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ALENA ŠEFČÁKOVÁ, SILVIA BODORIKOVÁ, PETRA PANENKOVÁ,
MILAN THURZO, MICHAL TAKÁCS, JOZEF URMINSKÝ

DECORATED FEMORAL HEAD FROM THE EARLY BRONZE AGE CEMETERY AT GÁŇ (GALANTA DISTRICT, SLOVAKIA)

ABSTRACT: An incomplete, probably femoral head (caput femoris) with the appearance of a decorated bone artefact was found in grave AH 168 at the Gáň cemetery (Galanta district, Slovakia). The cemetery was dated to the Early Bronze Age (1900 BC) and belonged to the so-called Nitra culture. The grave proved to be highly disturbed secondarily; it contained much-damaged skeletal remains., It was set in southwest-northeast orientation and had the shape of a slightly irregular rectangle. Approximately in the centre of the grave pit, there were the inhumated human remains of a young adult person. They consisted of broken long bones of the upper extremities, of both the shoulder bones and a right ulna proximal fragment. A copper dagger was lying in between them. In the northeast part of the grave, the incomplete femora, a part of the fibula and a pelvis fragment were found. Near the femoral distal epiphysis, a decorated femoral head was situated. Furthermore, fragments of a temporal bone and six teeth were found.

The femoral head was decorated with an abstract image consisting of parallel lines and squares; its body was perforated by five holes. Using the CT scan, we tried to determine if the artefact was made of human or bear (Ursus) femur. However, the analysis revealed that it is not possible to precisely differentiate a human bone sample from that of a bear. Moreover, the possibility that the artefact was made of the femoral head of another animal (bigger mammal) could not be excluded. The function of the artefact is not clear; we suppose it could have been either an amulet, or a big button for fastening clothing.

KEY WORDS: Bone artefact – Grave goods – Abstract decoration – Engraving – Symbolism – Button – Central Europe – Early Bronze Age

INTRODUCTION

In the first half of 2007, rescue archaeological excavations were conducted in the village of Gáň (Galanta district, Southwest Slovakia). They were conducted by the Museum at Galanta under the supervision of J. Urminský and M. Takács, while S. Bodoriková conducted the anthropological research. As to the precise location, the excavation was situated at local area named Brakoň, in the ProLogis Park site (*Figure 1*). The site was located on a sand dune, with natural elevation about 100 – 130 cm above the surrounding terrain. Archaeologists uncovered prehistoric settlements dated to the Neolithic and Copper Ages, the Maďarovce culture of the Early Bronze Age, as well as three cemeteries dated to the Early Bronze Age, the Migration Period and the Middle Ages, respectively.

The cemetery from the Early Bronze Age dated to the period about 1900 BC and belonging to both the older and the younger phase of the Nitra group (culture) consisted of 149 graves (*Figure 2*). All individuals buried in consisted grave pits lay in a foetal (flexed) position. Presumably, as it was typical for this period, the women were lying on their left side with head facing east (*Figure 3*) and the men were lying on the right side with their heads turned to the

FIGURE 1. Map of Slovakia with the location of the Gáň site.

FIGURE 2. Gáň cemetery, Early Bronze Age, Galanta district, Slovakia. Photo M. Takács.

west (*Figure 4*). As interesting finds, the double burials of individuals of different genders can be mentioned; the inhumated individuals were probably related (*Figure 5*). Preservation of skeletal remains is poor; they are often only fragmentary or are completely destroyed due to soil conditions. Some of the individuals had only small bone fragments or teeth preserved.

The most frequent objects among the grave artefacts were beads made of bone, around the neck (necklaces), waist and lower limbs areas. Beads were very small, only four to six millimetres in diameter. They had been originally strung on organic material laces, which had decomposed and were not preserved; they had been arranged into the chains connected to the lines by osseous plates. Thanks to them, the skilled prehistoric jewellers could create wider strips of four to eight rows of beads. Strings used to be completed by the bronze rings.

The female graves contained jewellery of different types. The bronze hair rings and willow-leaf-shaped earrings are typical for this period. They were mainly located near the skull – as many as one to six specimens. Bronze jewellery similar to willow leaf is also often found in other archaeological sites dated to the Early Bronze Age, and besides the hair rings, rings were also made in this style.

One of the most significant finds was a simple golden-wire ring discovered in one of the male graves. These graves also contained small bronze knives and daggers, which had the same willow-leaf shape as the earrings. In additions to the bronze knives, perfectly worked split stone arrowheads about two centimetres long were found. Ceramic objects were discovered in only three graves, where one complete and two fragmentary vessels have been found.

FIGURE 3. A typical female grave (AH 61), Early Bronze Age, Gáň, Galanta district, Slovakia. Photo A. Šefčáková.

FIGURE 4. A typical male grave (AH 79), Early Bronze Age, Gáň, Galanta district, Slovakia. Photo M. Takács.

During excavations on June 11, 2007, an interesting decorated bone artefact was found in grave AH 168 (Takács 2007). The highly secondarily disrupted grave of the Nitra culture (its precise classification to the older or younger developmental stage is, however, impossible) contained much-damaged skeletal remains. Grave robbers, who probably entered the grave from the southwest side through a small niche in the front of the grave pit embedded into the gravel-sand subsoil, disturbed the grave pit. The grave was oriented in a southwest-northeast direction and

FIGURE 5. A double grave (AH 134), Early Bronze Age, Gáň, Galanta district, Slovakia. Photo M. Takács.

FIGURE 6. The grave AH 168, young adult, Early Bronze Age, Gáň, Galanta district, Slovakia. Photo M. Takács.

FIGURE 7. A detail of the grave AH 168 with the decorated artefact, Gáň, Galanta district, Slovakia. Photo M. Takács.

had the shape of a slightly irregular rectangle (dimensions, 91×236 cm; depth, 61cm; *Figure 6*).

Human skeletal remains were deposited in the centre of the grave. It seems that damaged long bones of upper limbs (the right and left humerus and proximal fragment of the right ulna) remained in the southwestern part of a grave. A copper dagger was lying between them. In the northeastern part of the grave an incomplete femur, a part of one fibula and a pelvic fragment were present. Besides this, an artificially worked osseous object was found near the distal epiphysis of the longer femoral fragment (*Figure 7*). Small pieces of temporal bone and six teeth were also found in the grave. The skeletal remains seemed to copy the right-side orientation of an individual inhumated with bent lower limbs.

METHODS

The poor preservation of the skeletal remains from grave AH 168, as well as the fact that only some of them were in an approximate anatomical position, did not allow us to use standard morphoscopic and morphometric methods for analysis. The individual's age at the time of death was estimated on the basis of both tooth wear (Lovejoy 1985) and the stage of tooth mineralization (Buikstra, Ubelaker 1994).

The aim of this study was to analyse the decorated osseous artefact from the point of view of both its origin and its decorative style. The basic problem was to determine whether its origin was human or animal. Since the femoral head was lying near the end of the human distal femoral diaphysis, its origin can be supposed to be human. However, the possibility that the femoral head is of animal origin (e.g. it could be a fragment of an ursine femur which is very similar to a human one) can not be eliminated.

DNA and/or histological analyses would be the most significant methods for species identification. Considering the size of the artefact and the fact that only a small quantity of preserved osseous substance was present (especially in the case of the surface compact bone), we decided to use non-destructive methods in the first phase of the analysis.

In addition to the detailed morphoscopic analysis, the artefact was examined using the CT scanner Siemens – Somatom Volume Zoom in Radio-diagnostic Department of Faculty Hospital with Polyclinic Bratislava-Ružinov (Slovakia).

RESULTS AND DISCUSSION

Anthropological analysis

From the archaeological context, it was obvious that the buried individual was laying on its right side with bent

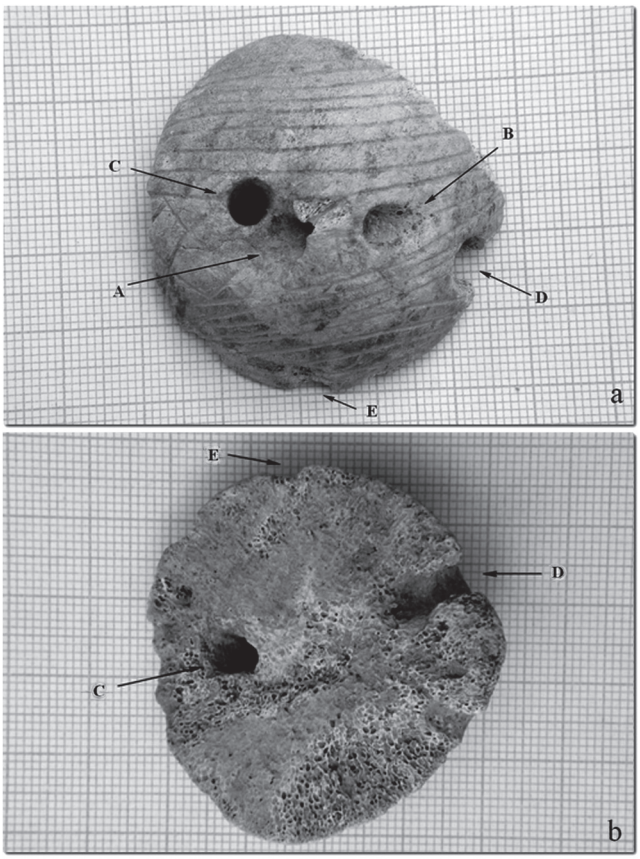

FIGURE 8. Grave AH 168: Decorated artefact made from the apical part of a femoral head; a) an apical view; b) smoothed back side. Photo F. Engel.

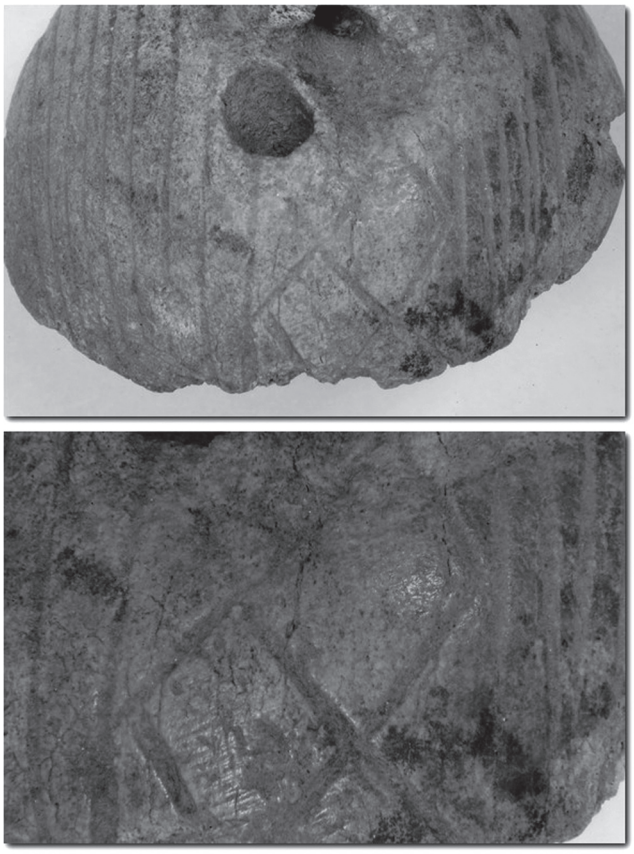

FIGURE 9. Grave AH 168: Decorated artefact – a central strip with engraved orthorhombic decoration. Photo F. Engel.

lower limbs. However, after detailed examination we learned that the position of the right and left humerus was interchanged, so we could not apply the limb position to sex estimation (according to the burial ritual of Nitra culture the males used to be buried laying on their right side). Due to secondary grave dislocation and heavy post mortem damage to skeletal remains, the anthropological sex diagnosis was very problematic, too. To estimate the age of the individual at the time of death, we could only use the teeth. The upper left second incisor, the right second molar, the lower canines, the lower right premolar and the lower right first molar have been preserved. Dental wear was only slight and it seems that the upper right second molar still had an incomplete root. The individual probably died at an age of approaching adulthood or as a young adult person (category adultus I, 20–30 years of age). Relatively short diaphyses of long bones are also incomplete so it is not sure whether they had been synostosed.

Artefact shape and origin

The artefact located next to the distal epiphysis of a femur has been identified as a decorated osseous object most probably of the left femoral head origin (*caput femoris, femur sin.*). It consists of a proximal (proximal-medial) part of the femoral head separated from the rest approximately at its core. At the place of separation, the internal surface of this hemi-spherical object was polished (*Figure 8*).

The artefact's maximum height is 20.57 mm; its almost regular round circumference reaches a maximum diameter of 46.2 mm. A small fragment of the edge is missing; probably it had been broken in the past. The colour of the damaged part is the same as the colour of the rest of the object.

The artefact's surface is engraved with a clear geometric abstract decoration. A wide strip is engraved in the middle of the artefact; it narrows from one side to the other, reaching a maximum width of 13.66 mm and minimum width of 4.53 mm. The cross lines create a prismatic pattern in its widest part. On the sides of the centre of the wider strip, there are seven approximately parallel lines on one side and eight on the other; they are ca 2.0–3.5 mm wide. The decorated surface is smooth and partly covered by remains of an ochre colour (*Figure 9*).

There are four significant perforations, probably drilled, present in the femoral head (*Figure 8*). Two of them (perforations A, and B) form a beginning and end of the tunnel. The first perforation (perforation A) is located in the place of *fovea capitis* and performs the entrance to tunnel running longitudinally across the most convex part of the artefact. The diameter of perforation A is 3.94 mm.

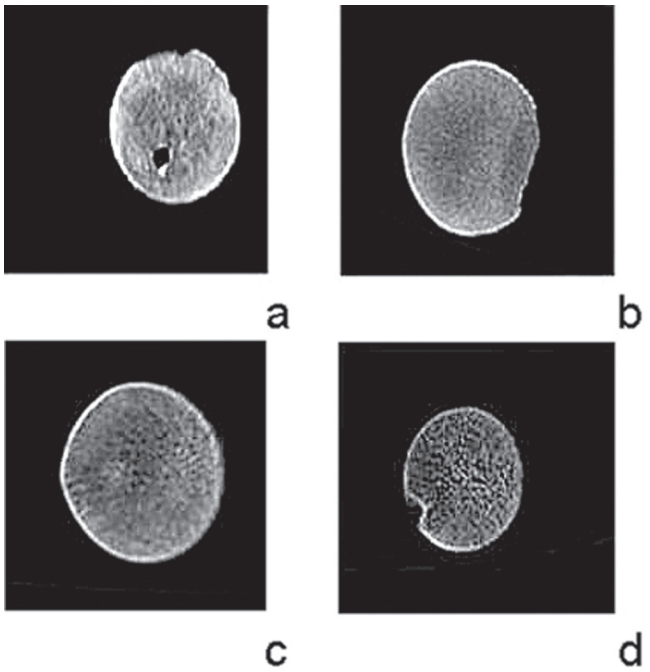

FIGURE 10. Tomograms of femoral heads; a) decorated artefact; b) cave bear (*Ursus spelaeus*); c) man in the age of 40–50 years; d) man in the age over 50 years.

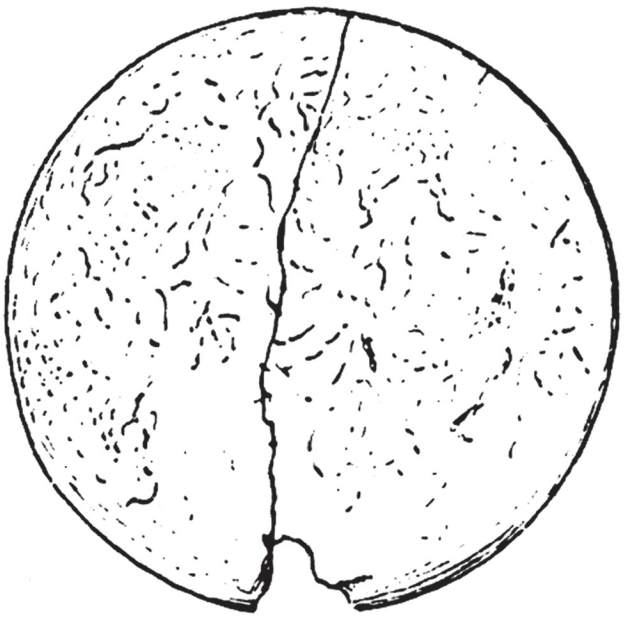

FIGURE 11. Circular bone disc found in the grave 40 at the Early Bronze Age cemetery of Veľký Grob, Galanta district, Slovakia (Chropovský 1960).

The diameter of the hole at the end of tunnel (perforation B) is 4.02 mm. Other two (less obvious) perforations with diameters 5.88 mm (perforation C) and 6.71 mm (perforation D) are situated on two sides of previous perforations and they pass cross the femoral head and come out on the separated flat side of the artefact. Remains of a possibly fifth perforation are visible on the damaged edge (perforation E).

The femoral head was scanned by computer tomography. Because we have not at our disposal an ursine femoral head dated to the Early Bronze Age, as reference samples the femoral heads of a cave bear (*Ursus spelaeus*), a brown bear (*Ursus arctos*), a man in the age of 40 – 50 years, and a man older than 50 years (*Figure 10*) were used.

The most significant differences are these between the osseous artefact and the femoral head of an older individual who had significantly thinner compact bone and more tenuous cancellous bone. However, the differences between the decorated femoral head on the one side, and the sample from cave bear and a younger individual on the other are not so expressive. The cancellous bone is of similar density, while the thickness of compact bone is comparable.

Unfortunately, the CT analysis did not help us to identify the origin of the artefact.

Decoration and function of the artefact

The distant analogies, mainly from the Early Bronze Age cemeteries, can help us to determine function and style of the object decoration.

At the Veľký Grob cemetery (Galanta district, Slovakia) dated to the Early Bronze Age, a circular bone plate of five centimetres in diameter was found in the male grave No. 40 (Chropovský 1960: 30–31, 71). The plate was polished on both sides; the thickness of one end was three millimetres, whilethe other end was only one millimetre. The plate had been probably used as a talisman, but it is slightly damaged and it is not possible to find whether any perforations had been present (*Figure 11*; Chropovský 1960: 31).

At the cemetery of Branč, Nitra district, Slovakia (Nitra group, 236 graves; Vladár 1973: 154–156), seven osseous amulets (*Figure 12*) have been found in six male graves: Nos.18, 31, 88, 172 (a child, according to the orientation a boy), 179 and 298 (two amulets). In them, warriors or individuals with higher social status (Vladár 1973: 155) were inhumated. Four of the graves with amulets (Nos. 18, 31, 172, and 179) were situated in the central south part of the burial ground; grave 298 was located more to the East, while grave 88 belonged to a small group of graves located at the east border of cemetery.

The osseous amulets were typologically divided into five groups by Vladár (1973: 154–155): 1) flat elliptical amulets (grave 18); 2) flat circular amulets with holes in the perimeter (graves 31, 179, 298); 3) amulet from human skull (grave 88); 4) irregular pendant with perforation (grave 172); 5) flat semi-elliptical pendant with a big circular hole in the middle and a smaller hole for hanging at the top (grave 298).

Circular amulets, typical for later phase of the Nitra group culture, are also known from the Nitra-Čermáň cemetery (Nitra district, Slovakia; Vladár 1973: 155).

However, it seems that the closest analogy to our find is a proximal articular head from the settlement of Mad'arovce-

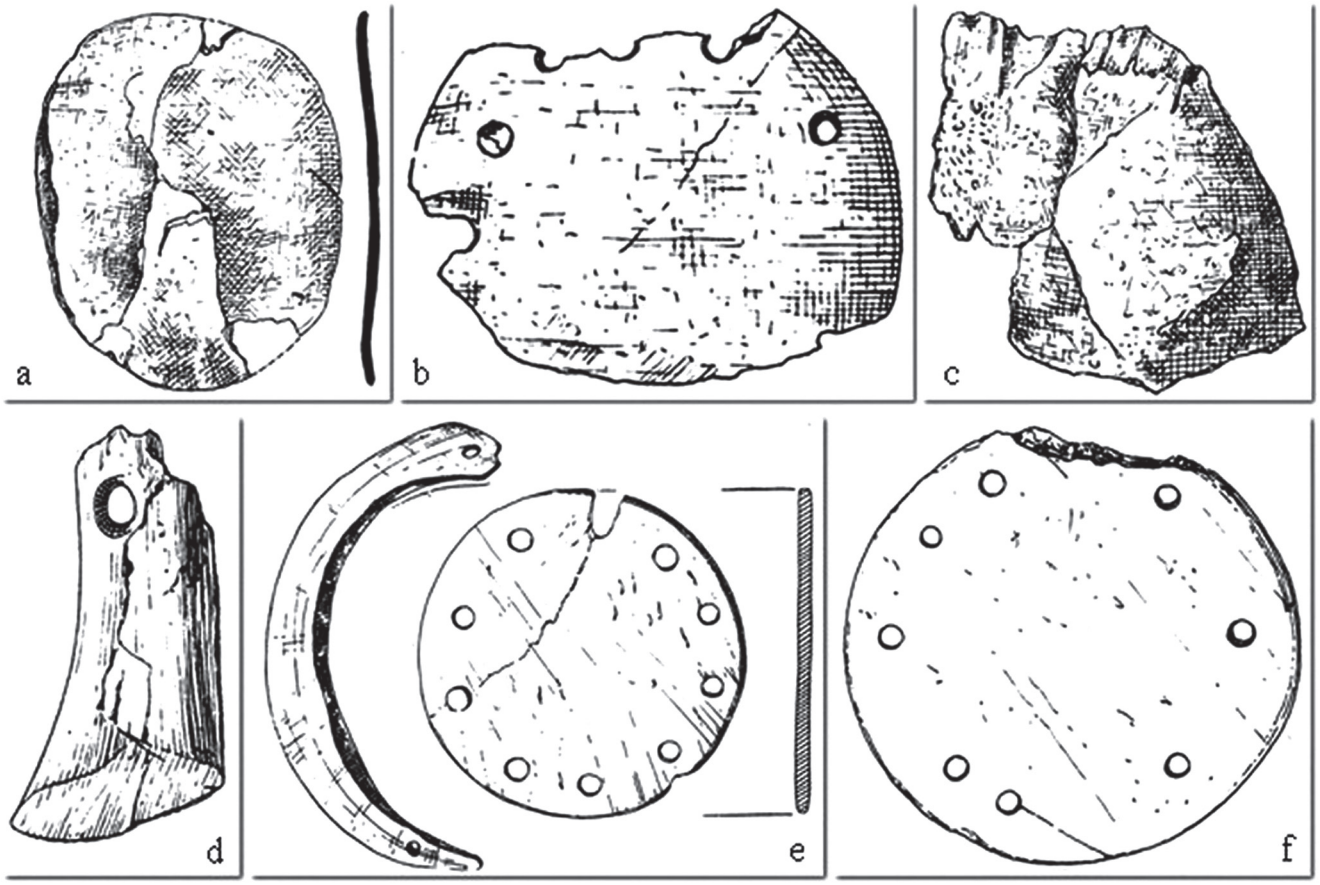

FIGURE 12. Bone amulets from a cemetery of the Early Bronze Age Nitra group at Branč, Nitra district, Slovakia (Vladár 1973): a) flat elliptical amulet from grave 18; b) flat circular amulet with circumferential apertures from grave 31; c) amulet made from human skull coming from grave 88; d) irregular bangle with aperture from grave 172; e) flat circular amulet with circumferential apertures from grave 179; f) flat circular amulet with circumferential apertures from grave 298.

Věteřov culture in the village of Hodonice (Znojmo district, Czech Republic; Stuchlíková 1993: 270–271). This proximal half of the articular head is similar to the one of our case. Although a part of the head is missing, a big aperture in the middle of it with three smaller holes at the same distance from the main aperture is obvious. The rim of the head is decorated by small groves (*Figure 13*). Worked and perforated femoral heads, including the specimens made from human bones, are very interesting artefacts of the mentioned culture (Stuchlíková 1993: 270).

Regarding the geometric decoration, a similar principle consisting of combination of stripes and crossed or winding lines, can be seen e.g. in a fragment of a thin, bone, horse bit side from Malé Kosihy, Nové Zámky district, Slovakia (Maďarovce culture). This object is slightly worked and polished, and decorated by groups of triple horizontal lines criss-crossed with a waving line (Točík 1959: 29, 49). Another similarly decorated object was a horse bit side made of antler from Šurany-Nitriansky Hrádok – location "Zámeček", Nové Zámky district, Slovakia. Its surface is engraved with decoration consisting of combined horizontal lines and the cross lines which are alternating – once left, once right (Točík 1959: 29, 49). A hollow antler

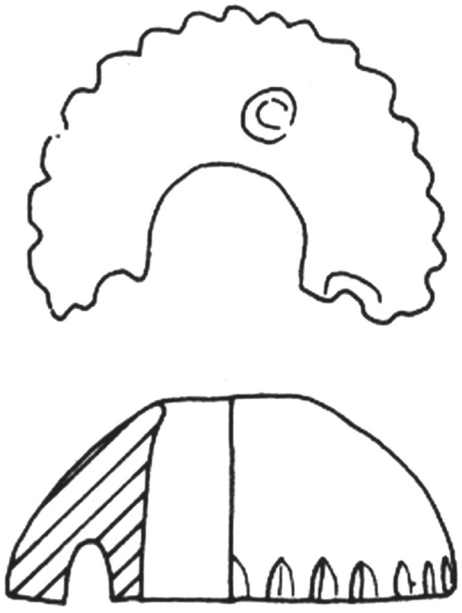

FIGURE 13. Proximal articular head from the settlement of the Maďarovce-Věteřov culture (Early Bronze Age) at Hodonice, Znojmo district, Czech Republic (Stuchlíková 1993).

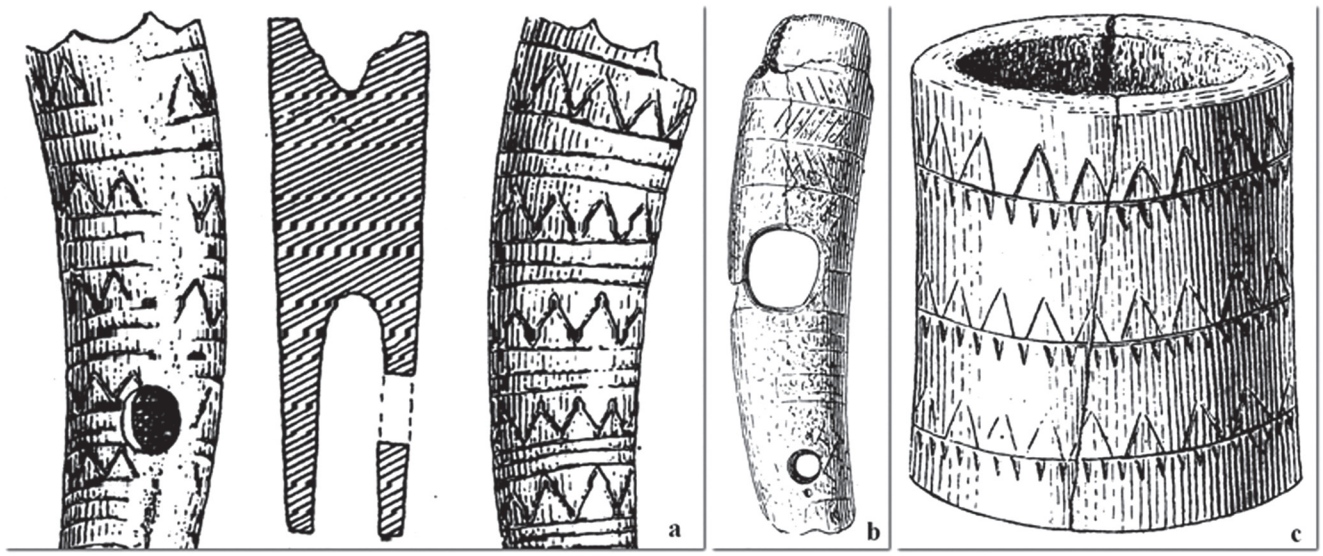

FIGURE 14. Early Bronze Age decoration analogies: a) lateral fragment of a thin osseous horse bit from Malé Kosihy, Nové Zámky district, Slovakia (Maďarovce culture); b) lateral part of a horse bit made from antler found at Nitriansky Hrádok – location "Zámeček", Nové Zámky district, Slovakia (Maďarovce culture); c) hollow antler cylinder from Nitriansky Hrádok – location "Zámeček" (Maďarovce culture; Točík 1959).

cylinder comes from the same location and is decorated all the way around with three horizontal lines; it is criss-crossed by a zigzag line on one side, as well as wedges on the opposite side (*Figure 14*; Točík 1959: 29, 49).

The abstract or geometrical decoration of the small objects, by either engravings or drawings (paintings), is very ancient. This type of decoration occurs from the Upper Palaeolithic Age until the present time. One of the oldest ornaments even dates back to Middle Palaeolithic Age and can be understand as the evidence of ancient symbolic way of thinking in *Homo sapiens sapiens*. The similar abstract decoration scratched by a sharp instrument was found on the surface of a few pieces of red ochre uncovered from the Middle Stone Age layers at Blombos Cave in South Africa (Henshilwood *et al.* 2002).

As regards the function of the object analysed in this paper, it is very likely that it served as an amulet; however, it is possible that it was used as a button for fastening clothes (e.g. coat). Priest-Dorman (1993) speculated that big buttons had been used for fastening clothes as far back as in the Early and Middle Bronze Ages but it seems likely that the buttons had also served as aesthetic or decorative objects or could have been some symbols in social communication (Luik, Ots 2007).

CONCLUSIONS

An incomplete decorated head, probably of a femoral bone, was found in grave AH 168 at the Gáň cemetery (Galanta district, Slovakia) dated to Early Bronze Age. This object was a component of grave artefacts placed in the burial of an individual of indeterminate gender that probably died in the age of late childhood or early adulthood (category adultus I, 20–30 years of age).

Using the CT analysis, we tried to determine whether the artefact was made of human or ursine femoral bone (*Ursus spelaeus* and *Ursus arctos*). Unfortunately, the natural origin of the object is still uncertain. It cannot be excluded that the artefact had been made of femoral head of another big mammal.

As regards the function of this osseous artefact, it could have served as an amulet or a big button for fastening clothes.

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Alena Šefčáková
Slovak National Museum
Natural History Museum
Department of Anthropology
Vajanského nábrežie 2
810 06 Bratislava, Slovak Republic
E-mail: sefcakova@snm.sk

Silvia Bodoriková
Petra Panenková
Milan Thurzo
Comenius University in Bratislava
Faculty of Natural Sciences
Department of Anthropology
Mlynská dolina B2
842 15 Bratislava, Slovak Republic
E-mail: bodorikova@fns.uniba.sk
panenkova@fns.uniba.sk
thurzo@fns.uniba.sk

Michal Takács
Vlastivedné museum Galanta
Hlavná ul. 976/8
924 00 Galanta, Slovak Republic
E-mail: takacsmichal@gmail.com

Jozef Urminský
Vlastivedné múzeum Hlohovec
Františkánske nám. 1
920 01 Hlohovec, Slovak Republic
E-mail: urminsky.jozef@zupa-tt.sk