Otomani-Füzesabony Cultural Complex*.

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AT THE SOUTH-EASTERN EDGE OF THE OTOMANI-FÜZESABONY CULTURAL COMPLEX

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Abstract În acest articol dorim să completăm informațiile deja publicate cu altele care sunt încă inedite cu privire la arealul sud-estic al stilului ceramic Otomani-Füzesabony. Este vorba despre investigațiile noastre din perioada 2013–2016 în cadrul proiectului intitulat „Trăind în tell-urile epocii bronzului. Un studiu de arheologie a așezărilor la frontiera estică a Bazinului Carpatic”.

Referitor la așa zisa „granița” sud-estică a stilului ceramic Otomani-Füzesabony, considerăm că ea poate fi plasată în zona Crișului Alb. De-o parte și de alta a acestui râu există așezări precum Socodor, Vârșand sau Salonta care prezintă în repertoriul ceramic în proporții diferite elemente care se regăsesc atât în stilul ceramic Otomani-Füzesabony cât și în cel Cornești-Crvenka.

Cuvinte-cheie Epoca mijlocie a bronzului, Bazinul Carpatic, stilul ceramic Otomani-Füzesabony, arheologia așezărilor

Keywords Middle Bronze Age, Carpathian Basin, Otomani-Füzesabony ceramic style, settlements archaeology

Introduction

It is well known, that the name Otomani culture was proposed by Ioan Nestor in his synthesis *Der Stand der Vorgeschichtsforschung in Rumänien*, published in 1933 (Nestor 1933, 89–92). Because of the personal relations between Nestor and Márton Roska, but also because of the political situation at the beginning of the Second World War, a different name was used by Roska: he introduced in 1941 the term Gyulavarsánd culture (after the Hungarian name of Vârșand village) (Roska 1941: 56). Since then, Romanian researchers use the name Otomani culture (Popescu 1944: 89–99; Horedt et al. 1962; Ordentlich 1970; Bader 1978; Chidioșan 1980; Roman, Németi 1990; Andrișoiu 1992; Kacsó 1999; Vulpe 2001: 258–260; Molnár 2014; etc.) and some Hungarian archaeologists the term Gyulavarsánd culture (Banner 1955: 140–141; Bóna 1975: 121–144; Máthé 1988; Szabó 1999, 25; Csányi & Tárnoki 2003; Dani et al. 2016; etc.). The small political sabotage of Roska has turned into an archaeological diversion that we prefer to ignore. Like other colleagues who deal with the facts of the Bronze Age in the Carpathian Basin, we will use the more general description: the Otomani-Füzesabony cultural complex or ceramic

style (Gancarski 2002; Bátora 2013; Vladár, Oravkinová 2015; Jaeger 2016; etc.), as it has been referred also in the title of our conference.

In our article we would like to deal with only two issues. In the first part the south-eastern fringe of the Otomani-Füzesabony ceramic style will be discussed. The second part of this study shall present the results of recent research on the Otomani-Füzesabony communities and their habitats in the Criș rivers Basin.

In 1971, Ivan Ordentlich created the first distribution map of the Otomani culture on Romania's territory (Ordentlich 1971: Fig. 1) (Fig. 1/1). Among the sites of this culture a lot of settlements south of Mureș and from western Transylvania and at the middle course of Mureș river were also included. According to István Bóna, the so-called Gyulavarsánd group would have reached the river of Mureș (Bóna 1975: 123, Verbreitungskarte II) (Fig. 1/2), a statement which was resumed in his synthesis *Bronzezeitliche Tell-Kulturen in Hungary* (Bóna 1992: 17, 30–32) (Fig. 1: 3–5). Gruia Fazecaș establishes in 1997 a new repertoire of Otomani settlements, excluding sites dated to Bz A1 and Bz D, and those from Transylvanian “enclave”, but determined southern “border” of this culture still to the South of the river of Mureș (Fazecaș 1997: Pl. II) (Fig. 1/6).



Figure 1. 1) The distribution of Otomani settlements after Ordentlich 1971; 2) the distribution of Middle Bronze Age settlements in the Carpathian Basin after Bóna 1975; 3–5) dynamics of Middle Bronze Cultures in the Carpathian Basin after Bóna 1992; 6) map of the Otomani sites after Fazecaș 1997; 7) map of the Middle Bronze Age sites in southwestern Romania after Gogâltan 1999.

In 1999 Florin Gogâltan published an article titled *The Southern Border of the Otomani Culture* (Gogâltan 1999). The purpose of that article was to cast a light on unpublished materials resulted from the 1930 excavation of M. Roska at Socodor, kept in the Cluj Museum. On the basis of analogies with other sites from the Banat, the tell of Socodor was assigned to the Cornești-Crvenka group of the Vatina culture and not to the Otomani culture as was proposed until then (Fig. 1/7). The tell of Vârșand (Roska 1941; Popescu 1956b; Găvan 2014) is in our opinion a peripheral settlement of the Otomani culture, that came in real cultural contact with the Cornești-Crvenka group of the Vatina culture (Gogâltan 2004). It should be noted that the distance between the two sites is just about 18 km and they were very likely separated during the Bronze Age by a large swamp, as it is shown on the first topographic mapping of the area in the eighteenth century (Fig. 2/1).

In 2010, G. Fazecaș published the results of 1958 control excavation in Salonta conducted by Nicolae Chidioșan (Fazecaș 2010). *Testhalom* settlement is located 33 km northeast of Vârșand. The ceramic fragments discovered here also show strong southern connections with analogies in the Cornești-Crvenka ceramic style.

Regarding the south-eastern area of the Otomani-Füzesabony ceramic style, we would like to complete the information already published with new data provided by our 2013–2016 research project: „*Living in the Bronze Age Tell Settlements. A Study of Settlement Archaeology at the Eastern Frontier of the Carpathian Basin*” endorsed by the Romanian Ministry of National Education. The initial intention of this project was to recover old unpublished information found in the collections of different museums from western Romania, to collect relevant samples for AMS analysis, and to conduct a series of non-invasive investigations, the later consisting of GPS tracing the tell-settlements’ coordinates, new topographic measurements, aerial photographs and magnetic surveys (Gogâltan et al. 2014; Gogâltan 2016).

In the area between Mureș and Crișul Alb, we have identified a large tell settlement at Sântana-

North of the city that can be connected to the Cornești-Crvenka ceramic style (Sava 2014) (Fig. 2/3–4). About 5 km to the southeast from Sântana another Cornești-Crvenka settlement was discovered, which overlaps partial a Copper Age tell (Sava 2015: 178, with old references) (Fig. 2/2). Hard enough, but we identified the tell settlement at Socodor at the field (Petric 2014: 249–250, Fig. 2–6), quite vaguely indicated both by M. Roska (Roska 1942: 271) and by Dorin Popescu (Popescu 1956a: 43). It is a small settlement and in the Bronze Age it was probably an island. On the other hand, the Vârșand tell is a very large settlement. The processing of the archaeological material from the 1930 excavations of M. Roska at Socodor, which are in the Arad Museum collection, proves once again that this settlement does not belong to the Otomani-Füzesabony ceramic style, but to the nordic group of Vatina ceramic style (Petric 2014: Pl. VI–VII; Sava et al. 2019). However, once again, the decorative elements that are so specific to Otomani communities such as spirals have to be remarked at this site.

Former opinions about the presence of Otomani communities in Transylvania can no longer be supported (Andrițoiu 1992: 54–61; Rotea 1994). Today we know, that at the beginning of the Late Bronze Age, somewhere between 1600 and 1500 BC (Gogâltan 2015: 72–79), pottery shapes and ornaments, common to a larger space that covers a large part of the old Otomani and Wietenberg areas appear. A suggestive example is the site at Vlaha near Cluj with typical late Wietenberg and Cehăluț-Hajdúbagos/Pișcolt type ceramic material (Gogâltan et al. 2011; Németh 2015).

Regarding the so-called south-eastern „border” of the Otomani-Füzesabony ceramic style, we believe that it can be localised in the Crișul Alb area. On both sides of this river there are settlements such as Socodor, Vârșand or Salonta, that have in their ceramics repertoire—even if in different proportions—elements that are found both in the Otomani-Füzesabony and in Cornești-Crvenka ceramic styles.

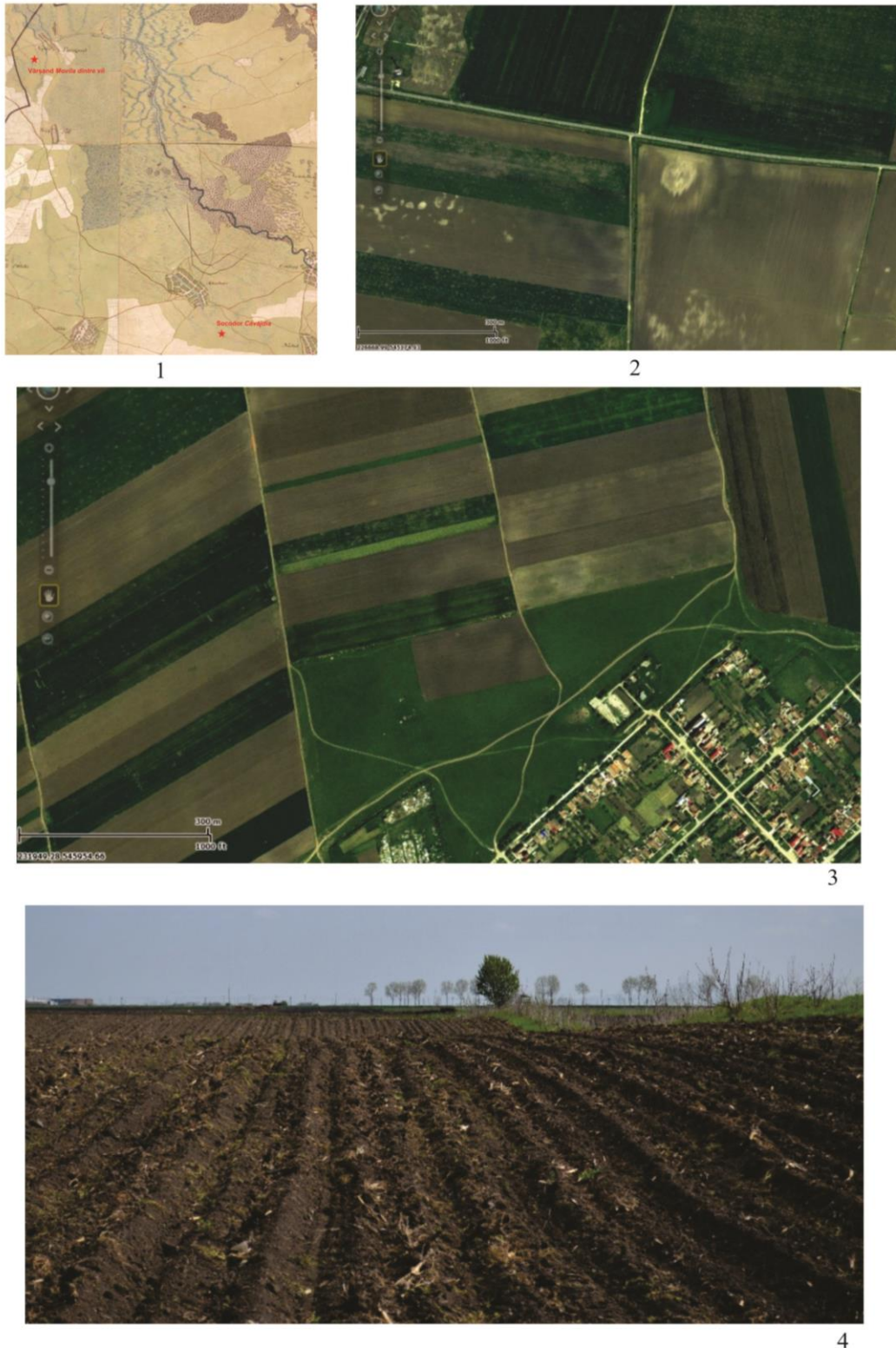


Figure 2. 1) Position of the Socodor and Vârşand tells in the context of the relief captured on the first lozefine map; 2) Tell of Sântana "Holumb"; 3) location of the Sântana tell "La nord de oraş = North of town"; 4) View of the Sântana tell "La nord de oraş".

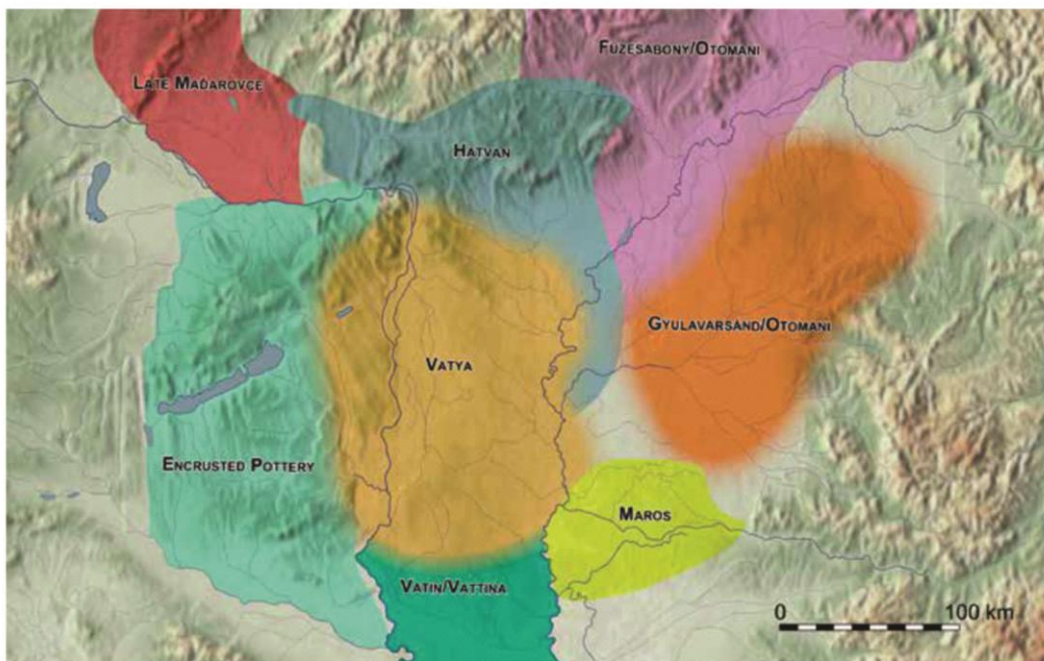
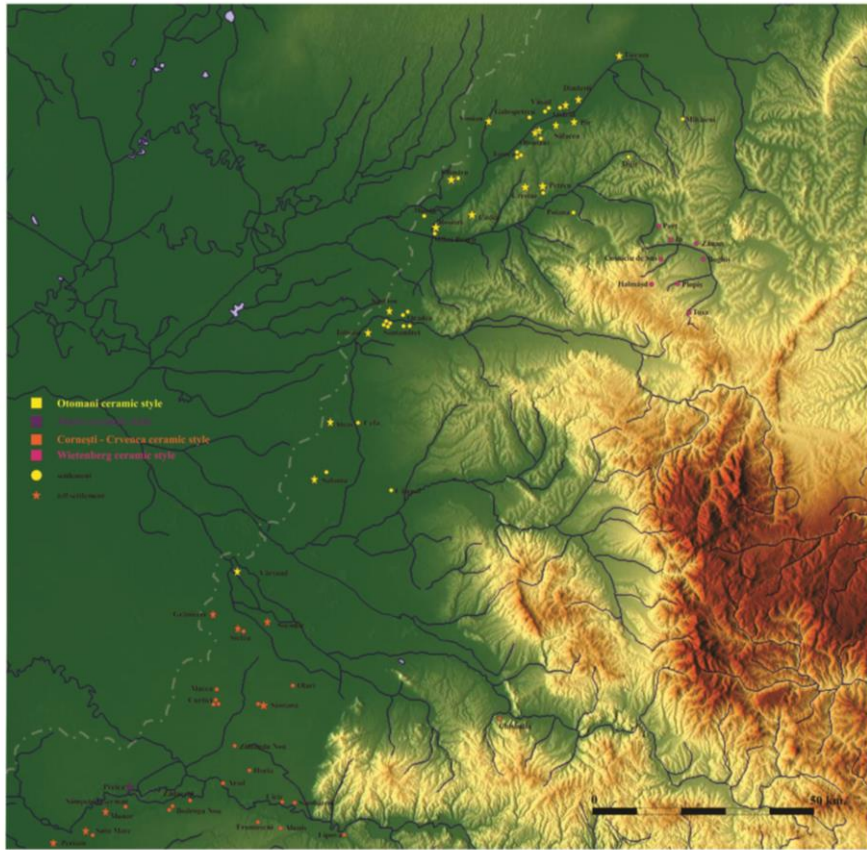


Figure 3. 1) Distribution of the Middle Bronze Age settlements in the Criş Rivers basin; 2) the area of Middle Bronze Age ceramic styles in the Carpathian Basin after Dani et al. 2016.

It is quite possible, that we deal with a southern variant of the Otomani-Füzesabony ceramic style, which could be defined as a separate ceramic group and called Gyulavarsánd or Vârșand, as it has been proposed (Molnár 2014). But first of all, it has to be defined typologically as such. This can be done only after the publication of the results of the new excavations from Toboliu-*Dâmbul Zănăcanului* (Fazecaș & Lie 2018; Lie et al. 2018, with the old literature) and Sântion-*Dealul Mănăstirii = Klastrom domb* (Fazecaș et al. 2016; Fazecaș et al. 2017). In addition, the ceramic finds must be compared to that of Békés-*Várdomb = Városerdő* (Banner & Bóna 1974), Vârșand-*Movila dintre vii = Laposhalom* (Popescu 1956b; Bóna 1975; Găvan 2014), Socodor-*Căvăjdia* (Popescu 1956a; Gogâltan 1999; Petric 2014; Sava et al. 2019), Carei-*Bobald* (Molnár 2014), etc. The area of the Mureș ceramic style is at least in the Middle Bronze Age, limited only to some sites (Soroceanu 1991; Fischl 2003), of which the most representative tell is that of Pecica-*Șanțul Mare* (Găvan & Ignat 2014, with the old references; Nicodemus and O'Shea 2015; Nicodemus et al. 2015). According to these circumstances, we believe that some additions are needed on maps recently published by colleagues in Hungary (Dani et al. 2016: Fig. 6a).

In the second part of this study we would like to review our knowledge about the Middle Bronze Age inhabitation of the Criș rivers Basin (about 2000/1900–1600/1500 BC). Nowadays 66 settlements are known (Fig. 3/1). Under these, in 2013, 31 sites – out of a total of 46 settlements in western Romania (Gogâltan 2014a: 14) – were identified as multi-layered settlements, the rest being settlements with only one layer of inhabitation. No settlements on hills or in caves are known. The first result of our fieldwork project and that of the project coordinated by Tobias L. Kienlin and Liviu Marta in the Carei Plain and Ier Valley (Kienlin & Marta 2014; Kienlin et al. 2017) show, that among the 31 sites only 18 are tells or tell-like settlements, to which we can add two more, on field newly discovered tell like sites (Salonta-*Bogd* and Petreu-*Zongora*). The statistical data is summoned up on Fig. 9: on these 20 multi-layered settlements different investigations were

carried out, on 13 sites geophysical prospections were made, on 7 sites coring samples were taken, aerial photographs were obtained in 11 cases and from 2 settlements AMS data were gained (Fig. 9).

Some Middle Bronze Age sites from the Criș rivers Basin revisited

In the following we would like to discuss some new data on our research in the Criș rivers Basin. At Tulca-*Holomb* (Fazecaș 2014b) we identified a natural landform instead of a multilayered settlement (Fig. 4/1). At Diosig-*Colonie* (Gogâltan 2014c, with old references) rescue excavations were conducted and as a result no multilayered settlement could be identified (Fazecaș & Gogâltan 2018). In case of Cadea-*Dealul chel = Koposzdomb* - that was formerly listed as a fortified settlement belonging to Otomani I–II ceramic style (Gogâltan 2014b, with old references), at the field only a modest Otomani II settlement (Fig. 4/5–6) was found. The same situation was observed in Vășad-*Cartierul țiganilor = Cigány tanya = Cigánynegyed = Groapa de lut = La nord de sat* (Gogâltan & Fazecaș 2014, with old references) (Fig. 4/2–4).

Studying the land survey maps of the Habsburg empire or Google Earth images and verifying the informations on the ground, new multi-layered settlements could be identified. This was the case at the site of Salonta-*Bogd*, close to the border to Hungary (Fig. 5). Another multilayer site was recently discovered at Petreu with ceramic materials belonging to the beginning phase of the Otomani ceramic style (Fig. 6/1–2).

As said, in case of 13 multi-layered settlements, aerial photography was taken to obtain digital terrain model (Table 1). One of the most interesting tell is the Ateaș-*Holombul Voghiului*, which was not previously researched either, because its close location to the border to Hungary (Ghemiș 2014, with old references). Even today, this tell is surrounded most of the time by water, thus making it accessible only in dry summers.

In autumn 2016, our project came to its ending. The research of the Crișuri Basin tells continued through the collaboration with T.L. Kienlin and the University of Cologne.

Table 1. Synoptic table with the Bronze Age multilayer settlements from the Crișuri Basin.

Multilayered settlements	Multilayered settlements known until 2013	Multilayered settlements excavated until 2013	Multilayered settlements excavated 2014-2018	Multilayered settlements in 2018	Geophysically investigated	Investigations by drilling	Aerial photography	C 14 data
Andrid	Andrid			Andrid	Andrid	Andrid	Andrid	
Ateaș	Ateaș			Ateaș		Ateaș	Ateaș	
Cardea	Cardea							
Căluș	Căluș							
Crestur	Crestur			Crestur	Crestur	Crestur		
Dindești	Dindești			Dindești	Dindești	Dindești	Dindești	
Diosig	Diosig		Diosig					
Grăniceri	Grăniceri							
Otomani "Cetatea de pământ"	Otomani "Cetatea de pământ"	Otomani "Cetatea de pământ"		Otomani "Cetatea de pământ"	Otomani "Cetatea de pământ"	Otomani "Cetatea de pământ"	Otomani "Cetatea de pământ"	
Otomani "Cetățuie"	Otomani "Cetățuie"	Otomani "Cetățuie"		Otomani "Cetățuie"	Otomani "Cetățuie"	Otomani "Cetățuie"	Otomani "Cetățuie"	
Pir	Pir	Pir		Pir	Pir	Pir	Pir	
Pișcolt	Pișcolt			Pișcolt	Pișcolt	Pișcolt	Pișcolt	
Roșiori	Roșiori	Roșiori		Roșiori	Roșiori			
Salonta "Testhalom"	Salonta "Testhalom"	Salonta "Testhalom"						
Salonta "Bogd"	Salonta "Bogd"			Salonta "Bogd"				
Săcuieni	Săcuieni	Săcuieni		Săcuieni	Săcuieni		Săcuieni	
Sălacea	Sălacea	Sălacea		Sălacea	Sălacea		Sălacea	
Sântana	Sântana			Sântana				
Sântandrei	Sântandrei							
Sântion	Sântion	Sântion	Sântion	Sântion	Sântion	Sântion	Sântion	Sântion (1)
Socodor	Socodor	Socodor		Socodor				
Șiclău	Șiclău							
Șilindru	Șilindru							
Șimian	Șimian							
Petreu	Petreu							
Tarcea "Dealul de mijloc"	Tarcea "Dealul de mijloc"							
Tarcea "Dealul mare"	Tarcea "Dealul mare"							
Tarcea "Holmul mare"	Tarcea "Holmul mare"							
Tobollu	Tobollu	Tobollu	Tobollu	Tobollu	Tobollu	Tobollu	Tobollu	Tobollu (3)
Tulca	Tulca							
Vârșand	Vârșand	Vârșand	Vârșand					
Vâșad "Cartierul țiganilor"	Vâșad "Cartierul țiganilor"							
Vâșad "Dealul vililor"	Vâșad "Dealul vililor"							
Total	31 (from 46 in vest Romania)	11	3	20	12	7	11	2



1



2



3



4



5



6

Figure 4. 1) View of Tulca pseudo site; 2) view of an eroded profile at the Diosig "*Colonie = Colony*" site; 3) view of the "*Cartierul țiganilor = Gypsy quarter*" site in Vășad; 4) view of an eroded profile at the "*Gypsies quarter*" site in Vășad; 5) view of the Cadea "*Koposz domb*" site; view from the site of Cadea "*Koposz domb*".



1



2



3



4

Figure 5. 1) The location of Salonta "Bogd" and "Testhalom" site; 2) Salonta "Bogd" tell marking on the second military map; 3) location of the "Bogd" Salonta tell on Google Earth; 4) view of the Salonta "Bogd" tell

Some of the multilayered settlements were photographed again, magnetic surveys were carried out, and the excavations at Toboliu tell were continuing through new findings (Lie et al. 2018).

It is well known, that there is a fairly controversial debate about the territory of a tell (Kienlin 2015; Gogâltan 2016; Kienlin et al. 2018; Jaeger et. al. 2018). That is why our project proposed excavations at two, geographically close tells seeking answers about their connections and chronology. The tells of Toboliu and Sântion were pointed out, which are at about 7 km in straight line from each other. About the results at the tell of Toboliu new informations are presented in this volume (Lie et al. 2018) therefore we shall give here the results of the Sântion investigations.

The Sântion site is located on the bank of the Crişul Repede river, between Oradea and the border to Hungary (Fig. 7/1). In 1954, some archaeological surveys were made and a report was published in the following year (Fig. 7/2). Unfortunately, the site was 1932 partially destroyed at its southern part by the river, further devastations followed in the 70's of the last century, when a road was cut through the core of the tell (Fazecaş 2014a, with old references). The situation is illustrated on topographic survey maps from that time and can even be seen on recent aerial images (Fig. 7/3–7).

Despite to all these destructions that have happened over time, the site is well preserved and protected as a historical monument. The mound itself is owned by the local municipality, thus making long-term archaeological investigations possible (Fig. 7/5). At first, aerial photographs were taken and a digital terrain model (Fig. 7/4, 6–7) was created.

The magnetic survey on the tell did not offer the expected results due to the strong anomalies, that were caused by the industrial constructions erected in the communist years. Apart from the tell, no archaeological traces were identified, probably because a watercourse was nearby. Also, other non-invasive methods were tested. By ground-penetrating radar measurements an Early Medieval church with a size of 10x5 m was identified (Fig. 8/1). The graves discovered in 1954 date back to the end of the 11th century AD (Fig. 8/2–3).

The archaeological field work on the Sântion site started in August 2015 (Fazecaş et al. 2016) by opening two units. Trench S I (6x3 m) was opened – due to methodological considerations – in the central area of the mound. Here, traces of the medieval monastery mentioned by historical documents from 1215 AD were revealed, as well as a brick cist containing two graves (Fig. 8/2). The excavations in SI were stopped just above the Bronze Age layer (Fig. 8/3).

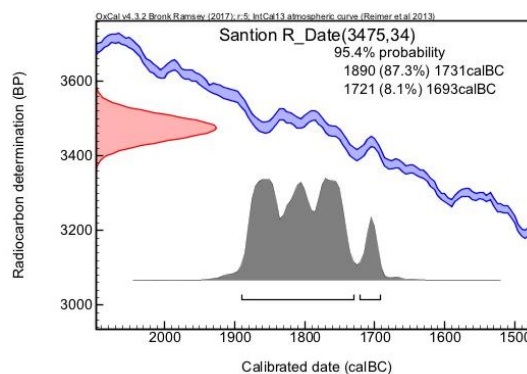
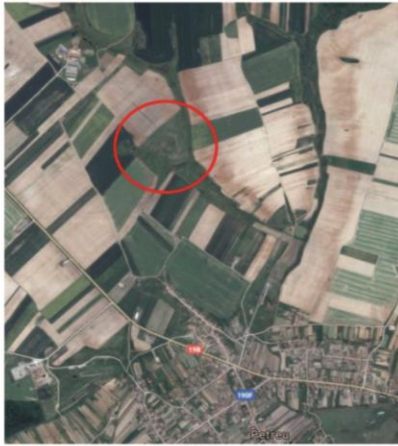


Figure 9. AMS date from Sântion.

In S II (6x3 m), located south of S I, on the southern side of the tell towards the Crişul Repede river, a medieval feature (very probably a ditch) disturbed the Bronze Age layers (Fig. 8/4). The layers were preserved only partially. The first Bronze Age layer was reached at a depth of ca. 1 m (Fig. 8/5). A bone sample for AMS dating yielded a result around 1889–1693 (cal BC 2 σ) and was associated with ceramic material specific to the Otomani II style (Fig. 9). The most interesting structure investigated during this campaign was Cx 12, which can be described as a surface with imprints of wide wooden boards (Fig. 8/6). A similar discovery was made in the tell settlement in Békés (Banner & Bóna 1974: 20–29, Abb. 8a–d, 31–41, Abb. 12–15), Bakonszeg-Kádárdomb (Máthé 1988: 29, Fig. 7), Gáborján-Csapszékpart (Máthé 1988: 38, Fig. 19), Vráble (Bátora & Tóth 2015: 19–20) or Toboliu (Lie et al. 2018).

In the 2016 campaign, the investigations were continued only in trench S II. As in the previous year (Cx 12), a wooden floor was uncovered, as part of an dwelling erected at the surface (Cx 16).



1



2



3



4



5

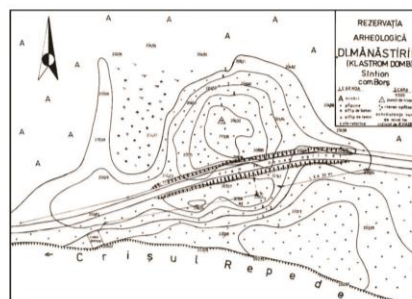
Figure 6. 1) Location of Petreu "Zongora" site; 2) view of Petreu "Zongora" site; 3–4) aerial view of the Ateaș tell; 5) View over Ateaș tell area.



1



2



3



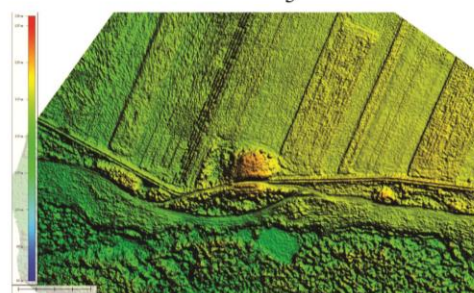
4



5



6



7

Figure 7. 1) Location of Sântion "Dealul Mănăstirii = Monastery Hill" site; 2) Picture from 1954 campaign of research conducted by Alexandrina Alexandrescu at Sântion "Dealul Mănăstirii"; 3) ordnance survey of Sântion "Dealul Mănăstirii" site done by Hadnagy A. in the late 70's of the last century; 4) picture of the wider road crossing the site from Sântion "Dealul Mănăstirii"; 5) view from the northeast to the Sântion "Dealul Mănăstirii" tell; 6) aerial view of the Sântion "Dealul Mănăstirii" tell; 7) digital surface model in the area of Sântion "Dealul Mănăstirii" site.

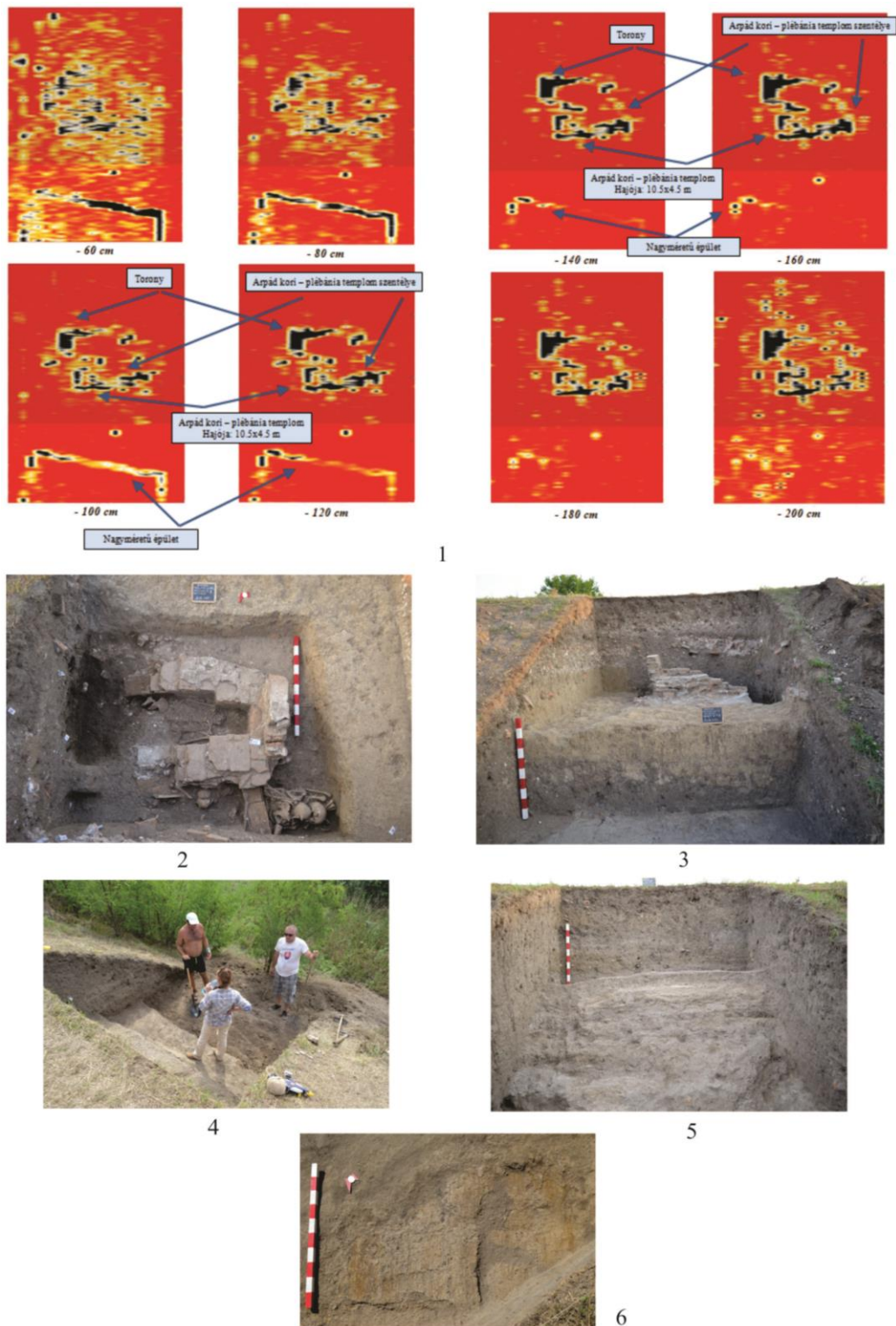


Figure 8. 1) The results of geo-radar measurements indicating the existence of the early medieval church at Sântion "Dealul Mănăstirii" site; 2–3) view of SI/2015 unit in the Sântion "Dealul Mănăstirii" site; 4–5) view of SII/2015 unit in the Sântion "Dealul Mănăstirii" site; 6) detail with the imprint of a wooden plank unearthed in SII/2015 unit, in the Sântion "Dealul Mănăstirii" site.

The floor was made of wooden boards up to 30 cm thick, which had the same orientation as the boards revealed in Cx 12. This fact suggests a potential development of the same structure (Fazecaș et al. 2017). 2017 campaign led to the discovery of other floors made of timber floor.

As stated above, the research of the Bronze Age tells in the Crișuri Basin will continue and the discoveries so far are subject of two doctoral theses. One on the Bronze Age Habitat in Crișuri Basin that will be presented next year by Gruia Fazecaș at Timișoara University and another by Marian Lie on Toboliu's tell under the supervision of T. L. Kienlin at the University of Cologne.

Acknowledgment

We would like to express our gratitude to Szilvia Guba for her comments on the manuscript and Klára Pusztainé Fischl for organizing the conference and the publication possibilities.

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AN OVERVIEW OF THE BRONZE AGE TELL-SETTLEMENT IN TOBOLIU
(BIHOR COUNTY, ROMANIA)

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Abstract *Așezarea de epoca bronzului de la Toboliu-Dâmbu Zănăcanului este cunoscută în literatura de specialitate încă de la jumătatea secolului al XX-lea. Cercetări arheologice propriu-zise au fost efectuate în anii 60 și 70 ai secolului trecut de către Nicolae Chidioșan, Sever Dumitrașcu și Doina Ignat. Noi cercetări au fost inițiate în anul 2014, fiind continuate până în prezent. În urma acestor cercetări s-a constatat că este vorba despre o așezare multi-stratificată atribuită stilului ceramic Otomani care a funcționat pe parcursul bronzului mijlociu (cca. 2000/1900-1600/1500 BC). Partea centrală a sitului este reprezentată de o movilă antropică, înconjurată de două șanțuri concentrice și o așezare secundară de mari dimensiuni.*

Cuvinte-cheie *Epoca bronzului, stilul ceramic Otomani, tell, Toboliu*

Keywords *Bronze Age, Otomani, tell-site, Toboliu*

Introduction

Although the precise definition of a Bronze Age tell settlement in the Carpathian Basin is still a matter of debate in the existing research (Gogâltan 2002: 23-24; Gogâltan 2008: 40; Gogâltan 2014: 14), the notion broadly refers to an artificial, stratified mound created through the successive accumulation of debris from large surface constructions made of clay and having a wooden structure. Often, tell settlements were fortified or enclosed by ditches and/or earthen ramparts (Gogâltan 2008; Jaeger 2016; Kienlin et al. 2018). From a chronological viewpoint, the Bronze Age tell settlements in the Carpathian Basin developed between ca. 2500 and 1600/1500 BC (Gogâltan 2005; Kienlin 2012: 274-279; Kienlin 2015: 33-67; Gogâltan 2017). Their distinctive characteristics were noticed by historians and

history enthusiasts since the 18th century. Many of these artificial mounds were subsequently investigated through field-walks, excavations and, in recent times, remote sensing methods. Nevertheless, several essential aspects related to their appearance, evolution and subsequent demise remain open to debate. Bronze Age tell settlements in the Carpathian Basin have a set of defining features: a mound-like shape visible in the landscape, complex stratigraphic sequences with multiple architectural phases, fortifications or enclosing elements, and surrounding “satellite” settlements. However, the latter two features may not be encountered at every tell site. Taking these aspects into consideration, as well as the many still unanswered questions regarding their development and function, it is not surprising that the study of tell settlements remains appealing for so many researchers.

Beginning with the 19th century, numerous tell settlements were archaeologically investigated using the methods available at the time (Kovács 1988; Gogâltan 2014: 13-14). Long and narrow trenches, designed to facilitate the collection of artefacts (in order to create relative chronologies, establish local cultural groups and enrich museum collections) were favoured in many cases. However, much of the information obtained through these early investigations is obsolete, difficult to evaluate or completely lost. More recent excavations have been conducted in the tell settlements from Carei *Bobald* (Molnár & Némethi 2014, with the previous literature), Kakucs *Baladomb* (Jaeger & Kulcsár 2013), Kakucs *Turján* (Jaeger et al. 2018), Mošorin *Feudvar* (Falkenstein et al. 2016, with the previous literature), Orešac *Židovar* (Ljuština 2013, with the previous literature), Pecica *Șanțul Mare* (Nicodemus and O'Shea 2015, with the previous literature), Polgár *Kenderföld* (Dani et al. 2003), Százhalombatta *Földvár* (Poroszlai & Vicze 2005; Stig Sørensen & Vicze 2013), Túrkeve *Terehalom* (Csányi & Tárnoki 2013, with the previous literature), and Vráble *Fidvár* (Bátora et al. 2012, with the previous literature), yielding a much needed fresh set of data. Besides the excavation of individual tells, in the last decades several research projects covering larger areas have also developed, most of them employing non-invasive investigations in order to better understand Bronze Age tells and their settlement systems. Such projects have been conducted in the Benta Valley (Earle and Kristiansen 2010; Earle et al. 2014; Klehm and Nyíri 2016), the Hernád Valley (Fischl 2012; Fischl & Kienlin 2013; Fischl et al. 2015), the Criș/Körös Valley (Duffy 2014), the Kakucs area (Jaeger & Kulcsár 2013; Kulcsár et al. 2014; Jaeger et al. 2018), the Borsod Region (Kienlin et al. 2018), the Ier Valley (Molnár & Nagy 2013; Kienlin & Marta 2014; Kienlin et al. 2017) and in Western Romania (Gogâltan et al. 2014).

History of research

The tell settlement from Toboliu *Dâmbu Zănăcanului* has been known in the archaeological literature ever since the beginning of the previous century, as several artefacts were collected from the surface of the site in 1904. Other field-walks were conducted in the area by the history teacher Eugen Potoran, who also recorded the location of the settlement (Fazecaș 2014: 111). The first

archaeological excavations were undertaken in 1960 by Nicolae Chidioșan (Chidioșan 1960). Subsequent excavations in 1965 and 1966 were led by Sever Dumitrașcu (Dumitrașcu 1989? 119). In 1968 and 1972 N. Chidioșan returned to excavate at the site, this time accompanied by Doina Ignat (Chidioșan 1974: 156). Unfortunately, the results of the above investigations remained mostly unpublished, with the exception of several incomplete drawings of the stratigraphic sequence and a few notes regarding some artefacts and pottery decoration. Based on vessel types and decoration, S. Dumitrașcu proposed a new cultural entity in the area which he called Girișu de Criș - Alceu (Dumitrașcu 1989: 120-126, pl I- IX). In 1977 a stone axe was discovered on the surface of the site, which was subsequently interpreted as a prestige object (Ghemiș 2001: 663-670). In 2007 a field walk was conducted on the surface of the site in order to confirm its cultural assignment (Fazecaș 2014: 112-113). The site was mentioned by several authors, either in relation to other Otomani sites (Ordentlich 1970: 621; Ordentlich 1971: 24; Ordentlich 1973: 209; Ignat-Sava 1974: 37; Fazecaș 1997: 54) or when discussing Wietenberg, Suciu de Sus, Hatvan, Mureș and Vatina imports or influences (Chidioșan 1970: 289, fig 1-2; Bader 1972: 512; Chidioșan 1974: 155; Ordentlich 1974: 143, 145-146; Chidioșan 1980: 88-95; Boroffka 1994: 46, nr. 211).

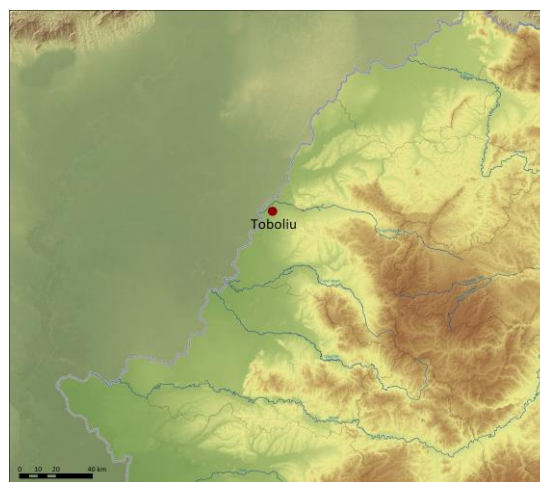


Figure 1. The location of Toboliu in Western Romania

Excavations in Toboliu were resumed in 2014. These recent investigations were conducted within the project *Living in the Bronze Age tell settlements. A study of settlement archaeology at*

the eastern frontier of the Carpathian Basin (CNCS–UE FSCDI –PN-II –ID –PCE-2012–4020) developed by the Institute of Archaeology and History of Art Cluj-Napoca in collaboration with Criş County Museum (Gogăltan et al. 2014). Since 2016 the University of Cologne has also been involved in the research of the site, thus securing the continuity of the Toboliu Project until the

present day. The investigations consisted of archaeological excavations, topographic surveys, systematic field-walks, geomagnetic measurements, core drilling and aerial photography (Fazecaş et al. 2015: 235–236; Fazecaş et al. 2016: 101–102; Fazecaş et al. 2017: 146–147; Gävan et al. 2018).



Figure 2. Overview of the site in Toboliu Dâmbu Zănăcanului (Photo by Marian Adrian Lie)

General presentation of the site

The Middle Bronze Age tell settlement from Toboliu *Dâmbu Zănăcanului* is located in Bihor County, Western Romania, close to the Romanian-Hungarian border (Fig. 1). Although the site was previously part of the Girişu de Criş municipality, it now belongs to the administrative territory of the Toboliu municipality (as established in 2007). For this reason, the site is also known in previous research as Girişu de Criş *Alceu* (Fazecaş 2014: 113). From a geographic perspective, the tell settlement is located at the boundary between the Crişul Repede floodplain and the High plain of Miersig (Berindei et al. 1992: 127). South of the settlement flows a local stream, which today has a seasonal character and is being channelled downstream; together with the Alceu River, this stream forms a marshy area located west of the tell settlement. We have all reasons to believe that, prior to the construction of dams and channels, the

wetland covered a more significant territory, resulting in a landscape considerably different from the one we see today (Fig. 2). The archaeological site is a complex one, consisting of an artificial mound, two enclosing ditches, and a large outer settlement surrounding the tell itself. The mound, which rises approximately 4 meters above the surrounding plain, has a round shape and a diameter of 95 meters (Fig. 3). As previously mentioned, two concentric ditches are enclosing the tell. Based on topographic measurements, we estimate that both ditches were approximately 10 meters wide, enclosing an area of about 1.6 hectares.

Since the recent excavations have only focused on the mound itself, without incorporating any of the ditches, it remains unknown whether they were in use simultaneously or not. A distinctive feature of the site in Toboliu is the large outer settlement surrounding the central mound.

A systematic field-walk was conducted in

2015, covering a surface of 211 hectares around the tell (Fig. 4).

Although archaeological material assigned to the Middle Bronze Age (Hungarian-Transylvanian chronology according to Gogăltan 2015: 53-95) was found scattered on a surface of about 158 hectares, the actual outer settlement most likely covered 57 hectares, which probably reflects periodic shifts of inhabited areas over time, rather than a large, contemporaneous settlement (Fazecaș

& Lie 2018, in press). Regarding the ceramics found during the systematic field-walk, a large percentage of the pottery fragments could be assigned to the Otomani ceramic style (*sensu lato*). However, pottery fragments typical for other Middle Bronze Age cultures were also uncovered, the most frequently encountered being typical for the Wietenberg style. Pottery fragments dating to the Sarmatian period were also found east of the prehistoric settlement.

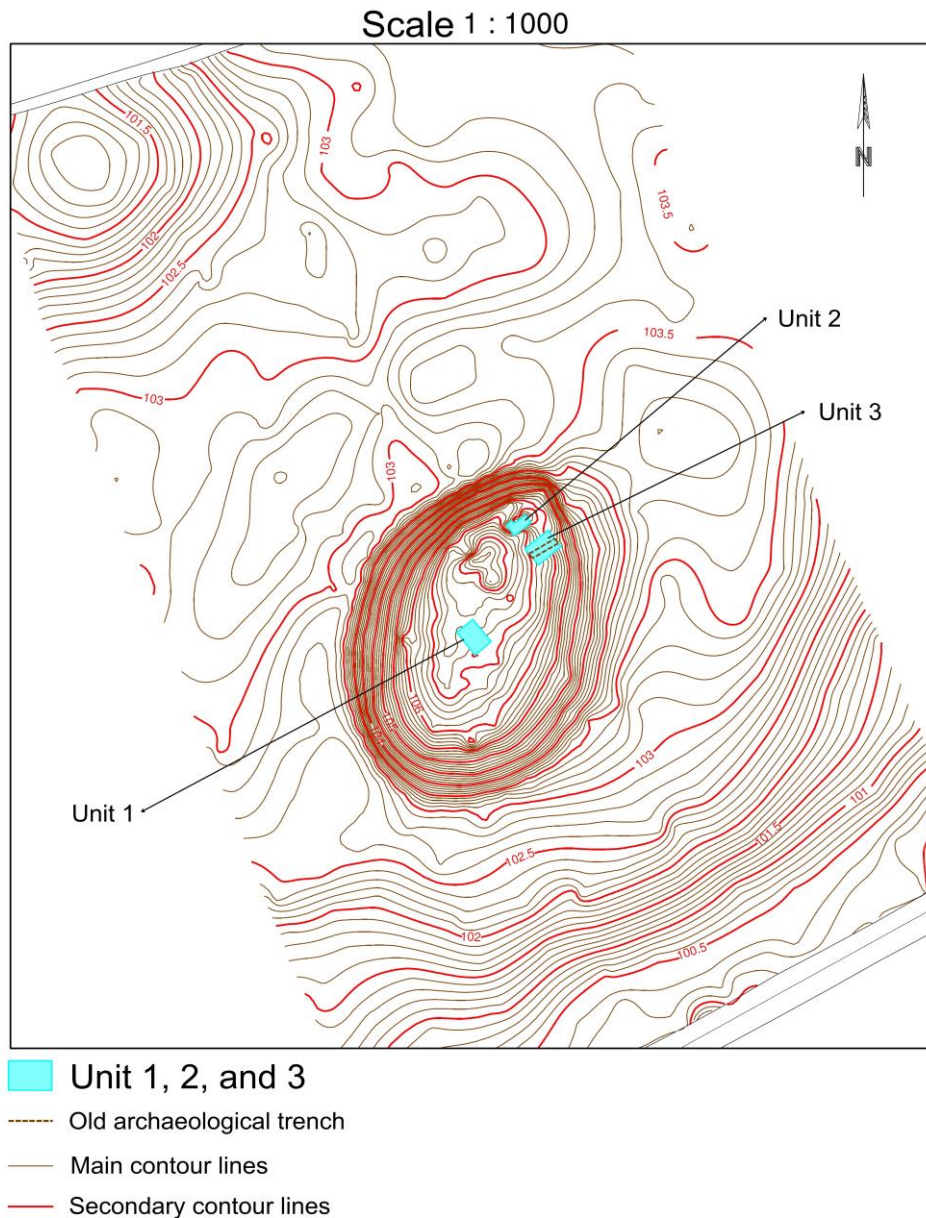


Figure 3. Toboliu *Dâmbu Zăcănelui* – topographic map with the location of the trenches from 2014–2017 seasons (Map by Infinit Land Survey SRL)



Figure 4. Distribution of the finds around the tell settlement (black dots - individual pottery shards; yellow dots - clusters of pottery shards; red dots - association of pottery and adobe) (after Fazecaș & Lie 2018)

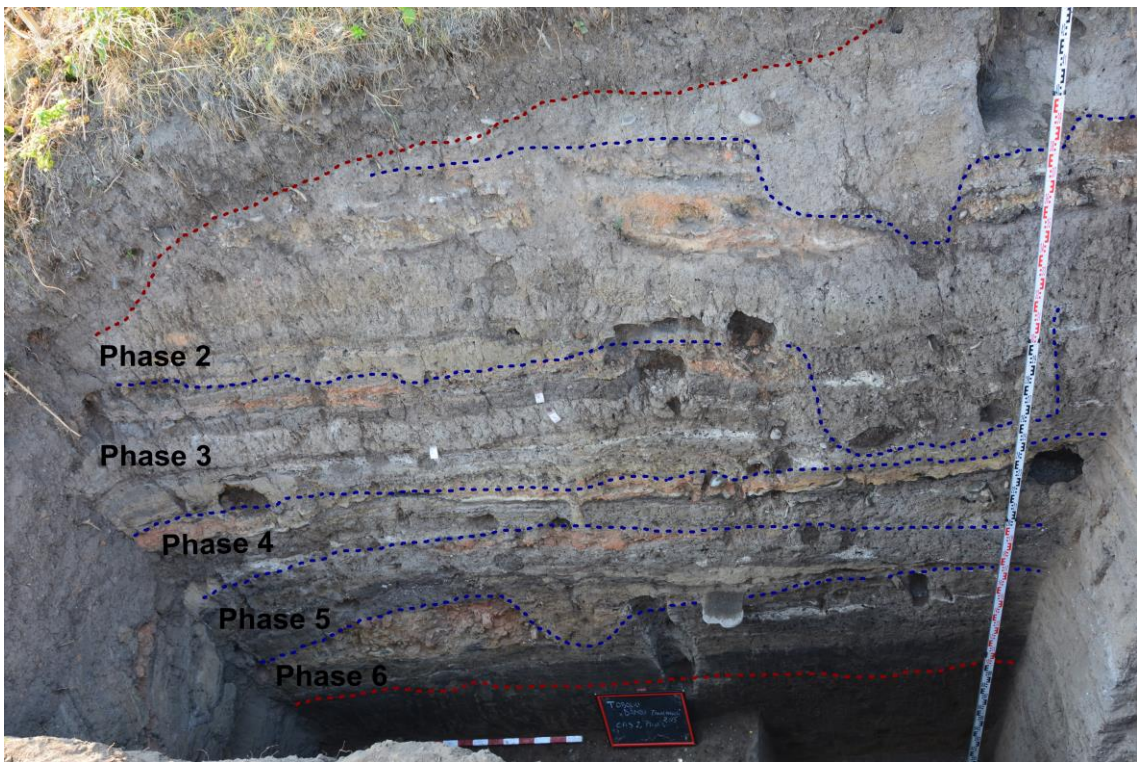


Figure 5. Toboliu *Dâmbu Zănăcanului* – Profile of Trench 2 (Photo by Marian Adrian Lie)



Figure 6. Rows of modern graves in Trench 1 (drawing by Marian Adrian Lie)

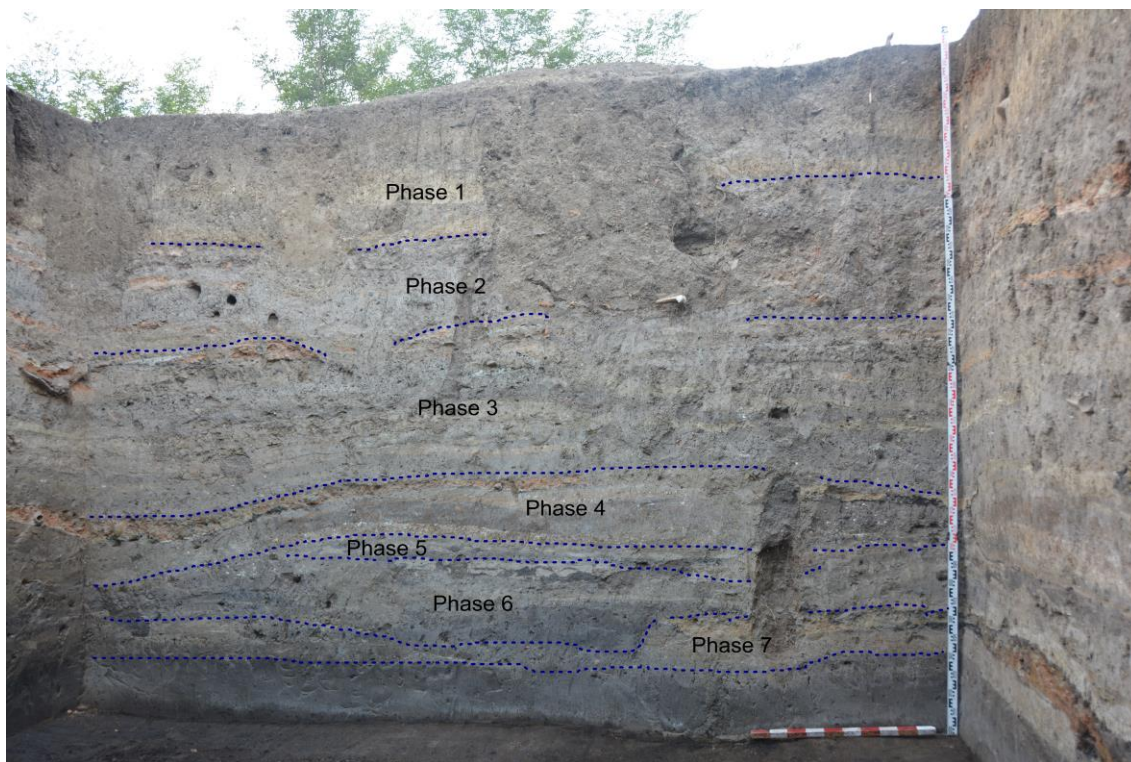


Fig. 7. Toboliu *Dâmbu Zănăcanului* – Northern profile of Trench 1 (Photo by Marian Adrian Lie)

The excavations initiated in 2014 were only conducted on the central mound, where three trenches were open (Fig. 2). The first unit (Trench 1), measuring 5×7 m, was located in the central part of the mound, in the area of maximum elevation. The second unit (Trench 2), measuring 2×4 m, intentionally overlapped an older archaeological trench, the only one that was still visible on the surface. The aim was to re-examine the stratigraphic sequence and to obtain a quick overview without damaging undisturbed layers. The third unit (Trench 3), measuring 5×7 m, was located in the north-eastern part of the mound in a rather marginal area. After removing the top soil, we had the unpleasant surprise of uncovering an older archaeological trench, which basically cut our trench in two.

The second Unit (Trench 2) was completed in 2015, revealing a stratigraphic sequence consisting of five occupation phases. The maximum depth of the trench was 4.8 m. However, excluding the top eroded layer and the virgin soil at the bottom, the actual cultural deposits were around 3.2 m thick (Fig. 5). Considering the nature of this trench, only a few archaeological features were still *in situ*, while the very narrow width of the trench did not

allow any further interpretations regarding potential architecture elements. Nonetheless, this trench proved to be very helpful in understanding the site and its formation. It also provided us with an overview of the general chronology as well as the pottery styles encountered on the tell.

Excavations in the 3rd trench were conducted over the course of three campaigns. Underneath the topsoil, patches of compact adobe were identified, most likely representing the debris of a collapsed house. The pottery uncovered here corresponds to the last stages of the Otomani ceramic style (approximately 1600–1500 BC). After removing the debris, fragments from a yellow clay floor were revealed in the NW corner of the unit, covering a surface of approximately 1.5×3 m. Unfortunately, we cannot make any assumptions regarding the initial measurements of the entire structure. On top of the yellow floor there were two oval hearths with imbedded pottery fragments. One of the hearths had two phases and probably functioned over a longer period of time. Due to logistical constraints, we were unable to continue working in this trench and we decided to focus our efforts in completing Trench 1, which at the time was in a more advanced state of

investigation and also had potential to offer more data.

The most consistent results were obtained in Trench 1, which was completed in 2017. In the central part, the tell was overlapped by a modern cemetery corresponding to a nearby farm which functioned during the 19th century. In total, 13 graves were identified, out of which seven were fully excavated. The other six were extending outside the limits of our trench (Lie et al. 2015: 261–282) (Fig. 6).

The graves were disposed on three parallel rows with an orientation which follows the Christian norm. Only one of them contained an adult, the rest being infant and child burials (Lie et al. 2015: 261–282). The uppermost Bronze Age layers were partially disturbed by these graves, however some *in situ* features were still preserved. The prehistoric settlement phases were labelled with numbers starting from the uppermost (youngest) phase. A total of seven occupation phases (corresponding to architectural construction and abandonment sequences) were documented in a 4 m thick stratigraphic sequence (Fig. 7).

Although they do not rigidly follow the same pattern, these phases are characterized by the existence of clay floors, debris coming from household activities, as well as collapsed walls. Only in some instances the collapsed structures were unburned (Phases 5 and 7), while phase 6 contained both burned and unburned structures. Regarding architectural elements, for phase 1 and 2 we were unable to determine the size and orientation of the surface constructions, due to disturbances caused by the aforementioned graves as well as further post-depositional processes. A rather uncommon feature uncovered in phase 2 was a dugout rectangular structure (exposed on an area measuring 2.4×3 m), which cut through the older archaeological deposits in the SE part of the excavation block.

The construction uncovered within the 3rd phase was by far the most substantial one, showing evidence of floor renewal. Both floor phases were made of wooden planks with clay substructures. Thanks to the second clay substructure, the initial wooden floor was very well preserved (Fig. 8). The structure corresponding to this floor was probably oriented on a E-W axis, measuring at least 4.80 m in width and more than 5.80 m in length (since its margins extended outside of the excavated area). The wooden planks were oriented N-S and measured approximately 0.2×3.40 m.

Both wooden floors had an associated hearth built on top of the planks, with six, respectively five renewal phases.

Underneath this construction, the entire surface of the trench was covered by the burnt debris coming from the collapsed walls of another house corresponding to the next occupation phase of the tell (Phase 4). Among the debris, we uncovered many complete pottery vessels, while underneath it there was another hearth, built on the house floor. Based on the outline of its corresponding clay floor, we estimate that this house was larger than 5.8×8m and was oriented on a N-S axis. On the southern part of this structure, there was a potential porch or small hallway separated from the main compartment by beam impressions and a row of postholes.

In Phase 5 we found the first unburned structure, whose collapsed walls consisted of chunks of yellow and dark clay bearing twig impressions. On the southern side of the structure, we also uncovered evidence of large preserved wooden elements. The size of the clay platform corresponding to this sequence is 4.20×7.60 m. The original length of the house was longer, as again its northern part continued outside the limits of the trench. Furthermore, the structure had three separate rooms, well defined by rows of postholes and beam impressions (Fig. 9). Both the southern and northern rooms had an individual hearth.

The subsequent house, corresponding to the 6th phase, was also unburned, with debris very similar to the preceding one. However, in the northern corner of the trench we unearthed remains of a further, burned structure. The clay platform associated with the unburned house from this phase measured five meters in width and more than 6.6 m in length, being oriented on an East-West axis. Traces of a dividing wall were still visible inside the structure, therefore the house must have had at least two rooms. A circular hearth was identified in its western room. In the northern corner of the unit, at a distance of 1.6 m and roughly parallel, a second clay platform was uncovered. Due to the small exposed area, we cannot make any comments regarding the initial size and function of this structure.

The oldest occupation phase identified on the tell (Phase 7) had a similar destruction layer to the aforementioned ones, with chunks of mixed unburned clay. The structure was oriented similarly to the previous one (E-W), being 4.6 m wide and at least 8 m long. The house had three visible rooms

separated by beam impressions. A large circular hearth was unearthed in the southern room. In the central compartment, an atypical, U-shaped hearth was documented. Underneath the floor of this

house we reached the virgin soil, and no further archaeological material or features were uncovered.



Figure 8. Toboliu *Dâmbu Zănăcanului* – Wooden floor of structure in phase 3 of Trench 1 (Photo by Marian Adrian Lie)



Figure 9. Toboliu *Dâmbu Zănăcanului* – Clay floor of structure in phase 5 of Trench 1 (Photo by Marian Adrian Lie)

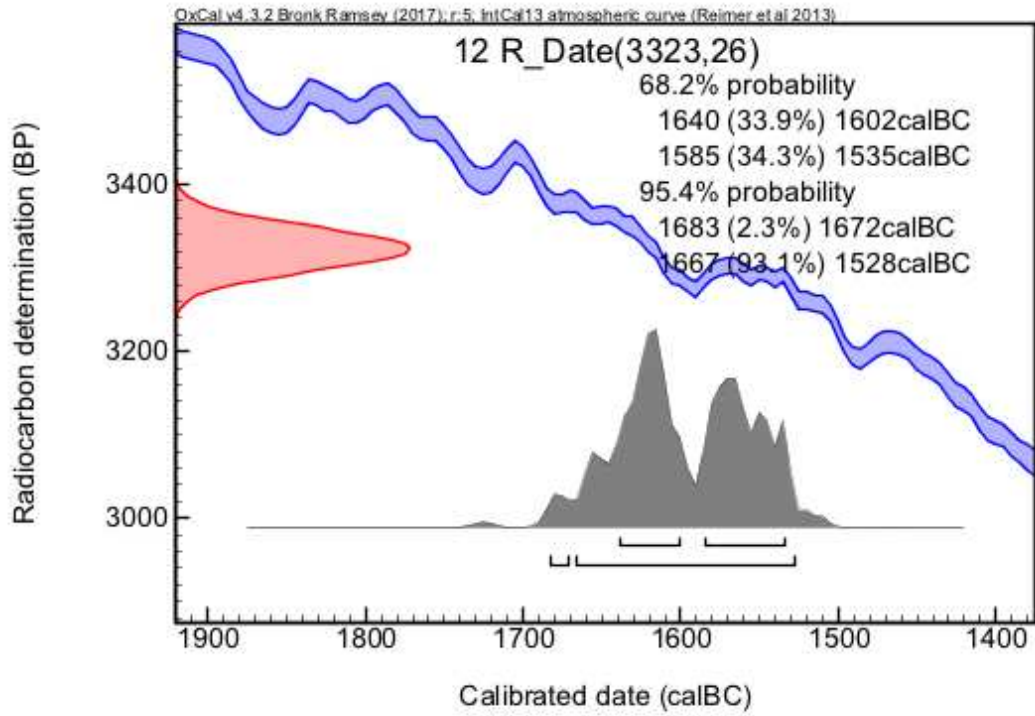


Figure 10. C14 sample from Phase 1 (Unit 1)

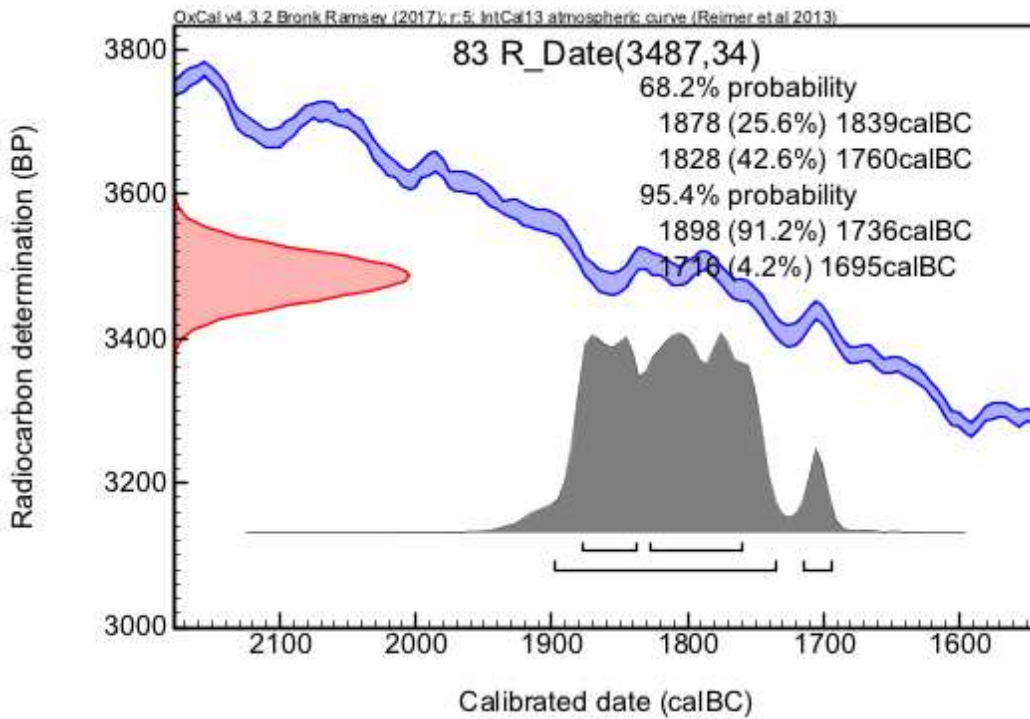


Figure 11. C14 sample from Phase 6 (Unit 2)

Discussion

The site from Toboliu has many of the typical features characteristic for a Middle Bronze Age tell settlement in the Carpathian Basin. What sets this site apart however is the sheer size of its outer settlement. Regarding the overall stratigraphy, little information was provided in the previous literature. Although S. Dumitraşcu mentioned six individual phases, it is hard to interpret the profile drawings he published (Dumitraşcu 1989: Pl. I–IX; Fazecaş 2014: 114, Pl. 1). During our recent investigations, the stratigraphy of the site proved to be more complex (Fig. 7). Even if there are no direct stratigraphic links, the five phases identified in Trench 2 probably correspond to phases 2–6 in Trench 1. Based on some traces of charcoal and pigmentation found underneath the last clay platform in Trench 2, the existence of phase 7 was assumed before the complete excavation of Trench 1. For the sake of coherency, we will hitherto use the seven phases identified in Trench 1 as a point of reference. Several ¹⁴C samples were collected from Trenches 1 and 2, some of which are still under analysis.

The available absolute dates indicate a time range between approximately 1683–1528 cal BC (sigma 2) (Fig. 10) for the first phase (collected in Trench 1) and 1898–1695 cal BC (sigma 2) (Fig. 11) for phase 6 (collected in Trench 2) (Gogăltan 2015: 73, Fig. 22; Fazecaş et al. 2016: 101–102). However, this estimate awaits confirmation from the other collected samples.

Considering that most of the archaeological finds are still being processed, we refrain from further interpretations at this stage. Hopefully, the new data will shed more light on the complexity of the social and economic life of the MBA community in Toboliu.

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DIE MITTLERE BRONZEZEIT IN DER TRANSKARPATIEN (UKRAINE)

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Kivonat *A dolgozat felsorolásszerűen mutatja be Kárpátalja két középső bronzkori (RBr A1 – Br B1) kultúrájának, a füzesabonyinak és felsőszőcsinek a lelőhelyeit településtípusonkénti csoportosításban.*

Kulcsszavak *Kárpátalja, középső bronzkor, Otomani-Füzesabony kultúra, Suciú de Sus-Felsőszőcs-Stanovo kultúra*

Keywords *Transcarpathian, Middle Bronze Age, Otomani-Füzesabony Culture, Suciú de Sus-Felsőszőcs-Stanovo Culture*

Einführung

Die mittlere Bronzezeit (Reinecke Br A1–B1) ist auf dem Territorium heutige Transkarpatien mit zwei Kulturen verbunden: Otomani-Füzesabony (siehe allgemein: Bader 1998; Балагури 2001: 87–242) und Suciú de Sus- Felsőszőcs-Stanovo (Балагури 1985b: 473–481, 2001: 243–288; Кобаль 2007; 2011).

Vom geografischen Gesichtspunkt umfasst das Arbeitsgebiet drei geomorphologischen Einheiten: die Transkarpatische Niederung, Solotvinobecken, Gebirge- und Vorgebirgszone (Геренчук 1981: 48–61).

Die ersten Berichte über der Funden (Bronzen, Siedlungen und Gräberfeldern) der mittleren Bronzezeit stammen aus der zweiten Hälfte des 19. Jahrhunderts (Lehoczky 1892; Mihalik 1891). Wichtige Angaben enthalten über dieses Problem auch die Arbeiten von J. Jankovich (1931), J. Bóhm (1934), J. und E. Zatlukal (1937), F. Potusnjak (Потушняк 1958) Bernjakovic K., (1960) und E. Balahuri (Балагури 1985a-b, 2001).

Otomani-Füzesabony Kultur

Die Otomani-Füzesabony-Kultur ist allgemein in westliche Teil Transkarpatien verbreitet (Abb. 1). Beim heutigen Forschungsstand lassen sich folgende Siedlungstypen feststellen:

a, offene Siedlungen (Zabolottja/ Fertősalmás, Vovcsansjke/Farkasfalva, Velyka Paladj/Nagy-palád, Berehovo/Beregszász- Járási kórház) (Балагури 1985a, 420–421; 2001, 113–114, Lehoczky 1892, 61),

b, Siedlungen vom Inseltyp in Sumpfbereich

(Didovo/Déda)-Tóvár) (Jankovich 1931, 47, 52, Tab. XIII. 37–43; Балагури 2001, 105, 107, Рис.16) (Abb. 2).

c, und Siedlungen auf Bergnasen im Hügel- (Berehovo/Beregszász-Mala Hora) (Балагури 2001: 105; Kobal' 2008) (Abb. 3) oder Bergland (Vynohradovo/Nagyszöllős-Kankov) (Прохненко et al. 2007) (Abb. 4).

Wir haben bis heute keine Angaben über den Siedlungsstruktur, Gräberfelder oder Gräber. Einige sporadische Funden zeigen auf der Entwicklung das Metallindustrie (Kacsó 2013) (Abb. 5).

Suciú de Sus-Felsőszőcs-Stanovo Kultur

Die Schlussphase der mittleren Bronzezeit (nach Reinecke Br B1) in Transkarpatien wird mit der frühen Phase der Stanovo-Kultur verbunden (siehe Kobály 2011; Балагури 1985b: 473–480, 2001: 243–288; Кобаль 2007, 2011 und auch Bader 1979; Hüttel 1979; Kacsó 1995; Pop 2009) (Abb. 1). In Arbeitsgebiet sind aus dieser Zeitstufe nur Siedlungen (Kvasovo/Kovaszó-Velykyj Jarok (Abb. 6–9) Djakovo/Nevetlenfalu-Kiserdő (Abb. 13 nach Балагури Э. 1969), Solotvino/Akna-szlatina-Citattja (Abb. 10–12) wahrscheinlich auch Kljacsanovo/Klacsanó- Gallis Berg (Abb. 14,1) (Кобаль 1992; Балагури 1969, 2001: 111–113; Kobal' 1997; Vasiliev et al. 2002) bekannt.

Neben Siedlungen nur einige Hortfunden (Kolodne/Tókes) I (Abb. 14,2), Podhorjany/Podhering II, Djakovo/Nevetlenfalu V, Bustyno/Bustyaháza (Abb.15) (Kobal' 2000: 76, 79, 83, 93; Kacsó 2013: 145–146) sind zum Vorschein gekommen.

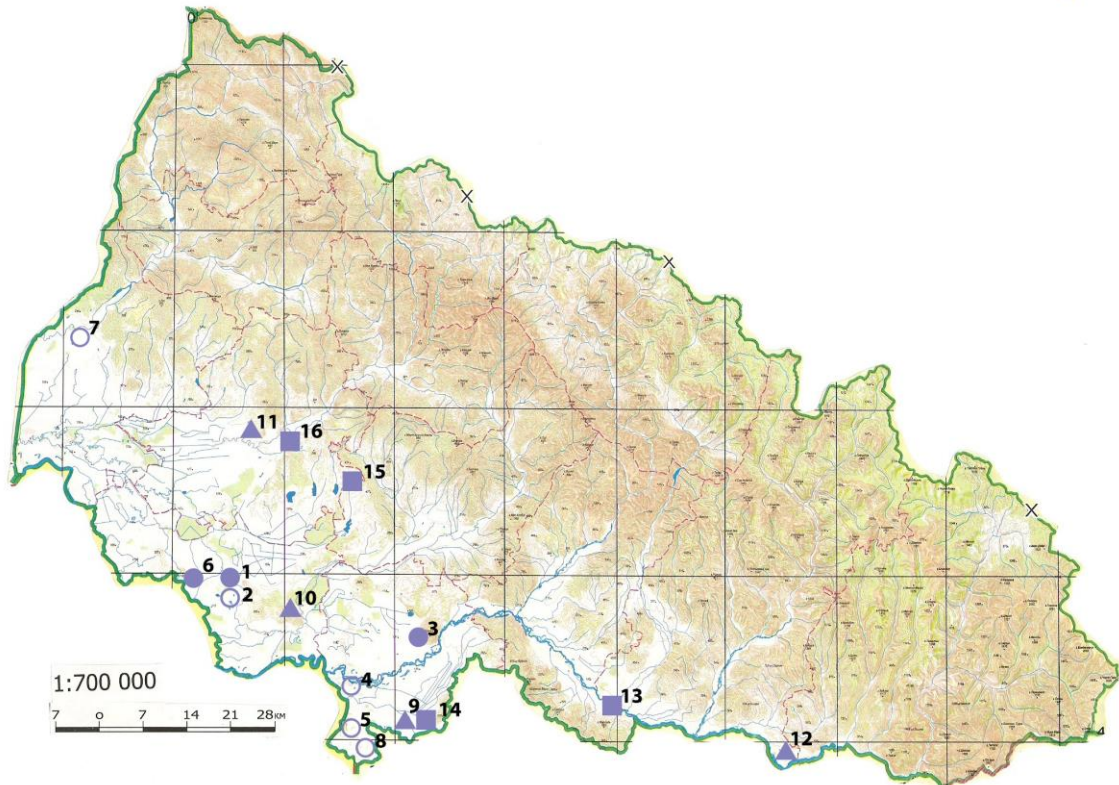


Abb.1 Siedlungen die Otomani – und Stanovo (I)-Kultur und BB1- zeitliche Hortfunde aus Transkarpatien.. 1. Berehovo – Mala Hora; 2. Berehovo- Bezirkskrankenhaus; 3. Vynohradovo- Kankov; 4. Vovtschansjke-Brountag; 5. Velyka Palagy (Nagypalad); 6. Didovo- Tovar; 7. Dravci (Daroc); 8. Zabolottja (Fertosalmas); 9. Djakovo- Kiserdo; 10. Kvaszovo –Velykyj Jarok; 11. Kijatschanovo-Gallishegy; 12. Soltvyno- Cetete; 13. Bustyno; 14. DjakovoV; 15. Kolodne I; 16. Pidhorjany II.

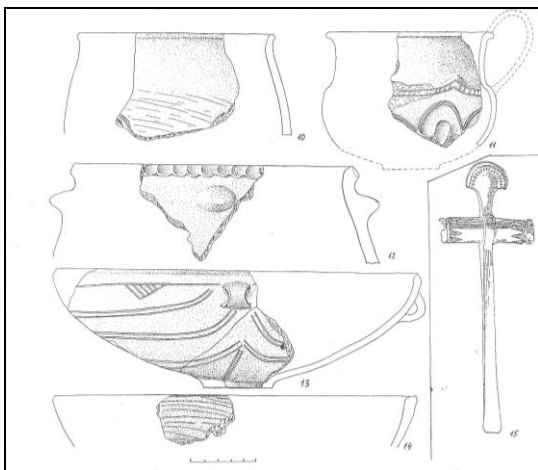


Abb.2. Didovo-Tovar (1-3); Berehovo Umgebung(4).

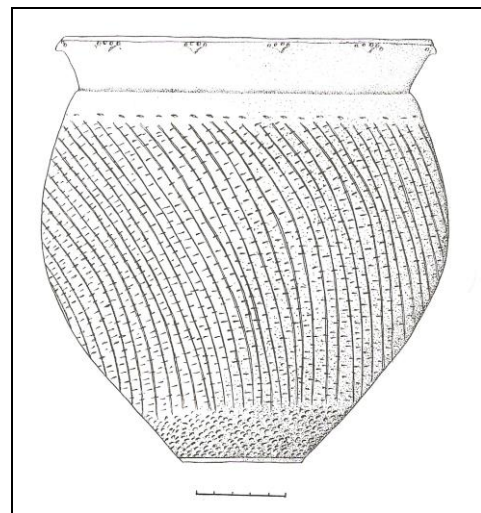


Abb.3. Berehovo–Mala Hora

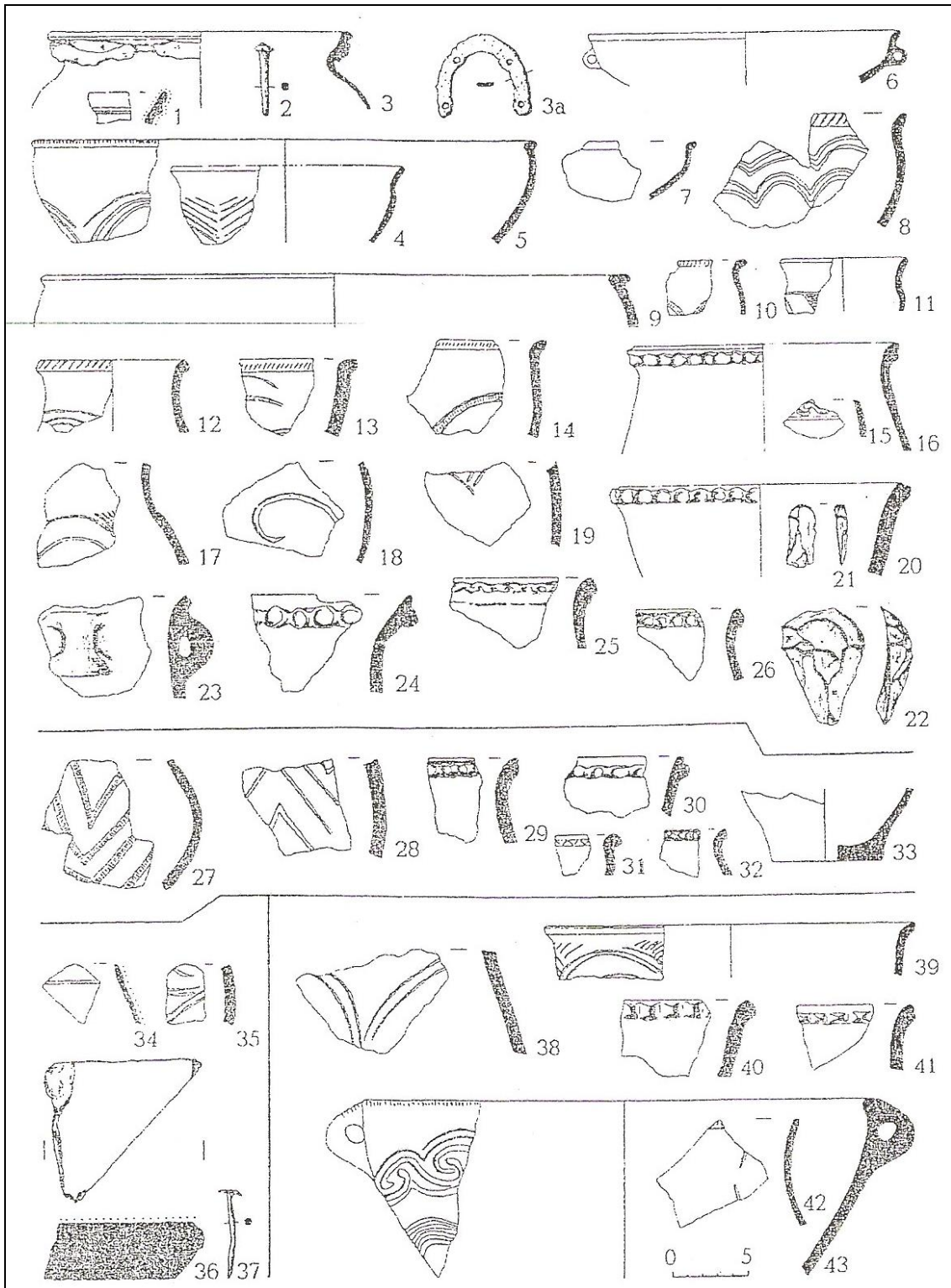


Abb.4. Vynohradovo-Kankov, 1-3a; 34, 36, 37-Mittelalter; alle andere Otomani Kultur (nach Прохненко-Гомоляк-Мойжес 2007)

Die Siedlungen gehören zu den verschiedenen Typen:

a, Siedlungen vom Inseltyp in Flusswindungen (Djakovo/Nevetlenfalu-Kiserdő);

b, wahrscheinlich befestigte Siedlungen auf oberen Flussterassen (Solotvyno/Aknaszlatina-Citattja) oder Hügel (Kvasovo/Kovaszó-Velykyj Jarok). In Kvasovo wurden nur Oberflächbauten (Кобаль 1992, 52), in Djakovo auch Wohngruben (Балагури 2001, 111) aufgedeckt.

Für Keramik ist typisch die verschiedenartige Ritzlinie, besonders spiralartige Motiven, aber die Kanneluren vertreten nicht auch oft (zum Beispiel in Kvasovo/Kovaszó (Кобаль 1992: Рис. 5:4, 5, 8–10) (Abb.6-13).

Die erste Phase der Suciú de Sus-Felsószöcs-Stanovo-Kultur entspricht der Periode Reineke Br B1 und wahrscheinlich auch Br A2 (Bader 1979; Hüttel 1979; Kacsó 1995; Furmánek 1997; Pop 2009: 50; Кобаль 2011: 197). Mit ihrem Siedlungsareal sind folgende Hortfunden verbunden: Kispalad I, Zajta, Apa, Sapinta, Bila Cerkva/Fejéregyhaza, Bustyno, Djakovo V, Kolodne I, Podhorjany II (Abb.1).

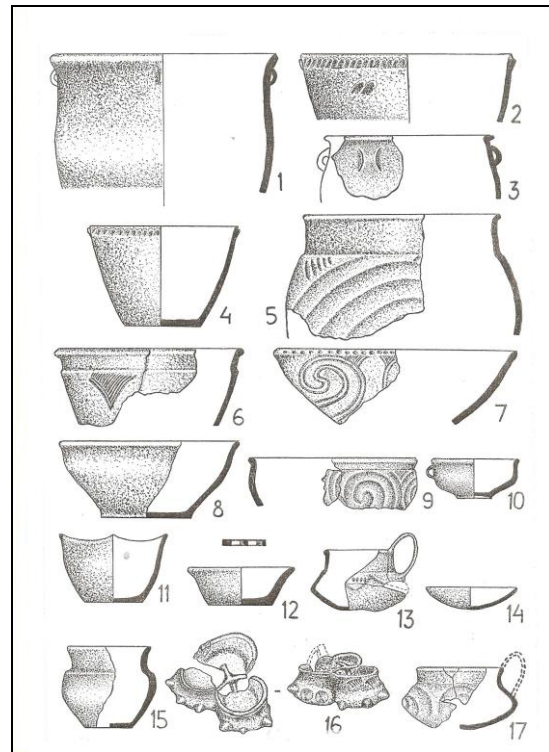


Abb.6. Kvasovo Velykyj Jarok



Abb.5. Bronz- und Goldfunde: 1. Uzhorod- Umgebung; 2.Bila Cerkva (aus Hortfund); 3-4. Berehovo – Umgebung

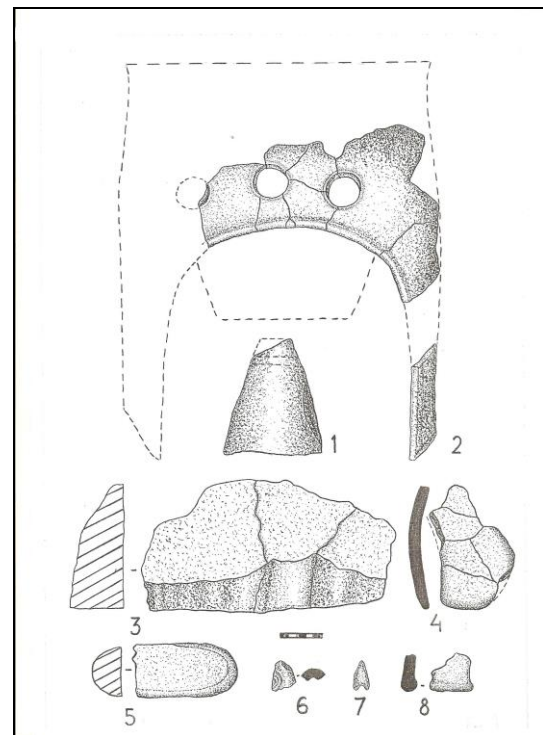


Abb.7. Kvasovo Velykyj Jarok

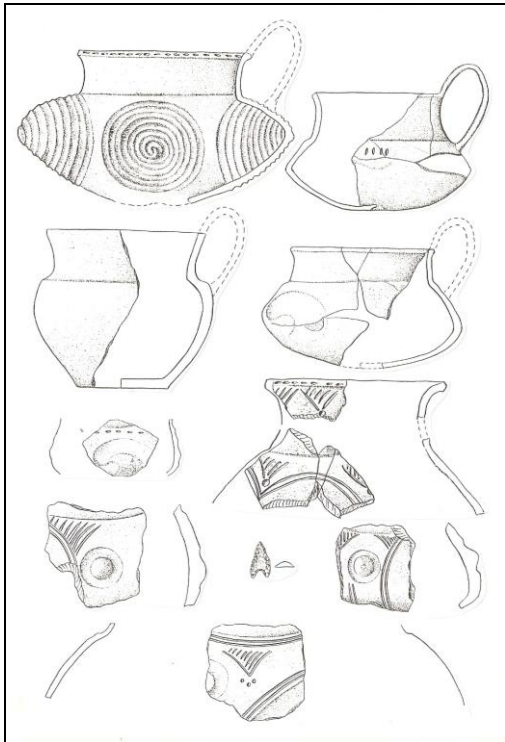


Abb.8. Kvasovo Velykyj Jarok

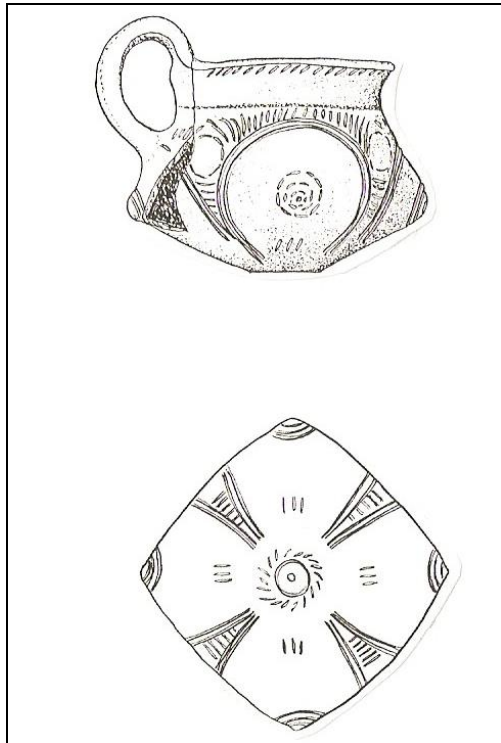


Abb.9. Kvasovo Velykyj Jarok

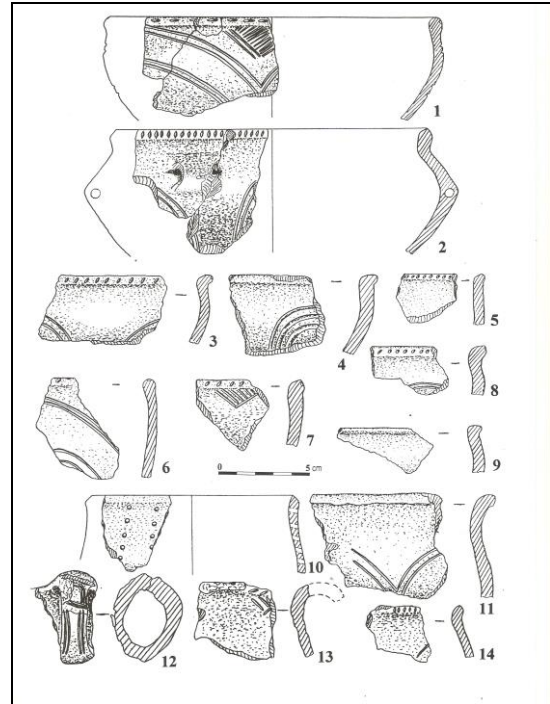


Abb.10. Solotvino – Cetate

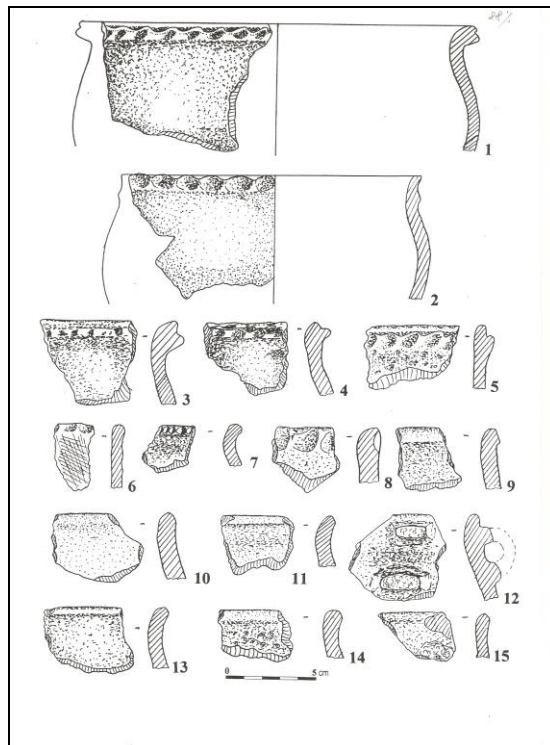


Abb.11. Solotvino – Cetate

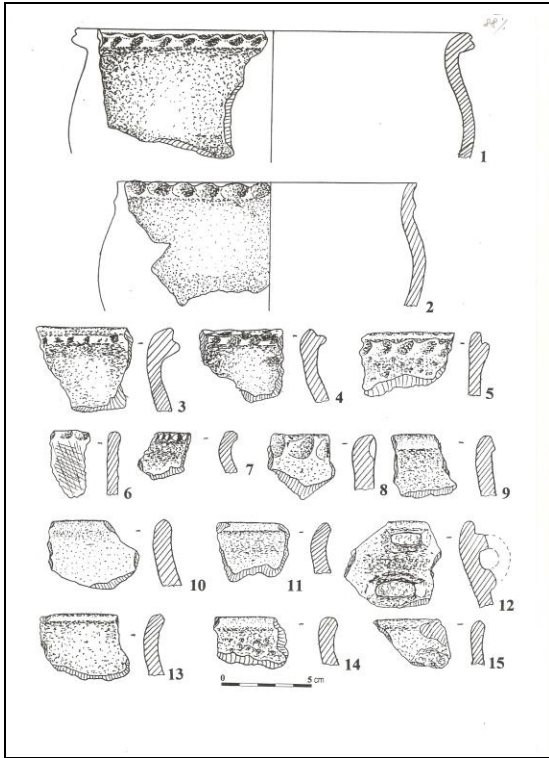


Abb.12. Solotvino – Cetate

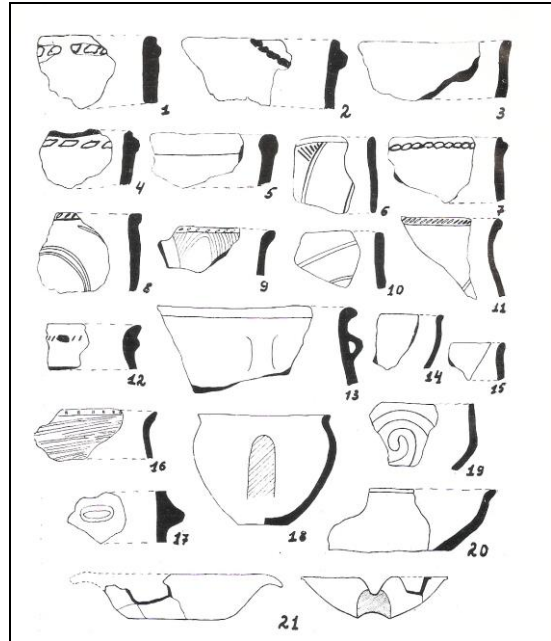


Abb.13. Djakovo – Kiserde



Abb.14. Kijatschanovo – Gallis-Berg (1); Kolodne I (2)



Abb.15.Bustino

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NEW RESULTS ON THE SETTLEMENT STRUCTURE OF THE FÜZESABONY-ÖREGDOMB
BRONZE AGE TELL

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Kivonat *A füzesabonyi kultúra névadó települése Füzesabony-Öregdomb, Tompa Ferenc 1931–1937-es feltárásai révén vált ismertté. A több évig tartó, rövid periódusokban végzett ásatásokon a két és fél méter vastagságú bronzkori rétegekből a tellemnél megszokott hatalmas mennyiségű leletanyag mellett számos, a település belső szerkezetére utaló telepjelenség került a felszínre. Az akkor szokásos ásónyomokénti ásatási módszer miatt azonban a telep szerkezetére, időrendi helyzetére vonatkozó következtetések csak részben szolgálhattak hiteles információkkal. 40 évvel később, 1976-ban került sor Stanczik Ilona vezetésével egy leletmentő-hitelesítő ásatásra. Ez a rétegről rétegre történő hiteles feltárás tette lehetővé Füzesabony-Öregdomb tell telep újraértékelését. Mindez legutóbb roncsolásmentes kutatásokkal (terepbejárás, légifotó, magnetométeres felmérés), valamint a régi és új dokumentációk térinformatikai feldolgozásával egészült ki, így a telep külső-belső szerkezetének ismerete pontosabbá válhatott. Az új 14C-es adatok némileg módosították a tell életének időtartamát is.*

Kulcsszavak *füzesabony-öregdombi ásatások (1931–1937, 1976), füzesabonyi kultúra, tell település, településszerkezet, új eredmények, kronológia*

Keywords *excavations in Füzesabony-Öregdomb (1931–1937, 1976), Füzesabony culture, multi-layered settlement, internal and external settlement structure, new results, chronology*

Introduction

The first excavations of the Bronze Age tell in Füzesabony began nearly 90 years ago in the 1930's under the supervision of Ferenc Tompa. The excavations were carried out in short seasons between 1931 and 1937. During his research—beside a large amount of ceramic finds—numerous settlement features (above all houses with wooden floors, circular economic buildings, hearths and ovens of different types) were found (Tompa 1936, 90–97) and the results revealed the internal structure of the settlement. A more detailed study and a re-evaluation of the tell and its material began only a great deal later, as rescue excavations in 1976 led by Ilona Stanczik were carried out (Stanczik 1987). The precise excavation and documentation methods and the finds, that were kept separated layer by layer contributed to a better understanding of the first excavation data and descriptions (Kovács 1989–1990; Szathmári 1990; Szathmári 1992; Szathmári 2009; Vörös 2011;

Horváth 2016; Szathmári 2017). The traditional archaeological records regarding the internal and external settlement layouts of the tell were modified due to recent investigations by using modern technology (geomagnetic survey, GIS based analysis of old documentation and aerial photographs).

The site of Füzesabony-Öregdomb (Nagyhalom)

Füzesabony is located in the South-eastern part of Heves county, South of the border between the Northern Mountain Range and the Great Plain. The plain area is bordered by the Laskó river to the West and by the Eger river to the East (Fig. 1). The geomorphological features of the area had been already formed by the beginning of the Bronze Age.

The surface is covered by thick Late Pleistocene loess and the streams from the Bükk Mountain Range had little transformation effect. The landscape is characterized by flood-free plains

and slightly curved surfaces. The proximity of rivers, woodlands and gallery forests provided favourable living conditions in the Bronze Age. The originally oval shaped Öregdomb (Old Hill, formerly known as Nagyhalom = Great Mound) lies at the South-western edge of the village Füzesabony, where the Laskó with its strong bends bypasses the site at north-northeast (Fig. 2). Recent landscape is a result of serious water management works in the early 1930's, when the stream was channelled through a ditch crossing and cutting the tell's core. The old riverbed is still visible NE of the site, that is still used as a drainage (Fig. 3). In the last decades the mound was shrinking in size, its surroundings were built in making further research almost impossible.

The first excavations between 1931–1937

The excavations of Tompa between 1931–1937 were carried out in the central part and on the south-western edge of the tell (Fig. 4). This was clearly observed, since the stratigraphy of the trenches were getting smaller and the number of documented features decreased. Excavations were conducted in one- or in two-week periods each year, and an area of 1,900 m² were uncovered, which is almost half of the estimated 4,000 m² of

the original extent.

All in all, 32 trenches were opened with the sizes of 5×10, 5×15, 10×10 and 10×20 meters. The trenches were closely connected to each other with a slightly deviation to North-South or West-East orientation (Fig. 5). As finds also indicate, the top layer (the youngest settlement inhabitation) of the site was thicker and less destroyed, than during the rescue excavations of 1976.

In the central parts of the tell Tompa reached the paleosol at 240–260 cm, but he didn't excavate to that level in all of the trenches. We know from Tompa's handwritten excavation diary and notes, that he was digging in spits (Fig. 6).

Today it is widely known that this method can not be used to excavate multilayer settlements: spits ignore settlement layers and features, which makes it difficult, or even impossible to establish the exact chronology of finds.

The very same problem was faced during the conventional processing of the finds. Probably as a result of the old excavation methods, Tompa could only observe three settlement layers based on, what he believed were three destruction horizons. Based on some Early Iron Age skeleton burials at the northern edge of the settlement led Tompa to an incorrect dating of the tell settlement to the Late Bronze Age (Tompa 1938: 90–91).

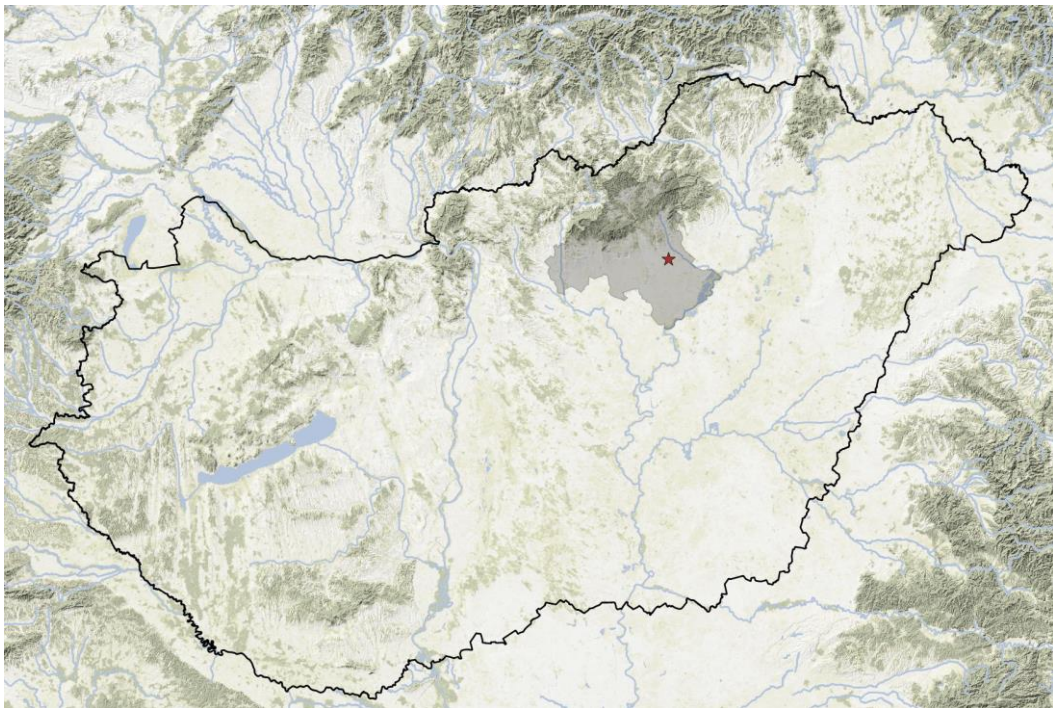


Figure 1. Heves county and location of Füzesabony

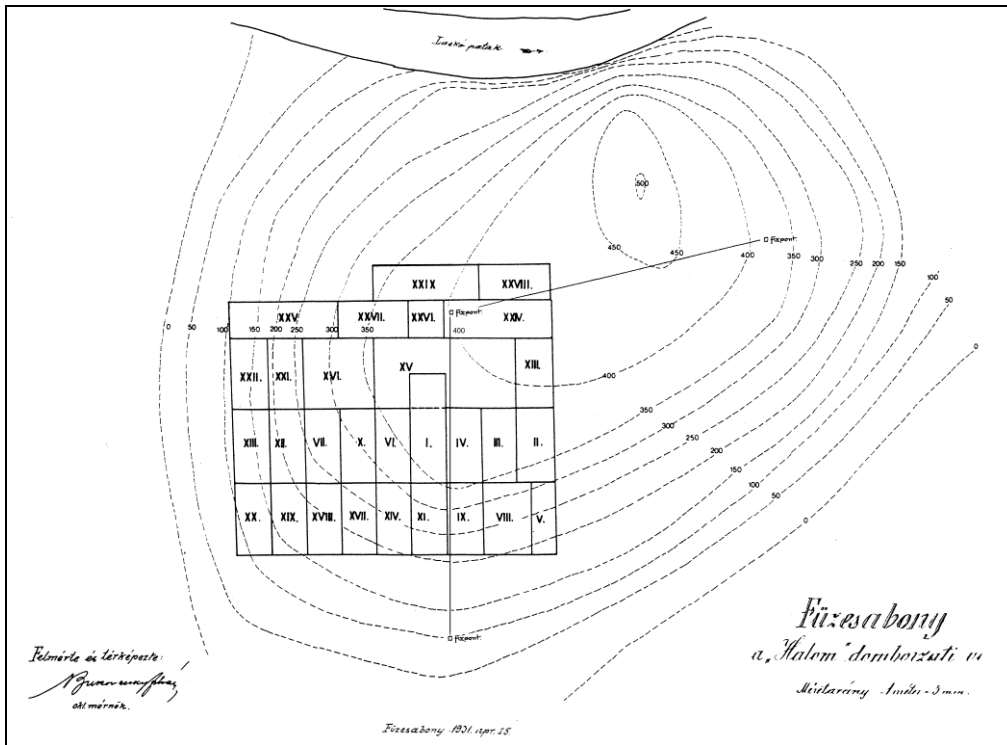


Figure 4. Geodetic survey of the tell (1931)

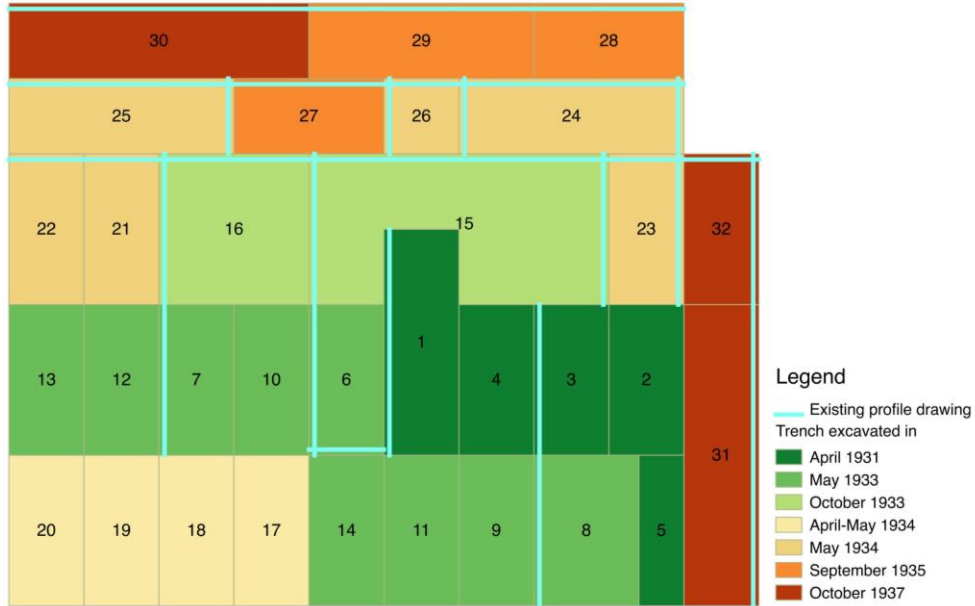


Figure 5. Trenches excavated by F. Tompa 1931-1937 (after I. Szathmári 2017)

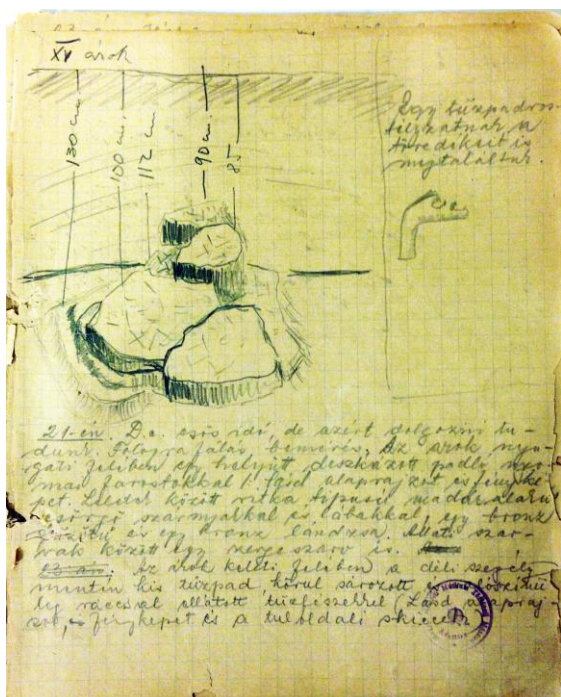


Figure 6. The handwritten diary of F. Tompa (1937)

The rescue excavation of 1976

In 1976 modern excavation methods were used to identify settlement layers and features in order to re-evaluate the old excavation finds and the chronology of the tell. However, it can not be ignored that, by that time two-third of the settlement was already destroyed and only an area of 100 m² could be explored.

It was a one-month rescue excavation led by Ilona Stanczik and with the participation of István Bóna and Ildikó Szathmári. Next to the crest of dam a 5×10 meter trench (Trench I) was set up. Northeast of that a 51 meters long profile cut was opened. At the South-East end of the cut a 13 meters long trench (Trench II) was cleared and in the bottom layer the earliest settlement features were documented (Fig. 7). During the excavations the approximate locations of Tompa's trenches could be identified. The edges were destroyed by the years and due to danger of further collapse the new trenches could not be fitted directly to the old ones. The results of 1976 improved our knowledge about the settlement of Füzesabony. We clearly identified 5 settlement layers with a thickness of 240–250 cm (Fig. 8) (Stanczik 1978: Abb. 2). The tell was founded and inhabited by the people of the Füzesabony culture. They used the village for a

relatively longer period renewing the houses on the same spot (Stanczik 1978; Szathmári 1990, 1992). The fall of the settlement can be dated to the Koszider period (Szathmári 2011).

Previous conclusions about the external structures of the Füzesabony tell

Both in the 1930's and in 1976 archaeological research was carried out only on the central part of the tell. Nevertheless, during the Tompa-excavations even the surroundings of the tell were investigated. Unfortunately, there is no record of a ditch in Tompa's diary, nor in his 1936 published summary of the state of prehistoric research in Hungary (Tompa 1936: 90–97).

The first finds were registered by the local notary Árpád Magnin, who informed the Hungarian National Museum in the early 1930's. He attached to his letter a sketch about a small ditch NE of the tell, on the other side of the Laskó river (HNM Repository Inv. No. 345. 1930) (Fig. 9).

No further information about the ditch is known, Tompa himself didn't mention it. Later, Amália Mozsolics surveyed the tell in 1961 and reported traces of a fortification (HNM Repository Inv. No. VIII.172. 1961).

Most probably she observed the old riverbed of the Laskó and misinterpreted it as part of an entrenchment. The ditch as shown on Á. Magnin's map—if it really existed—must have been within the city's residential area, which is today the centre of the modern settlement. Although no geological coring was carried out in the surroundings of the tell in 1976, field surveys and surface collections did not indicate any fortification.

Also the existence of an external settlement was uncertain until recently. Tompa concentrated his research primary at the core of the mound.

In 1976, however, opportunity was given by chance to do some archaeological work in the neighbourhood of the tell. 300 meters to the S-SE of the tell, in the area called Cigánytelep a thick humus layer was removed because of road-construction works. The archaeological settlement features, that were documented here were dated to a younger prehistoric period and were not part of the tell.

In 2017—focusing on the reconstruction of the settlement layout and its surroundings—archaeological surface collection and geomagnetic survey were completed. Due to densely inhabited

areas around the tell, only limited investigation was possible. Preliminary to these field-surveys it can be said, that the largest number of finds belonging to the Middle Bronze Age Füzesabony culture were collected at the S and SW edge of the

tell settlement. If there was any external settlement (most probably there was, see other Füzesabony settlement field survey data: Kienlin et al. 2018), then it must be located here.



Figure 7. Areal photo of 1976 combined with the drawing of geodetic survey (1976)



Figure 8. Section of the profile in Trench II (excavation year 1976)

**Cemeteries belonging to the tell of Füzesabony:
Pusztaszikszó and Kettőshalom**

At least three cemeteries with few graves can be connected to the tell (Fig. 10). The first cemetery with a small number of skeleton graves was mentioned by F. Tompa in 1936. During the excavation of the tell, near the road leading to Mezőtárkány several skeleton graves in contracted position were found (Tompa 1936, 97). Based on the descriptions and the grave goods we assume that it was one of the cemeteries used by the inhabitants of the tell. The second cemetery was discovered to the SW of the tell in a distance of *ca.* 1,200 meters. At the site Kettőshalom János Győző Szabó excavated 24 graves (Szathmári 1997). The third cemetery lies in a greater distance, *ca.* 3

kilometres to the NW of the tell in Pusztaszikszó. Here, Frigyes Kőszegi documented 30 graves (Kőszegi 1968). According to the the rigorous burial practices of the Füzesabony culture, the bodies were buried in both cemeteries similarly, in contracted position. Beside skeleton graves cremation also occurred: one grave in Kettőshalom and several graves in Pusztaszikszó. As far as we know from the publications, the two cemeteries were not used simultaneously: in Kettőshalom the first settlers of the tell were buried in rich equipped graves (Fig. 11a). The burials in Pusztaszikszó belong to the later inhabitants of the tell, see also radiocarbon dates from Füzesabony-Pusztaszikszó: Kiss et al. in press (Fig. 11b). Unfortunately, nothing is known about the graves in Mezőtárkány and the finds probably got lost.

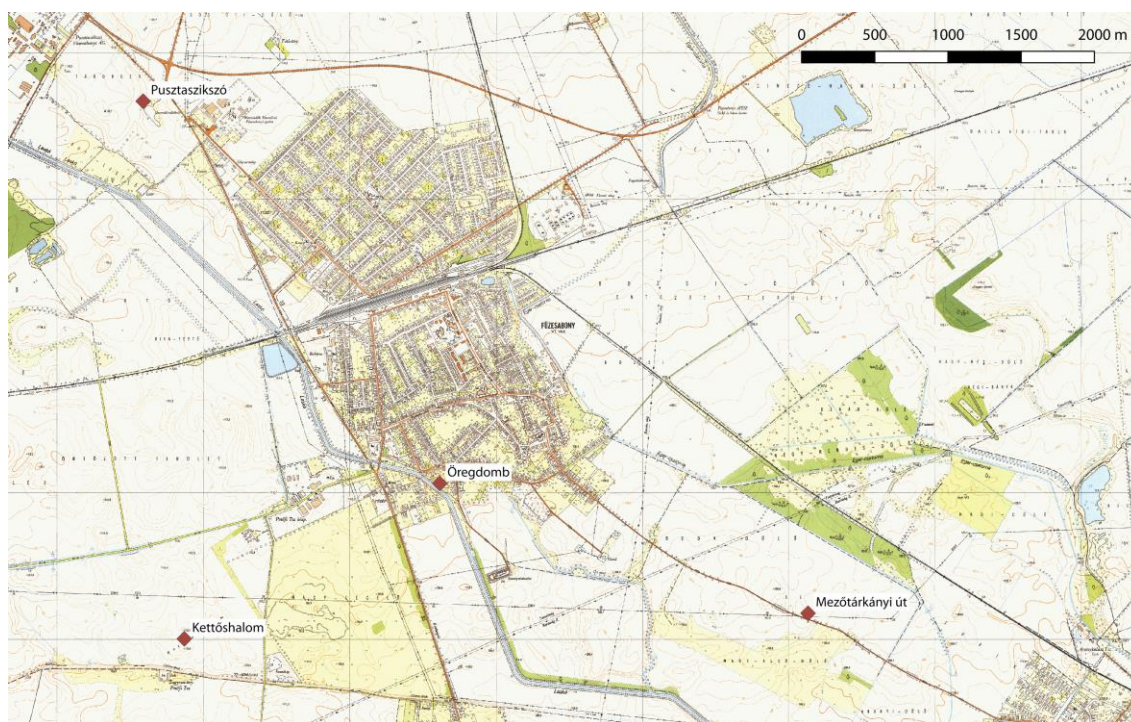


Figure 10. Location of the cemeteries around the tell

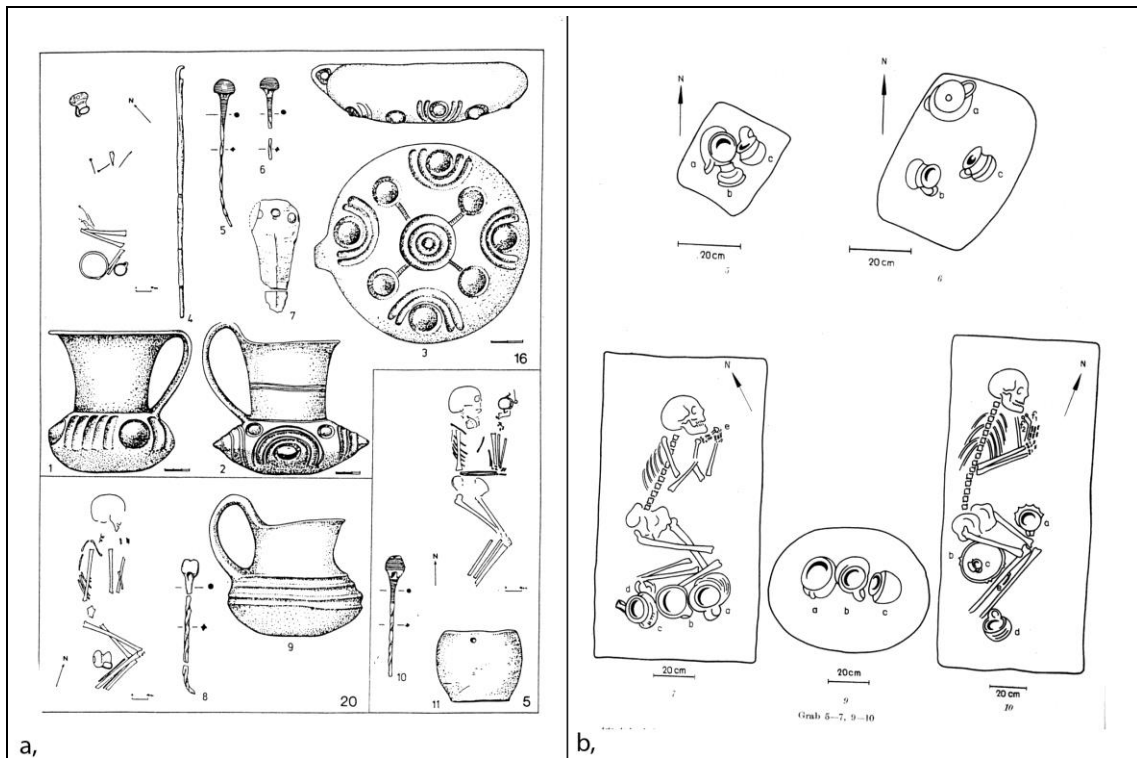


Figure 11. a: Graves of the cemetery in Füzesabony-Kettőshalom (after I. Szathmári 1997); b: Graves of the cemetery in Pusztaszikszó (after F. Kőszegi 1968)

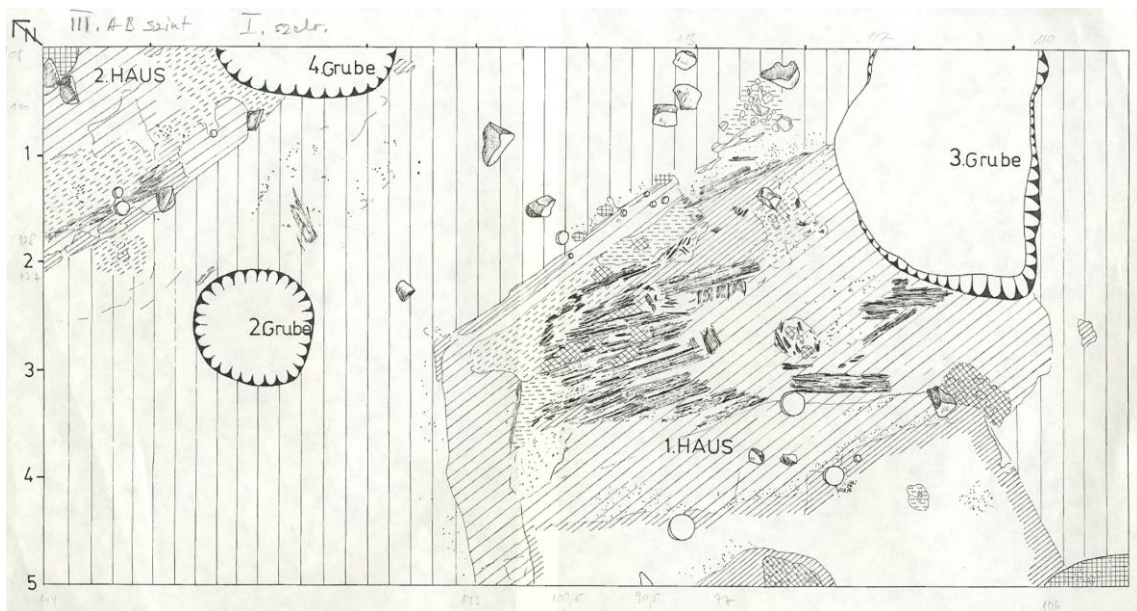


Figure 12. Drawing of the settlement layer III (1976)

Earlier conclusions related to the internal structure of the Füzesabony settlement regarding both excavation results (1931–37 and 1976)

The excavations between the years 1931–37 uncovered a large area and delivered a great deal of information about settlement structures, the size and building technology of the houses and about their interiors. In the 1930's digging in spits were generally used thus making the identification of different layers and the exact chronology of the finds difficult. Nevertheless, at times F. Tompa made very accurate notes and sketches about settlement structures, surfaces and parts of houses. The oldest settlement layer revealed two sizes of houses: a smaller and a larger one. According to the drawings it seemed, that the two types were used contemporary. During the excavations in 1976 only parts of (three) houses were uncovered therefore their exact size could not be specified. More information is available about the relation of the buildings. The space between the buildings,

with other words the streets of 2–2.5 m width could be observed, too. According to Tompa's drawings, the structure of the settlement was more diverse and less regular. The building technology of houses regarding both the internal and external structures was best recognised on layer III of the 1976 excavations. Both the new and the old excavations revealed mainly earthen floors inside the houses, but in some cases floors were covered by wooden planks as well (Fig. 12–13).

Within the tell – whether it had an external settlement part or not – traces of production and crafting activities were documented. Moulds and bronze artefacts, mainly pins indicate, that bronze melting and production was located in the centre of the tell (Fig. 14) (Szathmári 2017). Also, large amount of bone and antler tools, finished or partially finished artefacts suggest the existence of (a) workshop(s) around and in trenches XV–XVI and XXV (Vörös 2011, 665). Additionally, the building of the IVth settlement layer of the 1976 excavations with multiple hearths was probably not an ordinary house for dwelling

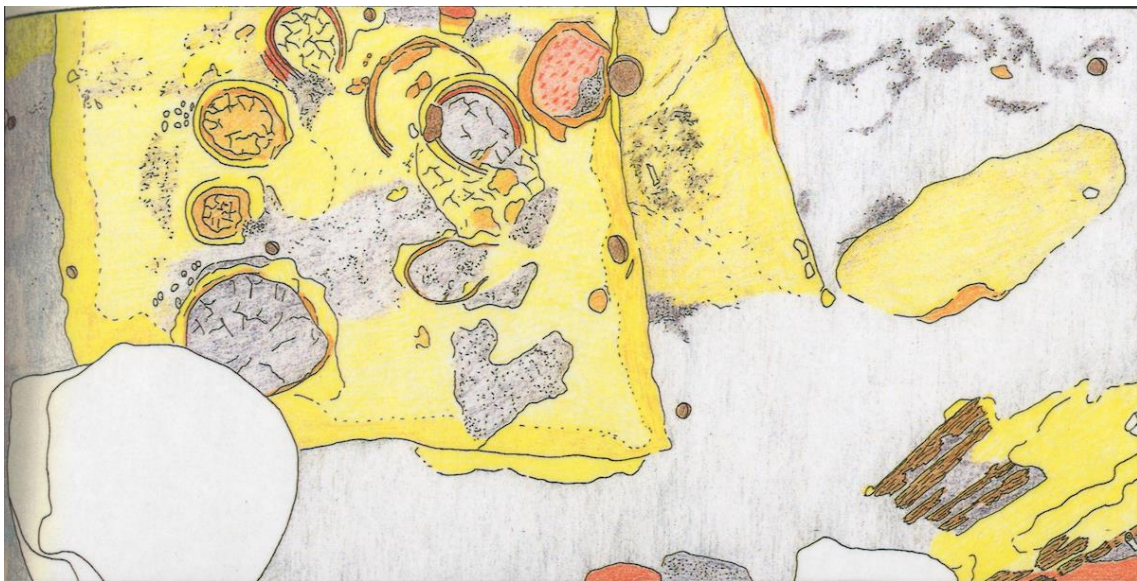


Figure 13. Drawing of the settlement layer IV (1976)

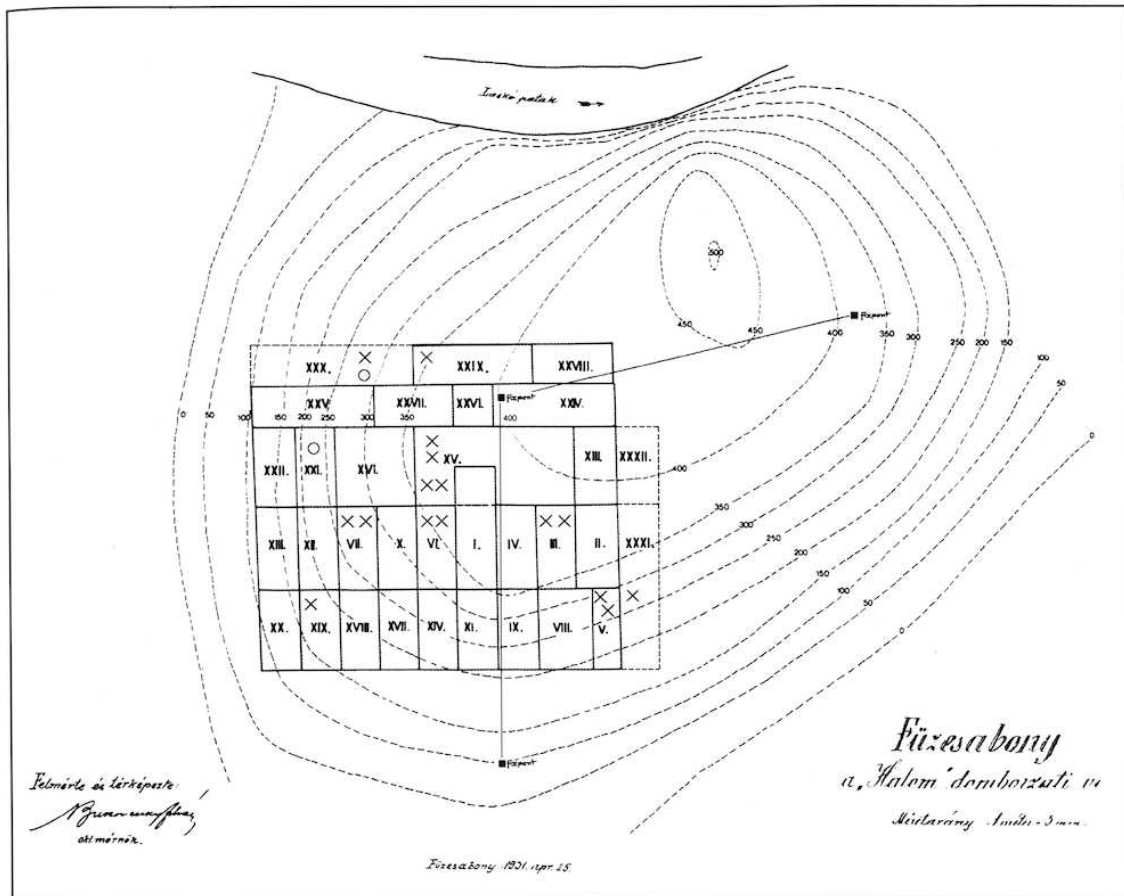


Figure 14. Bronze moulds (marked by circles) and concentration of bronze finds (marked by X-s) (1931-1937)

GIS based processing of the field documentations

The unfortunate death of Ferenc Tompa in WWII (and the war itself) hindered the processing of the enormous amount of finds and the detailed publication of the excavation results (Patay 1993, 93). It was because of the accurate drawings and descriptions both in the diary and on the original field drawings that made a reconstruction and a re-evaluation possible (Szathmári 1990). In consequence of rapid technological developments of the last decades, geographic information sciences found their way into archaeological science. Considering digitalised geospatial data and the use of mapping applications have become a must within documentation of archaeological features, excavations etc. Moreover, technological improvements enabled us also to digitise old excavation documentations like profile and plan drawings. In addition, free access to old military

maps and areal photography provides us with new possibilities to reconstruct and interpret. In the following we shall present shortly the reconstruction process based on the old and new excavation data and the new results on settlement layout and structures.

As seen before, F. Tompa—and his co-worker at the excavations István Méri—made accurate plan drawings on mm-paper in a scale of 1:20. There are two sets of plan drawings that slightly differ: one set is cut in smaller pieces (more or less to the size of the trench) and were made probably during excavation on the site (Fig. 15). These drawings contain a great deal of important information, notes on features, their depths and even short descriptions. The other set is a clean copy that was made some time (no exact date is known) after the excavation season was finished (Fig. 16).

The clean copies of the originals were used to prepare drawings for publishing, but just a few

were issued (Tompa 1936, Abb. 8).

All three settlement layers assumed by F. Tompa were documented with the very same method, more or less with the same accuracy. Some of the information (e.g. legend of symbols and layers or the Iron Age graves, see Kemenczei 2003) can only be found on the originals, some on the copies or on both of them. Therefore all three kind of drawings (the original, the clean copy and the published plan drawing) were scanned and used to georeferencing each trench. In this way large distortions were eliminated and at the same time all available information could be applied (Fig. 17–18).

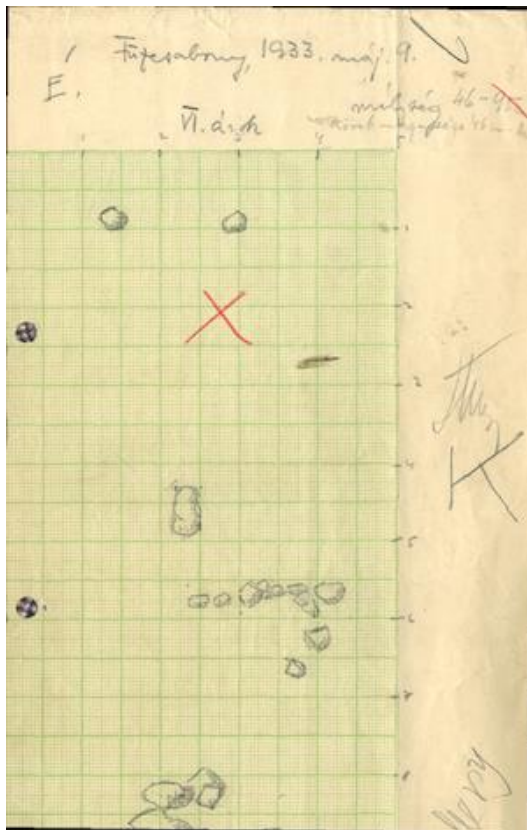


Figure 15. Original plan drawing of trench VI by Tompa

During the excavation in 1976 more accurate documentation methods were used, and a great accent was put on the making of the plan views and the profiles. During excavation on site exact drawings with a scale of 1:20 were made and neatly coloured. Regrettably, traditional colour pencils were used and during the years the lighter colours had been faded, thus making the

identification of different archaeological structures difficult.

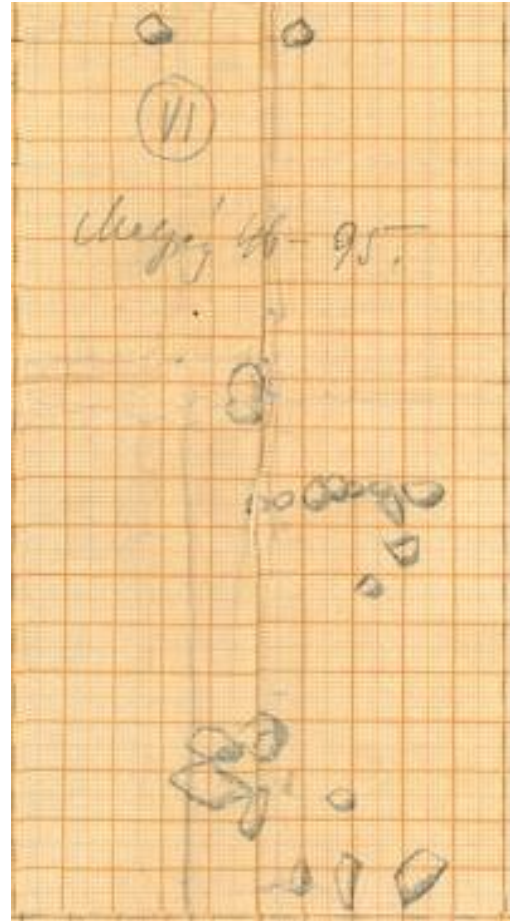


Figure 16. Clean copy of the original drawing (trench VI)

The original drawings were used—as in case of the old excavations—to produce copies: handmade ink copies on transparent paper and coloured copies for publishing purposes. Unfortunately, no legend or description is available to the different features. Moreover, in the course of preparing the *Bronzezeit 1992* catalogue, some of the original drawings (and even their transparent copies) went lost. Therefore, all three kind of raster images were used to create digital plans for different layers. During the GIS processing of both, the old and the new excavation plans the same colour coding was used for similar features, thus making the identified settlement layers comparable. It was also important to understand the difference in the number of main settlement layers defined by both excavations (Tompa identified three, whereas in 1976 at least five layers were observed).



Figure 17. Georeferencing the original drawings of Tompa (settlement layer I)

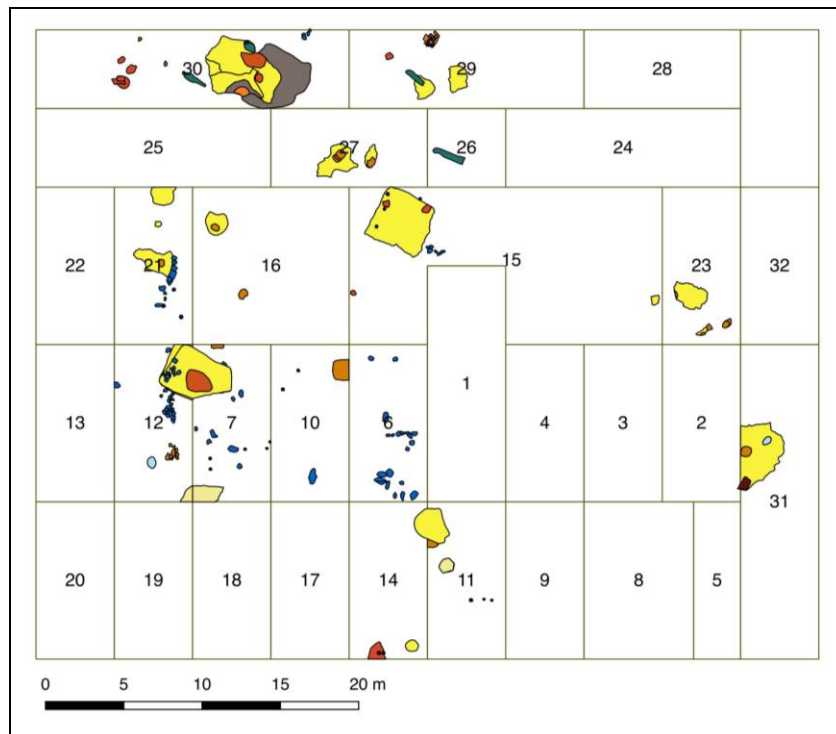


Figure 18. Digitised image of the same layer



Figure 19. Aerial photo taken on 7.9.1976. Institute of Geodesy, Cartography and Remote Sensing. (picture id. 1976-215/2998).

By the processing of the profile drawings with CAD our basic intention was to reconstruct as much as possible about the tell's stratigraphy, settlement layers, horizontal dimensions of features (e.g. houses) and any assigned characteristics. As seen in case of the plan drawings, profiles were also documented both on and off site. During excavations 1:20 drawings were made, later 1:50 clean copies. The drawings were meticulously made, although the lack of a complete legend for the different layers complicated their interpretation. Initially, the profiles were digitalised in 2D space and subsequently rotated and placed in 3D space based on the block system of the excavations. The majority of the profiles were consecutive, which enabled the fitting of common points in elevation. The elevation placement of two free-standing profiles was approximated.

Possible location and direction of the excavation trenches

The biggest challenge during the whole reconstruction process was the right placement of the old trenches. Already in 1931 there was a geodetic survey carried out on and around the mound. This sketch was then used to record the outlines of the trenches by F. Tompa. Elevation and extent of the tell is perfectly visible on this map, however any other geographical features that would enable the georeferencing of the sketch were lacking. As a consequence, even the exact direction of the trenches was difficult to specify, therefore historical maps (1st and 2nd military surveys), cadastral maps, archive excavation photos and accessible aerial photos were used. Although the georeferencing of both the cadastral maps and the geodetic survey of the mound could be carried out, we must accept the fact that even by using all available data, the image we create is still “just” a reconstruction. Nevertheless, the direction of the trenches could be modified, and as a matter of fact we are quite sure, that the plots marked on the cadastral maps were used as guiding lines for the direction of the excavation trenches. Finding

the right axis of the trenches showed us, that – in opposite to previous presumptions – they were not set exactly N-S, but leaning slightly more to the NW.

The location and direction of the new excavation trenches of 1976 were less problematic, since during the excavation precise geodetic survey was conducted in the surroundings of the site, on an area of about 3 hectares. Luckily

enough, during our research in the aerial photo archive of the Hungarian Geographic Institute we found a picture (Fig. 19) taken just couple of months after the excavation was finished (September 1976). On this image the opened (and still not refilled) excavation Trench I is clearly visible. The georeferencing of the aerial photo with the drawings made an exact location of the trenches possible.

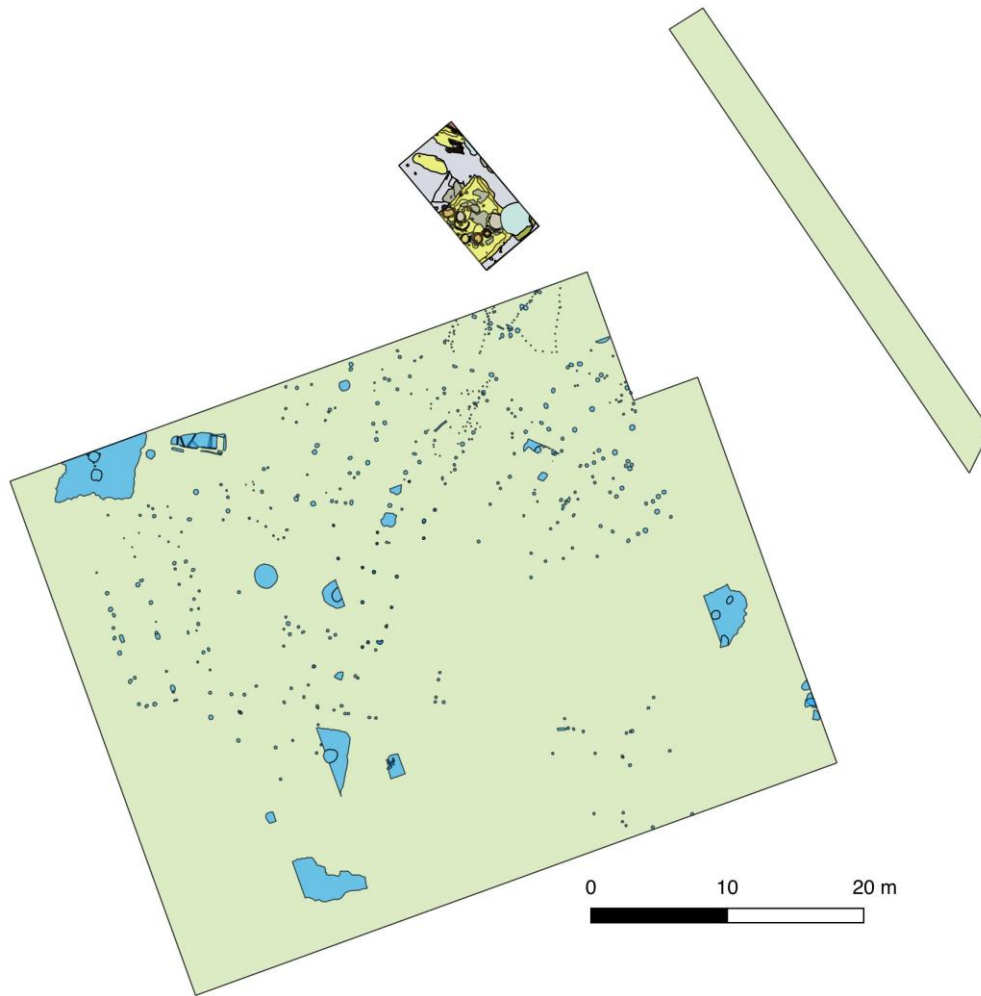


Figure 20. Combined image of the old and new excavation trenches (possible location, 3rd settlement layer)

With a good deal of experimentation in placing, rotating both excavation areas a combined plan view of the surfaces can be presented. However, it must be emphasised, that it is still just a possibility. We are more confident about the direction of the old trench than about its precise geographic location. Nevertheless, the two areas could be fitted to each other by a possible error of just

couple of meters (Fig. 20).

New results of the field research and geomagnetic survey

In this context, we had the opportunity to conduct geophysical prospection and surface collection on and off site. The main goal using magnetometry on

the tell was to identify—as far as possible—the edges of the settlement on both side of the Laskó. On the eastern bank of the river (the location of the 1976 excavations), the building activities of the dam probably destroyed most of the upper layers. The geophysical prospection made very intense anomalies visible, which will be evaluated and discussed later. Most parts of the tell—and therefore Tompa’s excavation trenches—can be located mainly on the western side of the river, disturbed edges and anthropogenic activities are still recognisable. The most western parts, the sloping and thinning outcrops of the tell are probably destroyed or covered within the fenced gardens of the properties. The area today is mainly used for gardening and housing activities, thus making any geophysical prospection impossible.

At the same time systematic surface collection was carried out around the tell, which aimed to locate possible external settlements. The area marked for investigation was limited, since large parts of the surrounding areas are covered either by buildings or by vegetation. Even so, the preliminary result of the surface collection revealed finds of several archaeological periods, with quite a few Middle Bronze Age ceramic finds in SW direction of the tell (Fig. 21). Of course, further investigations are necessary for establishing a connection and a chronological link between the sites, but even the small amount of information we gained through new field surveys confirms the existence and the possible location of a satellite site.

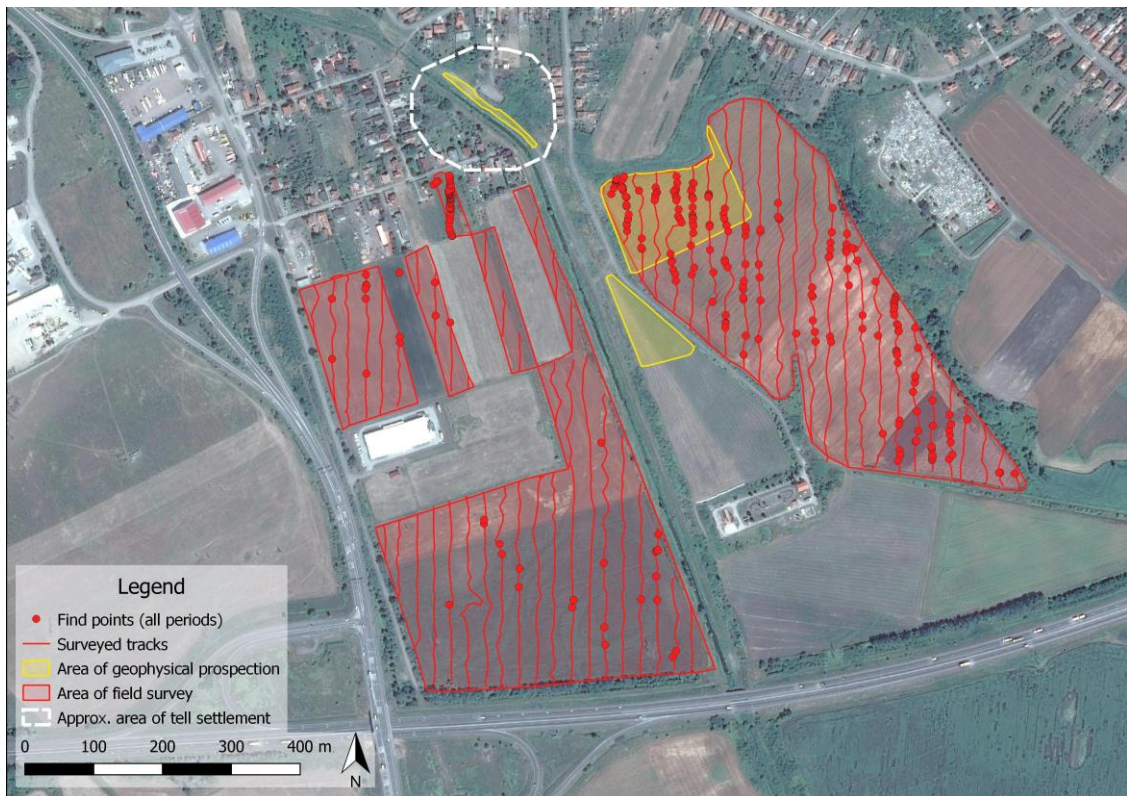


Figure 21. Results of the geophysical survey and the field survey (2017)

Chronology

During the past decades, there were various, sometimes contradicting views expressed about the age and internal chronology of the Füzesabony tell settlement. The leader of the first excavations, F. Tompa stated in his publication, summarising Hungarian prehistoric research, published during the years of the excavations the following about the Füzesabony settlement: „...drei durchgehend zu verfolgende Wohnschichten [lassen sich] ausscheiden (...). Hinsichtlich des Fundmaterials zeigen sich aber in den Niveaus keinerlei Abweichungen; der ganze Fundkomplex ist von oben bis unten völlig einheitlich und das in den unteren Schichten gefundene Material kommt gleichartig auch in den oberen vor.” (Tompa 1936, 91). The dating was based on much younger Early Iron Age skeleton graves dug in the settlement layers, thus extended the life of the tell settlement till Late Bronze Age.

Several decades later I. Bóna compared the Füzesabony-Öregdomb settlement finds within the three phases of the Füzesabony culture (A-B-C) to the material found in the cemeteries of the same culture. The tell finds were paralleled to, partly, the finds of the Hernádkak B and Megyaszó A cemeteries (Füzesabony-B period), partly, the finds of the Megyaszó B, and the Gelej cemeteries, respectively (Füzesabony-C period) (Bóna 1975: 151). In a more recent study he further refined his statements and placed the foundation of the settlement to the B/C transitional period of the Füzesabony culture and claimed the length of the existence of the settlement till the end of the Middle Bronze Age, the 'Post-Füzesabony' times (Bóna 1992: 28). Tibor Kemenczei has dealt with the settlement first in connection with the study of material heritage of the surviving Füzesabony population. He selected, on the basis of typological criteria, some Late Füzesabony pottery from the old excavation material that in his opinion could originate only from the topmost layer of the settlement. He regarded these finds as representatives of the Koszider period and assigned them, accordingly, to LBA I. Later on, in course of the detailed analysis of the Gelej cemetery, he considered part of the Füzesabony finds contemporary with the material of the cemetery and dated them to the end of the Late Bronze Age (Kemenczei 1963: 171, 1. fig. 1–4, 6; Kemenczei 1979). The Pusztaszikszó cemetery was elaborated by F. Kőszegi; it was one of the

cemeteries belonging to the Füzesabony tell settlement. When determining the internal chronology of the Füzesabony culture, the earliest habitation period of the Füzesabony settlement, Kőszegi assigned it to the classical phase of the Füzesabony culture and the rest to the Late Füzesabony period. The Pusztaszikszó cemetery itself was dated to the beginning of the Koszider period (Kőszegi 1968: 133–135; see also Kiss et al. in press, Fig. 4). T. Kovács has dealt with the chronology of the Füzesabony settlement, though only tangentially, in several studies. According to his observations made on the occasion of publishing some prominent finds from the settlement, the life of the settlement proper is basically parallel to the younger phase of the Füzesabony culture (Kovács 1984: 245; Kovács 1989–1990), but a certain part of the finds was already dated to the Koszider period (Kovács 1977: 60–61). On the basis of the finds of prevalently uniform character, I. Stanczik, leader of the 1976 authenticating excavations did not see the presence of the Koszider period proved. She could assign the age of the settlement also to the last third of the Middle Bronze Age, the late period of the Füzesabony culture (Stanczik 1978). By now, after the processing of the whole material the abandonment of the tell can be dated to the phase immediately proceeding the Koszider period (Szathmári 2011).

Recently, the lifespan of the Füzesabony tell could be modified as a result of new radiocarbon dating (1940–1760 and 1730–1530 (95.4%) cal BC; see Table 1) on animal bone remains from the 1976 excavations. Accordingly, the data suggests that the foundation of tell must have happened somewhat earlier, already during the Füzesabony-B period by I. Bóna. Therefore, the earliest settlement features of the tell were contemporaneous with some of the early graves in the Megyaszó cemetery (Megyaszó A). Pit nr. 3. with the high chronological value (DeA-10120, 1939–1757 (95.4%) cal BC; Table 1) was dug from the uppermost layer of the tell cutting all 5 identified settlement layers and reached 80 cm into the paleosol. At the same time, it cannot be completely ignored, that Hungarian archaeology for a long time treated the founding of the tell as fact and connected it to the preceding Hatvan-culture. By the preliminary study of the finds and documentation obtained on the excavation of the 1930-ies, Nándor Kalicz and later on István Bóna both arrived on the conclusion that similar to the

Table 1. Radiocarbon dates for Füzesabony-Öregdomb Bronze Age site (from the excavation in 1976). The dates were calibrated using the OxCal v4.3 programme and the IntCal13 calibration curve (<https://c14.arch.ox.ac.uk/oxcal/OxCal.html>)

PHASE AT SITE	RELATIVE CHRONOLOGY BASED ON THE POTTERY (AFTER BÓNA 1975: 151)	LAB. NO.	BP DATE	CAL BC	SAMPLE MATERIAL	FEATURE NO.	CONTEXT
1	Füzesabony C	DeA-10119	3339 ± 32	1684–1562 (68.2%) 1731–1530 (95.4%)	dog mandible sin. M1	Level 1	from the uppermost level of the settlement, with pits, without buildings, disturbed surface
1 (mixed with earlier material)	Füzesabony B and C	DeA-10120	3527 ± 31	1912–1776 (68.2%) 1939–1757 (95.4%)	cattle mandible sin. M3	Pit 3	from the feature which start from the Level 1, pass through the Levels 2-4, get into the ancient humus 80 cm deep
1 (mixed with later material)	Füzesabony C	DeA-10122	2481 ± 28	756–542 (68.2%) 773–488 (95.4%)	dog caninus dext. skull	Pit 1	from the feature which start from Level 1 and end in Level 2
2	Füzesabony C	DeA-10118	3376 ± 30	1727–1630 (68.2%) 1746–1613 (95.4%)	horse upper P sin	Level 2	from remains of two houses
3	Füzesabony C	DeA-10121	3366 ± 34	1692–1621 (68.2%) 1746–1546 (95.4%)	cattle mandible dext. dB3	Level 3	from remains of two houses
4	end of the Füzesabony B	DeA-10123	3382 ± 33	1735–1632 (68.2%) 1756–1566 (95.4%)	ovis mandible sin. M2	Level 4	from remains of two houses

site Ároktó-Dongóhalom (Kalicz 1968, 118; P. Fischl 2006), on the Füzesabony tell one should suppose the existence of an older settlement layer

of the Late Hatvan culture (Kalicz 1968: 47, 119–120; Bóna 1975: 147). The basis for this idea was partly the form of the large houses excavated in the lowermost layers of the Füzesabony tell, corresponding to those of Late Hatvan culture houses and, partly the frequent occurrence of shards with textile pattern. This pottery style, however, was found among authentic conditions during the 1976 rescue excavation in the top layers of the settlement as well, thus their role ceased as cultural indicator. Opposite to his former opinion, in 1984 I. Bóna already rejected a Hatvan culture antecedent for the Füzesabony settlement on the site proper (Bóna 1984: 156). Also, the excavations of 1976 disproved the existence of the Hatvan culture at the site (Stanczik 1978: 100; Szathmári 2011: 486).

The abandonment of the tell is—even with the latest ¹⁴C data—uncertain, but it can be dated before the Koszider period, or maybe to a transitional phase signalling the Koszider-period. The uppermost layers of the tell were thicker and most probably less disturbed during the research of 1931–1937. Presumably, ceramic types suggesting a younger dating (than finds from layer I of 1976) must be connected to these, by the time of the excavation in 1976 already devastated layers (DeA-10119, 1731–1530 (95.4%) cal BC; Table 1). From the top layers of F. Tompa’s excavation some bronze pins with hollow head are known, which represent a new technology in bronze production and thus indicate the youngest settlement layers. The youngest ¹⁴C data from pit nr 1. (excavation year 1976) might be connected to the Iron Age graves, that were also present on the tell’s northern part (DeA-10122, 773–488 (95.4%) cal BC; Table 1).

Conclusions

The eponymous site of the Füzesabony culture has been known and studied for more than 90 years. Scientific excavations were carried out in the 1930-ies and in 1976, revealing a large amount of finds and the internal structure of the settlement. The unfortunate and too early death of both F. Tompa and I. Stanczik postponed the evaluation of finds by many decades. During the processing of the excavation materials by I. Szathmári, great deal of new information was secured, regarding mainly the chronology and the inner structure of the settlement. The results of that investigations are used as the basis for new, modern approaches and

digital processing: the GIS based analysis of the documentations and areal photography made the exact location of the excavation trenches possible, while magnetic survey and surface collections proved the existence of at least one satellite settlement. New radiocarbon data was accessible, which modified slightly the absolute chronology of the tell, too.

Acknowledgement

The publication of this study was supported by the Lendület/Momentum Mobility Research Project (Institute of Archaeology, Research Centre for the Humanities, Hungarian Academy of Sciences, entitled “From bones, bronzes and sites to society: Multidisciplinary analysis of human mobility and social changes in Bronze Age Hungary / 2500–1500 BC” (Kiss 2016). Geophysical prospection and surface collection on and off site were conducted in cooperation with participants of the Momentum Mobility Research Group: Viktória Kiss, Gabriella Kulcsár, Eszter Melis, Gábor Serlegi, and Bence Vágvölgyi.

The fieldwork and the data processing was done by Gábor Serlegi and Bence Vágvölgyi. During the prospection a five channel Sensys magnetometer was used with GPS orientation and real time correction. The raw data of the prospection was filtered with different methods during the post processing for further analysis.

The systematic field survey was made using Garmin GPSMap 62 handheld GPS devices. Survey tracks were oriented in parallel north-south lines with 25 meter intervals between them. Each collected find was marked with an individual point.

Radiocarbon dates for Füzesabony-Öregdomb Bronze Age site were provided by Hertelendi Laboratory of Environmental Studies, Hungarian Academy of Sciences ATOMKI, Debrecen. Calibration was made by Gabriella Kulcsár using the OxCal v4.3 programme and the IntCal13 calibration curve (<https://c14.arch.ox.ac.uk/oxcal/OxCal.html>).

The authors would like to thank for all participants for their work and support.

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BRONZE AGE FORTIFIED SETTLEMENT ON ZYNDRAM'S HILL AT MASZKOWICE (POLISH CARPATHIANS)

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Abstrakt *Wśród wielu prehistorycznych osiedli wyżynnych położonych w Karpatach Zachodnich stanowisko w Maszkowicach wykazuje unikatowe cechy. Osada zajmuje szczytowe wypłaszczenie (około 0,5 ha) niewielkiego cypla nazywanego Górą Zyndrama, która dominuje nad doliną Dunajca. Prowadzone na dużą skalę prace wykopaliskowe z lat 1959-1975 doprowadziły do odsłonięcia pozostałości zabudowy z końca epoki brązu i z wczesnej epoki żelaza. Dopiero jednak nowe badania, realizowane od 2010 roku, pozwoliły na dokładniejsze zadokumentowanie pozostałości osiedla z wczesnej epoki brązu, w tym monumentalnych kamiennych fortyfikacji, które otaczały osadę począwszy od jej pierwszej fazy. Mur z Góry Zyndrama jest datowany na XVIII w. p.n.e. i stanowi jeden z najstarszych przykładów kamiennej architektury obronnej w Europie poza strefą śródziemnomorską. Dzieje osadnictwa z wczesnej epoki brązu mogą być podzielone na trzy fazy budowlane. Podczas drugiej i trzeciej z nich konstrukcja kamienna pełniła funkcję muru oporowego podtrzymującego taras budowlany. Pozostałości kilku domów z tych faz były przedmiotem badań prowadzonych w latach 2010-2017.*

Słowa kluczowe *wczesna i środkowa epoka brązu, archeologia Karpat, wczesna architektura kamienna*
Keywords *Early and Middle Bronze Age, archaeology of the Carpathians, early stone architecture*

Introduction: geographical context of the site

The aim of our paper is a short presentation of main features of the fortified settlement located at the very edge of the OFCC area, in Maszkowice village (southern Poland). We shall focus consecutively on geographical and settlement context, range of the site, current state of research, methodology of excavations and material analysis, chronological framework of the site and finally detailed description of the OFCC settlement and its subsequent building phases.

Geographical location is a one of reasons for which the Maszkowice site is particularly interesting from the archaeological point of view. The settlement lies in the Western Carpathians at the junction of an important communication routes leading through the mountains (Fig. 1). At the same time, however, its immediate vicinity is confined to a narrow intermountain valley, which makes it a kind of an isolated small-world – ideal object for palaeoecological studies. The site is located in microregion called the Łącko Basin (Kondracki 2002).

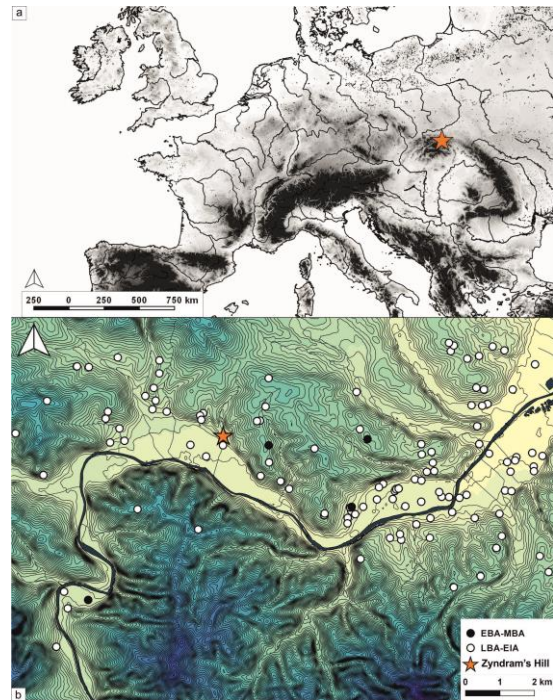


Fig. 1. Localization of the hillfort on Zyndram's Hill in Maszkowice against the Bronze and Early Iron Age settlement network within upper Dunajec valley

This 7.5 km² area has been formed during the Quaternary in a result of Dunajec river activity and fluvial erosion (Zuchiewicz 1999). Southern border of the Łącko Basin was created due to the indentation of the river in the steep slopes of the Beskid Sądecki. In contrast, the northern part of the region is more accessible and consist of gently

waved promontories extended on the foreground of the Beskid Wyspowy.

The Bronze and Early Iron Age settlements were established at the tip of one of them, called Zyndram's Hill, which is rising about 410 meters above the sea level and 50 meters directly above the Dunajec river terrace (Fig. 2).

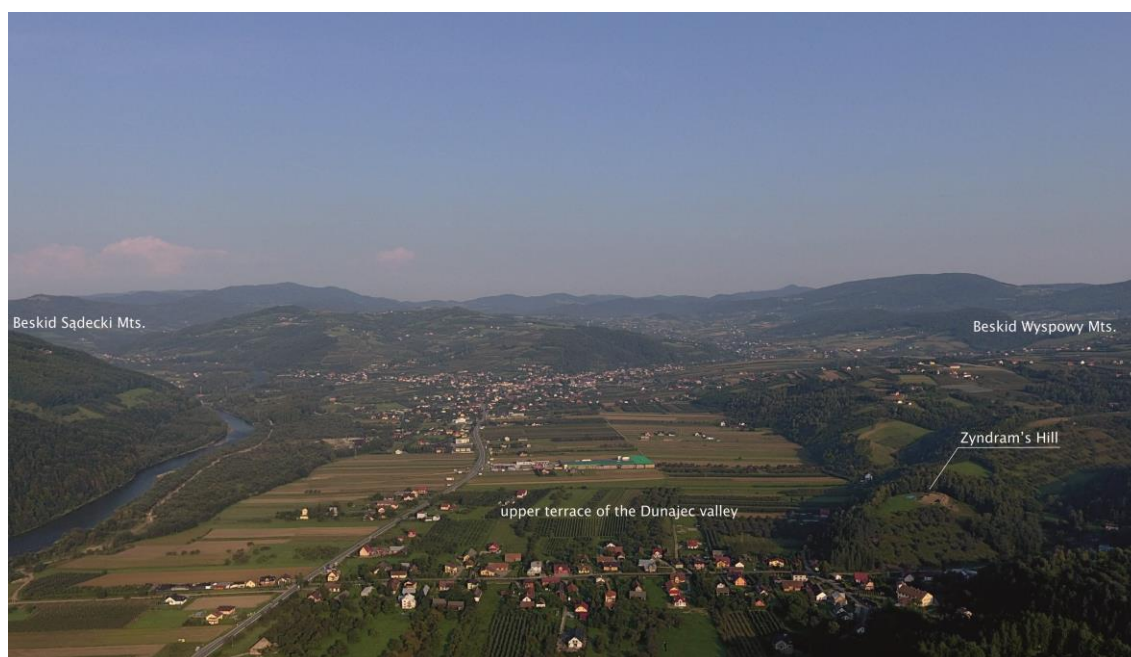


Figure 2. View on the Łącko Basin (from the East)

Detailed description of the archaeological site localisation and its economical and social consequences was already published elsewhere (Przybyła et al. 2012; Kienlin et al. 2014; Korczyńska et al. 2015), but one have to mention that elevated position of the hilltop plateau allows to observe and visually control the whole widening of the river valley and adjacent area. Today this hilly region is densely covered by the forest but it can be assumed that the settlement was also very good visible from the distance. Moreover, the localisation at the “edge zone” between Beskid Wyspowy Mts. and Dunajec valley offered possibility of economic exploitation of both upland areas, where husbandry can be practised, and lowland agricultural area. A high valley terrace of the Pleistocene age spreading at the foot of Zyndram's Hill (Zuchiewicz 1992) is featured by the occurrence of Fluvisols, which are alluvial soils formed from light and medium dusty clay,

very fertile and at the same time easy to cultivate (Mapa..., 15-16). Another kind of a natural resources which might have been exploited by the inhabitants of discussed site, are brine springs (Cabalska 1971: 433). With respect to microclimatic conditions, Zyndram's Hill is also characterised by attractive feature such as almost flat surface, which can better accumulate the sun warmth what results a relatively long frostless period (Hess 1969, 28). Majority of slopes in the surroundings are also exposed to the south, having a richer plant cover, which additionally indicates their usefulness for husbandry (Tunia 1989: 132). Finally, location about 50 m above the river valley bottom makes the site out of the thermal inversion reach, what allows to avoid some unfavourable phenomena such as fog or relatively large diurnal temperature range (Hess et al. 1976: 57).

According to palynological investigations in the area, there is a long gap in the settlement

history of the Łącko Basin between the Early Neolithic and the Bronze Age (Korzeń 2017). This is also clearly visible in results of surveys conducted in the region since the end of the 20th century (Przybyła & Jędrzyk 2017: 103). Furthermore except four single findings dated generally to the 3rd and 2nd millennia BC there is no trace of other human activity in the region during the Early-Middle Bronze Age, what stays in contrast to the situation certified for the later chronological periods. That research show that the population which settled on Zyndram's Hill in the Early Bronze Age colonized and existed within scarcely inhabited area. The closest securely-dated site of a similar chronological classification is the hilltop settlement at Marcinkowice, ca. 25 km from Maszkowice, which provided materials of both epi-corded ware (Mierzanowice culture) and classic OFCC (Kadrow & Machnik 1997: 121, 130; Przybyła 2009: 230–232).

History and scope of archaeological activity

Settlement of the OFCC at Zyndram's Hill rises directly above Maszkowice village and occupies tip of the promontory which is about 50 meters wide, 110 meters long and has area of about 0.5 ha (Fig. 3). Longest axis of the site is running in the NNW-SSE direction but the area has a roundabout exposure with an artificial plateau in the NE part and gently sloping W and S parts. Hillfort was discovered in 1906 by Włodzimierz Demetrykiewicz and excavated by Maria Cabalska from 1959 to 1975 who opened in total area of 24 ares located mostly in central and northern zones of the site. Studies conducted on the archaeological material obtained during the old excavations are currently in progress but state of documentation often does not allow for reliable analysis. So far seasons 1960, 1961, 1971 and 1972 were elaborated including both artefacts from cultural layers and features therein large Early Bronze Age storage pit published by Cabalska (1974) directly after excavations.

A special database was created to examine, describe and connect materials from the old excavations to stratigraphical units but the possibility of observation was limited only to the general chronological overview. For this reason in 2010 we started new excavations which are focused in the northeast edge zone of the enclosed part of the site, where until 2018 we have uncovered surface of 862.5 square meters. Two

trenches (52 square meters) were also opened in the western part of Zyndram's Hill, one trench (25 square meters) below the eastern terrace and another test trench (25 square meters) more than 100 meters toward the north from the hillfort. Furthermore our standard procedure of the stone fortifications recognition is the electrical resistivity which was undertaken before excavations for the whole circuit of the site. The method was verify by the set of drillings which were located not only in the enclosed space of settlement but also in the open zone to check results of geomagnetic survey. This research embraced part of the eastern terrace of Zyndram's Hill and as we already mentioned also at nearby area of a high plain. Mountainous zone with its unfriendly soil conditions occurring also in Maszkowice makes the method unhelpful, however boreholes obtained in the base area of the promontory brought a discovery of dark cultural layer covered by a 40 cm deep modern erosion level. In a result we opened a test trench located about 120 meters from the enclosed space into the high plain which proved that the archaeological site itself was bigger. Eroded cultural layer is probably connected with Late Bronze and Iron Age occupational period but ongoing works on material showed also a presence of small collection of Early Bronze Age shards.

Excavation process is carried out in two ways. Archaeological structures such as cultural layers, houses or other features are carefully exploring by 10 cm deep mechanical levels using small tools while the stone fortification zone we are uncovering by a plastic method. Spatial distribution of every kind of artefact is measured using total station so their position is strictly documented and can be precisely ascribed to the stratigraphical units. Every exploration level is cleaned after excavation and documented by drawing and photography or by a photogrammetry in the case of stone fortifications so interpretation process is carried out both in the field and in the office conditions. In order to detail identification of cultural layers character we use chemical methods of organic and mineral phosphorous investigation and micromorphological studies of thin sections. Pottery fragments are analyzed regarding features connected with production and post-depositional conditions and drawn after this stage, then the stylistic and formal criteria can be describe. The lithic material is also analyzed by a specialist, likewise the faunal and botanical remains. In further process we are able to defined



Figure 3. Site plan with localization of trenches and boreholes

and describe full assemblages connected to the occupational periods and structures named out on the basis of field observations. Spatial analysis referring to both the field and material situations and the geomorphology of the object and the region (for instance Viewshed or Slope analysis) are carried out using Quantum GIS programme with exploitation of data produced during excavations, geodetic plans and Digital Elevation Model.

The situation which we are dealing with when uncovering the stone wall is slightly complicated so finally the fortifications method of exploration and documentation should be explained in detail. Relicts of structure more or less *in situ* are covered in some (northern gate complex, see further) by two or in other places by four layers of stone rubble arisen in the destruction and erosion process and lying on steep slopes directly outside fortifications line. We have adopted for this reason a methodology which relies on a plastic exploration of subsequent stone levels with a photogrammetry of each. It consists of choosing precisely which stone should be removed after documentation because it is not lying in its original position, and then exploring eroded remains of cultural layers which are covering next level of stones. The documentation of stone rubble, displaced slabs and finally blocks constituting inner face, inside of the wall and outer face is

redrawn: each level of stones in the same way then are combined in a drawing of an architectural structure.

Basic characteristics of the settlement

The site can be divided into two zones. Excavations in the central and northern part of the hilltop plateau led to discovery – directly below the modern topsoil – of more than one hundred storage/refuse pits, dated back to the Late Bronze and Early Iron Age. They are mainly shallow (between 50 and 100 cm) and semi-oval in cross-sections (Przybyła & Jędrzyk 2017: 97–99). On contrary, along the edges of the northern and eastern terraces, in the highest part of plateau, lies the zone of the composite package of cultural layers, which in some places is up to 2 m thick. Because boundaries between subsequent layers are usually clear, the stratigraphical sequence of this “tell-like” part of the site provides main framework for the internal chronology of the prehistoric settlement. Currently it can be divided into two main occupational periods (Early Bronze Age and Late Bronze-Iron Age) separated by a half thousand years long gap, and eight building phases. The should be “last” (!) ones are understood as the shortest horizons of settlement development (Fig. 4).

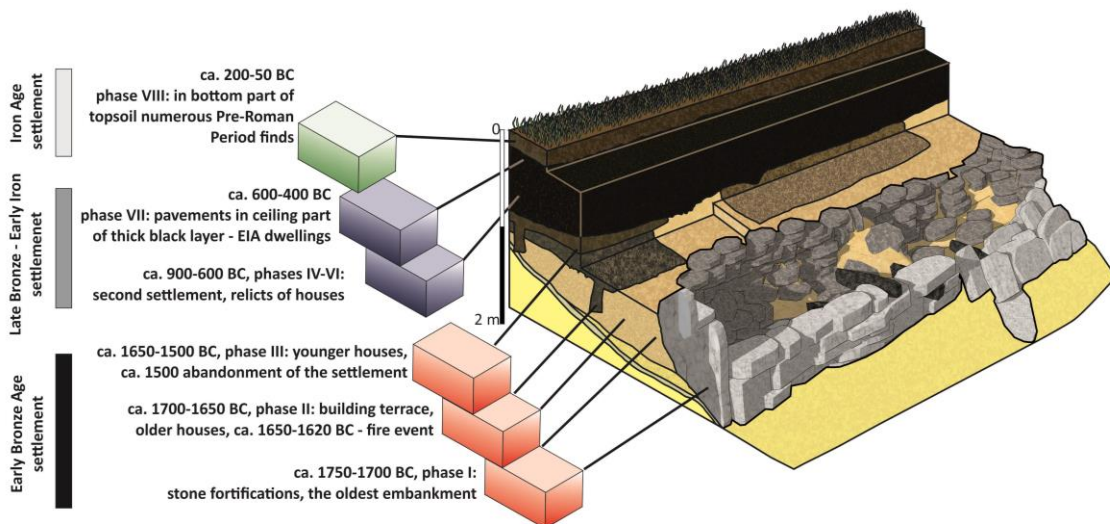


Figure 4. Simplified stratigraphy of the eastern zone of the site

In the edge zone of the site the younger occupational period is represented by a black cultural layer, from 50 to 80 cm thick and approximately 10 m wide. The upper layer of the site seems to be more or less homogenous, but clues such as the stratigraphic order of artefacts, different depths of postholes and regularities in their arrangement, as well as the presence of stone pavements, allowed us to distinguish five stages of building activity within the Late Bronze and Iron Age occupational period.

The youngest artefacts, retrieved from the surface of the layer immediately beneath the topsoil, derive from the Pre-Roman Iron Age (ca. 200-50 BC, Phase Maszkowice VIII). In the central part of the site they were found within fills of some structures (pits, remains of a dwelling), while in the cultural layer they are mainly scattered

on top of or around the pavements made of pebbles (Przybyła & Jędrzyk 2017: 97–100), which already belong to the previous building phase (Maszkowice VII) dated to the Early Iron Age (Hallstatt D, ca. 600-400 BC).

Two further strata (Phases Maszkowice V and VI) were identified below the level of the pavements, in the middle part of the upper cultural layer. With regard to the technological and stylistic features of pottery, both phases seem to be quite homogenous, and may be ascribed to the transition from the Bronze to the Iron Age (ca. 800-600 BC). Finally, the lowest stratum of the upper black layer (Phase Maszkowice IV), partially covered by thin lenses of clay, contains mixed material of the Early and Late Bronze Age and may be regarded as an original utilization level at the time when the younger settlement was established.

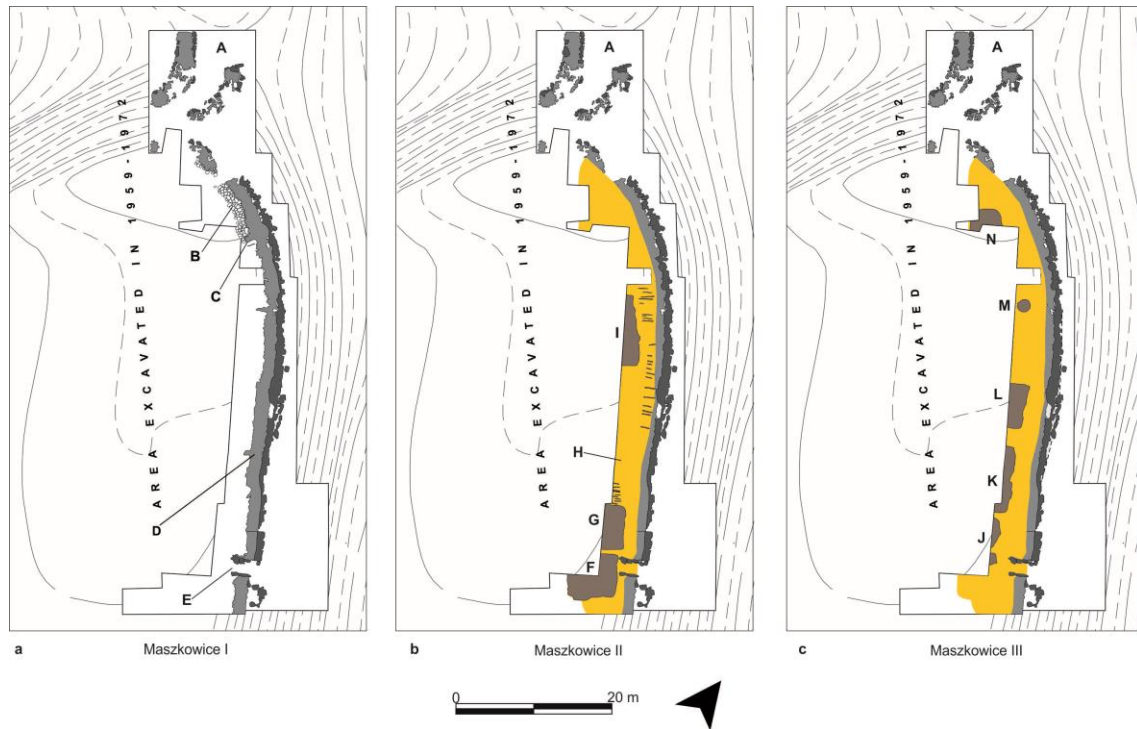


Figure 5. Generalized plan of the settlement in phases Maszkowice I-III: A – northern gate, B – pathway, C – short cross-wall, D –excavated segment of wall (state after excavations in 2018), E – eastern (postern) gate, F – house I, G – house II, H – clay embankment, I – house V, J – upper part of the fill of large storage pit, K – house III, L – house IV, M – storage pit, N – house VII

The Early Bronze Age occupational period will be closely describe in next chapter. Basically it can be divided into three building phases. The first of them (Maszkowice I) may be defined as a time when the stone fortifications were erected. We did not discovered any traces of houses connected to

this phase. Probably they were located on the original top of the hill which was completely leveled later on, at the beginning of the phase Maszkowice II. At this time the massive clay terrace was erected at the eastern edge of the hilltop plateau, on which a single row of houses

was build. After a significant fire event it was displaced by a set of younger houses, representing the phase Maszkowice III – a final stage of the OFCC settlement (Fig. 5).

Since at the present stage of research the OFCC pottery seems to be rather homogenous, when comparing collections from various structures (see further), chronology of subsequent building phases of the Early Bronze Age settlement was established mainly by means of radiocarbon dating. Currently we have at our disposal 19 datings, next eight is in preparation. Majority of them constitute precise AMS datings of annual plants remains such as cereal grains. They point at about two hundred fifty years long timespan between 1776 and 1509 BC (1 σ) as a total time of the Early Bronze Age settlement horizon (compare Fig. 13, 15–20). According to two datings obtained from utilization levels within the eastern gate of fortification (see further) the oldest building phase (Maszkowice I) lasted approximately between 1750 and 1700 BC (1 σ). Common range of datings produced by floor layers of older houses (phase Maszkowice II) equals 1700 and 1620 BC (1 σ) while samples from ceiling levels of clay embankment and contemporary dwellings belonging to the phase Maszkowice III allow to determine its chronology on 1650-1500 BC (1 σ).

Development of the OFCC village

Phase Maszkowice I

First building phase of the OFCC village is represented mainly by the stone fortifications which were erected directly on the original usable level (kind of buried soil) and now are partly covered by younger strata. Single line of dray stone wall, which encircled the main part of the EBA settlement from north and east, was approximately 200 meters long and build of local sandstone in cyclopean system (large boulders in façade, smaller in the inner part of construction) (Fig. 6). Currently it is rather impossible to establish from where precisely the building material was obtained. Layers of sandstone are accessible just below the western and southern edge of plateau (at the depth of ca. 0.5–2 m), as

well as at the foot of the eastern slope of Zyndram's Hill. In both areas we can trace numerous smaller or larger depressions, however at least some of them are connected with medieval and modern stone exploitation, which according to oral tradition was carried out until the early second half of the 20th century. Taking into account that to some extent slopes of Zyndram's Hill were transformed due to natural processes (e.g. one can notice traces of landslides of the western slope) nowadays it is impossible to distinguish quarries of different age, nevertheless it is highly probable that some of them were in use both in the Bronze Age and in Modern Times. It seems that the amount of stone necessary to build the wall had to be immense (more than 1000 tones—see below) therefore it is possible, that sandstone exploitation was carried out in opportunistic way. What means that the material was probably taken from shallow layers of bedrock located in different places close to the currently build segment of fortifications.

The stone construction consists of three main elements. First of them is a line of outer face. It is build of large, evenly matched boulders. Better preserved of them seem to follow some regularities as regard shape and size—they are usually ca. 1.1 m wide and 0.5–0.8 m long, about 20 cm thick and weight between 250 and 350 kg, although among them occur also narrow and long stones which probably were expected to join better the façade and interior of the wall (Fig. 7). The later mentioned is about 1.3 m wide and was constructed of randomly selected stones. Finally one row of regularly set sandstone blocks constitutes the inner face. Stones revealed within both filling and inner line are significantly smaller than those constituting façade, and weight no more than ca. 50 kg. In total the wall is usually 2 m wide and seems to be erected of rather straight sections with clearly visible offsets on their joints.

The state of preservation of the stone wall in Maszkowice is various. In general the further north the level of destruction is more severe. In the southernmost trenches, approximately in the middle of the eastern terrace about 2-3 courses of stones of outer face have survived untouched, whilst inner part of the wall is preserved up to 1 m high.



Figure 6. Inner part of the wall during excavations in 2018



Figure 7. Segment of the outer face of wall revealed during excavations in 2018

At the same time in the north-eastern segment of construction its height amounts at present no more than about 0.5 m. Moreover various parts of the wall suffered significantly due to a modern exploitation of worked stone as a building material. During excavations in 2017 we have revealed a few irregular trenches, filled with dark earth, fine-grained stone rubble and the Early Modern Period pottery. They turned out to cut the wall precisely to the level of the lowermost courses of stones and sometimes did not leave any traces of original construction. This observation stays in agreement with oral tradition and historical records about ruins of a castle in Maszkowice, which were assumed to be of medieval origin and were completely dismantled in the late 18th century AD for building purposes (Orłowicz 1919; Duda 2016).

Despite the fact that we are uncovering the dilapidation we may attempt to estimate the wall's original height. The method usually applied in this respect consists in assessing the size of rubble lying below the survived relicts of stone construction (e.g. Karoušková-Soper 1983: 176-178; Shennan 1995: 74). Although one have to keep in mind that magnitude obtained in this way is always slightly underestimated since certain share of stones might slipped far away downhill (outside excavated area) or be removed during later phases of settlement occupation.

Trenches of 2015 and 2018 which “descended” down to the base of the eastern terrace allowed to document some levels of rubble, probably connected with different stages of a long process of wall's deterioration. Its lowest and oldest layer is represented mainly by large boulders of outer face, which probably collapsed already during the time when the OFCC settlement existed, while layers of smaller stones, originating from the inner part o wall, are stratigraphically younger and probably have been formed until historical times. Amount of larger stone blocks (significantly heavier than 50 kg) which have to originate from the outer face, allow us to estimate its original height of about from 2.5 to 3 m. Because during the second phase of the EBA site occupation the stone construction started to serve as a retaining wall (see below) its inner part is expected to match the maximal height of adjacent clay embankment, that is about 2 m.

During the excavations in 2015-2017 we have revealed two entrances leading through fortifications—a small postern gate within the

eastern segment of the wall, approximately in the middle part of it, and remains of a large gate complex, located about 50 meters further north. The postern gate was discovered in 2015 and carefully restored in summer 2018 (Fig. 8–9). The entrance is located in an offset of fortification line (the part of outer face of wall south to the gate is drawn about one meter back) and survived until our times in a very good state. Its passage was about 3 m long and 1.5 m wide with a bottom hardened by a pavement made of pebbles. Both sides of the gate corridor were decorated by sandstone slabs, arranged symmetrically: three slabs flanking the passage from north were leaned against a short cross-wall so they faced the southern row of three others. Only two slabs survived in their original height, and measure accordingly 1.57 and 1.9 m, others are severely eroded. However the size and shape of them allow us to suppose, that what we deal with in this case may be considered as stelae, perhaps of an anthropomorphic character.

On contrary to the eastern gate, remains of northern one discovered in 2017 are badly preserved. In some parts only one layer of stones remained *in situ*, in others due to modern sandstone exploitation relicts of the Bronze Age construction did not survived at all. Nevertheless, due to the careful methodology, we are able to propose reliable reconstruction of an original layout of the lowermost parts of the northern gate (Fig. 10). Taking into account such factors as terrain relief, size of the stones and character of the accompanying sediments, we distinguished stone blocks which remained still in their original position from surrounding rubble. It seems so that the northern gate consisted of two massive, transversal and slightly curved walls, with about 2 m wide passage between them, which had to run probably somewhere north from the excavated area.

As a whole this large (encompassing an area of more than 120 m²) defensive complex might resemble what in the history of ancient and medieval architecture is called a chamber gate.

A pathway made of stone slabs which may be considered as an architectural element, is unambiguously connected with the northern gate complex. It has led originally from the gate entrance (this part did not survived) directly along the inner face of wall. In the best preserved parts it is about 1.5 m wide, and consists of one layer of evenly matched flat stones placed on a thin layer



Figure 8. Inner entrance to the eastern gate: first stage of exploration in 2014 (upper-left), various levels of exploration in 2015 (upper-right and lower-left) and after partial restoration in 2018 (Photo A. Maślak, M.S. Przybyła, J. Jędrzyk)



Figure 9. Reconstructed eastern gate – excavations in 2018

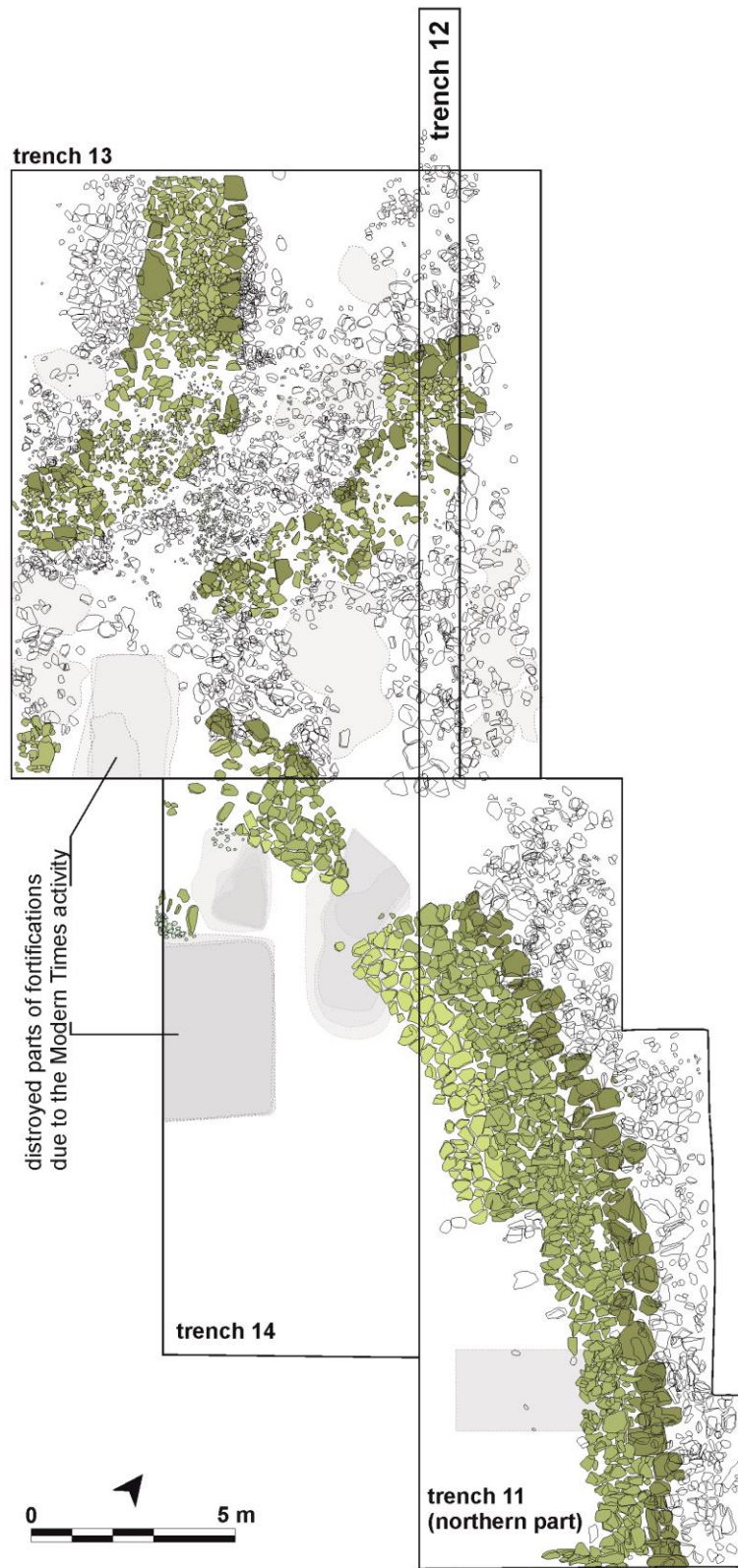


Figure 10. Remains of the northern gate complex and neighboring parts of wall (excavations in 2017)

of clay, or directly on the original ground surface. Careful examination made in 2018 allows us to assume that the pathway was built before the inner part of wall was erected, what means that the former one was a part of a “blueprint”, and not the later addition. In some places we have documented rather short (between ca. 1 and 1.5 m long) cross-walls, directed toward the center of settlement. One of them limited southern extremity of pathway. Within this structure fragments of large stone block survived which bears traces of working (Fig. 11).

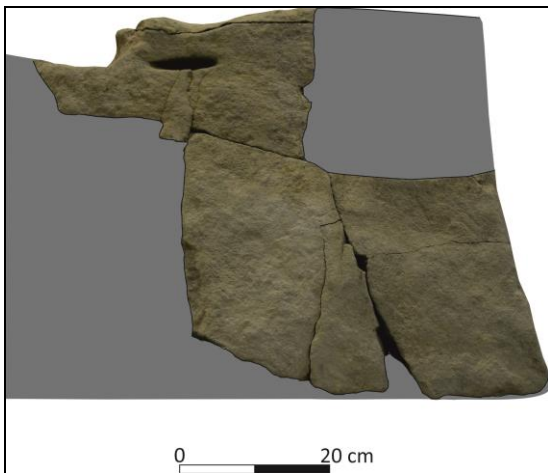


Figure 11. Fragments of worked stone discovered within the northern gate complex. Probably an element of combined stone-wood construction

The stone in question has two narrow dowel holes on both flat sides and partially preserved socket. It is worth to notice that another socket stone was also found in that area, while second stone with a dowel hole originates from another cross-wall (Fig. 12). One may quote as possible analogies similar worked stones from Mediterranean architecture. Those are assumed to be elements of entrances or more generally parts of combined stone-wooden-clay constructions (e.g. Küpper 1996: 69-94).

There are not any traces of house floors or posthole structures connected to the phase Maszkowice I. Probably the oldest households were located on the original top of the hill, which was completely leveled at the beginning of the Maszkowice II phase, when the massive clay embankment was built along the eastern segment of fortifications. Since the border between the area where embankment was raised and from where

soil and clay was taken is determined by western range of the layer of buried soil (preserved only under the embankment and stone construction) we are able to estimate that the minimal distance between houses of the Maszkowice I phase and the inner face of wall was about six meters. Pieces of daub originally plastering the buildings of the first phase were found redeposited within a fill of the eastern gate, what allow us to assume that the phase in question was finished by a fire event.

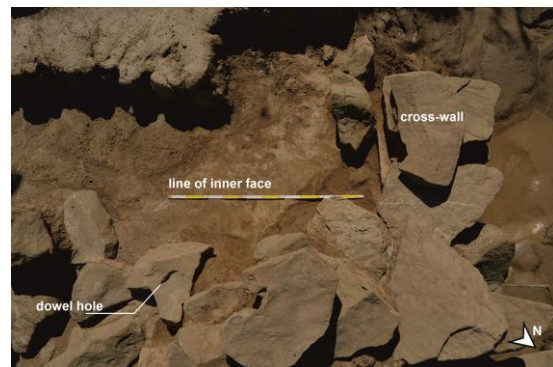


Figure 12. Cross-wall discovered in 2018 in the central part of fortifications, with a context of worked stone

Artefacts occurring within the buried soil are rare and usually undiagnostic such as shards found within the clay embankment (probably redeposited from surface of the original hilltop). The only structures apart from stone constructions which can be undoubtedly connected with the Maszkowice I phase are two subsequent strata deposited within the inner entrance to the passage of the eastern gate, as well as thin layer spreading on the original surface inside the passage, probably a trace of pathway leading down the eastern slope of Zyndram's Hill. They produce significant number of shards, among them decorated pottery belonging to the classic phase of OFCC (Fig. 13: a,c,i-j,n). Fragment of a bowl bearing spiral ornamentation may serve as a significant example. It was found within above mentioned layer of pathway under a thick stratum of clay and stone and in the area where there was not any traces of later structures, so we can exclude contamination of younger material.

Phase Maszkowice II

The second phase of OFCC settlement is started by a significant change in the settlement layout. The function of stone fortifications was also altered—

build as a free standing construction they started to serve as a retaining wall for a massive clay embankment. The later one was at least 10 meters wide and up to 2 meters thick. Its length is difficult to estimate, since we do not have any clue how far it spreads southward, but in combination with leveling of the original hilltop its erection produced large and completely flat area which is visible also nowadays. Within embankment we have come across a few concentrations of wooden planks. Although their function is not clear they probably were expected to straighten the terrace. There is also a number of large stones in the lower strata of the terrace, what suggest that the highest layers of inner face of wall started to crumble already before the embankment was erected and that surface of the later one might be of similar height as this of wall.

In the north-eastern part of site the clay terrace covered completely the stone pathway of the first phase (Fig. 14). Also the passage of the eastern gate was filled with almost one meter thick layer of clay mixed with debris of burned constructions and rubbish. Moreover, at the same time the largest stela within the gate was broken and probably its surface was devastated. The stratigraphical relation between the building terrace and the most elaborated elements of original fortifications – stone pathway and eastern entrance – is interesting twofold. It gives us hint that the project of wall made and existing in the earliest phase of the OFCC settlement, was to some extent abandoned already in the second building phase (former postern gate used as a trash deposit, retaining function of wall and its partial deterioration). It shows us also that the time, when the stone fortifications were used accordingly to the “blueprint”, had to be rather short. Pottery provided by the gate corridor layers and stratigraphically younger houses which were erected on surface of the embankment represents the same phase of relative chronology. Moreover two radiocarbon dates obtained from occupational levels of the postern gate (see Fig. 13) partly overlapped these from the neighbouring house (House I—see Fig. 15). Thus it seems that the stone fortifications were erected in the late 18th century BC, but already in the early 17th century BC were radically fitted to new needs.

There are at least three houses which represent the second building phase (house I, II, V), probably relics of two others were found during

the excavations in 1961 and 1967 by the northern line of the fortifications. Dwellings formed only one row running on the surface of the clay terrace about 1-2 meters from the inner face of wall. Although we were able only to documented their eastern parts (rest of them was explored, without documentation during the old excavations) one can estimate that they were about 35-50 square meters large and rectangular in shape. All houses are manifested as about 10–20 cm thick dark layers, which at first glance seem to be rather homogenous. However micromorphological investigations, as well as observations of a well preserved part of layer of the house II made in 2018 prove that in fact they consists of several thin strata of floor plastering, which are mineral in the lower part of sequence, and covered by organic material in the upper one.

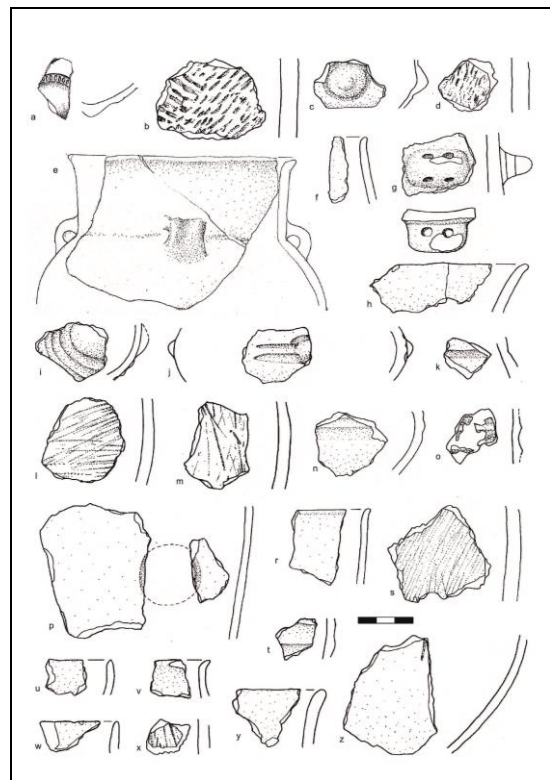


Figure 13. Selected material from the usable levels of the eastern gate. Radiocarbon dates: 3410±40, 1751-1644 BC 1σ (MKL-2439, charcoal); 3447±32, 1870-1846, 1810-1804, 1776-1730, 1722-1692 BC 1σ (D-AMS14045, *Triticum* sp.)

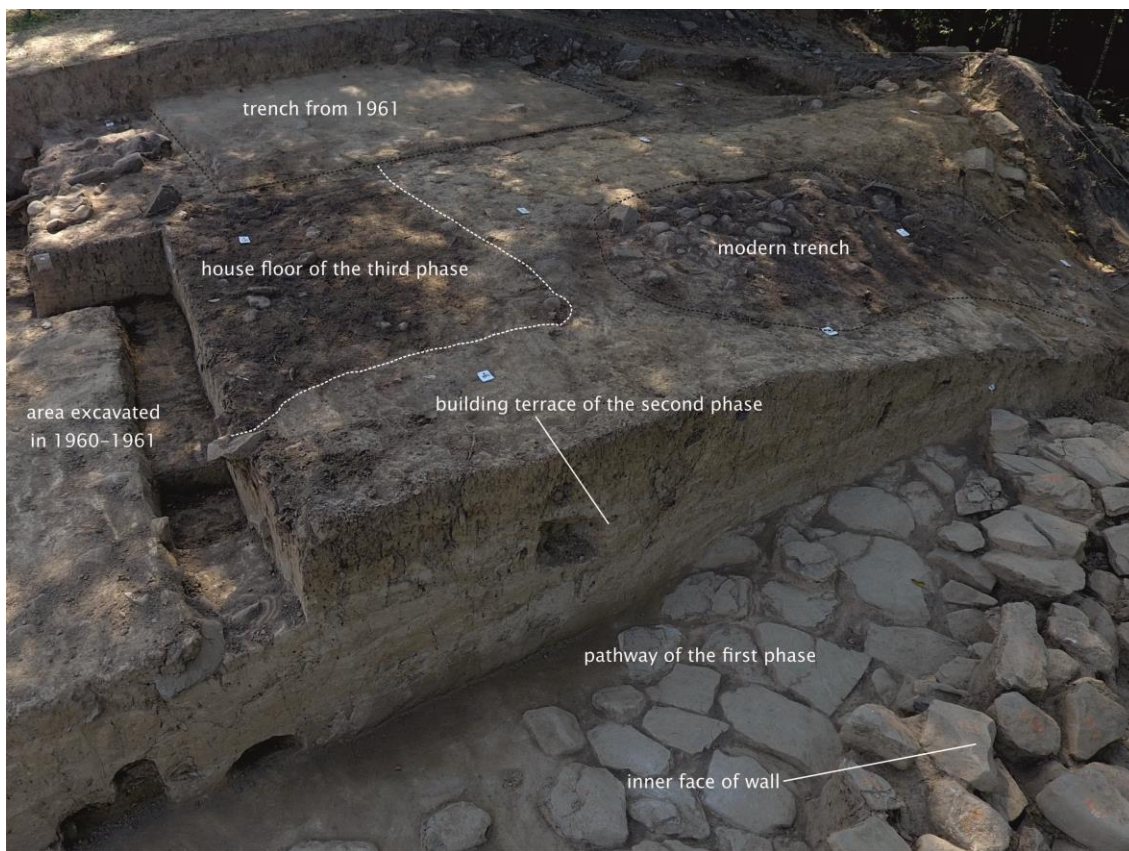


Figure 14. Stratigraphical relations observed during the excavations in 2017. Stone pathway from the oldest phase of fortification is covered by clay embankment, which in turn is base for one of the houses of the second phase of the EBA settlement

Below floor layers traces of wooden planks occurred, while in one house (II) also relicts of massive beans were found which formed base for their eastern walls. Another kind of foundation, made of pebbles and small sandstones possessed also house V, the largest one among the dwellings of the second phase. Within layer of the same structure pieces of decorated adobe were found, which probably originate of a hearth. Similar function may be attributed to the concentrations of pebbles found in houses I and II. Finally numerous concentrations or even larger strata of daub (as in case of house V) and levels of ashes (house I) allow us not only to reconstruct the houses as build in the wattle-and-daub technique but also to assume that they were all destroyed by a significant fire event.

All houses produced large amount of various finds. Among them the most numerous are pottery shards. Their number varies and depends on how large was part of a given house that survived until our research. Amount of pottery fragments

documented within the floor layers fluctuate between 150 and 600, however barely 10% represents formally or stylistically diagnostic material (Fig. 15–17). Few pieces originate from jars, among them specimens bearing fluted (both horizontal and turban-like) and spiral ornamentation. There are also some fragments decorated with semicircular grooves surrounding knobs or groups of thin, vertical lines.

Pieces of animal bones constitute another numerous group of finds. They tend to concentrate only in some parts of house floors, and moreover there are differences in a spatial distribution of various parts of animal body.

Similar tendency can be trace also in the case of a botanical remains. Archaeobotanical investigations prove that while in some zones of dwellings charred remains are rare or restricted only to wild plant or chaff, connected to consumption or food processing, in others we can distinguish places of crop storing.

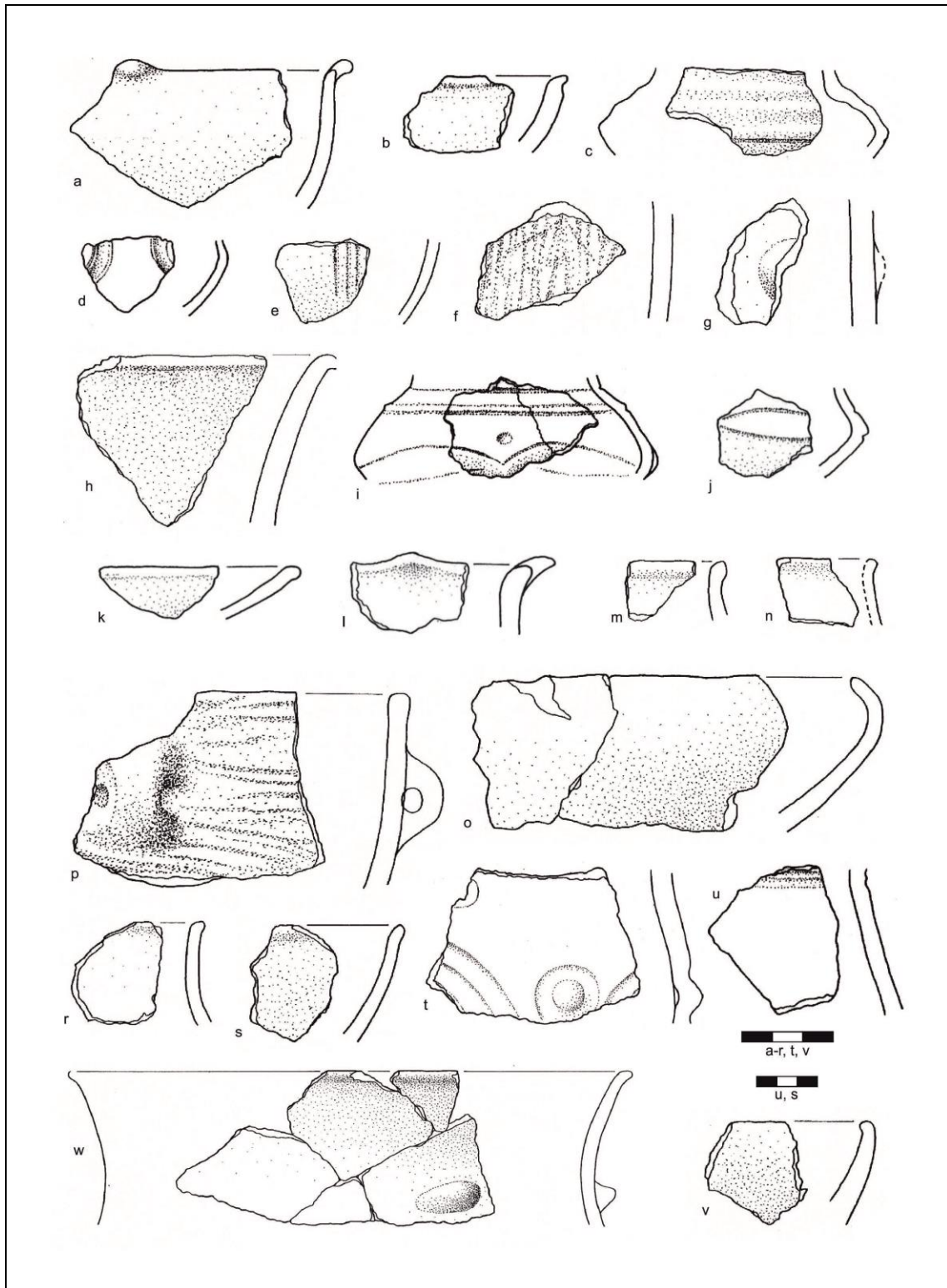


Figure 15. Selected material from the floor layers of the house I and its radiocarbon dating: 3330±70, 1690-1520 BC 1σ (MKL-1324, charcoal); 3447±22, 1772-1736, 1716-1695 BC 1σ; (D-AMS10625, *Prunus spinosa*)

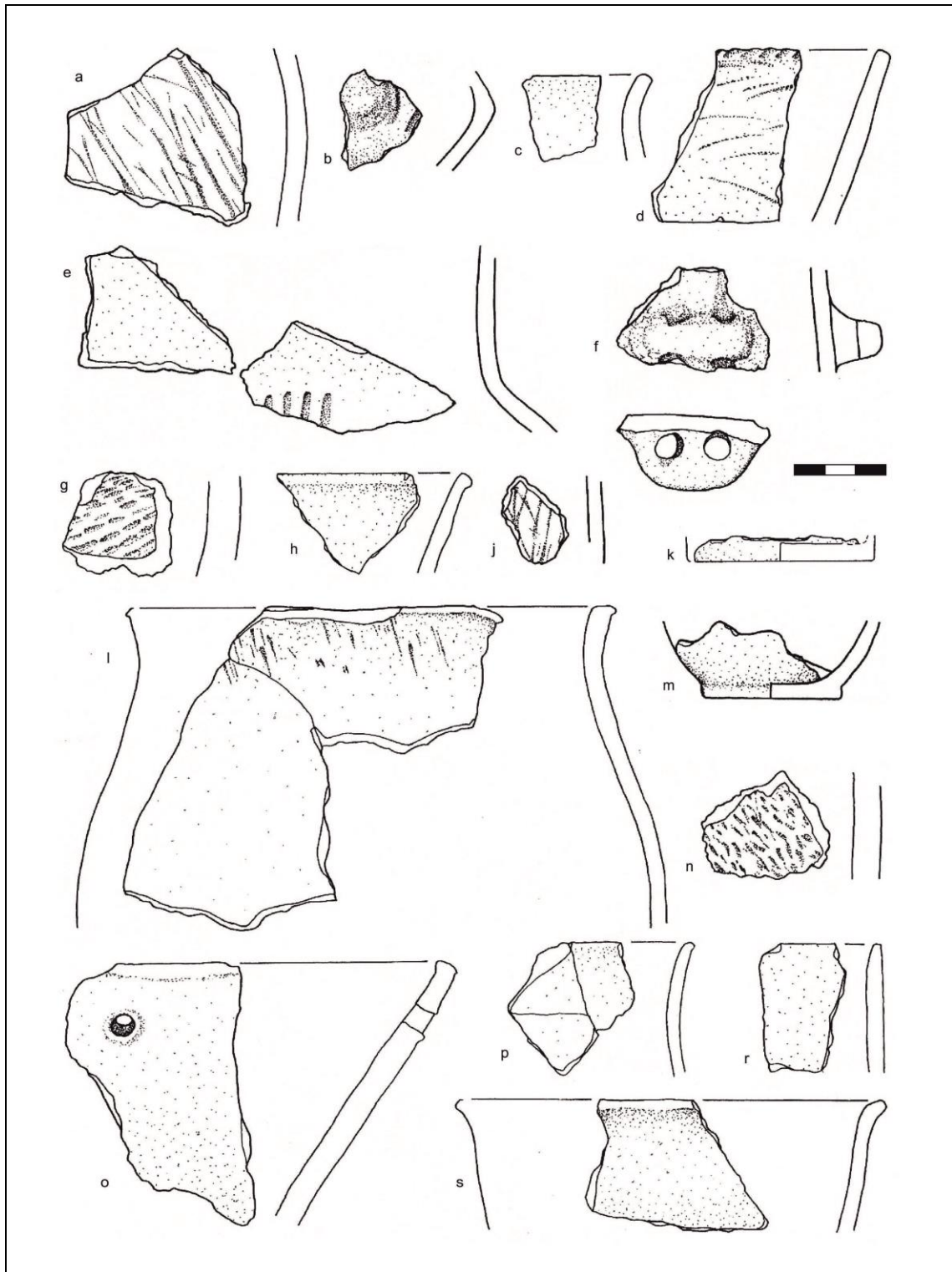


Figure 16. Selected material from the floor layers of the house II and its radiocarbon dating: 3510 ± 90 , 1950-1737 BC 1σ (MKL-2539, charcoal)

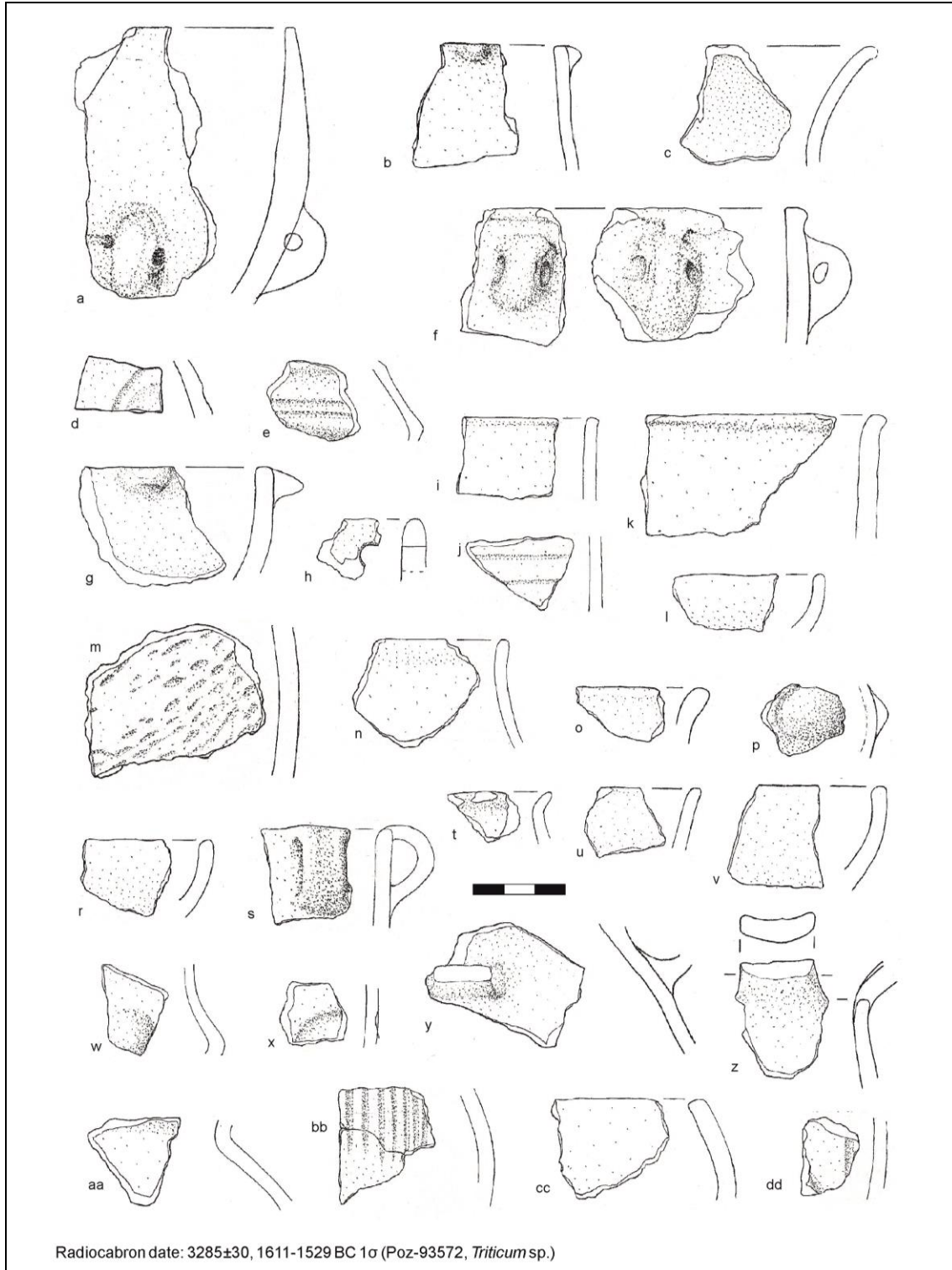


Figure 17. Selected material from the floor layers of the house V and its radiocarbon dating (range of the highest probability *italic*): 3375±35, 1732-1720, 1693-1627 BC 1σ (Poz-94539, *Hordeum vulgare*), 3355±30, 1740-1713, 1697-1602, 1589-1544, 1539-1535 BC 1σ (Poz-104840, grain of *Cerealia*)

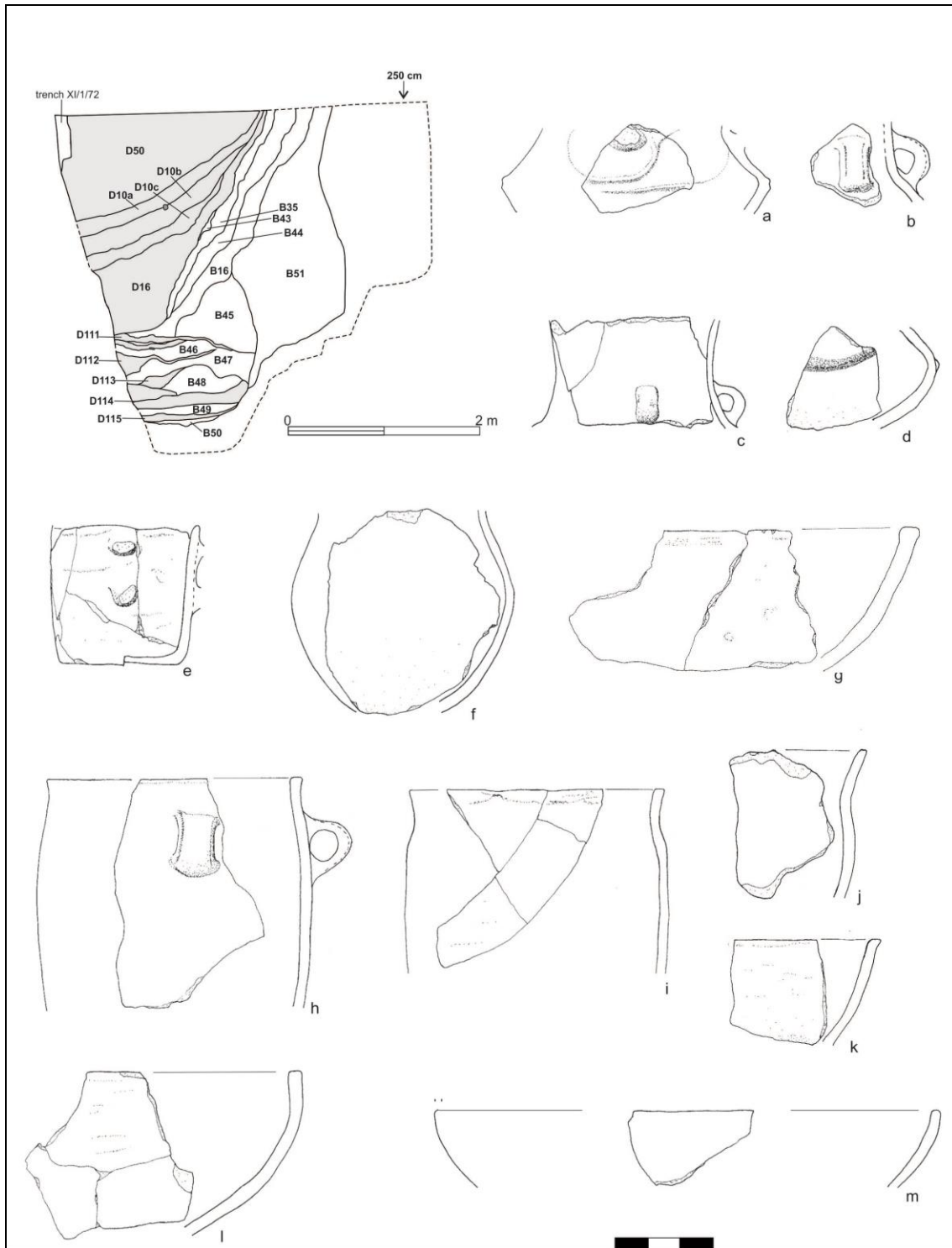


Figure 18. Documented in 2018 cross-section of the large pit excavated in 1971-1972 and selected material from its upper levels: mechanic layers 350-500 cm, corresponding with the strata D16 (redeposited floor of the house II), D111-D115. Radiocarbon date of layers D111 or 112: 3395±28, 1740-1712, 1698-1658 1σ BC (D-AMS10627, *Hordeum vulgare*). Stratum B51 is connected with the older feature.

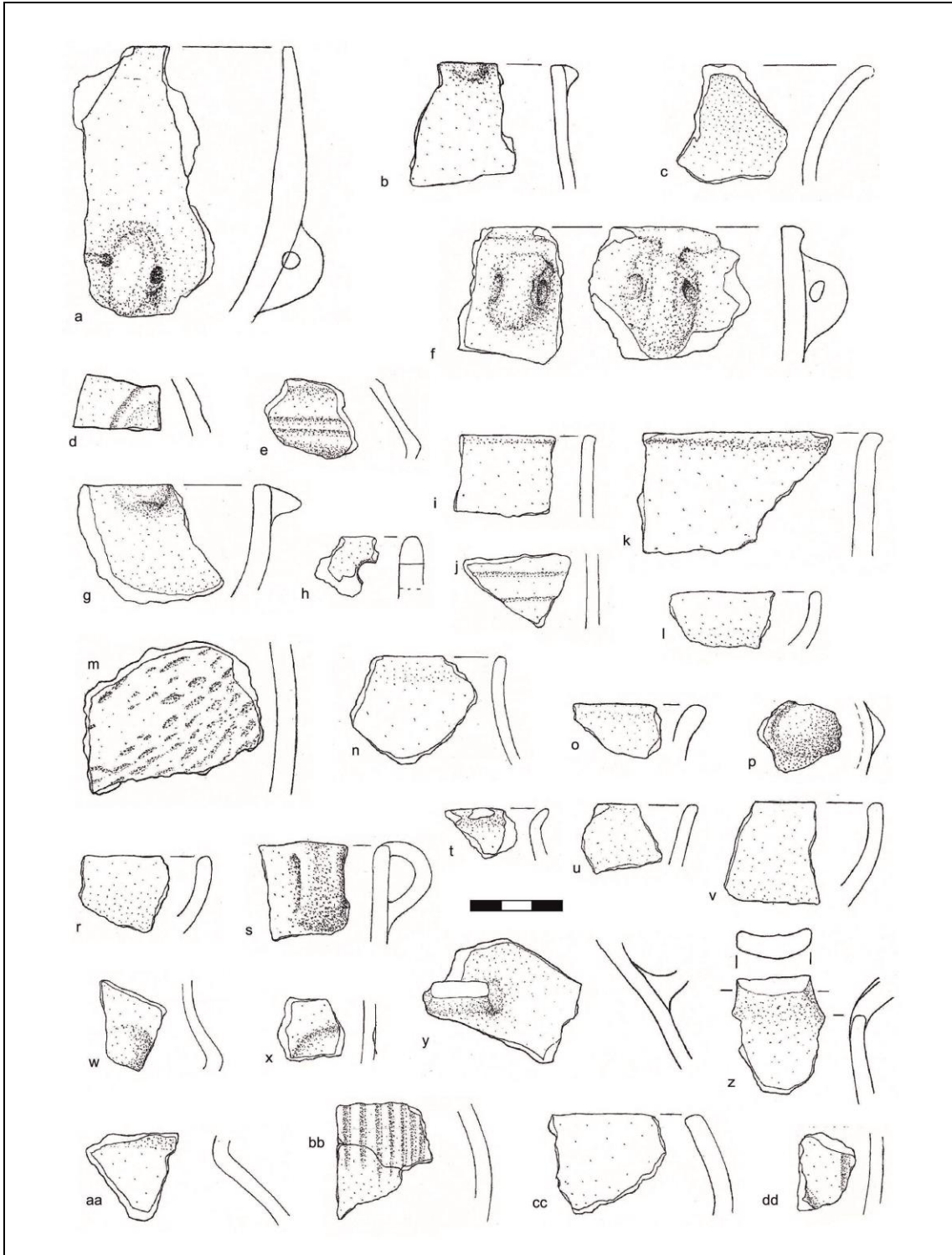


Figure 19. Selected material from the floor layers of the house IV and its radiocarbon dating (ranges of the highest probability *italic*): 3285±30, 1611-1529 BC 1σ (Poz-93572, *Triticum* sp.), 3325±35, 1658-1651, *1645-1600*, *1586-1534* BC 1σ (Poz-104561, *Hordeum vulgare*), 3240±30, 1600-1586, *1539-1492*, *1484-1452* BC 1σ (Poz-104816, grain of *Cerealia*), 3305±35, 1622-1595, 1589-1531 BC 1σ (Poz-104560, *Hordeum vulgare*)

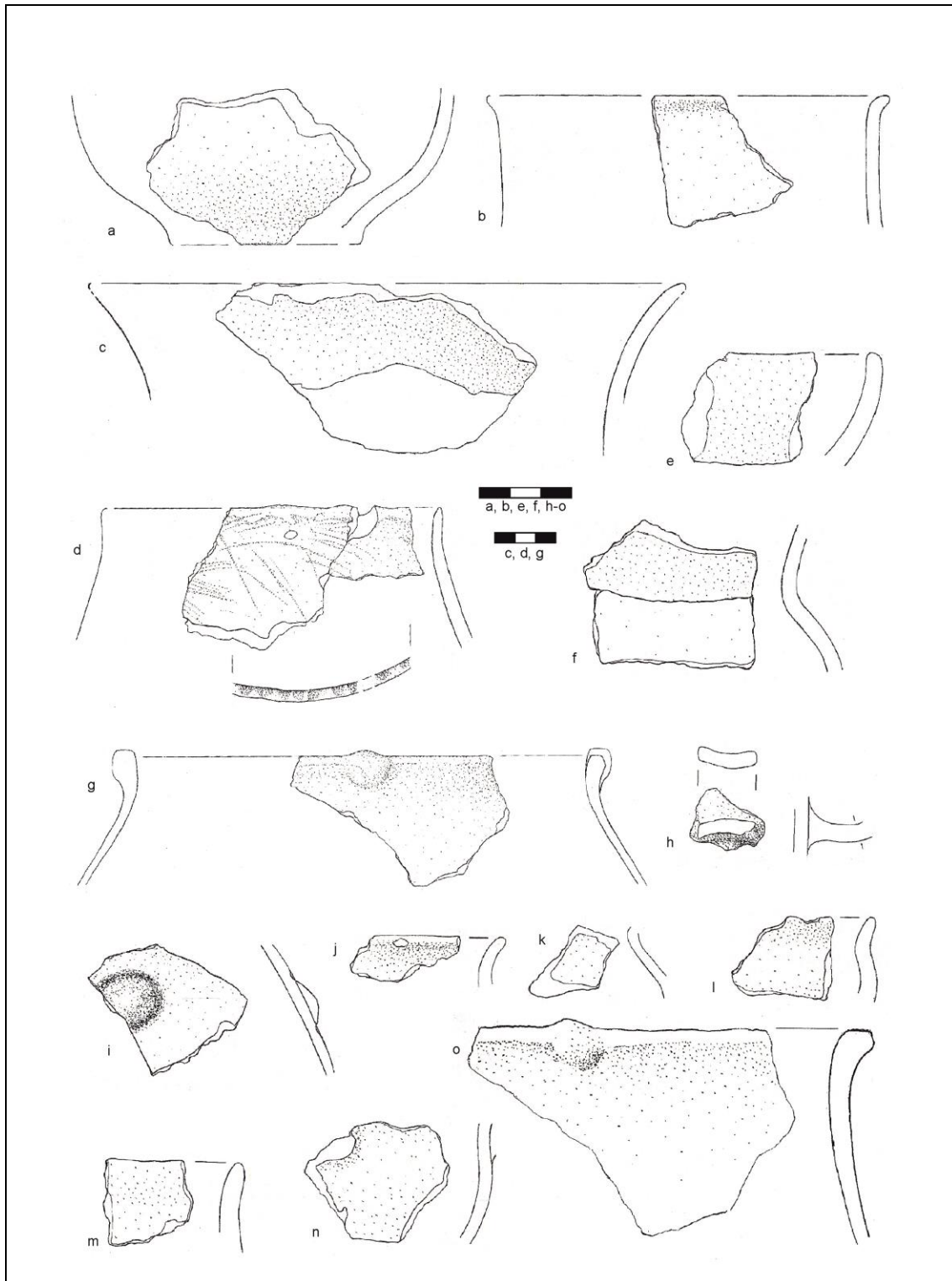


Figure 20. Selected material from the floor layers of the house III and its radiocarbon datings (range of the highest probability *italic*): 3328±36, 1661-1601, 1585-1535 BC 1σ (D-AMS14046, *Hordeum vulgare*), 3295±30 BP, 1613-1592, 1589-1532 BC 1σ (Poz-104815, *Triticum* sp.) probability are **bolded**)

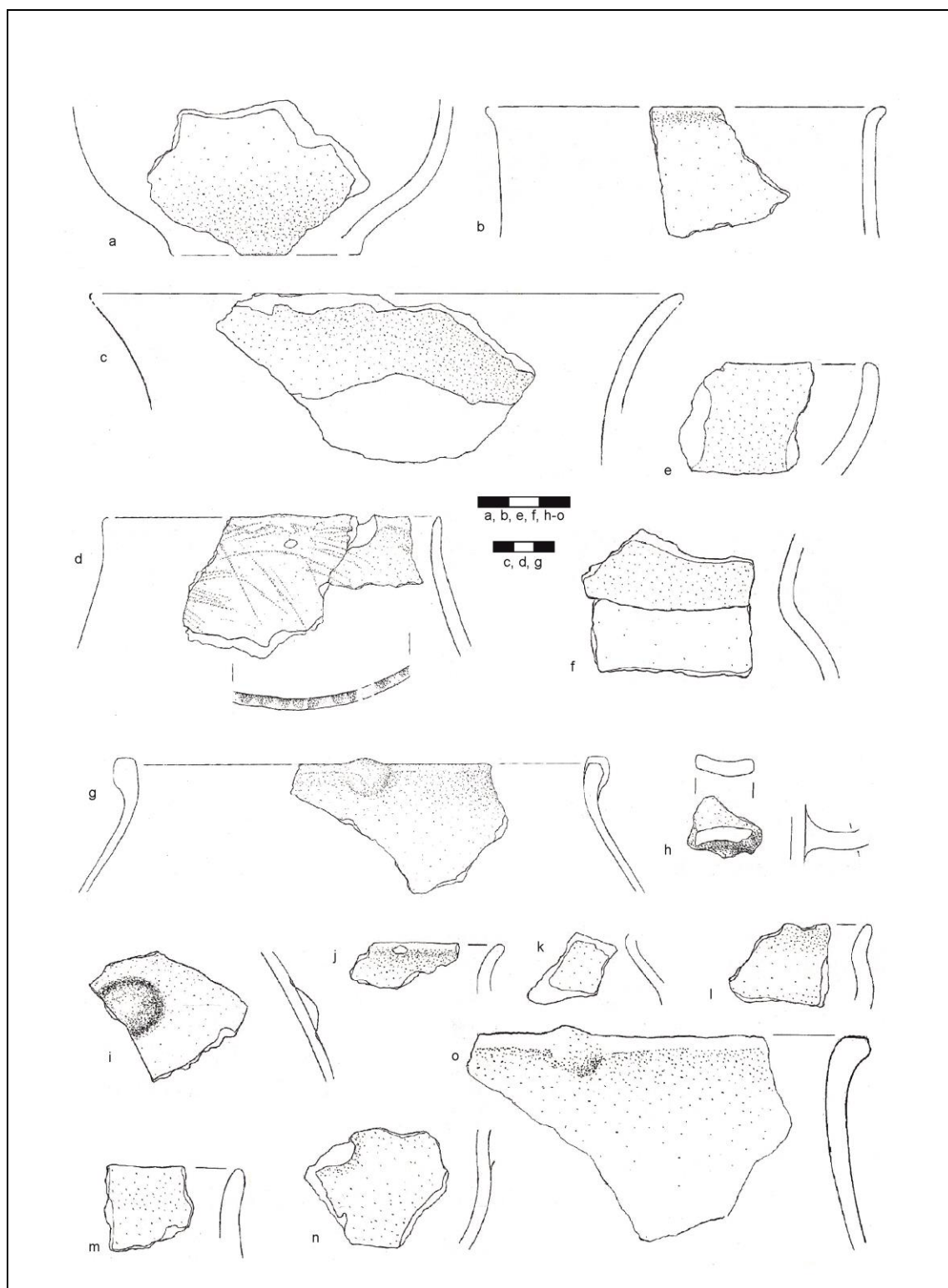


Figure 21. Selected material from the floor layers of the house III

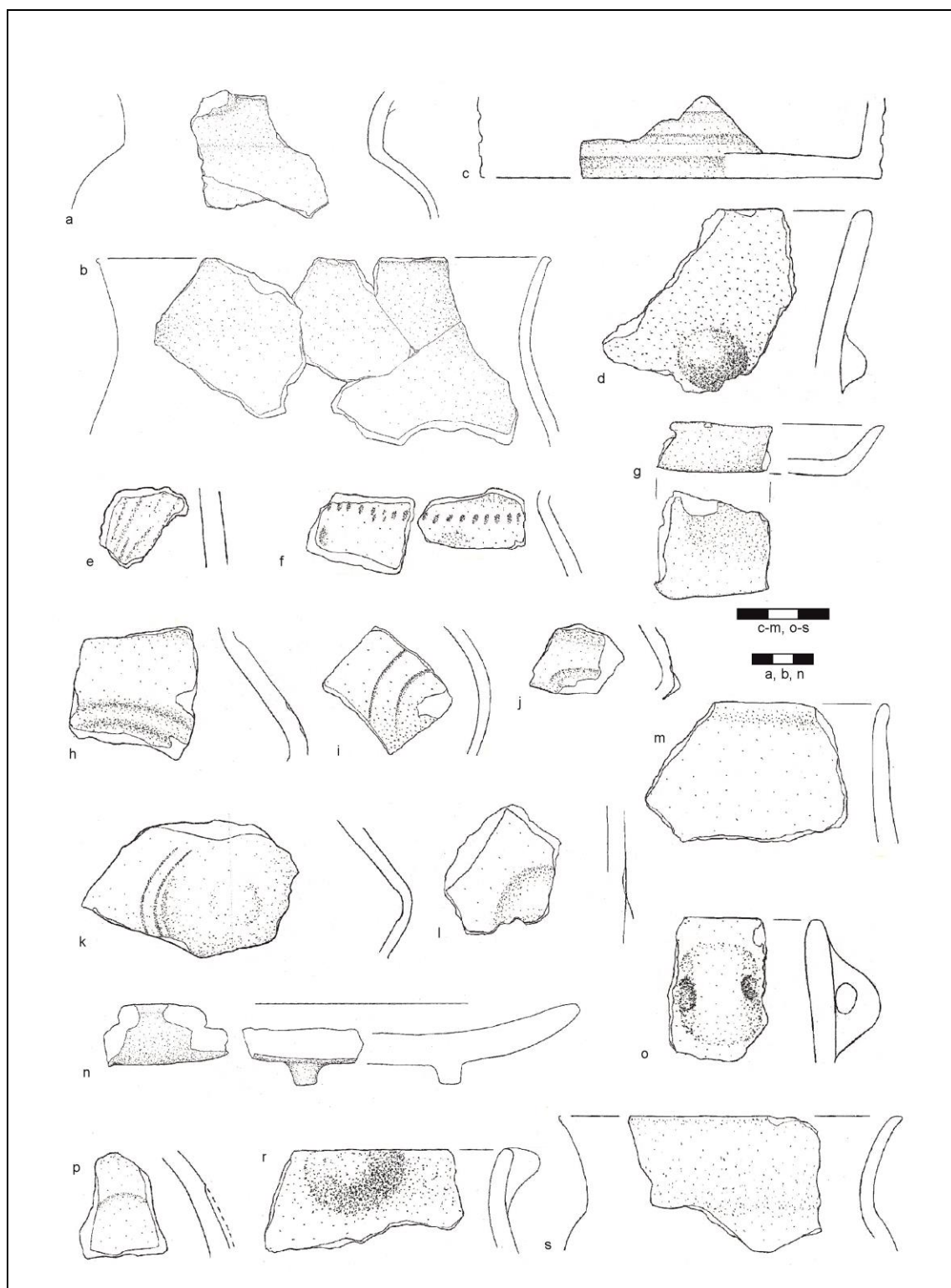


Figure 22. Selected material from the floor layers of the house V-2

The presence of grain deposits within the houses is a common trait among the Early Bronze Age sites of the OFCC in Carpathian Basin (e.g. Filatova et al. 2018) distinguishing them from these cultural areas where storing of food in pits dominates. Therefore it needs to be stressed that only one such feature may be connected to the phase Maszkowice II. The large pit was excavated in 1971–1972 and published later on by Maria Cabalska (see above—chapter 2). Although it was expected to be fully explored during the old excavations we have found its edge within our trench in 2014 and later on in 2018 we succeeded to document its cross-section, preserved between two Cabalska's trenches. Currently we are able to reconstruct it as a two-phase structure. Firstly (just after erection of clay terrace) large, about 3.5 meters deep, T-shape feature was dug here. It was however quickly filled up—there is no usable stratum on its bottom. Later on, within the fill of T-shape feature, another pit was dug: pear-shaped with cylindrical upper part. Its entry had to be located on the floor level of the house II, in its south-western part; its bottom was 4.25 m deeper (more than 6 meters counting from present ground level). The thick lower strata of this huge structure suggest that the pit was in use for a significant amount of time. They contain among others large collection of charred remains of immature spikelets of barley, which provide radiocarbon date pointing at the first half of 17th century BC (see Fig. 18). Probably close to this date walls of the pit collapsed, as it was the house II staying above. Within the upper part of the pit's fill complete and well preserved sequence of redeposited house floor was found.

The above mentioned house V, which seems to be the largest one within the second phase, provides a few finds of small smelted clumps of bronze, undoubtedly connected with metallurgical activity. Additionally bronze pin and a large amber bead originate from its floor layers. It is particularly interesting in the context of a complete lack of bronze objects within other houses (although within floor layer of the house I small piece of faience bead was found). There is however a limited collection of metal objects which undoubtedly are connected with the OFCC village but were discovered outside house remains. Among them three Sibir type earrings: two originate from the vicinity of stone fortifications and one was retrieved from the layer of younger occupational period. Two other bronze objects

were found within the Early Bronze Age layer stretching on the slope, below the eastern gate. It is worth to mention, that accordingly to the analysis of copper impurities, all bronze artefacts from Zyndram's Hill seem to represent the type of metal, which is characteristic of the Carpathian Basin, and particularly of the assemblages of Hajdúsámson-Apa series (high impurity and AsNi group after Liversage 1994).

Phase Maszkowice III

The beginning of the last building phase of the OFCC village is marked by a fire event which destroyed all known houses of the phase II. New households appear to continue the same layout as the dwellings of the second phase – they form only one row, along the line of the old fortifications. We have some hints that deterioration of the wall was already advanced at this point. Radiocarbon date obtained for the sample taken from thin sediment, just under the large fallen boulder outside the fortifications points at 17th century BC (D-AMS14044, grain of *Triticum* sp., 3368 ± 38 BP, 1693–1621 BC 1 σ) as a time when the outer face started to crumble. The period is also represented by traces of reparations: in some places surface of clay embankment was supplemented or strengthened by means of wooden constructions (they were C14 dated to 16th and early 15th century BC) while passage of the former eastern gate was completely sealed by using of recycled stones (some of them were regularly dressed and probably originate of the face of wall).

Probably due to problems with a clay embankment stability the dwellings of the third phase were located slightly further from retaining wall. Currently we were able to document partially three households of this stage (III, IV and VII) and one small storage pit, probably connected to the northernmost house VII. Because lack of a clear background during excavation (strata of the dwellings of the phase III lay sometimes directly on remains of older houses) it is difficult to trace any construction elements, as it was in the case of the phase Maszkowice II.

From houses of both second and third phase rich collection of objects (tools and dress elements) made of bone, antler, horn or tooth originates. Some types of them seem to be restricted to the specific contexts. For example so called spatulae were found mainly in the floor layers of the dwelling I. On the contrary almost all

axes made of antler occurred within remains of the houses IV, V and VII, located in the northern part of excavated zone. The observation may suggest a kind of craft specialisation within the population living on Zyndram's Hill.

There is almost not any change as regard the pottery stylistics when comparing houses' assemblages of the second (Fig. 15–18) and third (Fig. 19–22) phase. Few tendencies could be however noticed. Namely, there is a lack of fluted jars within the younger houses, although both spiral ornamentation and knobs surrounded by semicircular grooves or flutes are still present. On contrary shards decorated by groups of vertical lines seem to occur more often within younger dwellings. Detailed investigation of OFCC pottery style and fabric development on the site is currently in progress.

Third phase of the OFCC settlement does not seem to be finished by a fire event, as it was in the case of phases Maszkowice I and II. There are also not traces of violence or warfare. One can rather suppose that around 1500 BC the village was abandoned. After that the site remained uninhabited for the next half thousand years.

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