

FIRKÁK IV.

Fiatal Római Koros Kutatók
IV. Konferenciakötete

Proceedings of the 4th Conference
for Young Researchers of Roman Age



DISSERTATIONES ARCHAEOLOGICAE
ex Instituto Archaeologico
Universitatis de Rolando Eötvös nominatae
Supplementum 1.

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of Roman Age

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Dávid BARTUS and Katalin BORUZS



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Editors:
DÁVID BARTUS
KATALIN BORUZS

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Előszó – Foreword

Idén immár 12. alkalommal került megrendezésre a Fial Római Koros Kutatók Konferenciája, de az elhangzott előadások írott (hagyományos, papír alapú) formában történő megjelenése még sok esetben várat magára. Az első, 2006-ban tartott konferencia óta, melynek előadásai könyv formában már 2007-ben megjelentek, az utóbbi időben az aktuális konferencia és a kéziratok nyomdába kerülése között igen hosszú idő telt el. Ez több szempontból is hátrányos: egyrészt elmarad az új kutatási eredmények közzététele, amik a technika gyors fejlődésének köszönhetően gyakran már 1–2 év távlatából is elavultnak, túlhaladottnak számítanak. Másrészt csökkenhet a publikálási kedv, ami a konferencián elhangzottak szűk körben maradását vonja maga után, esetleg színvonalcsökkenést is.

A 2006-ban indult kezdeményezés, miszerint a római korról foglalkozó, kezdő kutatóknak is szükségük van saját fórumra, bebizonyította, hogy életképes. Az elnöki tisztséget betöltő egyetemi oktatók, elismert szakemberek biztosítják a rendezvények színvonalát, a „fiatalok” gyakorlatot szereznek az előadások készítése és prezentálása valamint a publikálás terén is. Éppen ezért is kifogásolható, hogy az elhangzottak nem „napra készen” jelennek meg. Ezt a „hibát” igyekszünk most kiköszörölni: jelen kötet nyomdába kerülésével a FIROKONF-on elhangzottak 2012-ig terjedően (az I–VII. konferenciáig) nyomtatott verzióban is elérhetőek. Célunk kivitelezéséhez hozzájárultak azok a kutatók, akik ennyi év eltelte után is bíztak a pozitív végkifejletben és rendelkezésünkre bocsátották kézírataikat.

Reméljük, hogy a 2014 óta tartott konferenciák szervezői is optimistán állnak a manapság mostohagyerekként kezelt könyvkiadáshoz és minél hamarabb megtalálják a módját a publikációk megjelentetésének.

A FiRKÁK IV. kötete két rendezvény eddig nem publikált tanulmányait adja közre, emellett színesíti egy korábbi konferenciakötetből kimaradt kézirat, valamint Patay Pál Soproni Sándorra emlékező rövid írása, amivel Visegrád római korának jeles kutatója előtt szeretnénk tisztelegni.

Visegrád, 2018 áprilisában

Boruzs Katalin

Papers presented at the conferences

5th Conference for Young Researchers of Roman Age

26.11.2010–28.11.2010

Organizer: University of Pécs, Faculty of Humanities

Venue: Pécsi Kulturális Központ, Dominikánus Ház

HOPPÁL Krisztina: Minden út Kínába vezet? Avagy a Római Birodalommal kapcsolatba hozható régészeti leletek problematikája

GÁBLI Cecília: Plinius a gemmákról

TÓTH István Zsolt: Beszámoló a Pécs Janus Pannonius u. 10. (Rózsakert) területén végzett 2010. évi régészeti kutatásokról

BORHY László – SZÁMADÓ Emese – DÉVAI Kata – BÓZSA Anikó: Brigetio polgárvárosának II. számú temetője (Komárom, Mártírok útja, Lidl)

SZABÓ Ernő: A collegiumok temetkezési hozzájárulása Pannoniában

NAGY Levente: Római lelőhelyek védetté nyilvánítása 2001 és 2009 között

LASSÁNYI Gábor: Pannonia kifosztása

WILHELM Gábor – SÓSKÚTI Kornél: A Kiskundorozsma-Nagyszék lelőhelyen előkerült szarmata települések (2-5. század) római készítésű kerámiaanyaga

VÁMOS Péter: Észak-afrikai applikált díszű edények Aquincumban

H. HARSÁNYI Eszter: Fehér a feketén – avagy hogyan kerül az ige a pohárra?

SZABÓ Ádám: Silvanus a sötét Pan

BÍRÓ Szilvia: Földbe mélyített házak Pannoniában önálló településtípus vagy helyi jellegzetesség?

CSAPLÁROS Andrea – Neuhauser Tina: „Határok nélküli kultúra Noricum és Pannonia között”

CSIKI József Attila: Környe község topográfiája archív légifotók alapján

FEHÉR Bence: Germanus, Respectus, Adiutor és a többi

AGÓCS Nándor: Augustalis testületek a Duna-vidéki tartományokban

SZABÓ András: Auxiliaris centuriok és decuriok

FARKAS István Gergő: Újabb adatok a pannoniai auxiliaris csapatok titulaturájának vizsgálatához

VARGA Gábor: A Szentendrei-sziget római kori erődítetttsége

SZABÓ Máté – PÁNCZÉL Szilamér: Rómaiak a Székelyföldön

FAZEKAS Ferenc – SZABÓ Antal: Újabb régészeti kutatások Lussoniumban (2009-2010)

BARTUS Dávid: Bronzszobrok Brigetióból

JUHÁSZ Lajos: Egy újabb germán kisbronz Brigetioból

MERCZI Mónika: Újabb sírok a nyergesújfalui tábor késő római temetőjéből

HULLÁM Dénes: Római tárgyak a Kárpát-medencei Barbaricum északkeleti részéről

6th Conference for Young Researchers of Roman Age

10.11.2011–11.11.2011

Organizer: King Mathias Museum of Hungarian National Museum

Venue: Visegrád, Királyi Palota lovagterme

BUZÁS Gergely: Római kövek a középkorban

GRÓF Péter: A római limes visegrádi emlékei és a Dunai Limes – UNESCO Világörökség program

TÓTH János Attila: Rómaiak a Dunában

SZABÓ Antal – FAZEKAS Ferenc: A lussoniumi régészeti kutatások újabb eredményei (2011)

TOKAI Zita Mária: Kora császárkori temető Alsópáhok – Hévízdombon

MERCZI Mónika: Újabb késő római sírok az Esztergom-Kossuth Lajos utcai temetőből

OTTOMÁNYI Katalin: Késő római sírcsoportok Pátyon

LASSÁNYI Gábor: Temető a Duna partján - Kutatások az aquincumi polgárváros keleti nekropoliszában

KISS Péter – POLGÁR-NYERGES Anita: „A szombathelyi Járdányi Paulovics István Romkert újabb kutatásai”

HÓDI Attila: Adatok a savariai Isis-szentély építéstörténetéhez

BALÁZS Péter: A savariai Iseum kútja

SOSZTARITS Ottó – A savariai Iseum

TÍMÁR Lőrinc: Térszervezés a római lakóházépítészetben

HORTI Gábor: A Római Birodalom határvédelmének mélységi tagozódása, kérdések és problémák

SZABÓ Máté: Nem romboló régészeti módszerek alkalmazása a pannoniai villakutatásban

EKE István: Késő római villa Badacsonyan

PÁNCZÉL Szilamér: Üvegtárgyak tanúsága egy színházról

RUPNIK László: Sírköveken ábrázolt szerszámok Pannoniából

SÓSKUTI Kornél – WILHELM Gábor: Római leletanyag a Felgyő–Kettőshalmi-dűlőben feltárt szarmata településen

PROHÁSZKA Péter: A Vérteskethelyi 4. századi éremlelet: lehetőségek a rekonstrukcióra

TORBÁGYI Melinda: Pénzforgalmi kutatások a római kori Magyarországon

Horse-dog burials from preventive excavations at Dombóvár TESCO

MÁRTA DARÓCZI-SZABÓ

Freelance archaeozoologist
martidsz@gmail.com

LÁSZLÓ BARTOSIEWICZ

Osteoarchaeological Research Laboratory
Stockholm University
laszlo.bartosiewicz@ofl.su.se

Abstract

Only six of the 21 Late Roman Period graves excavated at the site of Dombóvár TESCO in 2007 contained animal bones. These could be interpreted as food incorporated into the set of grave goods. According to the field notes, these remains originated from poultry found in bowls placed near the feet of the deceased. Complete animal skeletons were found in three cases, in Grave 83 and in relation to Grave 84. Grave 83 contained a partially harnessed horse and a dog whose head was missing. A complete dog was placed on the edge of Grave 84, the only burial in the cemetery that had brick lining. In our report these three animals will be discussed in detail.

Introduction

Both horse and dog have played crucial roles in the history of humankind. In addition to having been exploited for purely economic purposes (draft horses and mounts, hunting and herding dogs) they have also been important in self-representation and belief systems as well. Relationships between these two domesticates and humans are also amply illustrated by archaeological evidence. Although isolated traditions of kynophagy exist in Europe, among domesticates dogs seem to have been least frequently slaughtered for meat. Dog bones showing butchering marks rarely occur in food refuse. On the other hand, marks of dog gnawing on other bones indicate that commensal dogs must have been present at most ancient settlements. Dogs must also have been kept or even bred as pets in higher society.

The consumption of horse meat is mentioned in written sources and archaeological evidence is also available in the form of butchered horse bones. However, the importance of horse flesh has also strongly varied between cultures and time periods.¹ In spite of this, the main purpose of keeping horses was not meat production. While they were important as draught animals, the real innovation related to horses was horseback-riding which has tremendously increased the mobility of human communities. Horses also became indispensable in warfare, but along with dogs they also served as high-status luxury goods and sacrificial animals.

Find material

The complete skeleton of a dog was found on the edge of Grave 84, a heavily disturbed brick-lined burial. The animal was laid on top of the brick structure in the South-Western corner of the grave oriented South to North. The position of the dog skeleton almost matched the grave's

1 Compare e. g. the meat diets of Vandals and Quads to those of Sarmatians and Cumanians.

rectangular corner forming a quarter of a circle. According to the excavator, Géza Szabó, the dog found on top of the brick lining in Grave 84 is clearly associated with the inhumation grave and must have had some relation to the deceased human within. Its position corresponds to the edge of the grave too perfectly to be accidental. The legs of the dog were contracted, and his head pointed in the direction of that of the deceased person (Fig. 1). The skeleton looked intact, bearing no marks of the way the dog was killed.



Fig. 1. Grave 84.

The original burial in Grave 84 was the inhumation of a 30–35 years old, strongly built man, buried with his silver belt fitting, adze, knife and 35 cm long lance head. (The grave was disturbed along the line between the head and the left foot, therefore it is unknown whether he also had a belt-set, sword or fibula). The available artefacts, however, date the grave of this armed man to the second half of the 4th century (silver buckle and strap end: ca. AD 360–380). Curiously, the undisturbed skeleton of a 25–35 years old woman was found in the layer above the primary burial. However, she was not accompanied by datable archaeological artefacts.² Grave 83 was located some 2.5 m from Grave 84. A partially harnessed horse and an incomplete dog were added to this burial. The carcass of the horse was practically folded up in order to fit within the pit that measured only 180 × 110 cm. It was laid on its left side, oriented towards the south. However the head was bent back toward the animal's back and its legs were contracted. The ring of the cheek-bit

was found near the horse's skull, and pieces of iron from the saddle were recovered *in situ* near the vertebral column. These saddle elements, however, have no particular stylistic dating value. The harness elements differ from those known from the 2nd–3rd century which usually include bronze mushroom-shaped buttons and open-work ornaments, although a single buckle-ring is reminiscent of Roman Period parallels.³

The disturbed and incomplete skeleton of another dog was found at the horse's hind leg, accompanied by a Roman brick (Fig. 2). As with the dog found in Grave 84 neither of these two skeletons showed signs of *perimortem* trauma attributable to the way the animals were killed. The horse and dog buried in the feature designated as Grave 83 seems to be an animal burial in itself. Given its close proximity to Grave 84, however, it may be related to that inhumation. Moreover the orientations of these two burials are identical and no Roman Period graves were found in their immediate surroundings. Although this cannot be taken as a proof of their

2 BORUZS 2013.

3 Katalin Boruzs, personal communication.

association, it may be regarded as circumstantial evidence that Graves 83 (horse and dog) and 84 (human and dog) were related.⁴

These burials raise a number of questions. One of these is the association of the dog in Grave 84 with either the man whose burial was robbed or the woman who seem to have been interred on top of the disturbed grave with knowledge of the previous burial. It seems almost certain, that the careful placement on the dog on top of the brick structure is not accidental. The other question is whether Graves 83 and 84 can be considered contemporaneous? It is impossible to date these burials using animal bone morphology alone, and the Roman brick fragment recovered from Grave 83 (which may even originate from the disturbed Grave 84) shows only the *terminus post quem* date of the burials, presuming that it was not buried along the dog bones in a secondary position as a result of subsequent disturbance. With a single exception, all graves in the Late Roman cemetery were oriented East-West. This, and their close proximity to each other, makes their contemporaneity at least a viable hypothesis.



Fig. 2. Grave 83.

Zoological information offered by the animal remains

The dog buried in Grave 84 was 4–6 years old. Evidence of the *baculum* shows that he was a fully grown male. Another osteological indication of the male dog is the strong curvature of the humeri. With the exception of the left femur which broke and was damaged during the course of excavation, the withers height of the individual could be calculated from the greatest lengths of the surviving long bones using the coefficients developed by Koudelka (1885). These estimates yielded a withers height of 67.1 cm which is somewhat taller than a modern male German Shepherd. Naturally, this similarity is based on the external morphometry alone, but is also confirmed by the straight profile line and elongated neurocranium of the fragmented skull. Measurements taken on this individual are summarized in *Appendix: Tables 1–2*.

4 BORUZZS 2013.

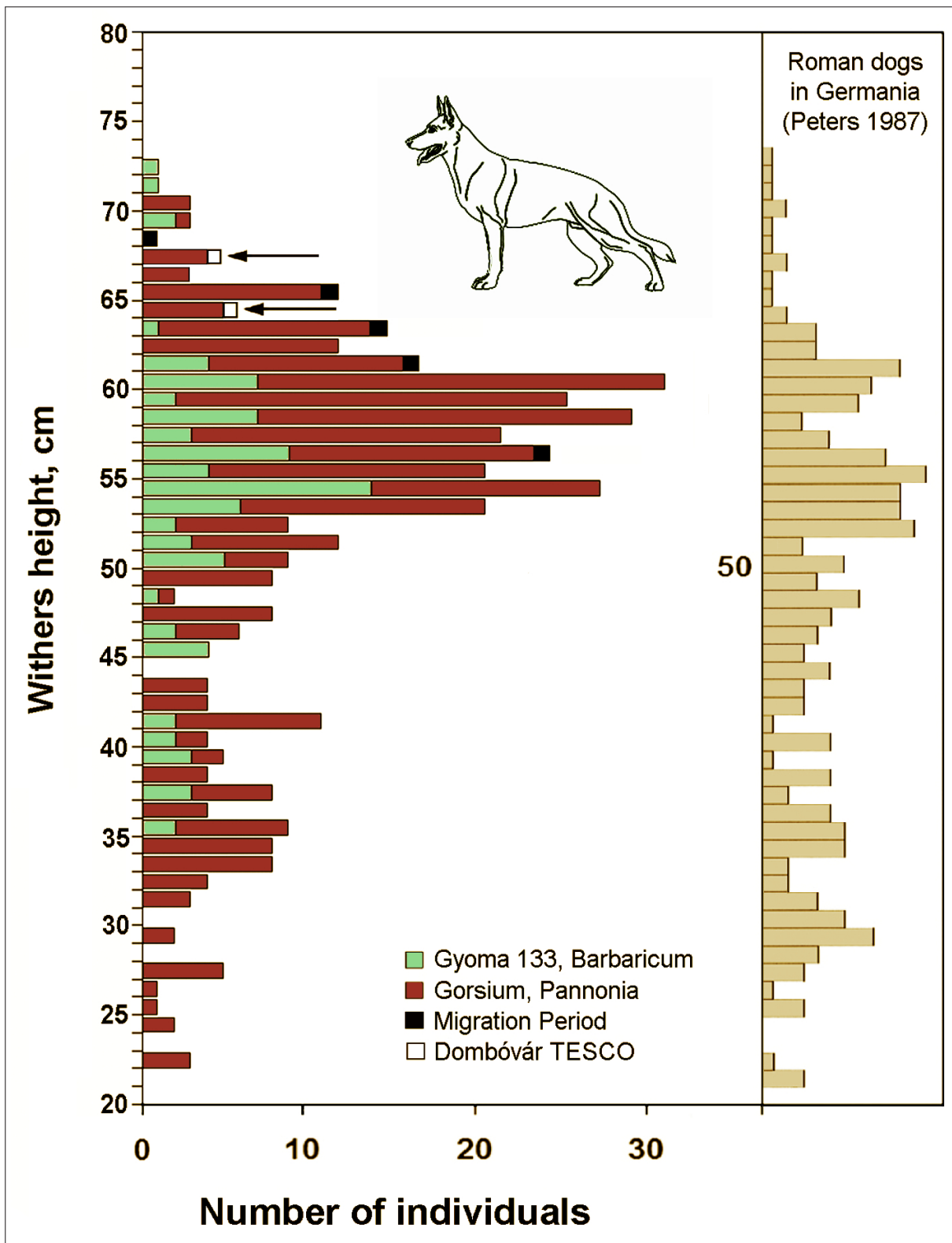


Fig. 3. The withers heights (cm) of Dombóvár dogs in comparison with Roman (Pannonia: BÖKÖNYI 1984 Germania: PETERS 1987), Sarmatian (Gyoma 133: BARTOSIEWICZ 2000) and some Migration Period individuals (BARTOSIEWICZ 2015).

The skull and other missing skeletal elements of the dog interred in Grave 83 were probably lost when the burial was disturbed. The remaining bones are indicative of a fully-grown individual whose withers height could be estimated as 64.2 cm. In the absence of the skull it is only this

trait that can be compared to extant dog breeds and it again best corresponds to the stature of a German Shepherd. (In the absence of the baculum and skull the sex of this individual could not be unambiguously identified.) Long bone measurements of this individual are summarized in *Appendix: Table 3*.

Both dogs were significantly taller than the smaller, gracile forms resulting from the panmixis of dogs in the absence of breeding, often observed at archaeological sites. These latter usually measured only around 40 cm at the withers and occur in the material of almost all archaeological periods.⁵ Although in the case of the two dogs from Dombóvár it would be erroneous to speak about “breeds” in a modern sense, it seems that they were selected for larger size and had a special status which may also be related to the fact that they were interred in special, structured deposits.

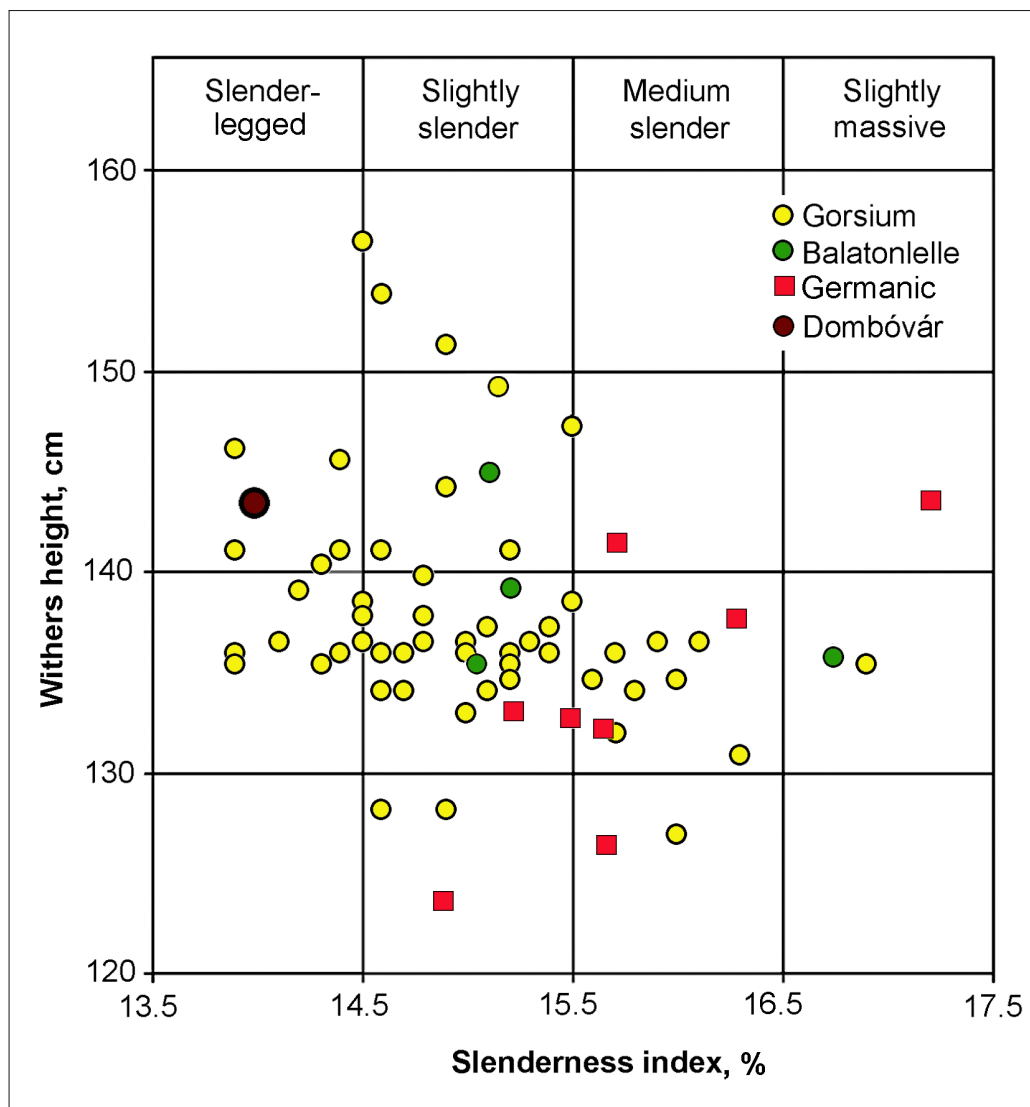


Fig. 4. Comparison between the withers heights (cm) of the Dombóvár horse and Roman Period horses from Tác–Gorsium (BÖKÖNYI 1984) and Balatonlelle–Kenderföldek (DARÓCZI-SZABÓ n. d.) as well as Migration Period Germanic horses from Keszthely–Általános iskola (BARTOSIEWICZ – BARTOSIEWICZ 2002) and Garadna–Kovács-tanya (DARÓCZI-SZABÓ M. 2009).

5 BARTOSIEWICZ 2002; TASSI 2006.

A great variety of dogs were kept in the Roman Empire, including its various provinces.⁶ On the one hand, these forms represented a broad size range between lap dogs and large guard dogs. The majority, however, fell within the 50–65 cm withers height interval (Fig. 3). This figure also includes dogs from Sarmatian sites in the Roman Period Barbaricum east of the Danube, some Migration Period dogs from Hungary and data from the Roman province of Germania. It is worth noting that Sarmatians, Roman Period pastoralists in the Great Hungarian Plain, had on average larger dogs than those identified in the province of Pannonia. The explanation for this difference is the small number of small Sarmatian dogs in comparison with the very diverse Roman dog population.⁷ The diversity of dogs represented in the figure would have accommodated the large individuals identified at Dombóvár as well. The large dog found in Grave 84 would have also matched the war-like image of the man originally buried in the lower section of the grave in the company of a lance and a hatchet. Such parallels are known in the medieval iconography of dogs.⁸ The woman found in the upper layers had no accompanying grave goods.



Fig. 5. Exostosis on the vertebral body and transversal fissure across the *fossa caudalis* of the 15th thoracic vertebra in the horse found in Grave 83.

The horse skeleton belonged to a mature stallion whose withers height was estimated 142.9 cm using the coefficients developed by Kiesewalter (1888). This exceeds the mean stature (139.1 cm) of Roman Period horses in Pannonia usually falling between 125–161 cm.⁹ The majority of Roman Period horses recovered from Balatonlelle also represented the 140–155 cm stature interval¹⁰ (Fig. 4). The slenderness indices¹¹ of metapodial bones for the tall Dombóvár horse (metacarpals: 13.98–14.03, both metatarsals 11.51) are somewhat smaller than those obtained for horses at the Roman city of TÁC–Gorsium.¹² This way the animal falls into the tall and slender-legged category, in contrast with the stouter Germanic horses recovered at Keszthely.¹³ In contrast to the two healthy-looking dog skeletons, the horse remains showed some pathological lesions. A small exostosis was found on the ventral edge of the body of the 15th thoracic vertebra. This may have developed in response to a transversal fissure across the *fossa caudalis* of the same vertebra (Fig. 5). This may be a lesion caused by repetitive strain injury associated with riding. As tooth wear shows, this horse may have been only around four years old, therefore the

6 BÖKÖNYI 1984, 238; PETERS 1997.

7 BARTOSIEWICZ 2000, 185.

8 BARTOSIEWICZ 2011, 221, Fig. 17.1.

9 BÖKÖNYI 1984, 61.

10 DARÓCZI-SZABÓ M. n. d.

11 BRAUNER 1916.

12 BÖKÖNYI 1984, 61.

13 BARTOSIEWICZ – BARTOSIEWICZ 2002, 821, Fig. 1.

relatively mild nature of the deformation is understandable. Such symptoms, however, tend to be exacerbated by the advancement of age. Cranial and long bone measurements of this individual are summarized in *Appendix: Tables 4–5*.

Archaeological implications

Dating burials on a stylistic/typological basis using the evidence of animal remains is not easy as structured deposits containing animal bodies were widely spread in several cultures. Sole dog burials are known from almost all time periods.¹⁴

Roman Period wagon burials contain the remains of both horses and dogs relatively frequently. These include 2nd–3rd AD burials of Romanized Celts in the Eraviscus tribe recovered from several sites in Pannonia.¹⁵ In these burials the harnessed horses and complete dogs were not simply sacrificial animals, they probably belonged to the self-representation of the high-status deceased. Sole horse burials are also known from the territory of Roman Pannonia.¹⁶ With the exception of the Oroszvár and Solymár deposits these horses were buried in full harness, and several had their heads bent back toward the shoulder. Double horse burials were found in Sárbogárd and Szőny. Dog skeletons were found along with those of the horses in Tihany (two individuals), Szőny and Oroszvár (one dog each).

The mid 2nd century (Hadrian Period) remains of a cremated horse and dog identified at Baláca–Likasdomb will not be discussed here due to the different nature of the burial. As much as could be reconstructed both of these were oriented South to North on the pyre.¹⁷ Horses were oriented towards the South in the Tihany¹⁸ and Sárbogárd¹⁹ deposits.

In comparison with Roman times, far less is known about dogs of the subsequent Migration Period. Few dog remains came to light at settlement excavations and Migration Period people were rarely interred in the company of dogs. The few exceptions include the two dogs found in the grave of a woman in Grave 262 at the Langobard cemetery of Ménfőcsanak in Hungary.²⁰ That burial yielded the complete skeletons of two mature dogs. One was found above the deceased, thrown onto its back, facing east in a disfigured position. The other dog was placed on a bank on the side of the grave, above the woman's right shoulder. A distant example is represented by a 4th century AD burial found in Leicester, where the small dog was placed in the middle of the inhumation burial oriented Northeast.²¹

The few Langobard dogs of known withers heights were smaller than the dogs identified in the Dombóvár burials.²² The three Germanic structured deposits in Keszthely that contained both horses and dogs, yielded dogs with withers heights more similar to those of the Dombóvár

14 E. g. Budapest-Auchan: DARÓCZI-SZABÓ M. 2005; Gönyű-Nagysáros: DARÓCZI-SZABÓ L. 2009, 94.

15 Zsámbék: HAMPEL 1914; Vajta: FÜLEP 1949; Kozármiszlény: KISS 1989; Sárbogárd: BÁNKI 1998.

16 E. g. Szőny, mid-2nd century: BARKÓCZI 1946; Sárbogárd, perhaps turn of the 1st–2nd century: VÖRÖS 1996a; Mőzs, late 2nd or 4th century: GAÁL 1979; Oroszvár, second half of the 2nd century: RADNÓTI – GABLER 1982; Tihany, 2nd century: PALÁGYI 1990; Solymár, first half of the 2nd century: VÖRÖS 1991.

17 PALÁGYI 1996; VÖRÖS 1996b.

18 PALÁGYI 1990, 19. 4. Abb.

19 VÖRÖS 1996a.

20 BARTOSIEWICZ 2015.

21 BAXTER 2006, 12–13.

22 BARTOSIEWICZ 2009, 34.

dogs.²³ Deposit 1 at Keszthely was also similar to Grave 83 in Dombóvár in as much as the dog was placed above the hind quarters of the horse. There was a 25–30 cm thick layer of earth separating the horse and the dog skeleton.

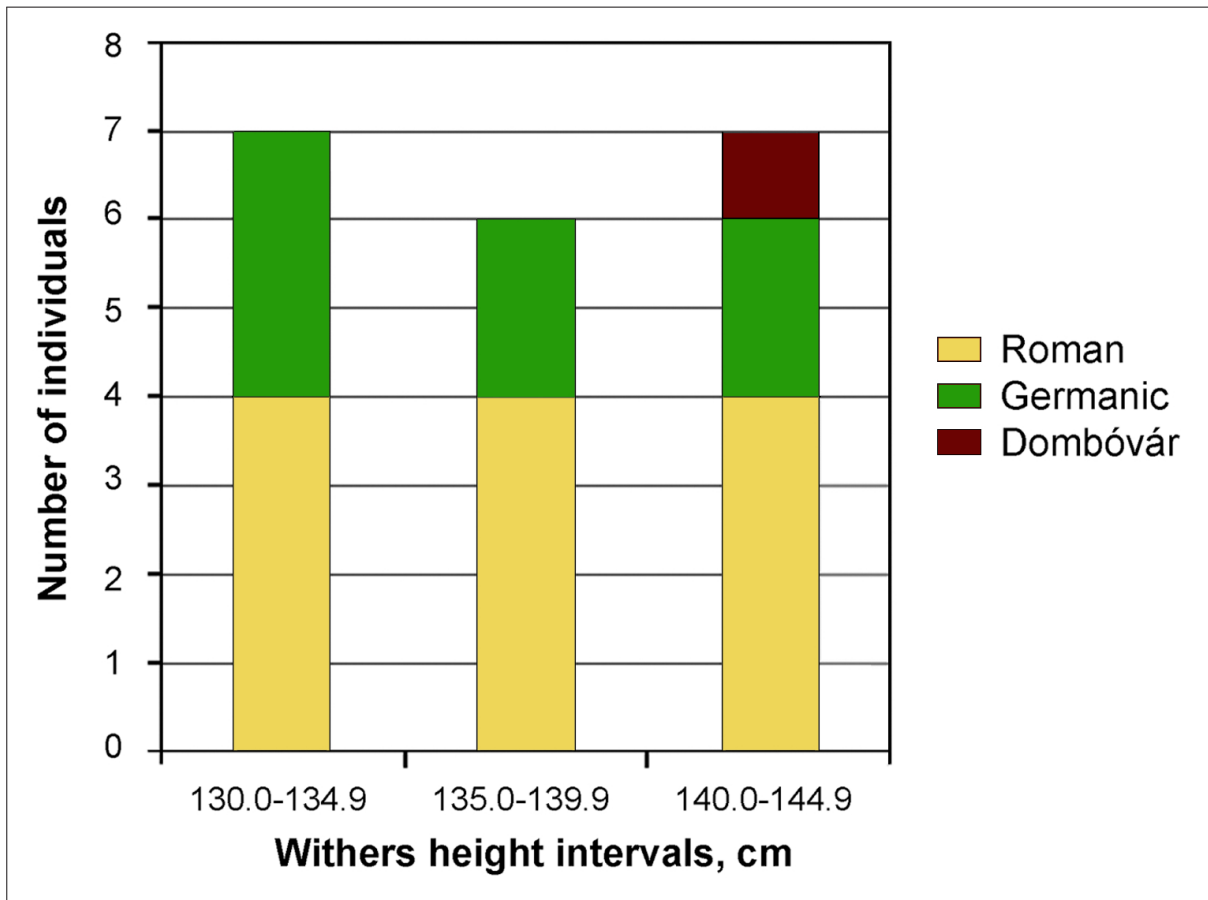


Fig. 6. Comparison between the withers heights (cm) of the Dombóvár horse and Roman Period individuals recovered from Balatonlelle–Kenderföldek (DARÓCZI-SZABÓ M. n. d.) and Germanic horses from Garadna–Kovács-tanya (DARÓCZI-SZABÓ M. 2009).

The Keszthely animal burials were different however, as they contained no objects, the more robust horses were unharnessed. Their orientations were West-East in two cases and East-West, also different from that of Grave 83. On the basis of information accumulated regarding the Keszthely finds²⁴ and earlier, Roman Period animal sacrifices,²⁵ the withers height of the Dombóvár horse could be compared to those found in Germanic deposits in Hungary and Roman horse and wagon burials in Pannonia. It seems that the slender-legged horse recovered from Grave 83 was taller than all other horses available for comparison (Fig. 6). This horse also stands out among the individuals described from Celtic and Germanic Western and Central Europe.²⁶

23 69, 65.8 and 62.3 cm: VÖRÖS 1999.

24 VÖRÖS 1999, 128.

25 VÖRÖS 2009, 184.

26 TEICHERT 1973.

Summary

The burial of complete animals, especially in the company of people, offer valuable information, way beyond the primary, meat purpose of animals usually mirrored in settlement refuse. As shown by the cases presented here and their background in the archaeozoological literature, dogs and horses played a distinguished role in the mentality, emotional life and possibly religious beliefs of peoples inhabiting the Carpathian Basin during the early centuries of the first millennium AD.

Although the animal burials recovered at Dombóvár cannot be precisely dated using stylistic criteria, the sacrificial nature of these animal deposits seems clear even in the absence of precise chronological affiliation. They show relations with at least one of the deceased people found in the complex and – in addition to serving as companions – they may have been indicators of status in earthly life. Another possible role of these animals may have been mediation to the other world.

Fine-grained zoological information on the age, sex and health status of these animals may be of help in interpreting these abstract roles dogs and horses played in ancient cultures. Moreover, the almost intact skeletons recovered from such structured deposits offer a unique opportunity for the phenotypic reconstruction of the individuals. The reliable estimation of withers heights and extremity proportions is rarely possible in the bulk of animal remains recovered as food refuse in the majority of settlement excavations. A detailed zoological description of such rarely preserved complete skeletons is of immense importance in interpreting animal-human relationships in ancient cultures.

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Appendix: Bone measurements

All measurements are given in mm, following the standard by Angela von den Driesch (1976). Measurements not listed by von den Driesch are marked by asterisks.

Table 1: Measurements of the dog skull in Grave 84

16	Length of the molar row	19.5
17	Length of the premolar row	55.4
18	Length of the carnassial tooth	20.7
18a	Greatest breadth of the carnassial tooth	10.7
23	Greatest mastoid breadth	72.6
25	Greatest breadth of the occipital condyles	42.2
28	Height of the foramen magnum	14.3
29	Greatest neocranium breadth	58.7
31	Least breadth of skull	35.0
34	Greatest palatal breadth	68.7
38	Skull height	62.3
39	Skull height without the sagittal crest	54.6
43	Length between the ventral margin of the foramen magnum and the palatal bone (B-St)*	50.2

Table 2: Long bone measurements of the dog in Grave 84.

Skeletal element	GL	Bp	Dp	SD	Smallest depth *	Bd	Dd
Humerus (right)	203.5	32.7	45.6	15.0	15.5		28.7
Humerus (left)	203.7	32.7	45.7	14.9	15.6	37.6	29.4
Radius (right)	207.0	20.1	14.7	14.9	7.1	27.6	17.0
Radius (left)	207.4	20.3	14.7	14.9	7.0	27.6	17.2
Ulna (left)	241.3						
Femur (right)		46.5	22.2				
Femur (left)	218.0	46.4	22.1	15.2	16.4	37.7	42.4
Tibia (right)	233.3	40.1	42.3	14.8	14.2	26.2	19.5
Tibia (left)	233.2	40.0	42.5	14.8	14.0	26.7	19.4

Table 3: Long bone measurements of the dog in Grave 83

Skeletal element	GL	Bp	Dp	SD	Smallest depth *	Bd	Dd
Humerus (right)	190.0	30.9	45.0	13.9	14.0	35.9	28.6
Humerus (left)	190.2	31.1	45.0	14.0	14.1	36.0	28.7
Radius (left)		20.0	13.7	14.5	7.1		
Femur (right)	210.4	44.5	21.4	13.5	14.4	35.9	39.8
Femur (left)		45.0	21.4				
Tibia (right)	222.3	38.1	41.7	13.2	13.5	25.3	16.1
Tibia (left)	222.3	38.6	41.7	13.3	13.6	26.0	17.5

Table 4: Measurements of the horse skull in Grave 83

22	Length of the cheektooth row	168.1
23	Length of the molar row	79.1
24	Length of the premolar row	94.7
32	Greatest inner length of the orbit	54.2
43	Facial breadth between the outermost points of the facial crest at the point of intersection of the maxillo-jugal suture with the facial ridge	173.7
48	Greatest palatal breadth	120.4

Table 5: Long bone measurements of the horse in Grave 83

Skeletal element	GL	Bp	Dp	SD	Smallest depth*	Bd	Dd
Humerus (right)	289.0	90.7	100.0	33.7	41.6	79.0	73.8
Humerus (left)	289.3	91.5	99.0	32.5	42.3	78.0	73.5
Radius (right)	344.0	82.7	45.5	37.6	25.7		44.3
Radius (left)	345.0	82.4	45.5	37.0	26.5	77.3	44.6
Metacarpus(right)	239.6	52.4	35.1	33.5	23.7	51.5	37.6
Metacarpus(left)	239.4	52.8	35.5	33.6	23.8	51.7	38.0
Femur (right)	406.3	125.0	86.3	42.0	49.6	96.0	114.5
Femur (left)	404.4	122.8	88.1	40.2	49.2	95.3	114
Tibia (right)	362.3	95.1	87.5	40.6	32.0	74.0	45.6
Tibia (left)	363.6			40.7	32.4	73.0	44.9
Metatarsus (right)	283.1	51.8	47.7	32.6	27.8	50.4	38.0
Metatarsus (left)	283.0	51.7	47.5	32.6	27.7	50.5	38.3