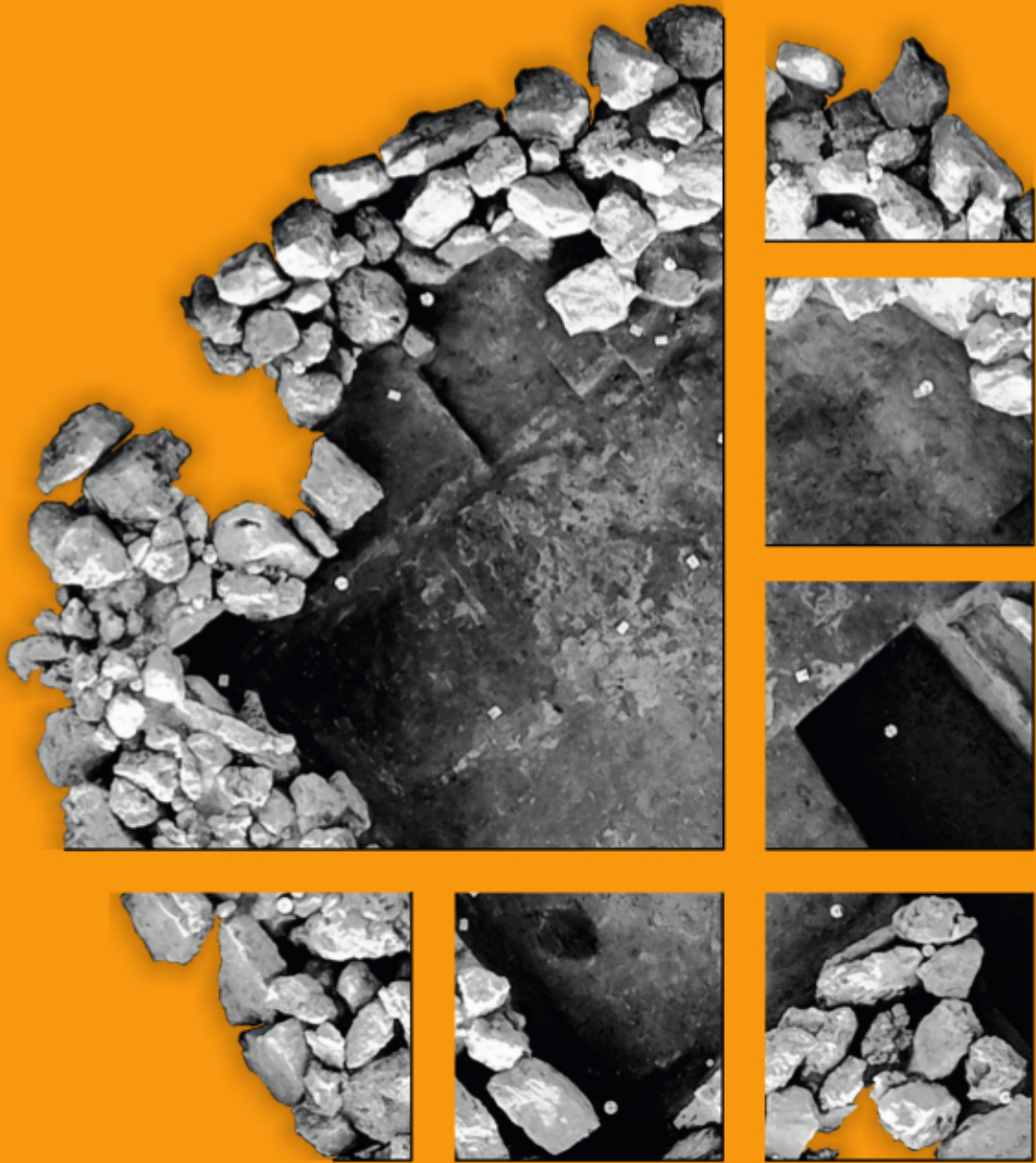


# DISSERTATIONES ARCHAEOLOGICAE

ex Instituto Archaeologico Universitatis de Rolando Eötvös nominatae



Ser. 3. No. 4. | 2016

# DISSERTATIONES ARCHAEOLOGICAE

ex Instituto Archaeologico

Universitatis de Rolando Eötvös nominatae

*Ser. 3. No. 4.*



Budapest 2016

Dissertationes Archaeologicae ex Instituto Archaeologico  
Universitatis de Rolando Eötvös nominatae  
*Ser. 3. No. 4.*

Editor-in-chief:

DÁVID BARTUS

Editorial board:

LÁSZLÓ BARTOSIEWICZ

LÁSZLÓ BORHY

ZOLTÁN CZAJLIK

ISTVÁN FELD

GÁBOR KALLA

PÁL RACZKY

MIKLÓS SZABÓ

TIVADAR VIDA

Technical editors:

DÁVID BARTUS

GÁBOR VÁCZI

Proofreading:

SZILVIA SZÖLLŐSI

ZSÓFIA KONDÉ

Available online at <http://dissarch.elte.hu>

Contact: [dissarch@btk.elte.hu](mailto:dissarch@btk.elte.hu)

**PKP**

PUBLIC  
KNOWLEDGE  
PROJECT

© Eötvös Loránd University, Institute of Archaeological Sciences

Budapest 2016

# CONTENTS

## ARTICLES

- Pál RACZKY – András FÜZESI 9  
*Öcsöd-Kováshalom. A retrospective look at the interpretations of a Late Neolithic site*
- 
- Gabriella DELBÓ 43  
*Frühromische keramische Beigaben im Gräberfeld von Budaörs*
- 
- Linda DOBOSI 117  
*Animal and human footprints on Roman tiles from Brigetio*
- 
- Kata DÉVAI 135  
*Secondary use of base rings as drinking vessels in Aquincum*
- 
- Lajos JUHÁSZ 145  
*Britannia on Roman coins*
- 
- István KONCZ – Zsuzsanna TÓTH 161  
*6<sup>th</sup> century ivory game pieces from Mosonszentjános*
- 
- Péter CSIPPÁN 179  
*Cattle types in the Carpathian Basin in the Late Medieval and Early Modern Ages*

## METHOD

- Dávid BARTUS – Zoltán CZAJLIK – László RUPNIK 213  
*Implication of non-invasive archaeological methods in Brigetio in 2016*

## FIELD REPORTS

- Tamás DEZSŐ – Gábor KALLA – Maxim MORDOVIN – Zsófia MASEK – Nóra SZABÓ – Barzan Baiz ISMAIL – Kamal RASHEED – Attila WEISZ – Lajos SÁNDOR – Ardalan KHWSNAW – Aram Ali Hama AMIN 233  
*Grd-i Tle 2016. Preliminary Report of the Hungarian Archaeological Mission of the Eötvös Loránd University to Grd-i Tle (Saruchawa) in Iraqi Kurdistan*
- 
- Tamás DEZSŐ – Maxim MORDOVIN 241  
*The first season of the excavation of Grd-i Tle. The Fortifications of Grd-i Tle (Field 1)*

Gábor KALLA – Nóra SZABÓ	263
<hr/>	
<i>The first season of the excavation of Grd-i Tle. The cemetery of the eastern plateau (Field 2)</i>	
Zsófia MASEK – Maxim MORDOVIN	277
<hr/>	
<i>The first season of the excavation of Grd-i Tle. The Post-Medieval Settlement at Grd-i Tle (Field 1)</i>	
Gabriella T. NÉMETH – Zoltán CZAJLIK – Katalin NOVINSZKI-GROMA – András JÁKY	291
<hr/>	
<i>Short report on the archaeological research of the burial mounds no. 64. and no. 49 of Érd-Százhalombatta</i>	
Károly TANKÓ – Zoltán TÓTH – László RUPNIK – Zoltán CZAJLIK – Sándor PUSZTA	307
<hr/>	
<i>Short report on the archaeological research of the Late Iron Age cemetery at Gyöngyös</i>	
Lőrinc TIMÁR	325
<hr/>	
<i>How the floor-plan of a Roman domus unfolds. Complementary observations on the Pâture du Couvent (Bibracte) in 2016</i>	
Dávid BARTUS – László BORHY – Nikoletta SEY – Emese SZÁMADÓ	337
<hr/>	
<i>Short report on the excavations in Brigetio in 2016</i>	
Dóra HEGYI – Zsófia NÁDAI	351
<hr/>	
<i>Short report on the excavations in the Castle of Sátoraljaújhely in 2016</i>	
Maxim MORDOVIN	361
<hr/>	
<i>Excavations inside the 16th-century gate tower at the Castle Čábrad' in 2016</i>	
<b>THESIS ABSTRACTS</b>	
András FÜZESI	369
<hr/>	
<i>The settling of the Alföld Linear Pottery Culture in Szabolcs-Szatmár-Bereg county. Microregional researches in the area of Mezőség in Nyírség</i>	
Márton SZILÁGYI	395
<hr/>	
<i>Early Copper Age settlement patterns in the Middle Tisza Region</i>	
Botond REZI	403
<hr/>	
<i>Hoarding practices in Central Transylvania in the Late Bronze Age</i>	

Éva ĎURKOVIČ	417
<hr/>	
<i>The settlement structure of the North-Western part of the Carpathian Basin during the middle and late Early Iron Age. The Early Iron Age settlement at Győr-Ménfőcsanak (Hungary, Győr-Moson-Sopron county)</i>	
Piroska MAGYAR-HÁRSHEGYI	427
<hr/>	
<i>The trade of Pannonia in the light of amphorae (1st – 4th century AD)</i>	
Péter VAMOS	439
<hr/>	
<i>Pottery industry of the Aquincum military town</i>	
Eszter Soós	449
<hr/>	
<i>Settlement history of the Hernád Valley in the 1<sup>st</sup> to 4/5<sup>th</sup> centuries AD</i>	
Gábor András SZÖRÉNYI	467
<hr/>	
<i>Archaeological research of the Hussite castles in the Sajó Valley</i>	

## BOOK REVIEWS

Linda DOBOSI	477
<hr/>	
<i>Marder, T. A. – Wilson Jones, M.: The Pantheon: From Antiquity to the Present. Cambridge University Press. Cambridge 2015. Pp. xix + 471, 24 coloured plates and 165 figures. ISBN 978-0-521-80932-0</i>	

# 6<sup>th</sup> century ivory game pieces from Mosonszentjános

ISTVÁN KONCZ

*Institute of Archaeological Sciences*  
*Eötvös Loránd University*  
fredgar22@gmail.com

ZSUZSANNA TÓTH

*Institute of Archaeological Sciences*  
*Eötvös Loránd University*  
zsuzsanna.toth11@gmail.com

---

## **Abstract**

*The game pieces found at the site of Mosonszentjános-Homokbánya (Győr-Moson-Sopron County, Hungary) are unique to the 6<sup>th</sup> century Carpathian Basin in respect of their design and choice of material. Although only a few close parallels are known from England and Italy, many gaming sets were found in prominent burials across Europe from the 6–7<sup>th</sup> century. The context of the artefacts and their craftsmanship presume that the game pieces of Mosonszentjános were of high value, which is in line with the image of the members of the elite being fond of board games that can be perceived from written sources. The game set is probably not complete, therefore only indirectly and based on the various sized and differently painted pieces can we make assumptions on the nature of games that were played.*

---

"In their dwellings at peace  
they played at tables,  
Of gold no lack  
did the gods then know."

*Völuspá* 8.

## **The site**

In 1965 a grave dating to the 6<sup>th</sup> century (labelled as 12)<sup>1</sup> was discovered during mining works on the periphery of Mosonszentjános (today known as Jánossomorja, Győr-Moson-Sopron County) 40 meters from the already known Avar period cemetery. A significant part of the grave was destroyed but thanks to Rezső Pusztai who was at the site, part of the finds could be saved. In 1967, an additional grave dating to the 6<sup>th</sup> century (labelled as 13) was found in the gravel quarry, which unfortunately was likewise severely damaged due to the exploitation. With the lead of Rezső Pusztai the remaining part of the burial was excavated during which another grave was also revealed (labelled as 14). While graves 12 and 13 were inhumation burials according to the finds (artefacts and human remains), grave 14 contained animal bones.

The exact location of the game pieces that were found in the firstly discovered grave 12 cannot be reconstructed. Although the burial place was not disturbed in contemporary times based on the observations, the mining destroyed two-thirds of the grave. Out of the ten known game pieces only seven are directly from the burial, the remaining three were obtained by Rezső Pusztai from the son of the mine's warden.

1 The numbering of the graves is continuous with the nearby Avar period cemetery. The research was granted by the National Research, Development and Innovation Office (NKFIH), *Mobility and Population Transformation in the Carpathian Basin of the 5th to 7th Century A.D. Changing Societies and Identities*, decision number: OTKA NN 113157.

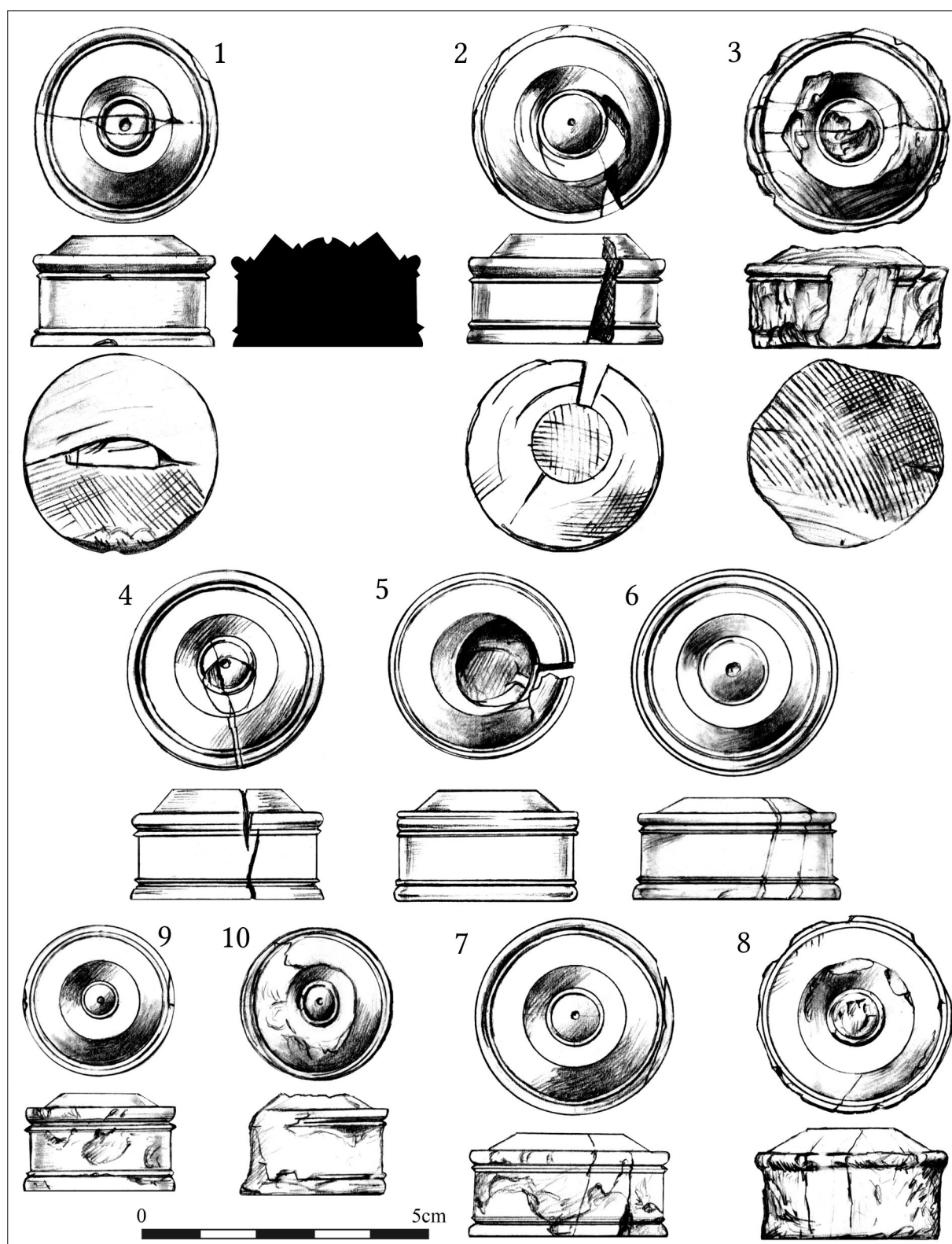


Fig. 1. The game pieces from Mosonszentjános grave 12. 1: 66.5.23.5; 2: 66.5.23.8; 3: 66.5.23.7; 4: 66.5.23.6; 5: 66.5.23.4; 6: 66.5.23.2; 7: 66.5.23.1; 8: 66.5.23.3; 9: 66.5.24.1; 10: 66.5.24.2 (Drawing: Katalin Nagy).

The pieces recovered from the grave were scattered, primarily located around the right femur of the deceased and alongside the missing lower leg. One of the pieces was lying on the outer side of the left thighbone. This part of the burial was the least damaged compared to the torso which was completely destroyed, but only the left lower and upper, and the right lower leg



remained *in situ*. Based on their location it cannot be ruled out that originally the game pieces were placed in the grave in a sac or a pouch made of some kind of organic material,<sup>2</sup> and consequently they got scattered because of the disturbance of the grave.

## The game pieces

The form and the decoration of the ten game pieces are uniform.<sup>3</sup> The sides of the disc-shaped objects are decorated with a contoured rib ornament at their upper and lower rims. Their bottom is straight, their top beyond the rib of the upper rim has the form of a truncated cone which is indented in the middle. Out of the indentation, a quarter sphere emerges which is pierced in the middle. Considering their size two groups can be distinguished. The first group consists of eight bigger counters; their heights vary between 1.3–1.4 cm and their diameters between 2.6–2.8 cm. The remaining two smaller pieces have similar heights; between 1.2–1.3 cm, while their diameters are only 2 cm (*Fig. 1–2*).<sup>4</sup>

We considered our principle task to be the inspection and the verification of the earlier classification of the raw material, and if it was needed, the correction as well. As expected, we managed to confirm the validity of the previous observation without doubt. Even under low magnification on all the examined objects the Schreger lines were well visible, which proves that the discs were made of ivory (*Fig. 3*). Although the observation of the Schreger lines does not make it possible to identify the exact elephant species (*Loxodonta africana* Blumenbach, 1797; or *Elephas maximus* L. 1758) the size of the included angles of the Schreger lines allows us to decide whether the tusk of a today living species or the fossil tusk of the extinct woolly mammoth (*Mammuthus primigenius* Blumenbach 1799) provided the raw material of the objects. Our artefacts in all cases gave values that are typical for species living today,<sup>5</sup> thus we can exclude the utilisations of fossil materials.

In addition, we sought to gain knowledge on the production of the game pieces. It is essential to observe the objects under different magnifications, a technique which allows us to perceive and identify the signs of the different stages of production, thus in the end enabling us to reconstruct the whole process.

- 2 This can be observed in multiple cases during this period, for example: The 57 game pieces and dices made of bone found in the 'princely grave' of Prittlewell (UK) dated to the first half of the 7<sup>th</sup> century were probably preserved thanks to the stachel they were contained in (BLACKMORE 2008, 332). In the 7<sup>th</sup> century burial of Eschwege (Germany) 24 game pieces were found together with a small buckle, iron knife, scissors and whetstone – the contents of the pouch (SIPPEL 1987, 145). From grave 11 of the similarly dated cemetery of Speyer-Germansberg (Germany) three flat game discs came to light with small buckles, iron knife and bone buttons again as probable contents of a pouch (KAISER 1969, 183, Taf. 4).
- 3 For the study of the objects we have chosen optical microscopy as a completely non-invasive and non-destructive method. The examination was made at the Archaeometry Laboratory of the Institute of Archaeological Sciences at Eötvös Loránd University with a Zeiss SteREO Discovery.V8 zoom stereomicroscope (6.3–80x). Picture documentation and micro photographs in this paper were made by Zsuzsanna Tóth with the imaging system of the microscope (Camera : ZEISS AxioCam MRc5; Software: ZEISS AxioVision version 4.9.1; Extended focus system: Helicon Focus version 6.0). The Laboratory was founded with the help of the project KMOP-4.2.1/B-10-2011-0002: *Interdisciplinary, innovative research directions and development of infrastructure for industrial cooperation and the introduction of new educational technologies at ELTE*.
- 4 About the exact size and weight of the pieces in detail see the appendix.
- 5 DRAUSCHKE –BANERJEE 2007, 115–118. Regarding the game pieces the certain identification whether they were made of the inner (S1) or outer (S2) part of the elephant tusk is impossible. The measurement of the angle of the Schreger lines can lead us to misconclusions in connection with specific species, because the angle is smaller at the inner part of the tusk than the angles of the outer part.

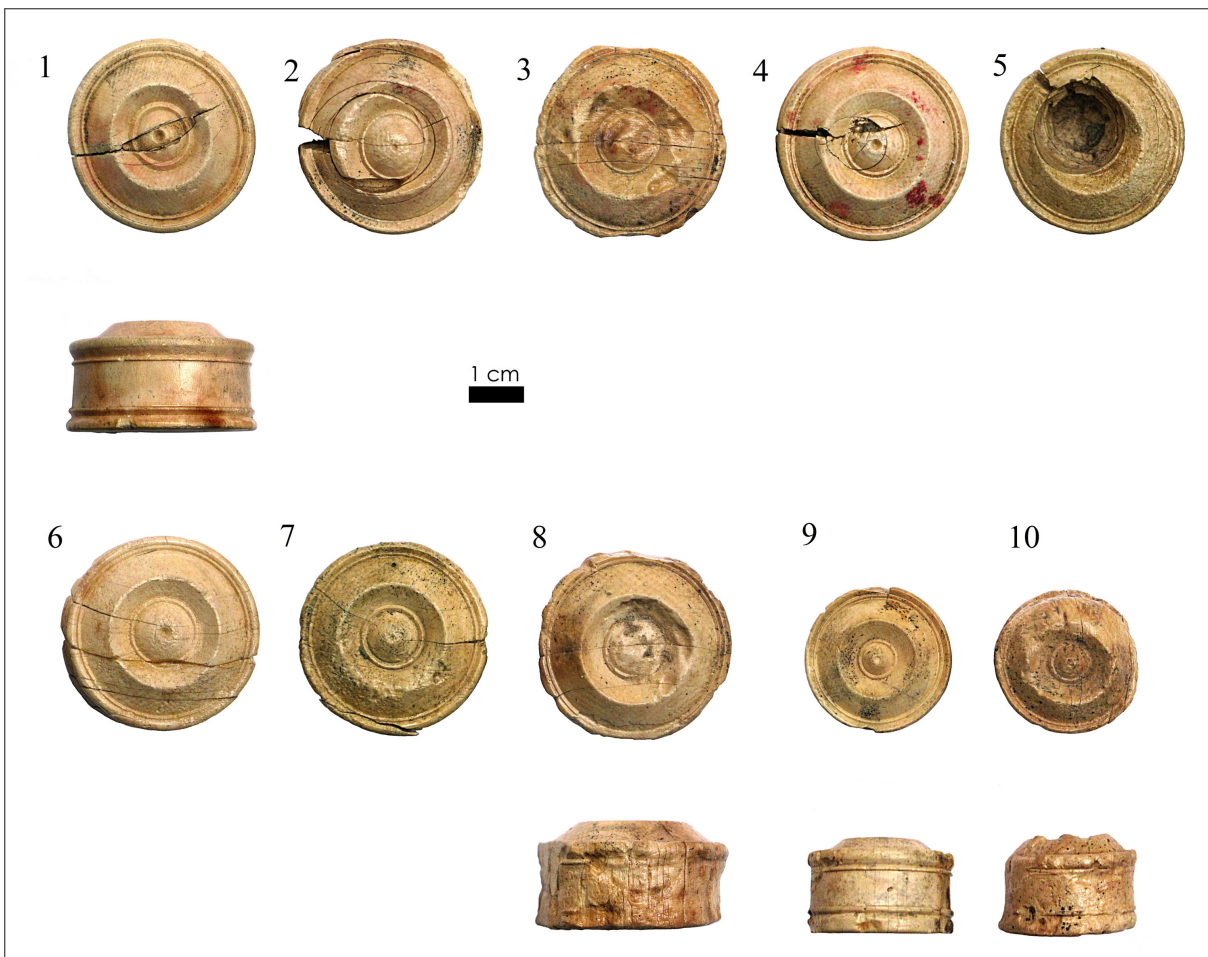


Fig. 2. The game pieces from Mosonszentjános grave 12. 1: 66.5.23.5; 2: 66.5.23.8; 3: 66.5.23.7; 4: 66.5.23.6; 5: 66.5.23.4; 6: 66.5.23.2; 7: 66.5.23.1; 8: 66.5.23.3; 9: 66.5.24.1; 10: 66.5.24.2 (Photo: András Király).

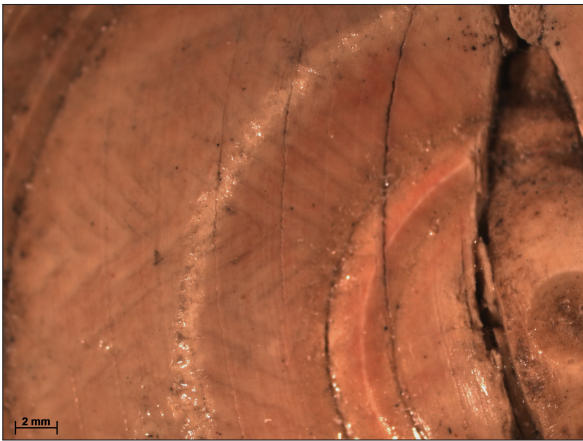


Fig. 3. The visible Schreger lines on one of the game pieces.

We established that all of the game pieces, irrespectively of their condition and size were produced with the same technique. They are very similar to each other, presumably they were created in the same workshop. On the surfaces of the objects there are no signs that could shed light on the primary processing technique of the tusk. All of the pieces are smooth, the pattern of the Schreger lines of the tusk's orthogonal cross section is adequate, thus we can confidently determine that the processing started by transversely slicing up the material. Unfortunately, we cannot say without doubt what technique was used in this regard, but the

smoothness of the surface suggests that sawing took place with a sharp tool. Furthermore, we lack knowledge on how the ivory slices were cut into smaller pieces, and eventually formed into discs.

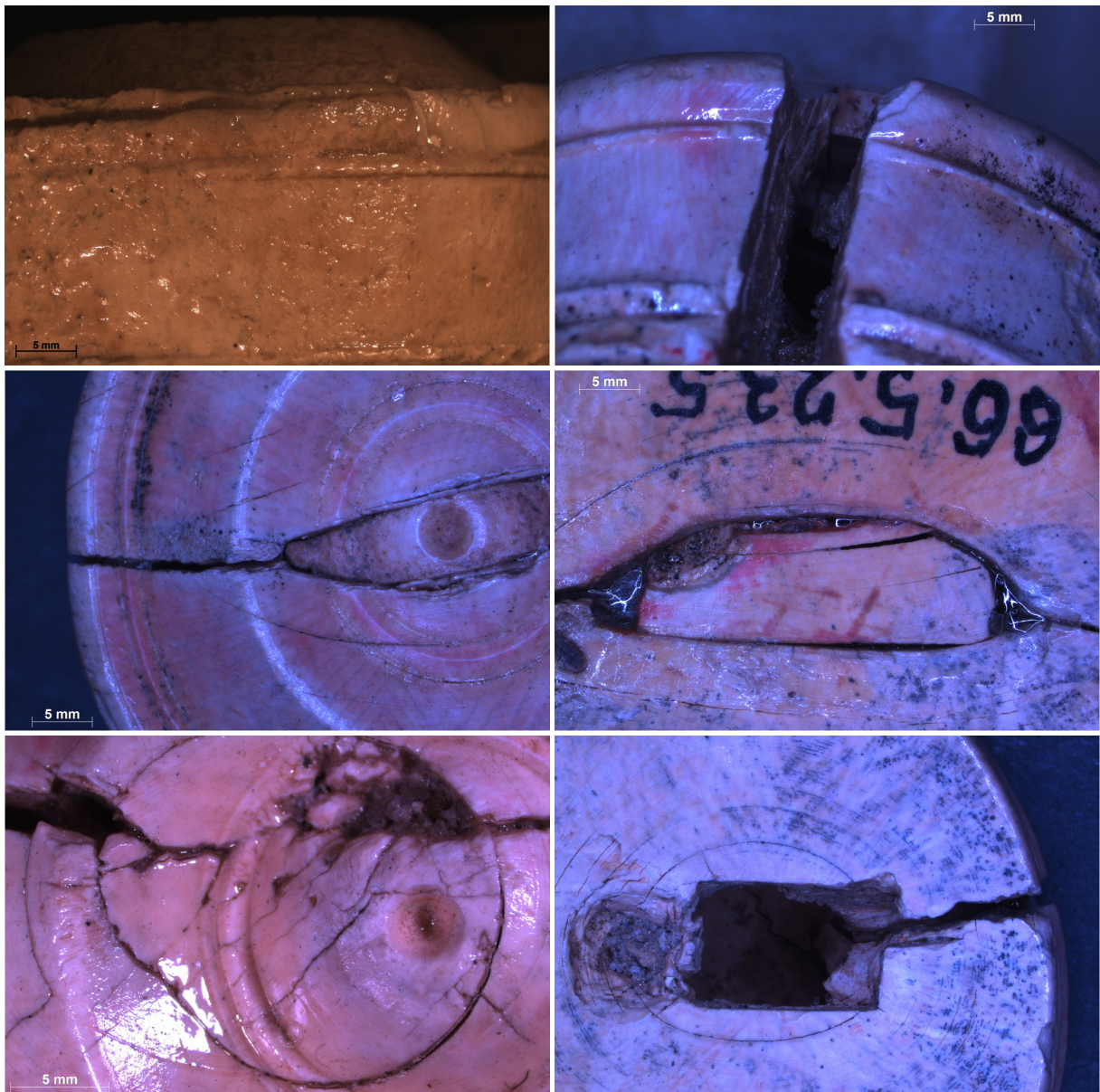


Fig. 4. Signs and traces of the production.

The discs were complemented if necessary with parts of ivory to cover or wedge the nerve-canal. The finished objects do not reveal more, and no production waste was preserved. The shaping of the objects was continued on a lathe, where the discs' basic form and their ornamentation were developed. Traces of the turning can be observed on the objects only in a few instances, apparently in the scope of additional processing the surface was smoothen and the final form was reached by polishing. The most notable sign of the lathe work is the middle indenture that can be observed on the top of the discs in the sphere segment. The indenture is a typical sign of where the object was fixed to the lathe. The pierced hole show well visible concentric circles, but presumably the marks were not removed because they were also seen as ornaments. This explanation is strengthened by the fact that their parallels on the bottom of the discs were worked off (only on two objects the traces of the bottom fixing remained, see 66.5.23.6 (Fig. 4, bottom right) and 66.5.23.8). The symmetrical form of the discs and the even thickness of the decorating contoured ribs suggest that indeed turning took place and it was performed in a

rather thoughtful way, which by the way does not come as a surprise because the material was very valuable and were used for objects of high prestige. This is slightly contradicted by a flaw that was made on one of the discs (66.5.23.4) (*Fig. 4, top left*). On the object in question a second line can be observed on one of the sides of the upper rib, the error was corrected with a shift in the object's axis but in the end, was not removed. Although we are talking about prestige materials and objects, it seems that perfection was not always sought, objects with minor flaws were not discarded, they were used the same way as the other ones. During the examination, we came across with pieces that were repaired by wedging (as plugs were used to fill in the holes). In this regard the question arises as to whether these objects were damaged during use, and consequently got repaired or the section of the tusk was utilised where the nerve-canal ran, and therefore the ivory had to be supplemented. In our opinion the later assumption is correct. Concerning piece 66.5.23.4 the filling is missing from its bottom thus it is visible that the material is cavernous (*Fig. 4, top right*). In contrast piece 66.5.23.5 has a peg wedged in its middle with the width of a grain of rice. The plug goes through the whole object and does not fit perfectly to its bottom (*Fig. 4, center left and right*). The material of the plug is from a completely different part of the tusk; the cracks also differ from the cracks that can be observed elsewhere on the object. In this case the object was probably repaired. On the bottom of disc 66.5.23.6 a rectangular gap can be seen, which must be intentional (*Fig. 4, bottom left and right*). The gap was either not filled or the filling got lost.

The existence of flawed, repaired and spoiled objects makes us wonder how prestigious ivory was as a raw material after all. We can conclude that the material which was hard to obtain surely held a high value, and this is the reason why the section of the tusk where the nerve canal ran was also used. Furthermore, the ivory that was damaged during the production was likewise repaired, and in the end the slightly faulty objects were also kept. It is possible that minor flaws were less visible in their original state than today. The neat polishing of the surface made the replacements hardly visible, but painting or other substance that perished over the years could have covered the imperfections, thus the objects could have seemed perfectly intact. In addition, we cannot exclude the possibility that minor flaws were acceptable and did not decrease the value of the objects.

Similar items to the discussed game pieces are known from England and not from the Carpathian Basin. From the site of Lyminge (UK) a very similar piece of ivory game piece was recovered.<sup>6</sup> The object was found on the floor level of a longhouse, which can be considered as an example of elite residencies of the 7<sup>th</sup> century (Yeavinger, etc.) based on its measures and design.<sup>7</sup> The upper side of the disc was identically ornamented even though the production technique was different. While the pieces from Mosonszentjános were solely made of ivory, the find from Lyminge has a bronze rivet in the middle, but it is also decorated with a pierced hole (*Fig. 5*). On the side of disc found at Lyminge the contoured rib ornament cannot be observed as on the finds from Mosonszentjános. From England, further game pieces are known that were made with a lathe.

6 We would like to thank Gabor Thomas (University of Reading) for the help.

7 THOMAS et al. 2016, 744–745.



Fig. 5. Game piece from Lyminge, Kent (UK) (Reproduced with kind permission of Gabor Thomas, University of Reading).

For example, the Taplow burial contained nine whole game pieces which were made of antler.<sup>8</sup> These are hollow tubes capped at either end by discs held in position by bronze rivets. Based on their position in the grave it is possible that the pieces were placed on a board or in some kind of case located at the leg of the deceased.<sup>9</sup> A very similar gaming set made of antler<sup>10</sup> was found at the site of Cividale Santo Stefano 'in Pertica' in grave 24.<sup>11</sup> The profile turned discs are likewise contoured, their upper sides are similar to the finds of Mosonszentjános, but the ribs from the sides are missing.<sup>12</sup> Altogether 24 pieces were recovered and in respect of their design they can be divided into three groups; the first containing 12 pieces and the second and the third containing 6–6 pieces each.<sup>13</sup> Although the grave was disturbed in contemporary times<sup>14</sup> the pieces remained in one heap around the lower leg. Probably they were placed there in some kind of organic sack. Further game pieces made of ivory and produced with a lathe were discovered in grave A of Cividale 'Gallo'.<sup>15</sup> Their production quality is inferior to the pieces found at the sites of Lyminge, Cividale 'in Pertica' or Mosonszentjános.

Most of them are heavily worn but the circular decoration encompassing the quarter sphere on the upper side is still visible.<sup>16</sup> Altogether 18 game pieces were recovered, which can be divided into two groups considering their build, similarly to the set found at Santo Stefano in Pertica: the first consisting of 12, while the second of 6 pieces.<sup>17</sup> Unfortunately, due to the lack of grave plan, the reconstruction of the location of the game pieces is not possible. Both of the burials and the cemeteries themselves can be dated to the beginning of the Lombard period in Italy, between the end of the 6<sup>th</sup> and the beginning of the 7<sup>th</sup> century (Fig. 6–7).<sup>18</sup>

8 STEVENS 1884, 65; WEBSTER 2007, 70–71.

9 <http://culturalinstitute.britishmuseum.org/asset-viewer/set-of-gaming-pieces/dAGphnI8o2yyiw?hl=en> (2016.11.14.)

10 In literature it is also described as ivory (STAUCH 1994, 66), but these are made of antler. BROZZI 1993, 262; AHUMADA SILVA 1990, 50.

11 Beside the game pieces also dices and fragments of a game board(?) came to light: AHUMADA SILVA 1990, 50–51.

12 AHUMADA SILVA 1990, Fig 32, Tav. 21.

13 STAUCH 1994, 66.

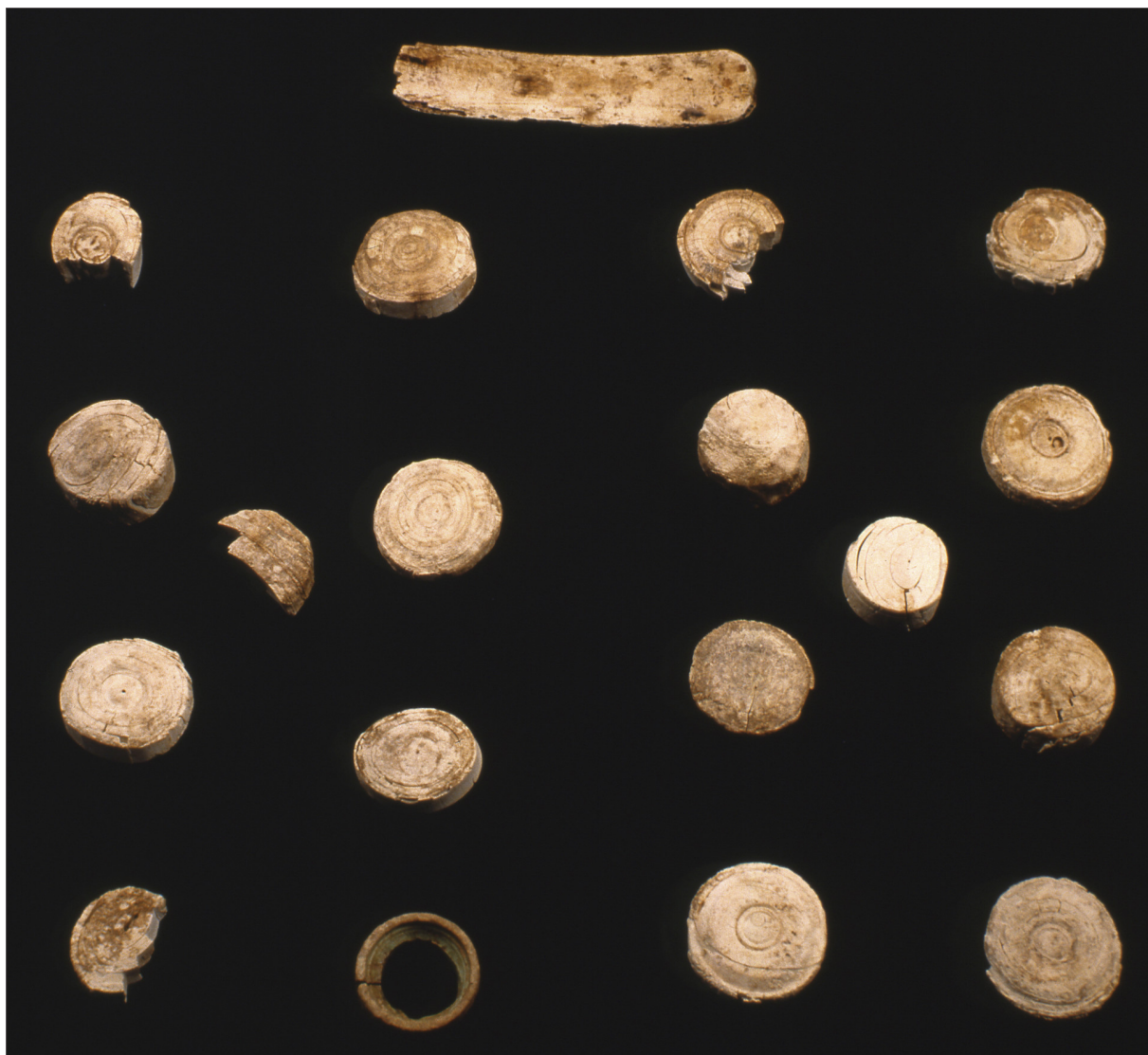
14 The grave is heavily disturbed, no parts of the skeleton remained in its anthropological position. AHUMADA SILVA 1990, Tav. 13.

15 BROZZI 1970, 102–103.

16 Some of the pieces could be undecorated. STAUCH 1994, 63.

17 STAUCH 1994, 66.

18 BROZZI 1993, 261; AHUMADA SILVA 2001, 324–327.



*Fig. 6–7. Game pieces from grave 24 (above) and grave A (below) in Cividale 'Gallo' (The pieces are conserved in Museo Archeologico Nazionale di Cividale del Friuli. The pictures are used with permission of Ministero dei beni e delle attività culturali e del turismo, Polo Museale del Friuli Venezia Giulia).*

In the Carpathian Basin, at Kölked-Feketekapu cemetery A in grave 539 an additional game piece made of ivory was found.<sup>19</sup> The grave can be dated to the middle of the 7<sup>th</sup> century.<sup>20</sup> Only one figure, which had a rounded cone-shape and was perforated in the middle was recovered. Similarly, the cemetery of Daruszentmiklós can be dated to the 7<sup>th</sup> century as well, where a carved cylinder made of antler was discovered.<sup>21</sup> The upper side of the disc is decorated with three concentric convex circles and two punched dot motifs.<sup>22</sup> The object was without doubt placed in the pouch of the deceased.

Grave 12 of Mosonszentjános can be dated to the second part of the 6<sup>th</sup> century based on a pair of buckles that was found at the site. This means that the finds came from the same period as the artefacts from the site of Lyminge, but the similarity is especially salient in connection with the finds from Cividale, which were buried sometime between the end of the 6<sup>th</sup> and the beginning of the 7<sup>th</sup> century. According to Eva Stauch the shape has Roman origins.<sup>23</sup> A significant group of Roman game pieces made of bone or antler has the characteristics of being produced on a lathe and on their upper side being decorated with concentric circles, cuttings or some of them even have a stepped form. In addition, similarly to the pieces of Mosonszentjános the pierced hole in the middle is present, which clearly proves their way of production.<sup>24</sup> Although their diameter is smaller, their form is truly the predecessor of game pieces of the 6<sup>th</sup> century.

Right at the beginning the first survey of the objects made it apparent that the pieces can be divided into two groups. The first group consists of well-preserved, bright, yellowish-white, ivory colour objects. The surface is mostly intact, only a few cracks can be observed. In contrast the second group consists of darker, yellowish-brown heavily cracked objects. Taphonomy could provide an answer for this phenomenon but unfortunately we have insufficient data to give an adequate explanation, only assumptions can be made. In our opinion the objects after being buried lay in different microenvironments, which must have caused the well visible difference in their appearance.

Our goal was also to determine whether the well visible red and black discolorations on the surface are the remnants of former paintwork or it should be explained by taphonomy. Although the examination of the objects' condition, their decomposition and the human interference with the material were not initially among our aims, after all seemed rather important. In conclusion, the 10 game pieces were restored with the intent of preservation. In doing so the shattered discs were glued together and the surface was coated with a thick layer of gloss varnish, which limited the scope of our research. All the debris that was not removed before applying the coat is now trapped under the glaze, which made it difficult to separate the pigments of the painting from the particles sticking to the surface of the objects. Due to the coating, it was not possible to examine the fine details of the production and the traces of the utilisation of the objects.

19 Kiss 1996, 142–143, Taf. 94–95.

20 The burial is dated to the earliest phase of the cemetery, so between the end of the 6<sup>th</sup> and last third of the 7<sup>th</sup> century by Attila Kiss. (Kiss 1996, 284–285) Phase 5 by Zsuzsa Hajnal, third quarter of the 7<sup>th</sup> century. HAJNAL 2012, 630.

21 SZENTHE 2009, 178–179.

22 BÁRÁNY 2014, 401.

23 STAUCH 1994, 66.

24 Kenyon B types: KENYON 1948, 266–267; HOLLIGER–HOLLIGER 1983, 8–9.

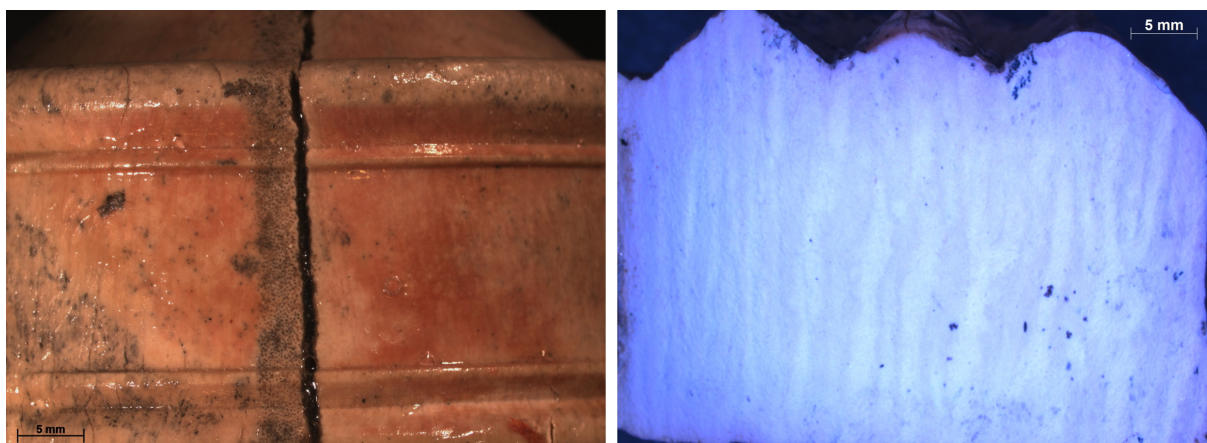


Fig. 8. Traces of black discoloration on game pieces from Mosonszentjános.

The optical analysis of the objects revealed that irrespectively of their size and condition all the discs have black and in less extent, red discolorations. The colour black in most of the time appears without a pattern therefore the spots must have stuck to the surface from the ground after being buried. Our assumption was validated by the analysis of one of the broken objects (66.5.24.2) (Fig. 8). Spotted black discoloration is observable on the surface of the crack, which means that it cannot be the result of former painting. However, our observation suggests that in certain cases indeed the discs were painted (Fig. 9). To verify the paintwork on the objects we used the methods of natural sciences, which in the end proved that the red marks on the ivory game pieces are from natural organic colourant, while the base material of the black mark is iron oxide. This means that the black marks probably appeared because of taphonomic processes.<sup>25</sup> To determine the composition of the red paint further analysis must be performed (Fig 9).<sup>26</sup>

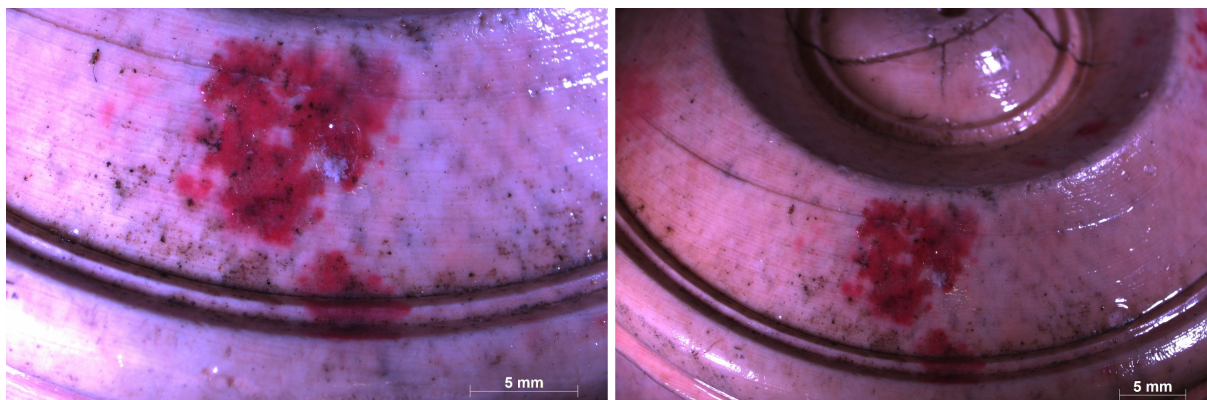


Fig. 9. Traces of red paint on a game piece from Mosonszentjános.

25 The analysis was performed by Judit Sándorné Kovács (Hungarian Institute for Forensic Sciences, Budapest). Fourier Transform Infrared Spectroscopy (FTIR) and Raman spectroscopy were used for the analysis. The FTIR measurements were carried out on a Vertex 70 - HYPERION 2000 FTIR spectrophotometer with MCT detector, where the spectral resolution was 4 cm<sup>-1</sup> and the wavelength range was between 4000-400 cm<sup>-1</sup>. With Raman Spectroscopy we gained the Raman spectra of the same samples *in situ*. The Raman Spectroscopy measurements were carried out with a HORIBA Jobin Yvon Lab-Ram ARAMIS dispersive Raman Spectroscopie with inducing lasers with the wavelength of 532, 633 and 785 nm, applying a 3000 1/mm cell.

26 Game pieces painted red are known from the Ludgershall Castle (UK) dated to the 12<sup>th</sup> century. Related to these objects Arthur MacGregor draws attention to the diverse – of different animal and vegetable origin – methods used to paint red during the historical periods. MACGREGOR 1985, 67–70; MACGREGOR 2000, 160–168.



## What did they play?

Besides the archaeological finds, our most important source on board games are the written sources. Although dice games had already appeared in the works of Tacitus<sup>27</sup> we know very little about their rules, but nonetheless we are aware that they required luck, but some of them also practice and skills.<sup>28</sup>

The most known game from written sources is the *hnefatafl*.<sup>29</sup> It is played on a board similar to chess<sup>30</sup> by two players, one of them took the offensive while the other the defensive position. The pieces were divided in 2:1 ratio among the players in favour of the attacker, but the player in defensive position received a special piece called the *hnefi*, which is mostly translated by ‘the first’ or the ‘the king’.<sup>31</sup> The goal of the game is to capture the king or alternatively to avoid the capture. Strategy board games as draughts, backgammon, Nine Men’s Morris or the not well known *Ludus latruncolorum* got spread beyond the borders of the Roman Empire due to its influence.<sup>32</sup> Possibly these games had an impact on the development of the predecessors of *hnefatafl* or its variations, which later became widely known in Western and Northern Europe during the 8<sup>th</sup>–9<sup>th</sup> century.

Most of the board games required to have at least two sets of different pieces distinguishable by colour, form or size. The set found at the site of Mosonszentjános cannot be considered as a full kit due to the circumstances of the recovery, but two different groups of pieces are well observable based on their size. Another distinction is their colouring, the ivory and red game pieces also suggest two opposing or at least distinct teams. We can make assumption on the nature and the rules of the game based on the build and distinctions of the pieces and the design of the board. However, we have to take into consideration that the set could be suitable for playing multiple games, therefore it is possible the distinct pieces in size and colour were not used altogether for one type of game. The build of the sets that were found in the cemeteries of Cividale resembles the 2:1 division of *hnefatafl*, but we cannot make that assumption for the set of Mosonszentjános as it is fragmented and not complete.

## Who played these games?

The words of the fortune-teller at the beginning of the article suggests that playing board games is worthy of the Gods.<sup>33</sup> The written sources mostly mention board games only in connection with the elite, but probably this is not the full picture as the sources in question are not interested in

27 Tacitus, *Germania* 24.

28 The description by Tacitus emphasize the first, but in the Orkneyinga saga at the appreciation of Earl Rognvald, playing board games appear as a familiar skill to rowing, reading or the understanding of the runes. Orkneyinga saga, The Story of Earl Rognvald 61.

29 BAUCHHENSSE et al. 1978, 458. In detail: HELMFRID 2005.

30 Game board and game pieces came to light from Mound 8 at Valsgärde (ARWIDDSON 1954, 93–94, Taf. 27), but also Mound 6 and 7 contained artefacts connected to board games: fragments of a game board, a dice and 63 game pieces from the former (ARWIDDSON 1942, 83–85, Taf. 37), and three dice and 36 game pieces made of stone and bone from the latter. (ARWIDDSON 1977, 79–80, Taf. 27) The burials are dated to the end of the 6<sup>th</sup>, beginning of the 7<sup>th</sup> century. ARRHENIUS 1983, 44.

31 HELMFRID 2005, 1.

32 HOLLIGER – HOLLIGER 1983, 17–22; STAUCH 1994, 54–55.

33 *Völuspá* 8. Translation by Henry Adams Bellow.

the daily life of the common people. According to Tacitus dice games were famous in all segments of society: *What is marvellous, playing at dice is one of their most serious employments; and even sober, they are gamesters: nay, so desperately do they venture upon the chance of winning or losing, that when their whole substance is played away, they stake their liberty and their persons upon one and the last throw.*<sup>34</sup> The game can be played by either man or woman, for the former there are numerous examples, while for the later probably the most telling example can be found in the accounts of Gregory of Tours, who in connection with the disturbing conditions in the Abbey of the Holy Cross at Poitiers informs us about the accusations against the abbess: *...In answer they asserted that they could not endure any longer the risk of starvation, nakedness, and above all of beating; and they added also that several men had bathed in their bath contrary to decency, and that the abbess played games, and that worldly persons dined with her, and that a betrothal had actually taken place in the monastery; that she had impiously made a dress for her niece out of a silk altar cloth, and that she had frivolously taken the golden leaves which were on the border of the altar cloth and sinfully hung them about her niece's neck; and she had made a fillet with gold ornaments for her niece without any need for it, and that she had a masquerade in the monastery....*<sup>35</sup> Thus the game was mentioned along with misdemeanours which were seen more severe at time such as the misuse of the silk altar cloth or organising a masquerade ball in the monastery. The abbess' reply is likewise interesting: *...As to the games she played, she answered that she had played when lady Radegunda was alive and it was not regarded as a sin, and she said that neither in the rule nor the canons was there any reference in writing to their prohibition....*<sup>36</sup> Consequently, playing with the games is not a sin, but at the same time it becomes clear that playing can be mentioned in both a positive (e.g. in the appraisal of Earl Rognvald<sup>37</sup>) and a negative context. Besides the case of the abbess, another example is Paulus the Deacon's description on Rodulf, the Herul king who was so confident that his army is going to be victorious against the Lombards that he remained in the camp to play board games.<sup>38</sup>

The archaeological finds paint a similar picture to the written sources (*Fig. 10*). Most of the gaming sets that are presented in the article are from rather wealthy and aristocratic burials. The burials of Taplow and Prittlewell are prominent sites of the Anglo-Saxons in England with their build, finds, imported artefacts (including sometimes even the game pieces!) and widespread cultural network.<sup>39</sup> Similarly, the three ship burials of Valsgärde belong to the most powerful members of the elite at the time.<sup>40</sup> Although the game disc of Lyminge was not found in a grave, based on its surroundings we can safely link it to the elite as well.<sup>41</sup> In Northern Europe and England during the 6–8<sup>th</sup> century it can be established that wealth, being member of the elite and possession of games were related, but meanwhile it seems that the pieces are almost exclusive to male burials.<sup>42</sup>

34 Tacitus, *Germania* 24. Translated by Thomas Gordon.

35 Gregory of Tours, *Historia francorum* X, 16. Translated by Earnest Brehaut.

36 Gregory of Tours, *Historia francorum* X, 16. Translated by Earnest Brehaut.

37 For more details see note 25.

38 Paulus Diaconus, *Historia Langobardorum* XX:3

39 Taplow: SCULL 2011, 855–856; Prittlewell: BLACKMORE 2008, 333–336.

40 For more details see note 30.

41 THOMAS et al 2016, 744–745.

42 WHITTAKER 2006, 104–106. The situation is similar in the Viking period as well as shown by Mark A. Hall, who also argues for the connection between board games and elite (or warrior) lifestyle. HALL 2016, 440.

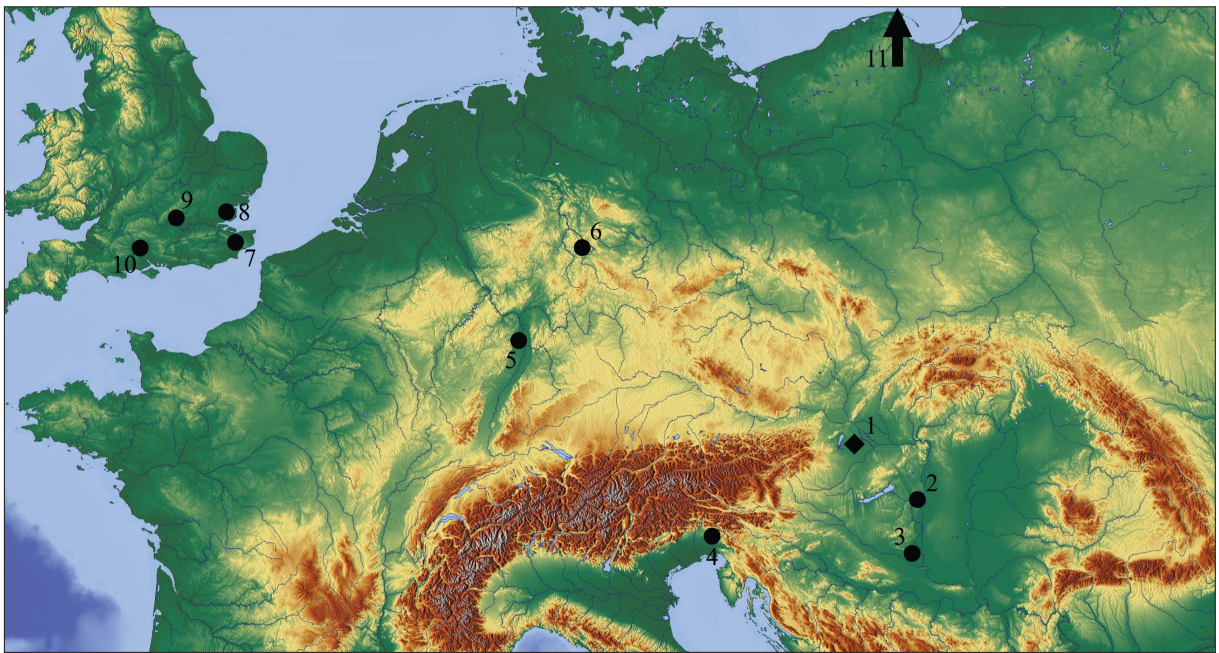


Fig. 10. Distribution of game pieces and game sets mentioned in the paper: 1. Mosonszentjános (Hungary); 2. Daruszentmiklós (Hungary); 3. Kölked-Feketekapu (Hungary); 4. Cividale (Italy); 5. Speyer-Germansberg (Germany); 6. Eschwege (Germany); 7. Lyminge (UK); 8. Prittlewell (UK); 9. Taplow (UK); 10. Ludgershall (UK); 11. Valsgärde (Sweden).

Although the two burials from Cividale, where the gaming sets were found are not as outstanding as the examples mentioned so far, they can be likewise considered as wealthy burials. From grave 24 of the site of Cividale Santo Stefano ‘in Pertica’ among other pieces a bronze bowl, a damascened belt and a golden foil cross were found alongside the deceased male and his full armour (spatha, umbo, spear and axe).<sup>43</sup> In grave A of Cividale ‘Gallo’ also an adult male was buried with his weapons, mounted belt and golden foil cross. Besides the rich finds the fact that the grave is the deepest in the cemetery could tell us something about his social status.<sup>44</sup> Unfortunately, it is not possible to conduct a full survey of grave 12 of Mosonszentjános due the circumstances how it was found, but if we assess the whole site it can be said that the cemetery consisting of three graves is a prominent site of the 6<sup>th</sup> century Carpathian Basin. This would mean that it fits into the line of the mentioned foreign examples.

Playing is not crucial to life and it is not an activity which is essential for communities, not productive, but rather it is an end in itself and performed for joy. Therefore, it is mostly the privilege of those who can spare time for it. In this regard spending time to play is a representation itself meaning that one can afford to engage in such an activity. Thorstein Veblen coined the term ‘conspicuous leisure’ to describe forms of leisure that represents social status, which is by the way present in every community where hierarchy exists.<sup>45</sup> These activities are performed not just for personal joy, sometimes they are exaggerated and ostentatious – but in the case of board games the later is only relevant in connection with Rodulf and the abess who allowed themselves to play in situations where it was indecent and they were expected

43 AHUMADA SILVA 1990, 43–59, Tav. XIII–XXIII.

44 BROZZI 1970, 102–103.

45 VEBLEN 1934, 35–67. Reference to ‘conspicuous leisure’ related to board games appeared already: WHITTAKER 2006, 103.

to act differently. In conclusion, the gaming sets directly or indirectly could signal the social status of the deceased.

The material and the workmanship of the game pieces of Madoszentjános is paramount. For example, in the grave of Prittlewell simple, hemispherical game pieces were found which are very similar to the pieces recovered from the ship-burial of Valsgärde. They were made of antler or bone, not ivory. Consequently, it can be said that even a rich burial can contain simple game pieces. In this light the set found at Madoszentjános must be seen as a status-symbol or at least treated as an indication of wealth.

From grave 8 of Lužice alongside the deceased male, 58 pieces of flat river pebble stones came to light which could have been game pieces as well.<sup>46</sup> The stones were scattered around the head and the neck of the deceased. Probably the pieces ended up there when the corpse was disturbed at his chest and left arm. Although the grave contained weaponry, a spear, the finds and the grave itself do not suggest that the owner had a high social status. The pebble stones show that for playing they even used the simplest, most common objects. Presumably board games were widely spread in all strata of society, they were played by both the rich and the poor. The difference can be seen in what kind of games they played and with what objects.

Therefore, placing full game sets or at least multiple pieces in graves can be partly explained by the need to represent the status of the deceased in society, but in the meantime, we cannot exclude the possibility that the deceased just wanted to continue his beloved leisure activity in the afterlife. Symbolically speaking, based on the principle of *pars pro toto* a single game piece can represent the whole set, thus symbolise pleasure. In addition, it is likewise possible that they were buried as amulets to bring good luck in the afterlife or during the journey.<sup>47</sup>

## Catalogue of the game pieces

The form and the decoration of the ten game pieces are uniform. The sides of the disc-shaped objects are decorated with a contoured rib ornament at their upper and lower rims. Their bottom is straight, their top beyond the rib of the upper rim has the form of a truncated cone which is indented in the middle. Out of the indentation, a quarter sphere emerges which is pierced in the middle.

Based on their size two groups can be distinguished. The heights of the eight bigger pieces vary between 1.3–1.4 cm and their diameters between 2.6–2.8 cm. The reason why the cross section of disc 66.5.23.5 greatly differs is the suffered damage. The height of the two smaller pieces is almost similar to the larger ones: 1.2–1.3 cm, but their diameters are only 2 cm. The height and diameter of object 66.5.24.2 are influenced by its severe deterioration.

46 KLANICA – KLANICOVÁ 2011, 231, Taf. 32.

47 A link between board games and death can be observed in different cultures. In Egypt the *Senet* is not only connected to good luck, but to the underworld itself and got a religious significance. (PICCIONE 1980) The Chinese *liubo* is not a single game, but a way to communicate with the spirits and foretell the future. (RÖLLICKE 1999, 32) An interesting connection also exists between board games and boat burials in the Viking period. (HALL 2016) One interpretation of checkmate is that it originates from the term 'the king is dead'. For other examples in detail about the connection of board games, life and death, see: WHITTAKER 2004.

ID	weight (g)	diameter (cm)	height (cm)
66.5.23.1	19.5	2.8	1.3
66.5.23.2	21.9	2.8	1.3
66.5.23.3	18.3	2.7	1.3
66.5.23.4	15.9	2.7	1.4
66.5.23.5	19.2	2.6-2.8	1.4
66.5.23.6	20.3	2.8	1.4
66.5.23.7	19	2.8	1.3
66.5.23.8	17.1	2.7	1.4
66.5.24.1	10.9	2	1.2
66.5.24.2	10.5	1.8–2	1.2–1.3

The variation in their mass can be well explained. Concerning the larger objects, game piece 66.5.23.3 can be used as a reference point. Pieces 66.5.23.1, 66.5.23.3 and 66.5.23.7 have lower mass because of either the eroded surface or the cracks (absence of material). The low mass of disc 66.5.23.4 is salient because of the missing filler from the tusk's nerve canal. Disc 66.5.23.6 is lighter because of the artificial kerf on its bottom. The difference in mass of game pieces 66.5.23.5 and 66.5.23.8 is also due to the nerve canal and the material used to fill the holes. In these cases, through the cracks it is observable that not the whole canal was filled, which means that the objects have recesses.

66.5.23.1. (Fig. 1.7; Fig. 2.7)

Weight: 19,5 g

Diameter: 2,8 cm

Height: 1,3 cm

Larger, turned disc. Made from one piece. On its lower side parallel cracks can be observed. Along these cracks it fell apart, but it was possible to restore it completely. Its whole surface is deformed, rough and etched. It occurs most strongly on its sides where most of the original surface and the decorating contoured rib are missing. On its side spots of black discoloration can be observed.

66.5.23.2. (Fig. 1.6; Fig. 2.6)

Weight: 21,9 g

Diameter: 2,8 cm

Height: 1,3 cm

Larger, turned disc. Made from one piece. On its lower side parallel cracks can be observed. Along these cracks it fell apart, but it was possible to restore it completely. Its original surface is well preserved with a minimal loss of material by the cracks and small breakings of the ribs.

66.5.23.3. (Fig. 1.8; Fig. 2.8)

Weight: 18,3 g

Diameter: 2,7 cm

Height: 1,3 cm

Larger, turned disc. Made from one piece. On its lower side parallel cracks can be observed. Along these cracks it fell apart, but it was possible to restore it completely. Its surface is heavily deformed and uneven – the original surface is mostly missing – the decorating ribs are only partially recognizable. On one side a probably modern split can be observed. On the lower side Schreger lines specific to the elephant tusks are visible with the naked eye.

66.5.23.4. (Fig. 1.5; Fig. 2.5)

Weight: 15,9 g

Diameter: 2,7 cm

Height: 1,4 cm

Larger, turned disc. Made from at least three pieces. Its basic form was made of the section of the tusk where the nerve-canal ran. The round nerve-canal was occluded at both ends – the top one is missing, this explains why this piece is so much lighter. On the side that is closer to the

nerve-canal, a wide crack is running through. The whole surface of the game piece is lightly eroded.

66.5.23.5. (Fig. 1.1; Fig. 2.1)

Weight: 19,2 g

Diameter: 2,6-2,8 cm

Height: 1,4 cm

Larger, turned disc. Its basic form was made of the section of the tusk where the nerve-canal ran. The nerve-canal widening from top to bottom was complemented with an ivory spline. On the top side the complement – although moved a bit – follows the decoration accurately. The repair on the lower side is less accurate. The piece cracked lengthwise probably because of the tension caused by the wedging. The surface is well-preserved, polished, one side was lightly damaged probably during the excavation. Spots of black and red discolorations can be observed. On the lower side the Schreger lines are clearly visible.

66.5.23.6. (Fig. 1.4; Fig. 2.4)

Weight: 20,3 g

Diameter: 2,8 cm

Height: 1,4 cm

Larger, turned disc. Made from at least three pieces. Its basic form was made of the section of the tusk where the nerve-canal ran, but it can be only observed on the top of the piece and was complemented with an ivory slice. On its lower side an artificial, square-shaped kerf can be seen that reaches the nerve-canal. The gap was either not filled or the filling got lost. One side of the piece is split. The surface is well-preserved, polished, a small part of the lower decorating rib is missing. On multiple locations red discolorations with different size and shades – remains of paint – can be observed.

66.5.23.7. (Fig. 1.3; Fig. 2.3)

Weight: 19 g

Diameter: 2,8 cm

Height: 1,3 cm

Larger, turned disc. Made from one piece. On its lower side parallel cracks can be observed. The whole object is heavily deformed that it affects the form of the disc as well. The original surface survived only on the top side. On the lower side the Schreger lines specific to the elephant tusks are visible with the naked eye.

66.5.23.8. (Fig. 1.2; Fig. 2.2)

Weight: 17,1 g

Diameter: 2,7 cm

Height: 1,4 cm

Larger, turned disc. Made from at least three pieces. Its basic form was made of the section of the tusk where the nerve-canal ran. The nerve-canal was occluded by two ivory slices. the complements follow the decoration accurately. Starting from the nerve-canal a wide crack with loss of material runs through that shows that the piece is hollow inside. On multiple locations black discoloration and on the top side a spot of red paint can be observed.

66.5.24.1. (Fig. 1.9; Fig. 2.9)

Weight: 10,9 g

Diameter: 2 cm

Height: 1,2 cm

Smaller, turned disc. Made from one piece. Its surface is mostly well-preserved or only lightly eroded. On its side a fracture with loss of material can be observed that also affects the upper rib. A narrow band of black discoloration from top to bottom is visible on its side.

66.5.24.2. (Fig. 1.10; Fig. 2.10)

Weight: 10,5 g

Diameter: 1,8-2 cm

Height: 1,2-1,3 cm

Smaller, turned disc. Made from one piece. Its whole surface is deformed, rough and etched so heavily that most of its decoration has disappeared. On multiple locations spots of black discoloration can be observed.

## References

- AHUMADA SILVA, I. 1990: Tombe 16-43. In: AHUMADA SILVA, I. – LOPREATO, P. – TAGLIAFERRI, A. (eds.): *La necropoli di Santo Stefano in Pertica. Campagna di Scavo 1987-1988*. Castello, 21–98.
- AHUMADA SILVA, I. 2001: Necropoli Longobarde a Cividale ed in Friuli. In: *Paolo Diacono e il Friuli altomedievale (secc. VI-X) : atti del XIV Congresso internazionale di studi sull'Alto Medioevo, Cividale del Friuli – Bottenicco di Moimacco 24-29 settembre 1999*. Congresso Internazionale di Studi sull'Alto Medioevo, 14 : 1999. Spoleto, 321–355.
- ARRHENIUS, B. 1983: The chronology of the Vendel graves. In: LAMM, J. P. (ed.): *Vendel period studies: transactions of the Boatgrave Symposium in Stockholm, Febr. 2 – 3, 1981*. Studies The Museum of National Antiquities, Stockholm 2. Stockholm, 39–70.
- ARWIDSSON, G. 1942: *Die Gräberfunde von Valsgärde 1. Valsgärde 6*. Acta Musei Antiquitatum Septentrionalium Regiae Universitatis Upsaliensis 1. Uppsala.
- ARWIDSSON, G. 1954: *Die Gräberfunde von Valsgärde 2. Valsgärde 8*. Acta Musei Antiquitatum Septentrionalium Regiae Universitatis Upsaliensis 4. Uppsala.
- ARWIDSSON, G. 1977: *Die Gräberfunde von Valsgärde 3. Valsgärde 7*. Acta Musei Antiquitatum Septentrionalium Regiae Universitatis Upsaliensis 5. Uppsala.
- BAUCHHENS, G. – BECK, H. – HASSEL, F. J. – CAPELLE, T. – WILSON, D. M. 1978: s. v. Brettspiel. In: *Reallexikon der Germanischen Altertumskunde Band 3. Bilrost – Brunichilde*. Berlin – New York, 450–459.
- BÁRÁNY, A. 2014: Csonteszközök Daruszentmiklós F-005 avar kori településről (Avar bone tools from Daruszentmiklós Site F-005) In: ANDERS, A. – BALOGH, Cs. – TÜRK, A. (eds.): *Avarok pusztái. Régészeti tanulmányok Lőrinczy Gábor 60. születésnapjára – Avarum solitudines. Archaeological studies presented to Gábor Lőrinczy on his sixtieth birthday*. Budapest, 399-408.
- BLACKMORE, L. 2008: Schätze eines angelsächsischen Königs von Essex. Die Funde aus einem Prunkgrab von Prittlewell und ihr Kontext. In: BRATHER, S. (Ed.): *Zwischen Spätantike und Frühmittelalter Archäologie des 4. bis 7. Jahrhunderts im Westen*. Reallexikon der Germanischen Altertumskunde – Ergänzungsbände 57. Berlin – New York, 323–340.
- BROZZI, M. 1970: La necropoli Longobarda “Gallo” in zona pertica in Cividale del Friuli. In: FORNASIR, G. (ed.): *Atti del convegno di studi longobardi (Udine – Cividale 15-18 maggio 1969)*. Udine, 95–112.
- BROZZI, M. 1993: Accanto al guerriero longobardo i giochi preferiti. *Quaderni ticinesi di numismatica e antichità classiche XXII*, 257–263.
- DRAUSCHKE, J. – BANERJEE, A. 2007: Zur Identifikation, Herkunft und Verarbeitung von Elfenbein in der Merowingerzeit. *Archäologisches Korrespondenzblatt 37*, 109–128.
- HAJNAL, Zs. 2012: A Kölked-feketekapui 'A' és 'B' temetők együttes értékelése. (Die zusammenfassende Auswertung der Gräberfelder 'A' und 'B' von Kölked-Feketekapu) In: VIDA, T. (Ed.): *Thesaurus Avarorum. Archaeological Studies in Honour of Éva Garam*. Budapest, 607–644.
- HALL, M. A. 2016: Board Games in Boat Burials: Play in the Performance of Migration and Viking Age Mortuary Practice. *European Journal of Archaeology* Volume 19, Number 3, 439–455.
- HELMFRID, S. 2016: Hnefatafl – the Strategic Board Game of the Vikings. [http://hem.bredband.net/b512479/Hnefatafl\\_by\\_Sten\\_Helmfrid.pdf](http://hem.bredband.net/b512479/Hnefatafl_by_Sten_Helmfrid.pdf) (11.07.2016)

- HOLLIGER, Ch. – HOLLIGER, C. 1983: Römische Spielsteine und Brettspiele. *Jahresbericht. Gesellschaft Pro Vindonissa*, 5–24.
- KAISER, K. 1969: Ein fränkisches Adelsgrab von Speyer. In: SCHULTZ, K. (Ed.): *1869–1969 Hundert Jahre Historisches Museum der Pfalz*. Mitteilungen des Historischen Vereins der Pfalz 67. Speyer, 182–190.
- KENYON, K. M. 1948: *Excavations at the Jewry Wall site, Leicester*. Reports of the Research Committee of the Society of the Antiquaries of London XV. London.
- KISS, A. 1996: *Das awarenzeitliche gepidische Gräberfeld von Kölked–Feketekapu A*. Monographien zur Frühgeschichte und Mittelalterarchäologie 2. Studien zur Archäologie der Awaren 5. Innsbruck.
- KLANICA, Z. – KLANICOVÁ, S. 2011: Das Langobardische Gräberfeld von Lužice (Bez. Hodonín). In: TEJRAL, J. (ed.): *Langobardische Gräberfelder in Mähren I*. Schriften des Archäologischen Instituts der AW CR in Brno Bd. 39. Brno, 225–312.
- PICCIONE, P. A.: In Search of the Meaning of Senet. *Archaeology* 33 (July/August 1980), 55–58.
- RÖLLICKE, H.-J. 1999: Von "Winkelwegen", "Eulen" und "Fischziehern" – liubo: ein altchinesisches Brettspiel für Geister und Menschen. *Board Games Studies* 2, 24–41.
- SIPPEL, K. 1987: Ein merowingische Kammergrab mit Pferdegeschirr aus Eschwege, Werra-Meißner-Kreis (Hessen). *Germania* 65, 135–158.
- STAUCH, E. 1994: *Merowingerzeitvertreib?: Spielsteinbeigaben in Reihengräbern*. Universitätsforschungen zur prähistorischen Archäologie 23. Bonn.
- STEVENS, J.: On the remains found in an Anglo-Saxon tumulus at Taplow, Buckinghamshire. *Journal of the British Archaeological Society* 40, 61–71.
- SZENTHE, G. 2009: Daruszentmiklós, F005 lelőhely. In: KISFALUDI, J. (ed.): *Régészeti Kutatások Magyarországon 2008 – Archeological Investigations in Hungary 2008*, 178–179.
- THOMAS, G. – McDONNELL, G. – MERKEL, J. – MARSHALL, P. 2016: Technology, ritual and Anglo-Saxon agriculture: the biography of a plough coulter from Lyminge, Kent. *Antiquity* Volume 90, Issue 351, 742 – 758.
- VEBLEN, Th. 1934: *The Theory of the Leisure Class. An economic study of institutions*. New York.
- WEBSTER, L. 2007: s. v. Taplow. In: *Reallexikon der Germanischen Altertumskunde Band 35. Speckstein – Zwiebel. (Nachträge und Ergänzungen)*. Berlin – New York, 69–72.
- WHITTAKER, H. 2004: Board Games and Funerary Symbolism in Greek and Roman Contexts. In: DES BOUVRIE, S. (ed.): *Myth and Symbol II. Symbolic Phenomena in Ancient Greek Culture. Papers from the Second and Third International Symposia on Symbolism at the Norwegian Institute at Athens, September 21-24, 2000 and September 19-22, 2002*. Bergen, 279–302.
- WHITTAKER, H. 2006: Game-Boards and Gaming-Pieces in Funerary Contexts in the Northern European Iron Age. *Nordlit: Tidsskrift i litteratur og kultur* Volume 10 Issue 2, 103–112.