

LIFE AND DEATH: MORTUARY RITUALS OF THE BADEN CULTURE AT LAKE BALATON (TRANSDANUBIA)

There was a standard viewpoint on the systematically studied Baden culture in Hungarian archaeology, which had developed from the 1950s and maintained for the last 50 years¹. According to this, the population of the Late Copper Age Baden culture (2350-1900 BC) arrived at the Carpathian Basin as a result of the quick migration of a multitude of groups from southern areas. In addition, the population of this culture was chronologically and ethnically connected to »fugitive« Trojans, on account of formal analogies among the anthropomorphic urns found in Hungary, and cremation cemeteries dating from the destruction phases III-V in Troy. The whole period of the Late Copper Age had been interpreted as a continuous peaceful development from Boleráz to Baden culture, which was ceased by new waves of incoming peoples from the southern territories at the end of the Copper Age, starting a new era, the Bronze Age (see Kalicz 1963; Kalicz 1970, 65-70; Korek 1983, 168-169). The lifestyle of the culture has been described as semi-nomadic, on the basis of settlement traces and finds (e. g. Csalog 1961).

Beside archaeological finds, the anthropological analyses further strengthened this picture, relating the Baden population to people of the Balkan Peninsula or Anatolia (Zoffmann 1987-1988; 2004a; 2006; Köhler 2008). Further on, anthropological studies, especially the Penrose comparative biostatistical analysis demonstrated that there is no significant Penrose identity with the Neolithic and Copper Age series from the Carpathian Basin, namely that the people of the Baden culture according to present knowledge has no local origins. At the same time, a close Penrose relation was specified with series from South-Eastern Europe, Greece and Anatolia, which suggest the presence of a physical anthropological component with south or south-eastern connections inside the population of the culture (Zoffmann 1984).

This picture has been continuously modified from the 1990s by new Boleráz/Baden findings, primarily produced by the developing archaeological dating methods such as ¹⁴C and dendrochronology².

Latest revisions argue that regional, indigenous cultures probably had a stronger influence on the formation of the Boleráz/Baden culture, and there was no or only a minimal stimulation by Troy (Sherratt 2003), because most part of the Late Copper Age can be dated to the pre-Troy phase, 3500-3000 BC³. Nowadays we suggest that Boleráz and Baden are two independent archaeological cultures or pottery styles (Furholt 2008), which partly overlapped each other in time and space in the Carpathian Basin, and late Baden survived the Early Bronze Age, 2400 BC (Horváth 2009; 2010b; 2011; in print). Unfortunately, it is not possible to distinguish the two, perhaps different origins of Boleráz and Baden populations from each other in an anthropological point of view, because the Boleráz population mainly known as cremation burials under long earthbarrows from the I/VB period in Moravia (Baldia / Frink / Boulanger 2008), and as flat cemetery's cremation burials under stone packing from the IB/C period (Pilismarót-Basaharc, Kom. Komárom-Esztergom; unpublished) cannot be investigated with conventional anthropological methods.

NEW DATA

In 2001-2002, on the proposed route of the M7 motorway on the southern lakeshore of the Balaton, a part of an extensive Boleráz/Baden settlement was excavated at Balatonőszöd-Temetői dűlő (Kom. So-

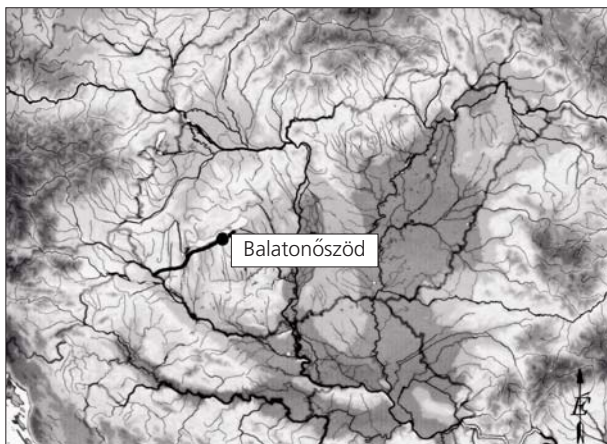


Fig. 1 Balatonőszöd (Kom. Somogy) on the south bank of Lake Balaton. – (Map Zs. Viemenn).

sites were insufficient to draw conclusions on the complete extension, the morphology or the lifetime of the settlements, and there were no reliable statistics on the distinct feature-types, such as burials (in the mirror of the whole Boleráz/Baden territory see Sachße 2010). Moreover, serious debates emerged with regard to the cemeteries of the Boleráz/Baden cultures: why do we know only some regular cemeteries, and how these cemeteries can be related to or divided from the settlement burials via such criteria as age, sex or status?

The excavation results from the two new Boleráz/Baden sites made the separation of regular cemeteries and settlement burials possible. The majority of Baden burials were grouped into two sub-groups depending on the type of the feature, the filling material and the accompanying features. Some of the settlement burials perhaps had been real settlement graves, quite alike to cemetery graves, which appeared in the abandoned or not yet populated parts of the settlement. Generally, these graves were much poorer than cemetery graves; often no grave-goods were detected at all. The other part of the burials is characterised by the lack of arrangement: the accidental position of the body, and the radically different material of the filling. The explanation of the latter group is an important aspect in the scholarly discussions. Previous interpretations described such features as possible results of mass disasters, accidents, illness/epidemic, punishment, wartime period, and these objects were also discussed as bloody offerings (Točík 1981).

RITUAL PITS AT BALATONŐSZÖD-TEMETŐI DŰLŐ

During the excavation, rarely together with human burials, more often near to them, in separate pits, remains of animals were discovered (Horváth 2010b; Horváth 2012). These pits had already been defined as bloody offerings during the course of the excavation. This idea was further strengthened by archaeological and archeozoological studies, which produced direct evidence that the animals were deliberately slaughtered with weapons⁴. Consequently, violence as a possible manner of death was suspected and investigated also at some of the human burials.

Basically, we started the analysis from the typology as well as the filling material of the features. Two types of filling materials were detected in the pits: in one case a moist agent – a well (no. 1099, well no. 1; fig. 2) –, in all other cases a burnt agent: ash mixed with wattle-and-daub was documented. On this

mogy; Horváth 2004b; Horváth 2008a). Up to now this is the largest investigated Boleráz/Baden site, where, among settlement features, numerous human as well as animal intrasite burials were uncovered (Horváth 2010b), accompanied by ritual pots and objects (Horváth 2010a; Horváth 2010c). Not far from this site (approx. 30 km distance), another complete settlement (Balatonlelle-Országúti dűlő, Kom. Somogy) and a separate, extrasite cemetery (Balatonlelle-Felső-Gamász) were unearthed (fig. 1; Sófalvi 2004; Nagy 2006; Nagy 2010; Sófalvi / Nagy 2007; Sófalvi / Nagy / Skriba 2007).

Previously, approx. 1800 Late Copper Age sites were mapped in Hungary (Bondár 2002, 11; Horváth 2009), 90% of them had been registered as settlements. In most cases the fragments of excavated

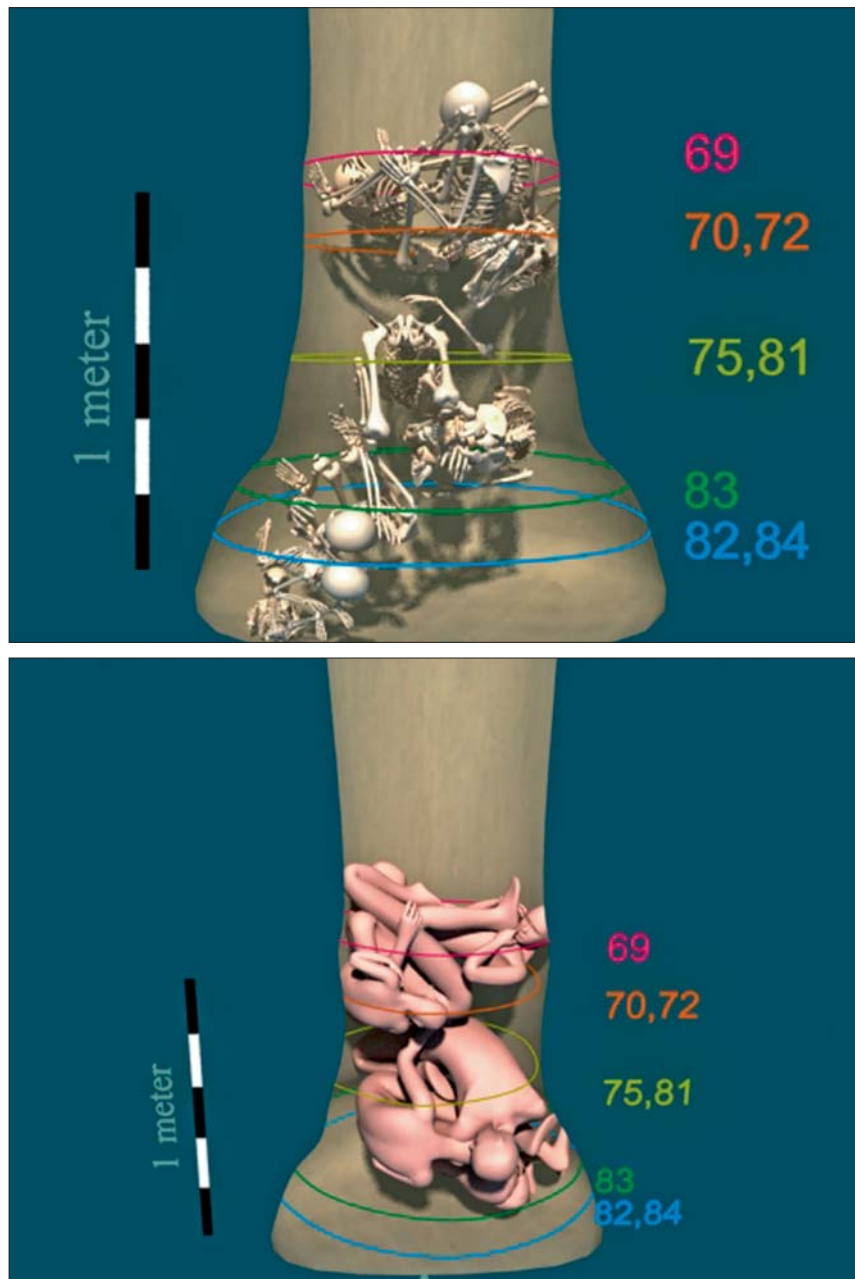


Fig. 2 Balatonószöd-Temetői dűlő (Kom. Somogy), pit. no. 1099, well no. 1. – (3D reconstruction Zs. Réti).

evidence the bloody sacrifices can be categorised into two classic types, namely burnt and moist sacrifices, which might refer to possible connections to the eternal contrast of the nether/chtonic world as black magic, and heavenly-light as white magic.

The feature no.1099 (well no.1) was unearthed in the beginning as an ordinary refuse pit, beneath the culture layer no. 925. In 1.5-2 m depth connected animal parts were discovered: the whole skeleton of a dog, the horn of a large ruminant, and additional animal bones. Underneath, the pit – named as well no.1 thereafter – began to deepen sharply. At the depth of 3 m the first human skeleton appeared. The human remains got stuck in a narrow, deep and dark shaft, frequently disturbing each other, thus, they had been excavated and documented in extremely bad conditions. All in all ten human skeletons were uncovered; among them the last two human remains, recorded at 6 m depth on the stiff, sandy bottom of the shaft

were cleared, but at last, the continuously filtering water prohibited their photo documentation and collection. Among the ten detected human skeletons three were documented in the topmost level of the shift (burials nos 69-70, 72), beneath them remains of two additional people (nos 75, 81), under them further three skeletons (nos 82-84) were uncovered, and finally, the last two skeletons were detected at the bottom of the shift (nos 86-87). The well was first dated to the period of the Balaton-Lasinja culture (Middle Copper Age), because a Balaton-Lasinja-type small jug was found beside the child skeleton no. 83 (Horváth / Juhász / Köhler 2003). Later, the radiocarbon dates of the skeleton selected from the uppermost stratum (skeleton no. 70) brought an unexpected result: according to this, the feature and the skeletons can be dated to the Boleráz/Baden culture (3340-3040 cal BC, 1 σ ; Horváth / Svingor / Molnár 2008). In the light of the radiocarbon data, a new hypothesis was built. It is probable that one of the two neighbouring shift-wells (features nos 1099, 1123) created during the Balaton-Lasinja period was reopened in the Boleráz/Baden period, especially for human offerings. This form of offerings is quite unique in the Middle and the Late Copper Age. The skeletons were found in extremely contorted positions, which is mainly the result of the narrowness and the moist muddiness of the shift, but one part of the skeletons' position suggests that the bodies were manipulated before they were thrown into the well: for example the legs of skeleton no. 69 were broken at the knees and were bent against the natural shape of the body, on the thighs. A *post mortem* break was documented on the skull of the skeleton no. 72, a 34 to 43-year-old man (Horváth / Juhász / Köhler 2003, 282-283). Still, we have no idea who these victims were, and why they were killed in such a cruel way (fig. 2).

MECHANICAL INJURIES IN THE RITUAL PITS AT BALATONŐSZÖD-TEMETŐI DŰLŐ – A PROOF OF VIOLENCE?

Direct evidence of execution was recorded in pit no. 1489 (burial no. 37 of a 26 to 32-year-old female) where a chipped arrowhead was found wedged in the *vertebrae* during cleaning (fig. 3). In the pit no. 1649, burial no. 64, on the lower rib of a mature male, close to the sternal end of the bone, the trace of a partly recovered fracture can be seen. The fractured bone-ends did not move from their original position, and no signs of healing were detected. It is likely that the fracture of the rib was suffered together with other lethal injuries (Zoffmann 2004b, 113). In the pit no. 1823 a mature man was buried in contracted position, on the right side (burial no. 41). The body was covered with the body fragments of a large amphora. The fill of the pit is burnt, mixed with wattle-and-daub bits. On the skull of burial no. 41, along the *sutura sagittalis* of both *ossis parietales* almost parallel cuts were noticed, caused by most probably the same instrument. The length of the edges at all cuts were 11.5 mm. The direction of traces in line with the *foramen parietale* is at a right angle to the *sagittalis*, but closes at a smaller angle drawing away in the direction of the *sutura coronalis*. On the left parietal bone there are five, while on the right side there are four cuts, but two cuts among the right-side injuries are almost identical trails, their ends abut. The depth of the injuries is a fraction of a millimetre, therefore the *corticalis* is not affected, the healing process must have been quick and easy, because cracking or inflammation of the skull is not visible. Nevertheless, there is an oval, 42×30 mm sized dual blow above *lambda*-point extended to both *ossis parietales* whose shared longitudinal axis is at an angle of 45° with the *sutura sagittalis*. The strength of the hit indented the skull, but no signs of *endocranial* or *ectocranial* cracking were detected around the injury. The deepest indented points are 18-20 mm apart. The inflammation again has no visible signs. What is more, the nostril of this man was also hit, breaking the arch of the nostril bridge in the lower part. At this time also traces of cracking were found on the inner sides of the bones, but the recovery again run its

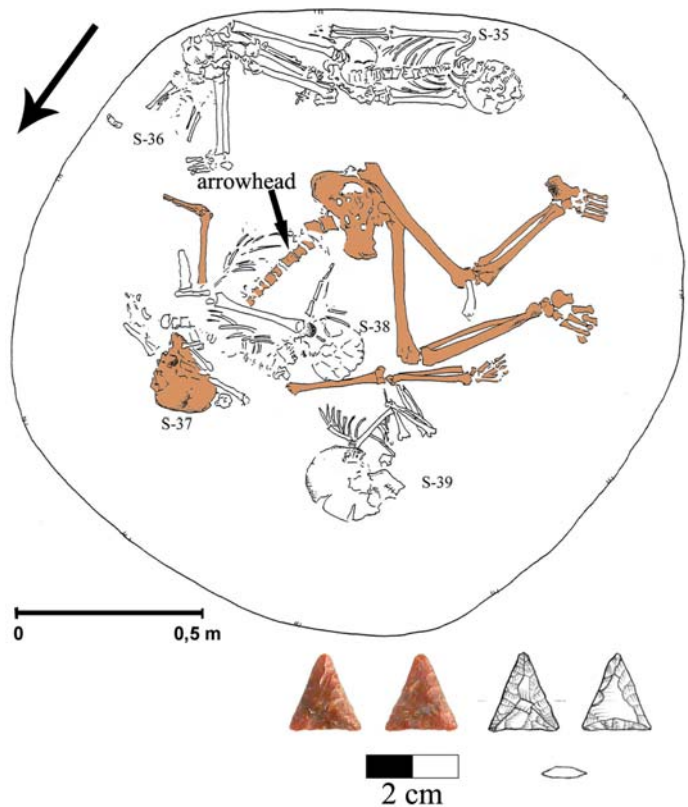


Fig. 3 Balatonőszöd-Temetői dűlő (Kom. Somogy), the sacrificial pit no. 1489. – (Photo T. Horváth; drawings K. Belényesy).

course without inflammation. After all, this man has survived all the cranial and nasal injuries without any inflammation, but the fact whether he suffered them simultaneously or not, cannot be confirmed (Zoffmann 2004b, 113) (fig. 4).

A similar burial custom was documented in pit no. 2116, where the human body (no. 53) was also in a contracted position, on the right side. The burial was covered with fragments of pottery, more densely around the head and scarcely on the other parts of the body. The filling of the pit was mixed with ash. The cervical *vertebrae* were missing. Moreover, the *fibulae* of a 23 to 29-year-old medium stature male had been deformed, probably caused by a fracture. The bone became flattened in one direction and doubled its extension on the other side, but again no visible remnant of inflammation was noticed (Zoffmann 2004b, 114) (fig. 5). Both cases were clustered among settlement burials and were connected due to the similarities in concomitant features such as pathologic deformities and pottery lied above the bodies.

Overlying pottery on graves is relatively rare among the various burial rituals of the Baden culture. In this case perhaps two prestigious men (warriors/hunters?) were buried, who were probably dangerous for the Balatonőszöd community, carrying out strong physical work in their life, and even filled the people with fear after their deaths, and for this reason they were drastically blocked by the defensive layer of pottery from the living. Nevertheless, the shallow skull injuries of the man found in pit no. 1823 can be interpreted as rather symbolic wounds caused also by a human hand, but in a planned way, not as a result of fighting. In this last case the cuts should have been deeper, accidental and not directed. This intended injury among many ages and cultures mostly resembles the symbolic trepanations. In case of the Late Copper Age cultures, it might be understood as a rite of passage, during which the skull was marked by the souls or the ghosts of the ancestors.



Fig. 4 Balatonőszöd-Temetői dűlő (Kom. Somogy), the sacrificial pit no. 1823. – (Photos F. Dénes / T. Horváth).



Fig. 5 Balatonőszöd-Temetői dűlő (Kom. Somogy), the sacrificial pit no. 2116. – (Photos F. Dénes / T. Horváth).

MECHANICAL INJURIES OF PERSONS FROM THE CEMETERY IN BALATONLELLE-FELSŐ-GAMÁSZ

In case of the adult-mature aged man buried in the grave no. 372, a fracture was documented on the root of the nose by Zs. K. Zoffmann (2006, 98). In the grave of a mature man (no. 507) the signs of dislocation and fracture were noticed on the right shoulder-joint (Zoffmann 2006, 98).

ANTHROPOLOGICAL DATA ON THE LIFESTYLE

Anthropological features, noticed mainly as uncommon pathologic abnormalities, can also extend the information on the circumstances of life, or the lifestyle of the Boleráz/Baden population, especially those deformities due to inadequate nutrition and inadequate intake of vitamins as well as minerals. Most frequently porotic hyperostosis (*cribra orbitalia et cranii*) was diagnosed. This deformity was best noticed on the frontal and parietal bones of the *neurocranium*, but mainly on the upper part of the *orbita*, typically among children (Balatonőszöd, burials nos 29, 45) and juvenile/adult aged females (Balatonőszöd, burials nos 20, 62; Balatonlelle, graves nos 372, 405) (fig. 6). In the background of this iron-deficiency disease, there is usually an iron deficiency in the diet, such as nutrients lost to intestinal parasites, or an increased

iron use, perhaps the abrupt loss of iron (caused by sudden growth, infection, childbirth). Features of nutrition stress, periodic starvation are usually detectable on long bones (Harris-lines) and on tooth crown surfaces (enamel *hypoplasia*, e. g. Balatonőszöd, burial no. 56). No other vitamin-deficiency diseases, such as *scorbut* or *rachitis* were observed, which proposes that the nutrition of both populations was relatively adequate.

Neither series produced outstanding occurrence of dental cavities (Balatonőszöd: on the base of 254 teeth from 14 adult persons, burials nos 26, 41, 44, 74, 79; Balatonlelle, graves nos 291, 371, 407, 489), cysts/abscesses (Balatonőszöd, burials nos 19, 41, 64, 74; Balatonlelle, graves nos 291, 407, 489, 496), and *ante mortem* loss of teeth (Balatonőszöd, burials nos 59, 64), which also indicates characteristics of nutrition, and the composition as well as preparation of food⁵. Various types, frequently multiplied dental lesions were observed at Balatonőszöd at all age groups and both sexes, while at Balatonlelle almost exclusively men were diagnosed with such features (Zoffmann 2004b, 118; Zoffmann 2006, 98 tab. 3).

Traces of bone cancer were documented in the adult female grave no. 142 on the right *tibia*, on the left *tibia* of an adult male in grave no. 535, and on the right *ulna* of a mature man in grave no. 536, all excavated in Balatonlelle (Zoffmann 2006, 98), and at Balatonőszöd, burial no. 27, on the right *tibia* (Zoffmann 2004b, 112).

The appearance of *arthritis/artrosis* on the long bones (and *spondylosis/spondylarthrosis* on the *vertebrae*) is a typical disease in prehistoric times. This syndrome was more frequently present in the Balatonlelle series (Zoffmann 2006, 98). The presence of this disorder is probable due to the moistness of houses (about *Pfahlbau*-type buildings see: Horváth et al. 2007). The survey showed that frequency and distribution of these diseases correlates with aging, and males were more exposed to them. It is interesting that these abnormalities were also presented in the younger adult-age groups.

M. Mauss thinks that in the Late Copper Age the human body was the first and primarily used tool and implement of a man (Mauss 2004, part 6). This can be exemplified on the body of a 39 to 43-year-old female (burial no. 42), who was dropped into pit no. 1657 at Balatonőszöd. The estimated height of this gracile woman is small-medium, but the muscular tissues on the *humeri* are quite strong, possibly as a consequence of a special type of work (Zoffmann 2004b, 113-114). The same situation was observed on the burial no. 79, pit no. 2635. Additionally, visible signs of overuse of different sets of muscles, namely *enthesopathy*, were detected on both heels of a 24 to 34-year-old female (no. 69), and on the *patella* and the heel of a 44 to 52-year-old male (no. 75), both from pit no. 1099 (Horváth / Juhász / Köhler 2003, 282).

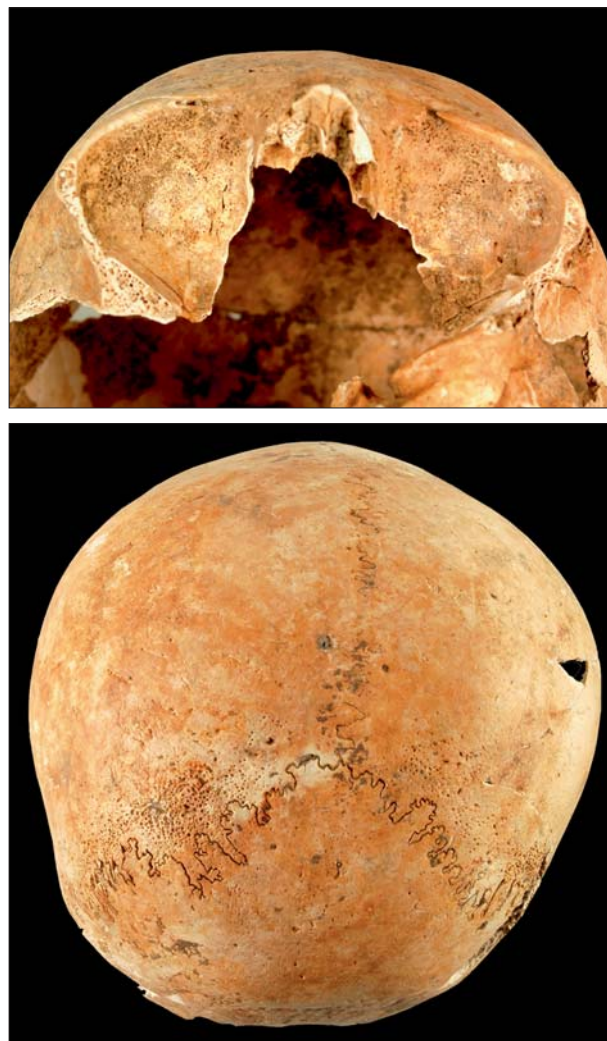


Fig. 6 Balatonőszöd-Temetői dűlő (Kom. Somogy), the sacrificial pit no. 1612, burial no. 45. Porotic hyperostosis, porotic type. – (Photos F. Dénes).



Fig. 7 Balatonőszöd-Temetői dűlő (Kom. Somogy). – **A** sacrificial pit no. 1106. – **B** skull of burial no. 27. – (Photos T. Horváth / F. Dénes).



Fig. 8 Balatonlelle-Felső-Gamász (Kom. Somogy), grave no. 291. Severe abrasion on the incisors and abscesses on the upper dental arch. – (Photos F. Dénes).

In pit no. 1106, burial no. 27, a 23 to 27-year-old male was discovered, lying prone as dropped accidentally into the pit. The cervical *vertebrae* were not found during the excavation. The upper two M3 teeth were vestigial; on the remaining teeth second stage abrasion was documented, except for the even more worn incisors, where the severe abrasion is in all probability connectable to some kind of working method (Zoffmann 2004b, 112). Furthermore, a tumescence was detected on the outer edge of the *tibia*, but without visible signs of inflammation. On both *femuri*, but mostly on the right, there are longitude erosions on the frontal and medial surfaces, having more or less definite rims, but always attached to uneven, pitted exteriors. In case of the right *femur*, this corrosion is approx. 7 cm long on the front side, along the inner edge it is 2 cm, while below it is 2.8 cm. On the left *femur* the deformation was detected on the forward edge as two, 1.6×1.6 cm and 1.4×1.4 cm long connecting traces, and on the outer side as a 6 cm long erosion (Zoffmann 2004b, 112) (fig. 7).

In addition to this, in the dentures of a mature aged male discovered in grave no. 291 at Balatonlelle, there were similar groove-like artificial abrasions on the occlusal surfaces of the incisors. Furthermore, an abscess was observed on the outer side of the *maxilla*, at the line of the M2 (figs 8; 10A).

Besides, unusually intense abrasions were detected on the M1 and M2 teeth on both sides of another mature man unearthed in grave no. 536. In case of the upper teeth it sloped with an angle of 45° to the inner side, while the lower teeth sloped in the same way to the external side, the abrasion even reached the *pulpae*. Both surfaces of the right upper I2 were artificially polished, so the size of the tooth became half the size of the original. Both rims of the polished tooth are sharp, but the treatment did not hurt the neighbouring teeth (Zoffmann 2006, 98). This operation must have been functional rather than aesthetic or a sign of social rank; due to the severe usage of teeth it likely fractured and the procedure helped on further usage of the tooth (fig. 9). The functionality must be emphasised here, because other examples are



Fig. 9 Balatonlelle-Felső-Gamász (Kom. Somogy), grave no. 536. Artificially polished upper right second molar and intense abrasion on molars. – (Photos F. Dénes).



Fig. 10 Balatonlelle-Felső-Gamász (Kom. Somogy), grave no. 291 (A) and pit no. 117 (B). – (Photos B. Nagy).

known from this period of the Copper Age from the cemetery of Durankulak (obl. Dobritsch/BG), where such actions were carried out because of the before mentioned reasons⁶.

BURIAL CUSTOMS

In the Boleráz/Baden culture numerous examples of *post mortem* treatments were documented until now, such as the renowned skull trepanation from the settlement found at Zillingtal (Bz. Eisenstadt-Umgebung/A; Kritscher 1985).

A similar feature was observed in the grave no. 291 at Balatonlelle (fig. 10A). The contour of the grave appeared unclearly, the human bones were found scattered on different levels of the filling material. During the disinter it turned out that the reason for this was a later shaft, firstly interpreted by the archaeologist as a robber trench. But this robbery only demolished the lower part of the grave pit, the *pelvis* and both legs were missing. Surprisingly, 1.5-2 m north off the burial, all missing bones were luckily found in pit no. 117. As the bone remains were compared, it appeared that one fragment discovered in pit no. 117 (fig. 10B) can be entirely matched to another fragment from grave no. 291, along the fractured surface.

Signs of fracture and visible remains of cuttings on the right side of the *pelvis* and also on the right *femur* were detected on other human bones from pit no. 117. In our opinion the purpose of this deliberate contamination of the grave was not robbery. Concerning the date of the disturbance, it is important that the

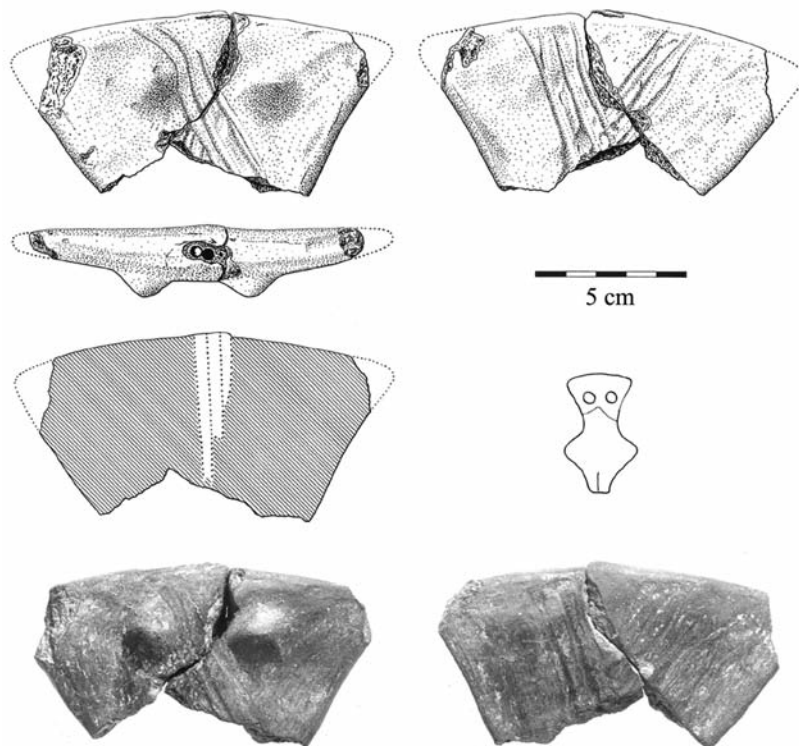


Fig. 11 Balatonőszöd-Temetői dűlő (Kom. Somogy). Fragment of a headless female figurine. – (Photos T. Kádas; drawings S. Ósi).

moved body parts were found in an anthropological order in the other pit, which suggests that the action took place when the body was not completely dissolved (fig. 11)⁷.

At Balatonőszöd, further evidences were identified that the buried individuals were manipulated:

- pit no. 981: beside the remains of a 16 to 18-year-old female (burial no. 24) and a 2 to 3-year-old child (burial no. 25), the leg bones of an adult male (burial no. 90);
- pit no. 1196: fragment of a leg bone (burial no. 101);
- pit no. 1228: right *femur* of an adult male (burial no. 92), together with an anthropomorphic weight, accompanied by additional finds;
- pit no. 1334: fragment of a human skull (burial no. 34), beside this pit a ritual pit (no. 1331) with a sacrificed bovine;
- pit no. 1444: fragment of a left *mandibula* (burial no. 102);
- pit no. 1486: fragment of an upper arm (burial no. 96);
- pit no. 1565: fragment of a right *femur* (burial no. 103);
- pit no. 2236: skull side-fragment of an adult (burial no. 73), with a polished red ochre lump;
- pit no. 2298: fragment of a leg bone (burial no. 100);
- pit no. 2327: fragment of a skull (burial no. 93) together with ritual offering objects and loads of additional finds;
- pit no. 2480: side-fragment of a mature aged person's skull (burial no. 68);
- pit no. 2647: skull and upper arm fragment of two persons (burials nos 97, 98);
- pit no. 2668: fragment of the facial skull of an adult-mature female (burial no. 88), together with parts of a bovine;
- pit no. 2686: fragment of a skull (burial no. 99);
- pit no. 2797: fragment of a right *femur* (burial no. 104).

The excavation demonstrated that among secondarily disturbed human bones only special parts of the body, namely the head and the limbs were separated, and dislocated from the original grave.

CULTIC FINDS

There is an interesting relation between the body manipulations and the other characteristic object-type of the Baden Age belief, the anthropomorphic figures (Horváth 2010c, 83-100). The typical »idol« of the Baden culture is the so-called Thessaly-type idol with a flat, moveable head, which usually resembles emphasised female traits. The head is usually missing; its place is indicated by one, or in some cases two or three hollows deepened into the body. Consequently, the head, or the heads were made up of some non-permanent material during the ritual. Despite the incompleteness of these statues, it is clearly evident that the extremities are intentionally absent, or represented as mangled (fig. 11). Thus, it may be inferred that there was a strong cult connected to head and extremities in the Baden culture. This idea is highlighted by the findings at Balatonőszöd, where unearthened idols, human burials as well as ritual pits were uncovered in close proximity. At last, the representation of the anthropomorphic figures, which were presumably prepared for ritual ceremonies (initiation ceremony?) and the cult of the dead and the ancestors (*post mortem* bone manipulations), reflects similar background motifs in two important categories of the ritual beliefs and ceremony.

The nature of the cult can only be circumscribed. Anthropological studies showed that the secondarily or later re-positioning of the ancestors' bones together with the usage of the feminine figures is mostly connected to various rites of initiation to adulthood. Besides, anthropologists detected that face masks were used at almost all initiative ceremonies. The choreography of changing the head (*imago/alterego*), and the covering of the face are already followed by the formation of contemporary miniature figures. Interestingly, at Balatonőszöd also a burnt clay lifelike mask depicting a male face was excavated, surrounded by human as well as animal burials (Horváth 2004a; Horváth 2010e). This lucky research situation allows lining up the complete tool set of an initiative ceremony in retrospect of 5000 years (fig. 12).

Considering the entirety of the Baden culture, the population is defined by the *dolichocran* Mediterranean element, more closely by the dominance of the gracile-Mediterranean type component. At the same time, the proportion of the *Nordoids* and *Cro-magnoids*, which were determinative beside the Mediterranean types in the earlier era, is negligible. This change in the anthropological features in the Late Copper Age, with the increased presence of the *brachycran* individuals (so-called Alpine type) may denote the arrival of a new population into the Carpathian Basin. While in the preceding Bodrogkeresztúr culture (Middle Copper Age) the proportion of this component was below 5% (Zoffmann 1992), in the Late Copper Age it approaches 20% (in the Budakalász cemetery it is 17%, at Alsónémedi [Kom. Pest] it is 25%), demonstrable – in a much smaller proportion – in the series of the Lake Balaton region (Nemeskéri 1951a; 1951b; 1956; Zoffmann 1992; 2004b; 2006; Köhler 2008).

In order to eliminate the obscurity of the taxonomic analyses, the classic anthropological features of a given population can be described on the basis of metric data-categories (according to the so-called Aleksejev / Debec description [1964]). Zs. K. Zoffmann applied one such method, when she investigated the process of local development on the face measures, which were less exposed to gracilisation process, when she built up a system of various type-variants (A-D types, a-d subtypes). Based on this method, the previously presented, increasingly gracile, high-*leptomorph* faced (B3), and the low-*eurymorph* face-type variants (C4) disappear, while the robust variants of the high-*leptomorph* face-types (B1-B2) appear, which, according to the author, signs the overall exchange of inhabitants in the area. At the same time, there is a continuity between the low-*leptomorph* faced population (D1-D2) of the Middle Copper Age and the robust representatives of the low-*eurymorph* type-variant group (C1-C2) of the Pit-Grave culture (Zoffmann 1992).

From another perspective, but similarly using metric data supplemented by morphologic characteristics, and the regular appearance of the various combinations of the interconnected dimensions and attributes,



Fig. 12 Balatonószöd-Temetői dűlő (Kom. Somogy), pit nos 1072-1096. The fragment of a male face mask. – (Photo F. Dénes; digitalisation Zs. Réti).

beside typological variegation, there are four major types in the Baden population: (a) high-faced, robust *leptodolichocran*; (b) low-faced, gracile *leptodolichocran*; (c) low-faced *eurydolichocran*; (d) high-faced *leptobrachycran*, with curvoccipital nape-profile. In contrast to the previous periods, the proportion of the *lepto*- and *eurydolichomorph* types changes, resulting from the spread of the *leptodolichocran* individuals in the population of the Late Copper Age. Besides, the proportion of *brachycran*-type inhabitants also increased. This modification of types and type-variants also marks the arrival of a new ethnical component in the Carpathian Basin (Zoffmann 2006).

In addition to the above-mentioned traditional taxonomic and typological analyses, several biostatistical methods are employed to determine the origins of a given population and the possible relations between various populations. One of these is the Penrose distance analysis, the statistical comparison of the standardised mean size values of skull series (Penrose 1954). Zs. K. Zoffmann carried out a comparative Penrose

analysis of three series of the Baden culture (1. from the vicinity of Budapest; 2. around Lake Balaton; 3. other isolated finds; Zoffmann 1986-1987; 1992; 2004a; 2006).

The so-called C_R^2 index shows the potential biological/genetical connections between the Middle Copper Age (Bodrogkeresztúr culture?) and the Late Copper Age, which was detected first time at the cemetery of Balatonlelle. This is very peculiar, since the site was not on the territory of the former Bodrogkeresztúr culture. Such similarities between the Bodrogkeresztúr and the other Baden series (environment of Budapest; and other sporadic Baden finds) is not detectable. Furthermore, the Balaton series has no kind of significant connection with the two other Baden series. The different Penrose results of the Balaton series maybe caused the first, conventional studied Boleráz skeletons (Zoffmann 2006, 100), which were described as the early phase of Baden culture (1b-c).

Further on, we tried to trace back the anthropological features to the realistically formed clay mask fragment excavated at Balatonőszöd, which is neither idealistically nor schematically shaped. Still, it is a quite hypothetical attempt. However, this mask seems quite authentic, significant information is missing on the shape of the skull, hair, body form, physique, which could notably contribute to the dilemma on the anthropological characteristics.

The shape of the face is defined by the height and the wideness, which in this case, seems rather wide and low, roundish. The *zygomatic* arches are represented with thin bands of clay under the eyeholes, suggesting that the face is protruding. On the whole, the data refer to a wide-faced, *euryprosop*-type person. The representation of the eyes proposes that the deep-seated eyeballs are relatively large compared to the face, but the distance between the eyes is small in contrast to the size of the face. The eyelashes and the eyebrows are not signed. The mouth is basically narrow, and denoted with a straight deep incision. The chin is rather wide, resembling a male. From the corner of the mouth to the chin, narrow, hardly indistinct incised lines show moustache and beard, clearly referring to the masculine feature. The most characteristic part of the mask is the nose, which is by all means an individual trait and at the same time an important taxonomic mark. In front view, the line of the nose is distinctly angular. In profile, the relation of the nose and the line of the face is clearly visible, being extremely protuberant and straight. This is an anthropological feature of the Europid-type population. In worm's-eye view another distinctive mark is the shape of the earlobes, which are in upward position and also protuberant. The nostrils are narrow and parallel; again resembling Europid-type traits.

Among the anthropological components of the period basically the long-headed and long-faced types (Mediterranean) dominate, which can represent the »average« Baden man. In contrast to this, the mask found at Balatonőszöd may represent a wide-faced man.

All in all, 77 human skeletons or skeleton-parts were excavated at Balatonőszöd (**tab. 1**), but only the osteological material of four males and eight females were suitable for any typological analysis, which helps us to reconstruct the population of this fragmentary series.

Based on this, we may establish that the *doliocho-hyperdolichocran* skulls dominate in the series. The forehead, the facial, the orbital, and the nasal measurements and indices are very heterogeneous. Just a few skulls showed the wider faced, so-called *eurymorph/euryprosop*-type face (pit no. 1106, burial no. 27; pit no. 1277, burial no. 31) among them (**fig. 7**).

In the series from Balatonlelle altogether 45 individuals were found. But in the very fragmentary skeletal material only two males and one female from the Boleráz period and three males and one female from the Baden period were suitable for any metric and morphological analysis. The skulls from the Boleráz period show heterogeneity, which means that among them there were one *brachycran*, one *mesocran* and one *dolichocran*, while the skulls from the Baden period all were *dolichocran*. The facial indices in the case of the two Boleráz male skulls were *mesoprosop/mesen* and *leptoprosop/lepten*, according to indices,

feature no.	burial no.	skeleton	chro-nology	pathology	finds	position	age in years, sex	character
203	66	total	IIA	–	animals vessels	contracted	1.5	sacrifice
426	19	total	IIB-III	deaf	multi-layered pit	thrown	52-58 ♀	sarifice
426	23	total	IIB-III	?	multi-layered pit	thrown	?	sacrifice
426	67	total	IIB-III	robust	child	contracted	3-4	grave
426	89	total	IIB-III	–	male	contracted	33-39 ♂	grave
1085	91	total	III	–	tools, animals	?	5-6	grave
1612	45	total	IIB-III	blind, <i>anaemia</i>	animals	thrown	6-7	sacrifice
411	2	total	Baden?	–	–	thrown	adult	sacrifice
442	4	total	Baden?	–	–	contracted	adult	grave
647	10	total	Baden?	–	–	thrown	adult	sacrifice
744	20	total	IIB-III	deaf	–	contracted	17-22 ♀	grave
744	21	total	IIB-III	<i>cribra orbitalia</i>	–	thrown	9-11	grave
744	22	skull	IIB-III	–	–	–	–	<i>post mortem</i>
962	26	total	Baden?	–	–	thrown	–	sacrifice
981	24	total	IIB-III	–	vessel	thrown	16-18 ♀	sacrifice
981	25	total	IIB-III	–	vessel	thrown	2-3	sacrifice
981	90	<i>femur</i>	IIB-III	–	vessel	thrown	♂	<i>post mortem</i>
1099	69	total	Boleráz/ Baden?	enthesopathy on the <i>calcaneum</i>	dog and other animal bones	thrown		sacrifice
1099	70	total	Boleráz/ Baden?	–		thrown		sacrifice
1099	72	total	Boleráz/ Baden?	–		thrown		sacrifice
1099	81	total	Boleráz/ Baden?	robust		thrown		sacrifice
1099	75	total	Boleráz/ Baden?	enthesopathy on the <i>calcaneum</i> and on the <i>patella</i>		thrown		sacrifice
1099	82	total	Boleráz/ Baden?	–		thrown		sacrifice
1099	83	total	Boleráz/ Baden?	–		thrown		sacrifice
1099	84	total	Boleráz/ Baden?	–		thrown		sacrifice
1099	86	total	Boleráz/ Baden?	–		thrown		sacrifice
1099	87	total	Boleráz/ Baden?	–		thrown		sacrifice
1106	27	total	IIB-III	teeth abrasion, leg-overexertion	animal bones	thrown	23-27 ♂	sacrifice
1196	101	<i>femur</i> fragment	IIB-III	–	refuse pit	thrown	adult/mature ♂	<i>post mortem</i>
1228	92	<i>femur</i> fragment	IIB-III	–	refuse pit	thrown	♂	<i>post mortem</i>
1236	28	total	uncharac- teristic	<i>cribra orbitalia</i>	–	thrown	16-18 ♀	sacrifice
1236	29	total	uncharac- teristic	<i>anaemia</i>	–	thrown	15-17	sacrifice
1277	31	total	IIB-III	gracile, spinal complaint	vessel	thrown	34-40 ♀	sacrifice
1277	32	total	IIB-III	–	vessel	thrown	8	sacrifice
1277	33	total	IIB-III	–	vessel	thrown	3	sacrifice
1334	34	skull fragment	IIB	–	refuse pit	thrown	adult	<i>post mortem</i>
1444	102	skull fragment	IIB-III	–	refuse pit pit	thrown	adult? ♂ ?	<i>post mortem</i>

Tab. 1 } means: supposed members of one nuclear family (child/children, husband, wife).

feature no.	burial no.	skeleton	chronology	pathology	finds	position	age in years, sex	character
1486	96	arm fragment	IIB-III	–	refuse pit	thrown	adult	<i>post mortem</i>
1489	35	total	IIB	–	–	thrown	10-12	sacrifice
1489	36	total?	IIB	–	–	thrown	infans I.	sacrifice
1489	37a	skull?	IIB	–	–	thrown	23-27 ♂	sacrifice
	37b	body?			arrowhead	contracted	26-32 ♀	sacrifice
1489	38	total	IIB	–	–	contracted	–	sacrifice
1489	39	total	IIB	–	–	contracted	6-7	sacrifice
1489	+	body?	IIB	–	–	contracted	mature ♂	sacrifice
1565	103	<i>femur</i> fragment	IIA/B	–	refuse pit	thrown	adult ♀	<i>post mortem</i>
1617	62	total	IIB-III?	<i>cribra orbitalia</i>	–	contracted	14-15	grave
1649	43	total	IIB	nasal septum deviation	vessels, tools	thrown	14-16	grave
1649	63	total	IIB	–	vessels, tools	thrown	infans II.	sacrifice
1649	64	skull	IIB	robust	vessels, tools	thrown	mature ♀	sacrifice
1649	65	skull	IIB	–	vessels, tools	thrown	adult ♂	sacrifice
1657	42	total	uncharacteristic	gracile, strong arms	animal bones	thrown	39-43 ♂	sacrifice
1823	41	total	IIA	robust, skull trepanation marks and injuries	vessel	contracted	55-59 ♂	grave
1832	46	total	IIA	–	tools	thrown	4-5	sacrifice
1832	47	total	IIA	–	tools	thrown	7-8	sacrifice
1896	44	total	uncharacteristic	gracile, pigeon-breasted	animal bones, calf-skeleton	thrown	22-28 ♀	sacrifice
1915	48	total	IIB-III?	<i>cribra orbitalia</i>	stone axe, animal bones	contracted	1-1,5	grave
1915	71	skull?	IIB-III?	–	vessels	–	–	grave
1992	59	total	IIA	nasal septum deviation	vessels	contracted	43-47 ♀	grave
2019	50	total	IIB-III	–	vessels	contracted	17-19 ♀	grave
2058	56	total	IIA-B-III	<i>anaemia</i>	vessels, tools	contracted	7-8	grave
2102	52	total	IB-C	–	vessels, tools	thrown	13-14	sacrifice
2116	53	total	IIB-III	spinal complaint, broken <i>fibula</i>	vessels	contracted	23-39 ♂	grave
2236	73	skull fragment	II	–	antler-axe	thrown	adult	<i>post mortem</i>
2298	100	<i>femur</i> fragment	IB-C	–	refuse pit	thrown	adult/ mature ♂ ?	<i>post mortem</i>
2327-2346	93	skull fragment	IB-C	–	pit with sacral refuse	thrown	?	<i>post mortem</i>
2344	58	total	IB-C?	–	pig skeleton	contracted	16-18 ♂	grave
2363	60	total	IB-C-IIA?	–	vessels, animal bones, ocker	contracted	30-40 ♀	grave
2480	68	skull fragment	IIA	–	vessels, animal bones	thrown	mature	<i>post mortem</i>
2614	74	total	IB-C	broken <i>ulna</i>	vessels, animal bones, tools	contracted	adult/ mature ♀	grave
2635	79	total	IB-C-IIA	gracile, strong arms, disabled head	auroch skull	contracted	59-70 ♀	grave
2647	97	<i>femur</i> fragment	IB-C	–	refuse pit	thrown	adult	<i>post mortem</i>
2647	98	skull fragment and arm fragment	IB-C	–	refuse pit	thrown	adult ♀ ?	<i>post mortem</i>
2668	88	face-skull fragment	IB-C-IIA?	–	refuse pit?	thrown	adult/mature ♀	<i>post mortem</i>
2686	99	skull fragment	IB-C	–	refuse pit	thrown	adult ♀ ?	<i>post mortem</i>
2797	104	<i>femur</i> fragment	IB-C	–	refuse pit	thrown	adult? ♀ ?	<i>post mortem</i>
2800	85	total	IB-C?	–	chipped stones	contracted	10	grave

while in the case of the grave no. 291, which belongs to the Baden period these indices were *euryprosop/euryen*.

A different character can be observed between the Boleráz and Baden finds, which occurred in the populations of the Transdanubian Late Neolithic (or in the Hungarian terminology Late Copper Age); on the basis of our present knowledge, we are not able to clarify that this is caused by the meeting or mixture of the local, autochthonous, Middle Copper Age population and the migrants (Boleráz: North and Central European Funnel Beaker culture?; Baden: South-Eastern European cultures?), or the Late Copper Age Boleráz and Baden populations were basically heterogeneous, when arrived in the Carpathian Basin (Zoffmann 2004b, 118).

Finally, it seems that this mask tried to personalise a rare, underrepresented type of man in the period of the Baden culture. The completely strange Europid features can be connected to the Alpine-type⁸, or more possible the Steppe-type (Horváth 2009; Horváth 2011) population of the Pit-Grave culture, or Tripolje-Usatovo culture (fig. 12).

CONCLUSION

After all, what conclusions can be drawn from these two excavated Boleráz/Baden sites, which may be epoch-making in the research of the Boleráz/Baden period? First, the close vicinity of the sites supported that they should be compared. After the excavation and the primary study of the findings it became clear that similarly to other Boleráz/Baden sites, the overwhelming majority of graves are known from settlement burials, which are more frequent than cemeteries in the territory south of the Balaton Lake, too. Besides, investigations pointed to the fact that these settlements are rather to be interpreted as seasonally visited farmsteads, than permanently habited long-lived settlements. The series of this type of sites in the given geographical region along a rivulet outline the settlement traces of a periodically mobile, but not semi-nomadic blood-tied community living mainly from extensive animal husbandry (shifting agriculture), which was completed with small-scale farming (Horváth 2008a; Horváth 2010b). Generally, the changing of the seasons plays a crucial role in the life of such communities. The moving of the animals slows or stops in the winter period (winter-lodgings) and then the people crowd into a more permanent, presumably centralised site, where the public and religious communication becomes more intensified, than in the dry and warm seasons. Most important events such as weddings, funerals, religious rites, status-contests, financial and trade businesses, feasts take place during the wintertime. Consequently, those communities, which pursue such a way of life, produce much more settlement traces than burial places or cemeteries, and there are often differences in the hierarchy of the sites (for example central, fortified sites appeared in the southern Balaton region).

At the same time, the burial places – as strictly separated areas from the habited space – have a central, above-community social and geographical role, due to their temporal and spatial permanency. Such burial sites might have functioned as the resting-place for more families or village-communities (such as Balatonlille-Felső-Gamász).

In case of a seasonal settlement, during 600-800 years a large number of people might have been buried⁹, but, as the example of Balatonőszöd showed, the reason for the intrasite burials differs from that for the regular funerals in regular, extrasite cemeteries. Here, in most cases humans were sacrificed due to various ritual reasons. The distinction between the two types of burials is that more females and children seem to have been sacrificed, but this shift in the proportion can be affirmed in almost all prehistoric periods between intrasite burials and regular cemeteries. Still, the present study pointed to a new aspect, namely that

there is an outstandingly high occurrence of physical deformities (proved pathological diseases as dumbness, deafness, pigeon-breastedness, lameness) among sacrificed humans. It seems that at Balatonőszöd more likely physically or mentally handicapped persons were chosen for the ritual offering. Similar examples are noted by antique authors (such as Julius Caesar) in connection with human sacrifices of the Celts and Germanic peoples (Caes. Gall. 6, 16).

The marshy-moist ecological habitat along the southern shore of the Balaton Lake provided unquestionable advantages concerning the settlement; however, among its inconveniences there were numerous diseases induced directly by the surrounding nature, mainly deficiency diseases (vitamines and iron), which were in proportion to the hygienic, economic relations of the period. The similar natural environment as well as the way of life produced alike syndromes, pathological deformities in the neighbouring communities.

Finally, these common geographical, climatic circumstances in their physical appearance, might have led to violence inside the community. The common environment and lifestyle induced similar and deficiency diseases and pathologic deformities. At last, these problems became involved into the intensifying and more aggressive ritual-religious ceremonies, and appeared as the regular elements of the choreography, and perhaps these rites were presented on a higher organisational level of society than a village-community.

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Notes

- 1) Among the Hungarian scholars dealing with the Baden culture here we would like to mention only some distinguished names from the period between 1950 and 2000: J. Banner (1956), M. Bondár (2002), J. Csalog (1961), A. Endrődi, N. Kalicz (1963), J. Korek (1983), J. Makkay, I. Torma.
- 2) See e.g. Leuzinger 2000; de Capitani et al. 2002. – Radical changes in the chronology of the Balkan in the relation to Baden-like pottery: Maran 1998a; Maran 1998b. – About the problems with anthropological interpretation see: Horváth 2008a; Köhler 2008.
- 3) E. Neustupný (1968) dated the greater part of the Baden culture based on ¹⁴C data to pre-3000 BC. – In the volume of the Baden-symposium issued in 1973 there are several studies dealing with the local origin and the surviving traditions were notably stressed (Chropovský 1973, e.g. articles of M. Godłowska, R. Hachmann, S. Šiška). – Unfortunately, determining finds from the 1950s such as the cart-model from Budakalász (Kom. Pest) or the anthropomorphic urns from Ózd (Kom. Borsod-Abaúj-Zemplén) directed the research to the south-south-eastern territories, while local elements, or the role of local motifs in the formation of the culture was totally neglected (see e.g. Kalicz 1963). – For the new chronological framework of the Hungarian Late Copper Age see: Horváth 2009; 2011; 2012b.
- 4) Pit no. 1841: a mature cow was found, with an injury caused by a stone-axe on the lower jaw-bone (Horváth 2010b, 54-55; Horváth 2010f).
- 5) In contrast to the neolithic anthropological finds in the Late Copper Age the human molar teeth not showed dynamic abrasion (the degree of the abrasion is 1-2), which was caused by the frequently use of grinder (the small stone pieces got into the food). This observation is correlated with the lack or very few number of grinders among the Baden finds, and the hypothetical semi-nomadic/mobil stock-breeder lifestyle of the culture: Horváth 2010d.
- 6) Hansen 2005, 50 fig. 29. – In the Middle Copper Age cemetery, the lower jaw-bone was moved *post mortem*, and a copper ring was placed on the lower molar.
- 7) Similar secondary manipulations were detected at Ratzersdorf's burials (Bz. St. Pölten/A; Krumpel et al. 2008).
- 8) In this case it can be connected to the Central-Western European region and the so-called Badenisation process, see: Köninger / Kolb / Schlichtherle 2001; Horváth 2008b, Horváth 2010f.
- 9) The Balatonőszöd site exists continuously from the Boleráz Phase IB to the end of the Classic Baden Phase III, according to the typology of the ceramic material. – For the absolute date of the site see: Horváth / Svingor / Molnár 2008; Horváth 2009; 2012a; 2012b.

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Leben und Tod: Grabrituale der Badener Kultur am Balaton in Transdanubien

Dieser Artikel bietet neue Einblicke in die Lebensweise der späten Kupferzeit: Behandelt werden physische und geistige Hinterlassenschaften der Bevölkerung der Boleráz-/Badener Kultur von zwei benachbarten Fundstellen in Ungarn, nämlich Balatonőszöd-Temetői dűlő und Balatonlelle-Felső-Gamász (Kom. Somogy). Pathologische Spuren belegen Gewalt in der Gemeinschaft, wobei sie immer stärker in den späteren Phasen dieser Kulturgruppe auftritt. Die Leichen wurden oft *post mortem* manipuliert, besonders am Kopf sowie an den Beinen und Armen. Dieses Phänomen findet man auch an den eine Schlüsselstellung bei solchen Zeremonien einnehmenden anthropomorphen Figuren (Idolen). Die Menschen der späten Kupferzeit benutzten Leichen und Körperteile intensiv als Geräte und Waffen, wodurch diese deformiert wurden. Die Dokumentation solcher Veränderungen lieferte reiche Informationen über Arbeitsprozesse, Handwerk oder Handel und sie erlaubt zudem eine nähere Beschreibung sowie Rekonstruktion der Lebensumstände in der Epoche der Boleráz-/Badener Kultur.

Life and death: mortuary rituals of the Baden culture at Lake Balaton (Transdanubia)

The paper provides new insights in the lifestyle of the Late Copper Age, including information on the physical as well as mental traits of the Boleráz/Baden man based on excavation results of two neighbouring sites in Hungary, namely Balatonőszöd-Temetői dűlő and Balatonlelle-Felső-Gamász (Kom. Somogy). Pathological alterations show aggression inside the community, violent feature appearing more and more intensely in the later phases of the culture. Dead people were often manipulated *post mortem*, especially on head, legs and arms. This phenomenon is clearly reflected in the design of another key accessory of the ceremonies, the anthropomorphic figures (idols). The Late Copper Age men used their bodies and body parts intensively as tools and weapons, resulting in their physical deformation. The documentation of such alterations provides abundant information on working processes, crafts or trades and allows a more precise description and reconstruction of the Boleráz/Baden Age lifestyle.

Vie et mort: rituels funéraires de la culture de Baden en Transdanubie au lac Balaton

Cet article présente de nouvelles approches de la manière de vivre à la fin de l'âge du Cuivre incluant des informations sur les traits physiques comme sur les mentalités des habitants de deux sites d'habitat de la culture de Boleráz/Baden qui ont été fouillés à Balatonőszöd-Temetői dűlő et Balatonlelle-Felső-Gamász (Kom. Somogy). Les traces pathologiques attestent de la violence de la société, qui semble de plus en plus marquée dans les dernières phases de cette culture. Les morts étaient fréquemment manipulés *post mortem*, plus particulièrement les têtes, jambes et bras. Ce phénomène est également lisible par un autre élément clé des cérémonies, les figurines anthropologiques (idoles). Les hommes de l'âge du Cuivre utilisaient fréquemment les corps et les morceaux de corps pour en faire des outils ou des armes provoquant des déformations physiques. La documentation de ces altérations fournit une information abondante sur les processus du travail, l'artisanat et le commerce et permet une description plus précise du mode de vie de la culture de Boleráz/Baden.

L. B.

Schlüsselwörter / Keywords / Mots clés

Ungarn / Chalkolithikum / Siedlungsbestattung / Grab / Gewalt / Maske

Hungary / Chalcolithic / settlement burial / grave / violence / mask

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