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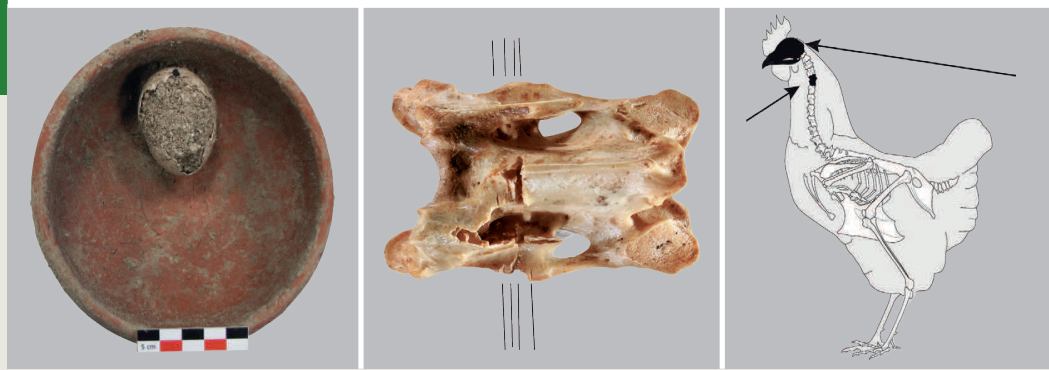
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# KOLLOQUIEN ZUR VOR- UND FRÜHGESCHICHTE 26



Sabine Deschler-Erb | Umberto Albarella  
Silvia Valenzuela Lamas | Gabriele Rasbach

## ROMAN ANIMALS IN RITUAL AND FUNERARY CONTEXTS

Proceedings of the 2<sup>nd</sup> Meeting of the  
Zooarchaeology of the Roman Period Working  
Group, Basel, 1<sup>st</sup>–4<sup>th</sup> February 2018

This volume includes a number of papers that were originally presented at the conference *Roman Animals in Ritual and Funerary Contexts*, which was held in Basel (Switzerland) from 1<sup>st</sup>–4<sup>th</sup> February 2018. The conference represented the second meeting of the International Council for Archaeozoology (ICAZ) Working Group on the *Zooarchaeology of the Roman Period*.

The articles present ritually deposited animal remains across a wide geographical range and incorporate both archaeological and zoological findings. The integration of these two strands of evidence is also one of the central concerns of the ICAZ Working Group, as in the past they have often been dealt with separately. However, it is precisely this interdisciplinary cooperation that opens up new perspectives on ritual practices in a wide variety of contexts. In this volume we see the enhancement of our understanding of ritual treatment of animals in central sanctuaries, in rural areas, at natural sites, and as part of building construction processes.

The case studies presented in this volume demonstrate how animal remains such as bones and eggshells provide information beyond diet, economy, and differences in social hierarchy. Their interdisciplinary investigation additionally enables insights into practices governed by cultural, religious, and ideological conditions.

The aim of the Zooarchaeology of the Roman Period Working Group (<https://alexandriaarchive.org/icaaz/workroman>) is to represent a network of exchange and collaboration across borders and to enable the understanding of the interconnections between the research questions associated with animal remains from this important historical period.

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Sabine Deschler-Erb, Umberto  
Albarella, Silvia Valenzuela Lamas,  
Gabriele Rasbach  
ROMAN ANIMALS IN RITUAL  
AND FUNERARY CONTEXTS

DEUTSCHES ARCHÄOLOGISCHES INSTITUT  
Römisch-Germanische Kommission, Frankfurt a. M.

# KOLLOQUIEN ZUR VOR- UND FRÜHGESCHICHTE

## 26

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# Vorwort zur Reihe „Kolloquien zur Vor- und Frühgeschichte“

In Händen halten Sie, liebe Leserin und lieber Leser, den 26. Band der „Kolloquien zur Vor- und Frühgeschichte“, der Ihnen neu und doch vertraut vorkommen mag. Denn diese Reihe, die von der Römisch-Germanischen Kommission (RGK) und der Eurasien-Abteilung des Deutschen Archäologischen Instituts (DAI) gemeinsam herausgegeben wird, existiert seit 23 Jahren, seit im Jahr 1997 die Akten des Internationalen Perlensymposiums in Mannheim als Band 1 publiziert wurden. Neu ist aber, dass die RGK erstmals die Herausgabe eines Bandes im neuen Reihenformat des DAI betreut hat. Die Aufmachung der „Kolloquien zur Vor- und Frühgeschichte“ (KVF) entspricht nun der Aufmachung zahlreicher weiterer Publikationsreihen des DAI. Das neue Layout ist moderner, attraktiver und nutzerfreundlicher. Es ist nun für viele DAI-Publikationsreihen nutzbar und hat einerseits einen hohen Wiedererkennungswert, erlaubt andererseits individuelle Anpassungen und Nutzungen.

Auch der vorliegende Band ist, wie es seit ihren Anfängen prägend für die KVF ist, ein Beispiel international ausgerichteter, Forschungstraditionen und -regionen übergreifender Wissenschaft. Inhaltlich schließt dieser 26. Band an eine ganze Reihe von KVF-Sammelbänden mit interdisziplinärer bzw. fachübergreifender Ausrichtung an. Mit KVF 26 stehen diesmal interdisziplinäre Untersuchungen zu Mensch-Tier-Beziehungen in den verschiedenen regionalkulturellen Kontexten des Römischen Reiches im Mittelpunkt und insbesondere die Rolle von Tieren in Zusammenhang mit Bestattungen und anderen Ritualen.

Knochengewebe vermag sehr gut, viele verschiedene Spuren menschlichen Handelns zu konservieren, und diese Spuren können wir als Zeugnisse dieser Handlungen, aber auch der dahinterstehenden Überlegungen, Absichten und Traditionen verstehen. So erlauben Tierknochen, aber auch andere Überreste wie Eierschalen, die Verknüpfung zoologischer Methoden und Fragen mit jenen einer sozial- und kulturhistorisch orientierten Archäologie. Tierreste sind also in jedem Sinne *archäologische* Funde, die nicht nur zu Ernährungs- und Wirtschaftsfragen Auskunft geben können, auch nicht allein zu sozialhierarchisch begründeten Unterschieden bei Bestattungsbeigaben, sondern auch zu *per se* kulturhistorischen Fragen wie eben jenen nach kulturell, religiös

bzw. weltanschaulich bestimmten Praktiken, nach Differenzen in ihrer Ausübung, nach ihren regional spezifischen Bedeutungen und nach ihren Veränderungen.

Damit liegt ein informativer und instruktiver 26. Band der KVF vor mit neuen Ansätzen, neuen Fragen und neuen Einsichten in einem neuen gestalterischen Gewand. Die Aufnahme der Reihe KVF in die einheitliche Publikationsgestaltung des DAI ermöglicht auch, diesen und weitere KVF-Bände in Zukunft in der *iDAI.world* – der digitalen Welt des DAI – unter *iDAI.publications/books* online zugänglich zu machen und zum Abruf im Open Access bereitzustellen. Zwar dient auch den interdisziplinär arbeitenden Altertumswissenschaften das gedruckt erscheinende Werk nach wie vor als Hauptmedium fachwissenschaftlichen Austauschs, doch stehen uns durch die digitale Vernetzung unterschiedlicher Daten- und Publikationsformate mittlerweile zahlreiche weitere Möglichkeiten der Veröffentlichung wissenschaftlicher Inhalte zur Verfügung. Das neue Publikationsformat ermöglicht die zukunftsweisende Verknüpfung von Print und digitalen Dokumentations- und Publikationsressourcen, z. B. durch das zeitgleiche Bereitstellen digitaler Supplemente.

Das Erscheinen von 26 Bänden in kurzen Abständen zeigt, dass die vor über 20 Jahren konzipierte Reihe erfolgreich war und ist, innovativ bleibt und in eine lebendige Zukunft blickt. Auch künftig werden Eurasien-Abteilung und RGK die Reihe „Kolloquien zur Vor- und Frühgeschichte“ im neuen Gewand und – wo sinnvoll und notwendig – als hybride Verknüpfung analoger und digitaler Wissensvermittlung fortführen. Und wie bisher werden wir in die KVF Beiträge von Tagungen und Symposien aufnehmen, an deren Vorbereitung und Durchführung wir personell bzw. organisatorisch beteiligt waren.

Zuletzt noch ein Dank an alle an der vorliegenden Publikation Beteiligten. Für die Möglichkeit im neuen Reihenformat des DAI publizieren zu können, danken wir ganz herzlichen den Kolleginnen und Kollegen der Redaktion der Zentrale. Die Bildbearbeitung der Beiträge lag in den Händen von Oliver Wagner. Johannes Gier war für das Lektorat der Beiträge verantwortlich. Lizzie Wright redigierte die englischen Texte, Hans-Ulrich Voß betreute die Drucklegung des Buches. Ihnen wie den Herausgeber\*innen des Bandes danken wir sehr für die hervorragende Vorbereitung und Durchführung der Publikation.

Frankfurt am Main, den 12.11.2020

Eszter Bánffy  
Erste Direktorin

Kerstin P. Hofmann  
Zweite Direktorin

Alexander Gramsch  
Redaktionsleiter



# Preface to the series “Kolloquien zur Vor- und Frühgeschichte”

In your hands, dear reader, you hold the 26<sup>th</sup> volume of the series “Kolloquien zur Vor- und Frühgeschichte”: It might seem to you different, but still familiar, because this series, concomitantly published by the Romano-Germanic Commission (RGK) and the Eurasia Department of the German Archaeological Institute (DAI), has been in existence for 23 years. The first volume, published in 1997, consisted of the proceedings of the “Internationales Perlensymposium” held in Mannheim. What is new is that the RGK has published a volume in the new DAI series format for the first time. The layout of “Kolloquien zur Vor- und Frühgeschichte” (KVF) now matches the layout of numerous other DAI publication series. This modern layout is more attractive and more user-friendly; the new format is mirrored across many DAI publication series. Not only does it have a distinctive design; it also enables individual adaptations and uses.

The present volume, as is characteristic of the KVF series from its beginnings, is an example of internationally oriented scholarship spanning diverse research traditions and research fields. In terms of content, this 26<sup>th</sup> volume continues a long tradition of conference proceedings with an interdisciplinary or cross-disciplinary orientation published within KVF. The focus of KVF 26 is on interdisciplinary studies of human-animal relationships in different regional-cultural contexts of the Roman Empire. In this, particular emphasis lies on the role of animals in burial and other ritual contexts.

Bone tissue excellently preserves many different traces of human actions. These traces can be interpreted as the evidence of these actions as well as of the underlying reflections, intentions, and traditions. Animal bones as well as other remains such as eggshells therefore make it possible to link zoological methods and issues with those related to socially and cultural-historically oriented archaeology. Animal remains are thus *archaeological* finds in every sense: They provide information not only about diet and economy, or about differences in grave goods based on social hierarchy. They touch on key cultural issues such as culturally, religiously or ideologically determined practices. Moreover, zooarchaeological analyses allow us to detect differences in these practices, to identify regionally specific meanings and the changes therein.

Thus, an informative and instructive 26<sup>th</sup> volume of the KVF series is available in a new design, including new approaches, new research questions, and new insights. In the future, through the incorporation of the KVF series into the common DAI publication design this and further volumes can be published online: on the *iDAI.world* platform – the digital world of the DAI – under *iDAI.publications/books* and in Open Access. Printed publications admittedly still serve as a main medium for subject-specific exchanges for interdisciplinary archaeological studies. The new publication format allows digital networking of various data and publication formats providing us with numerous additional possibilities for the publication of scientific content and enabling the future-oriented linking of print and digital documentation and publication resources, for example through the simultaneous provision of digital supplements.

The publication of 26 KVF volumes at short intervals shows that this series conceived over 20 years ago has been successful, remains innovative, and looks ahead to a lively future. From now on the Eurasia Department and the Romano-Germanic Commission will continue the series “Kolloquien zur Vor- und Frühgeschichte” in the new design and, where this seems reasonable and vital, in the form of a hybrid connection of analogue and digital knowledge. As in the past, in the KVF series we will continue incorporating proceedings of meetings and symposia in the preparation of which we are involved personally or organisationally.

Lastly we want to express our gratitude to all who participated in producing the present publication. We thank our colleagues from the editorial office at the Head Office of the German Archaeological Institute for the opportunity to publish in the new DAI series format. The digital imaging of the contributions was carried out by Oliver Wagner. Johannes Gier was responsible for the copyediting of the contributions. Lizzie Wright edited the English texts. Hans-Ulrich Voß was in charge of the editorial process. We are very grateful to all these people and to the editors of the volume for the outstanding preparation and realisation of this publication.

*Translated by Karoline Mazurié de Keroualin.*

Frankfurt am Main, 12 November 2020

Eszter Bánffy  
Director

Kerstin P. Hofmann  
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Alexander Gramsch  
Head of the editorial office

# Inhaltsverzeichnis

Vorwort zur Reihe „Kolloquien zur Vor- und Frühgeschichte“ .....	V
Preface to the series “Kolloquien zur Vor- und Frühgeschichte” .....	VI
Preface .....	IX
by Sabine Deschler-Erb / Umberto Albarella / Silvia Valenzuela Lamas / Gabriele Rasbach	
Diversity in unity: Animals in Roman ritual and funeral contexts .....	XI
by Sabine Deschler-Erb	
Deux dépôts exceptionnels à <i>Briga</i> (« Bois l’Abbé » Eu, France) : Le sacrifice de bovins au III <sup>e</sup> siècle de notre ère .....	1
de Alice Bourgois	
Faunal remains from a 4 <sup>th</sup> –5 <sup>th</sup> century church complex at ‘Ain el-Gedida, Upper Egypt .....	19
by Pam J. Crabtree / Douglas V. Campana	
Evidence of ritual practices from the animal remains found in the Juno Sanctuary at Tas-Silġ, Malta .....	25
by Jacopo De Grossi Mazzorin	
Bird and other animal sacrifice in the <i>Ploutonion</i> of Hierapolis, Phrygia (Turkey): some results from two votive deposits .....	39
by Jacopo De Grossi Mazzorin / Claudia Minniti	
A herd of sheep led to the slaughter – Evidence of hecatombs at <i>Losodica/</i> <i>Munningen</i> (Bavaria) .....	53
by Sabine Deschler-Erb / Andreas Schaffitzl	
Animals in funerary ritual in the Roman Netherlands .....	61
by Maaïke Groot	
Animals in ritual and domestic context: A comparative study between the faunal assemblages from residential areas and two sanctuaries at the <i>vicus</i> of Kempraten (Rapperswil-Jona, CH) .....	79
by Simone Häberle / Sabine Deschler-Erb / Heide Hüster Plogmann / Barbara Stopp / Sarah Lo Russo / Pirmin Koch / Regula Ackermann	

<b>Sabazios-Kult in <i>Sorviodurum</i></b> <b>Tierknochen aus einer Kultgrube in Straubing (Bayern/Deutschland)</b> .....	101
<i>von Constanze Höpken / Hubert Berke</i>	
<b>Tierknochen aus dem Heiligtum der Größeren Götter Domnus und Domna</b> <b>in Sarmizegetusa (Rumänien)</b> .....	113
<i>von Constanze Höpken / Manuel Fiedler</i>	
<b>Choice beef for the worshippers – the cattle record from the sanctuary</b> <b>of Jupiter Heliopolitanus at Carnuntum (Austria)</b> .....	123
<i>by Günther Karl Kunst / Erika Gál / Verena Gassner</i>	
<b>Animals in funeral practices in Belgic Gaul between the end of the 1<sup>st</sup> century BC</b> <b>and the beginning of the 5<sup>th</sup> century AD: From gallic practices to Gallo-Roman</b> <b>practices</b> .....	141
<i>by Sébastien Lepetz</i>	
<b>Animals in funerary practices during the early and late Roman periods</b> <b>in southern Belgium</b> .....	175
<i>by Fabienne Pigière</i>	
<b>Cremated animal bone from two ritual/ceremonial sites in Britannia</b> .....	185
<i>by Clare Rainsford / Anthony C. King / Susan Jones / Rose Hooker / Gilbert Burleigh</i>	
<b>Animals to the slaughter. Meat-sharing and sacrifice in Geometric</b> <b>and Archaic Greece</b> .....	201
<i>by Veronika Sossau</i>	
<b>In the belly of the earth: bones and the closing of sacred space</b> <b>in central Italy</b> .....	217
<i>by Angela Trentacoste</i>	
<b>Sacrificing dogs in the late Roman World? A case study of a multiple dog</b> <b>burial from <i>Viminacium</i> amphitheatre</b> .....	237
<i>by Sonja Vuković / Mladen Jovičić / Dimitrije Marković / Ivan Bogdanović</i>	



(Logo: Stefanie Deschler)

# Preface

by Sabine Deschler-Erb / Umberto Albarella / Silvia Valenzuela Lamas / Gabriele Rasbach

This volume includes contributions that were originally presented at the conference *Roman Animals in Ritual and Funerary Contexts*, which was held in Basel 1<sup>st</sup>–4<sup>th</sup> February 2018 and organised by Sabine Deschler-Erb. The conference represented the second meeting of the International Council for Archaeozoology (ICAZ) Working Group on the *Zooarchaeology of the Roman Period*.

ICAZ Working Groups are largely informal and independent collectives of researchers engaged with a theme of common interest. Their association with ICAZ allows them to connect to a larger international community and benefit from a number of shared facilities, such as the ICAZ web page <<https://www.alexandriaarchive.org/icaz/index>> (last access: 20.10.20)> and Newsletter <<http://alexandriaarchive.org/icaz/publications-newsletter>> (last access: 20.10.20)>. They also enjoy the opportunity to share the ICAZ ethos of collaboration, mutual aid, and international solidarity.

The *Zooarchaeology of the Roman Period* ICAZ Working Group was originally proposed by Silvia Valenzuela Lamas and Umberto Albarella and approved by the ICAZ International Committee in 2014. The aspiration to create such a group emerged from the awareness that the Roman World was intensively connected. Nevertheless, much research on the use of animals in Roman or Romanised areas has been carried out at a localised level, often oblivious of parallel studies undertaken in other regions of Roman influence. It was clear that many of the investigated research themes – such as the use of animals in religious contexts, livestock trade, and husbandry improvements, to mention just a few – would benefit from greater integration and enhanced international synergies. This applied to the methodological approach, as well as the actual evidence from different areas of the Empire. With this objective in mind, the first meeting was organised in Sheffield (UK) 20<sup>th</sup>–22<sup>nd</sup> November 2014 by the two Working Group promoters and focused on *Husbandry in the Western Roman Empire: a zooarchaeological perspective*. The core objective of the meeting was to bring together researchers operating in different areas of the former Roman World and contiguous regions, which was successfully achieved. Some of the contributions to that conference were published in a monographic issue of the *European*

*Journal of Archaeology* (Volume 20, Special Issue 3, August 2017).

The focus on the western Empire that characterised the first meeting led to the need to open up geographically for the second meeting and focus on a thematic investigation which would be of fully international relevance. Sabine Deschler-Erb proposed to organise the second meeting in Basel (Switzerland) and this, at the very core of Europe, proved to be a very successful location. She suggested a number of possible topics to the informal membership of the group and the theme of ‘ritual’ was chosen. This was another fruitful move as there was hardly any shortage of material to present, and the conference provided a whirlwind of case studies across different areas, whose connections and shared questions could clearly be identified. The objective of the second meeting to move beyond the focus on the Western Empire was fully achieved. The list of papers included in this volume clearly shows the great geographic range on display, with different contributions presenting research based in the south, north, east, and west of the Roman area. The modern countries featured in the book include Austria, Belgium, Britain, Egypt, France, Germany, Greece, Italy, Malta, the Netherlands, Romania, Serbia, Switzerland and Turkey.

The Basel conference and its proceedings should provide an ideal springboard for further success and interconnection of researchers investigating the use of animals in Roman times.

Last but not least, we would like to express our great gratitude to all of the institutions and people who made the Basel conference and these proceedings possible. We thank the University of Basel, especially the Integrative Prehistory and Archaeological Science, for hosting the conference, as well as for technical and administrative support; the Swiss National Foundation, the Provincial Roman Archaeology Working group of Switzerland, and the Vindonissa chair of the University of Basel for their financial support; the Römerstadt Augusta Raurica, the Kantonsarchäologie Aargau, and the Römerlager Vindonissa for their warm welcome and generous catering; the organisation team, Monika Mráz, David Roth, and Viviane Kolter-Furrer, whose help was essential before, during, and after the conference; all student volunteers, Florian Bachmann, Debora Brunner, Marina Casaulta,

Laura Caspers, Sarah Lo Russo, Hildegard Müller, and Benjamin Sichert, who worked with great commitment; and the Romano-Germanic Commission, Frankfurt, who accepted these proceedings for their series. We thank Hans-Ulrich Voß and Johannes Gier, who carried out an excellent editing job.

The next conference will take place in Dublin (Ireland) on 11<sup>th</sup>–13<sup>th</sup> March 2021 and will be organised by Fabienne Pigière on the topic of *Animals in Roman economy*. It will certainly provide new opportunities for cross-fertilisation, collaboration, and exchange of ideas.



# Sacrificing dogs in the late Roman World? A case study of a multiple dog burial from *Viminacium* amphitheatre

by Sonja Vuković / Mladen Jovičić / Dimitrije Marković / Ivan Bogdanović

## Keywords

*Viminacium*, multiple dog burials, offerings

## Schlüsselwörter

*Viminacium*, Mehrfachbestattungen von Hunden, Beigaben

## Mots-clés

*Viminacium*, sépultures multiples de chiens, offrandes

## Introduction

Animal sacrifice in the Roman world was considered to be a form of communication with the divine sphere. Such rituals were performed to thank Gods, heroes and other divine beings, and ask them for favours, protection, and good health. The most commonly sacrificed animals were cattle, sheep, goats, and pigs<sup>1</sup>, with the occasional addition of other species such as dogs. Since dogs were often connected to the underworld<sup>2</sup>, their sacrifice was usually related to chthonic gods<sup>3</sup>. Considered impure, dogs are thought to have been sacrificed as means of purification and rites of passage, as foundation offerings for the protection of buildings, as well as within agricultural rituals<sup>4</sup>. On the other hand, they could also have been sacrificed in order to serve as faithful companions and guardians in the afterlife – traits taken from their everyday roles in human life<sup>5</sup>.

Attested all around the Empire<sup>6</sup>, dog burials associated with sacrificial rituals were found in the Roman city of *Viminacium* (Upper Moesia), in the form of individual burials, burials with grave goods, in wells, as well as in human sepultures<sup>7</sup>. As such, they were connected with the representation of pets and companions to the underworld, while one skinned individual, as well as a common burial of a dog skeleton and a horse's skull, potentially points to chthonic gods' offerings, presumably to Hecate, Diana or Epona.

In this paper, we present an archaeological deposit from the area of *Viminacium* amphitheatre, which, based on the presence of several dog skeletons and their archaeozoological features, can potentially point to a sacrificial rite.

1 EKROTH 2014, 324; 330.

2 JENKINS 1957; MAINOLDI 1981; MENACHE 1997.

3 TOYNBEE 1973; DE GROSSI MAZZORIN / MINITTI 2006, 62.

4 LAUWERIER 2004.

5 DE GROSSI MAZZORIN / MINITTI 2006, 62.

6 DE GROSSI MAZZORIN / MINITTI 2001; DE GROSSI MAZZORIN / MINITTI 2006; MACKINNON / BELANGER 2006; MOREY 2006; MOREY 2010.

7 VUKOVIĆ / JOVIČIĆ 2015.



1 The position of *Viminacium* on the map of Roman provinces.

## Archaeological background

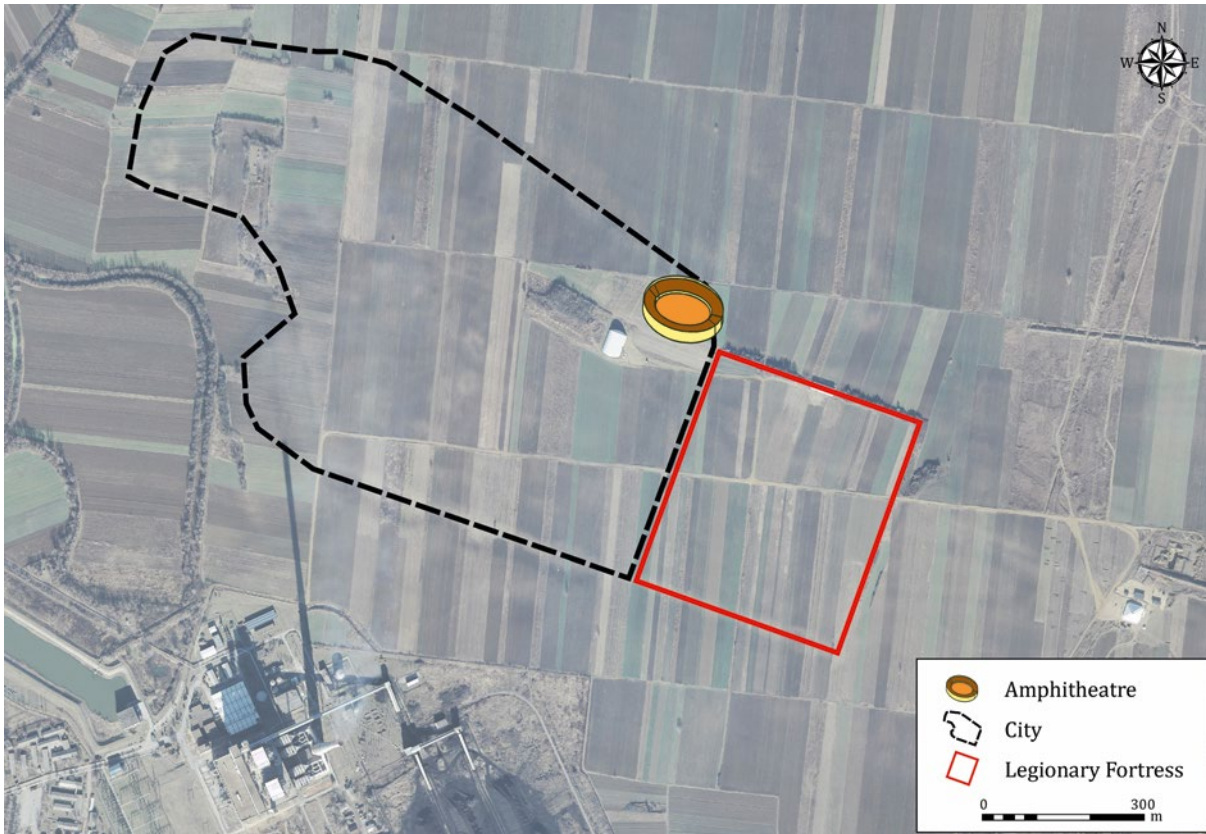
### *Viminacium* and *Viminacium* amphitheatre

*Viminacium* is located in eastern Serbia, on the right bank of the River Mlava, close to its confluence with the River Danube (fig. 1). Initially it was a fortress, where the *legio VII Claudia* was stationed from the 2<sup>nd</sup> half of the 1<sup>st</sup> century AD. Next to the fortress, a city arose and became the capital of the province *Moesia Superior* and later of *Moesia Prima*<sup>8</sup>. The amphitheatre was built at

the beginning of the 2<sup>nd</sup> century AD c. 60 m away from the legionary fortress. In time, the city walls were built and the amphitheatre was incorporated into the city area, situated in its north-eastern corner (fig. 2). The amphitheatre was used until the 1<sup>st</sup> half of the 4<sup>th</sup> century AD and then it was abandoned. The surface of the arena was destroyed and it was used for clay deposits, and as a result the whole surface of the amphitheatre was filled up during the 2<sup>nd</sup> half of the 4<sup>th</sup> century AD. By the end of the 4<sup>th</sup> century AD this area was used as a cemetery<sup>9</sup>.

8 MIRKOVIĆ 1968, 56–73; POPOVIĆ 1968.

9 BOGDANOVIĆ / NIKOLIĆ 2017; NIKOLIĆ / BOGDANOVIĆ 2015.



2 The location of the amphitheatre within *Viminacium*.

### The pit with dog skeletons

Dog remains relevant to this study were discovered in the course of 2010, during systematic archaeological excavations of the amphitheatre<sup>10</sup>. They originate from the pit that is located in the area of the arena (figs 3–5). Within the arena a dozen pits that date back to the 4<sup>th</sup> century AD have also been discovered. The pit with dog skeletons lies c. 3.50 m below the arena surface. Above the pit the layer which filled the arena was excavated. The pit was roughly square in shape with curved angles and it was dug into the natural clay and sandy yellow soil. Its dimensions are 1.10 x 1.10 m, and it is 1.10 m deep, except in its south-eastern part, where its bottom was discovered at the depth of 1.50 m. The pit was filled with brown earth, which contained fragments of bricks and a few stones, as well as animal bones and a small number of other archaeological finds. According to archaeological

finds it is suggested that this context dates back to the 2<sup>nd</sup> half of the 4<sup>th</sup> century AD, which is the period when the amphitheatre was not in use anymore. The finds include a blue glass bead<sup>11</sup> (fig. 6,1), a hemispherical glass beaker<sup>12</sup> (fig. 6,2), and pottery fragments which imply only three forms of late Roman vessel: an olive-green glazed bowl with a semi-spherical recipient<sup>13</sup> (fig. 6,3), a pot with a sloped rim<sup>14</sup> (fig. 6,4) and a Pontic amphora with a bell-shaped opening, handles circular in section and a globular body with combed decoration<sup>15</sup> (fig. 6,5).

The skeletons were discovered at a depth 0.80 m (fig. 4) and they had been covered by fragments of bricks. The skeletons were placed one above the other and they were oriented in different directions, so it is impossible to suggest any regular pattern. In addition to the dog remains, which were highly predominant in the pit, there were also a few bones of cattle and pig, two equid (horse or mule) remains, as well as one sheep, one goat and one cat bone.

10 Systematic excavations of *Viminacium* amphitheatre that lasted from 2007 until 2017 were conducted by the Institute of Archaeology in Belgrade under the directions of Dr. Miomir Korać.

11 Similar beads are known from many contexts and they could be dated back to different centuries.

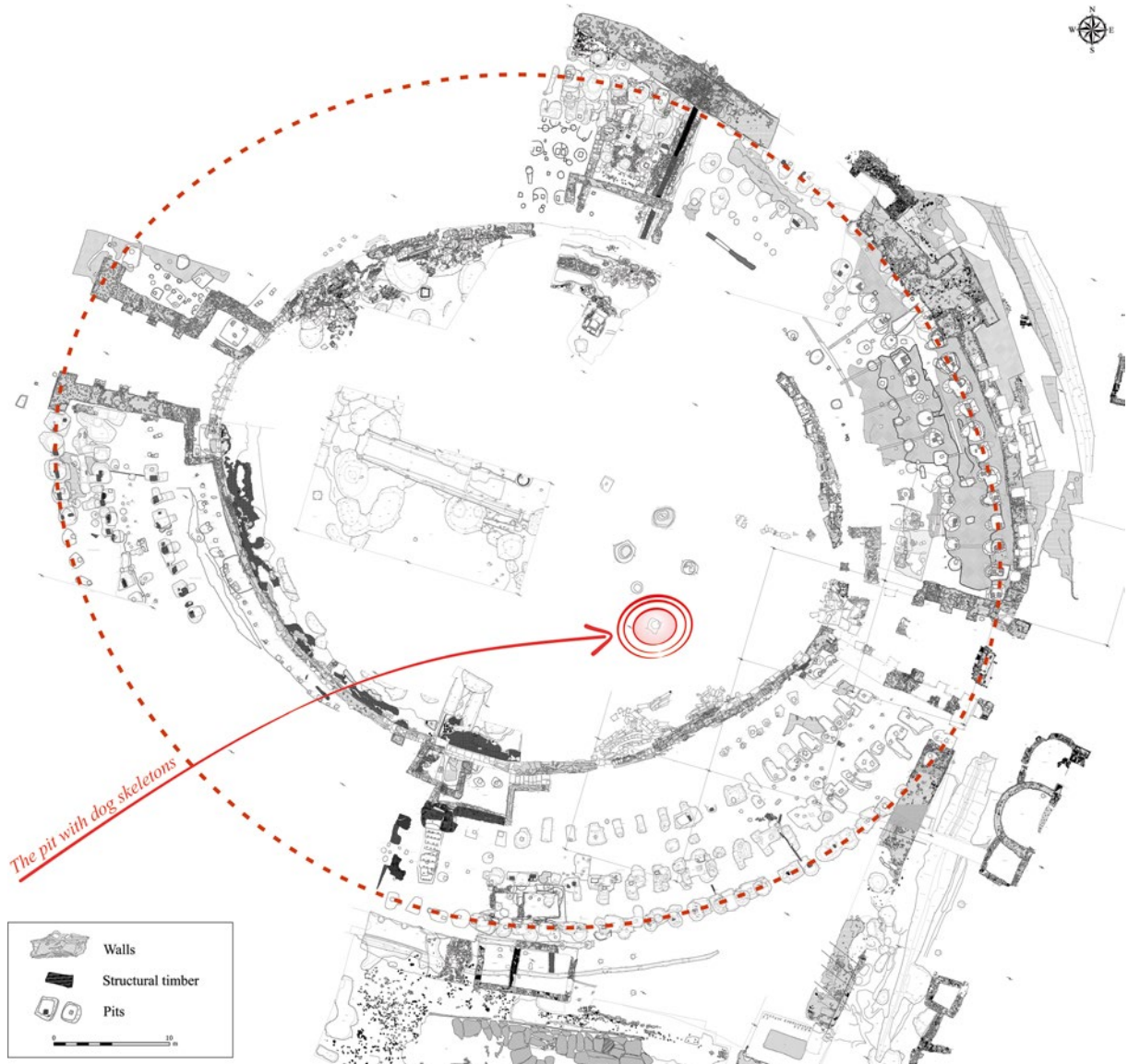
12 It belongs to the type VII/10 (after Ružić 1994, 45–49).

13 It belongs to the type LRG 27 (after Cvjetičanin 2006, 34–39).

14 The same type of pots have been detected during the excavations of *thermae* in *Viminacium* (Raičković 2012, 147, fig. 4,7).

15 It represents Pontic import that belongs to type XX (after Bjelajac 1996, 67–69).





3 The location of the deposit with dog skeletons within the layout of *Viminacium* amphitheatre.

## Methods

We studied the archaeozoological aspects of the dog skeletal remains, which included their quantification according to MNI, taphonomic features (weathering, burning, breakage patterns, butchery marks), their sex, and age at the time of death according to tooth eruption and epiphyseal fusion<sup>16</sup>, their stature according to withers height calculations<sup>17</sup>, and pathological alternations. In order to interpret the findings, we have adopted the

biographical approach suggested by J. Morris<sup>18</sup> based on anthropological theories. The context of the finds, literary evidence, and archaeological finds from the Roman provinces in modern Serbia related to dog sacrifices were also used for the understanding of meanings of the deposit studied in this paper. Cases of multiple dog burials and dog burials within amphitheatres from the area of the Roman world were also considered.

<sup>16</sup> SILVER 1969.

<sup>17</sup> HARCOURT 1974.

<sup>18</sup> MORRIS 2011; MORRIS 2012.



4 *In situ* photo of the deposit with dog skeletons.

## Archaeozoology of dog skeletal remains

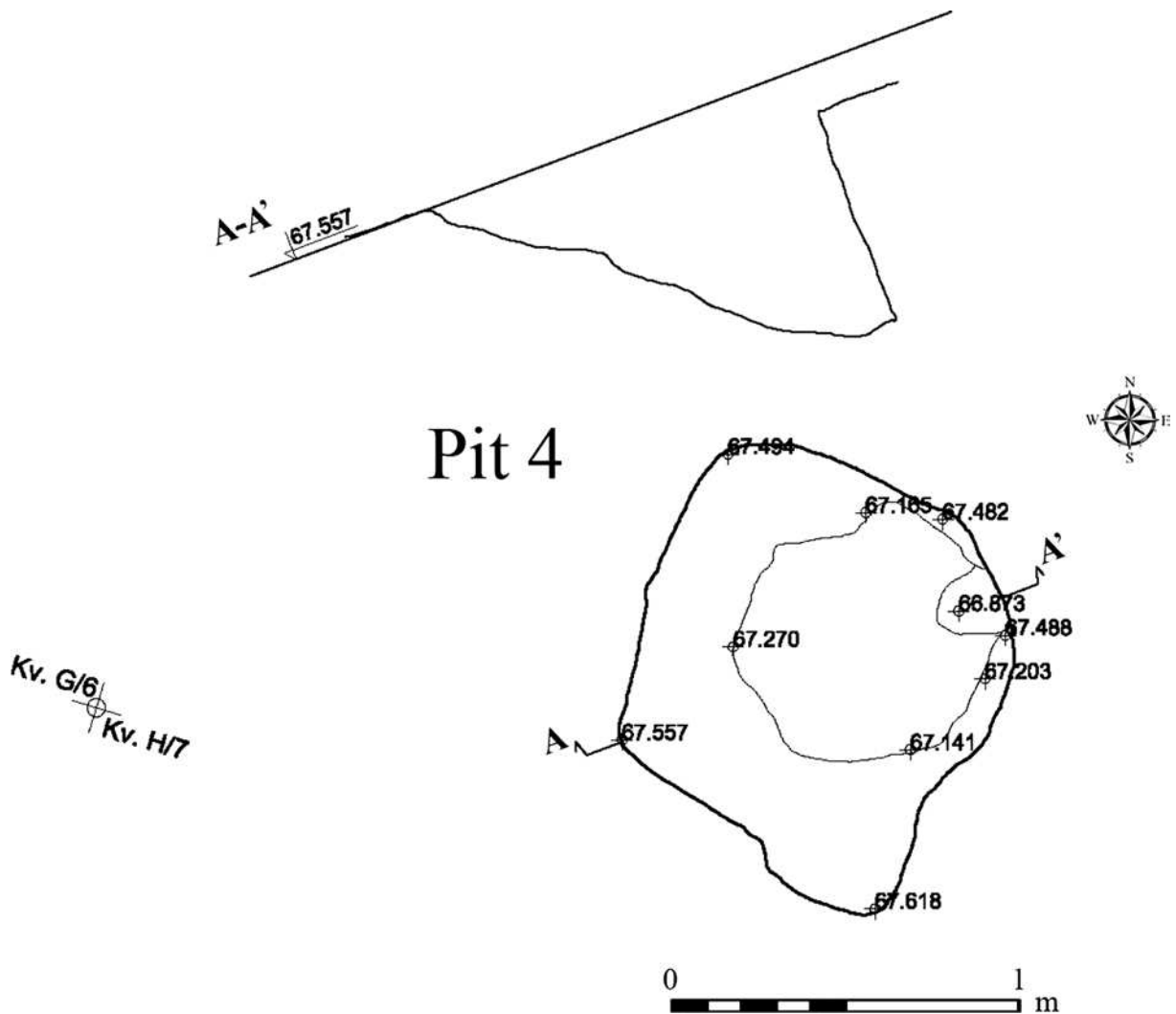
Animal remains from the pit were collected by hand, so there is a possibility that some smaller and more fragile elements have been lost. The dog remains are very well preserved and no weathering or gnawing marks have been noticed, so we presume that the dogs were rapidly buried after their disposal.

Skeletal parts were mostly in articulation. According to the most frequent skeletal element and other features, such as stature and age, we can conclude that at least 13 dogs were buried here. Not all elements from all of the dogs were found, and there is a particular disproportion in element part distribution; skulls, mandibles, and atlas were present from 8 dogs, whilst upper and lower limb fragments represent a maximum of 13 dogs (*fig. 7*).

This suggests that partial skeletons were buried in the pit.

The colour of the dog skeletal remains varies between yellow, brown, red and black and most of the specimens displayed a combination of these colour shades. Colour alternations on bones might be related to the exposure of animal carcasses to high temperatures and indeed the recorded colours on studied dog remains match with those previously addressed with heating and burning, starting from yellowish at lower temperatures, over reddish, brown, black and grey to white<sup>19</sup>. Grey and white have not been observed in the studied assemblage, and so bones were neither carbonised nor calcinated, while the medullar cavities were not burnt. This suggests that the

<sup>19</sup> SHIPMAN *et al.* 1984; NICHOLSON 1993.



5 The layout of the deposit with dog skeletons.

dog carcasses were not exposed to high temperatures for long<sup>20</sup>, and that they were just slightly or moderately heated<sup>21</sup>, rather than being left long enough to cause the carbonisation or calcination of the bone. Some of the long bones are more blackish at the joints than along the shafts (fig. 8), which might imply that flesh was still on the bones prior to heating<sup>22</sup>. This pattern also suggests that the bones may have been roasted<sup>23</sup>. Brownish and reddish stains also observed on dog cranial parts (figs. 9–11) might also sustain this suggestion. However, the colour of the bone is not *per se* sufficient to conclude that the animals were exposed to high temperatures<sup>24</sup>, especially in cases where drastic alternations of bones (clearly burnt bones) are not visible. Diagenetic processes

might also change the colour of the bone, as organic acid, manganese dioxide, iron oxide, etc.<sup>25</sup>, also cause browning, blackening, and yellowing of bones. However, these options do not exclude each other, and the colour alternations could be the consequence of a combination of both human treatment (heating) and the soil conditions.

The upper limb bones from at least two individuals (fig. 12) were broken into two or three parts, probably while still fresh, as the fractures are mostly smooth with sharp angles<sup>26</sup>. Broken bone parts were found together, providing another reason to hypothesise that they were broken while still fresh, with muscles attached to them and most probably as the consequence of human treatment.

20 SHIPMAN et al. 1984.

21 SHIPMAN 1988.

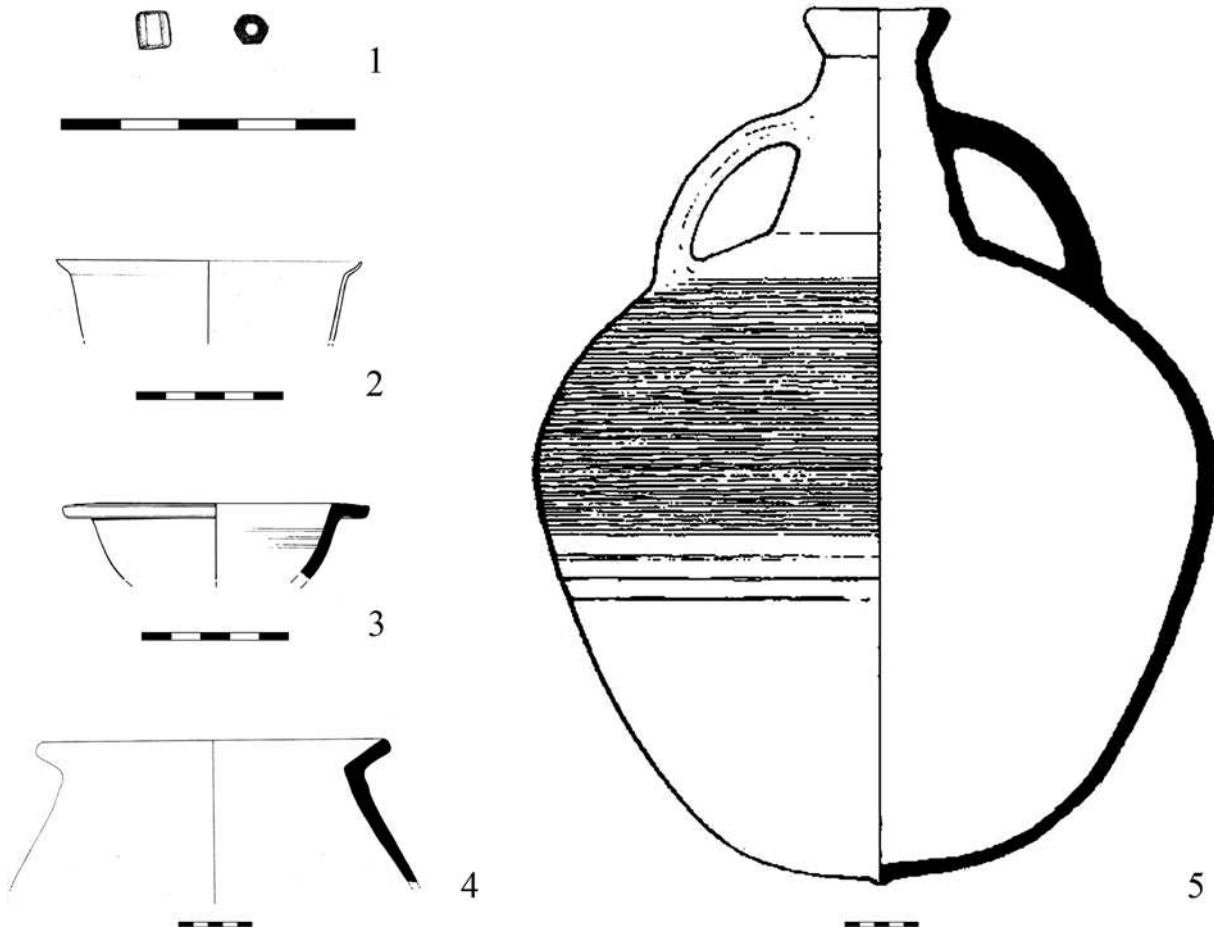
22 GIFFORD-GONZALEZ 1989, 193.

23 RUSSELL 1999, 162–163.

24 SHIPMAN et al. 1984.

25 NICHOLSON 1993.

26 OUTRAM 2002, 59.



6 The archaeological finds from the deposit (1. glass bead; 2. glass beaker; 3. ceramic bowl; 4. ceramic pot; 5. amphora).

Butchery marks have been observed on a few specimens (fig. 13). Both the left (fig. 13a) and right humeri (fig. 13b) of a single individual have butchery marks such as chops on the distal shaft end, while the latter has its lateral epicondyles cut off. One phalanx (fig. 13d) bears chop marks on its dorsal side and there is also a chop mark on a distal 3<sup>rd</sup> metacarpal (fig. 13c). These chops point to the disarticulation of the skeletons prior to deposition.

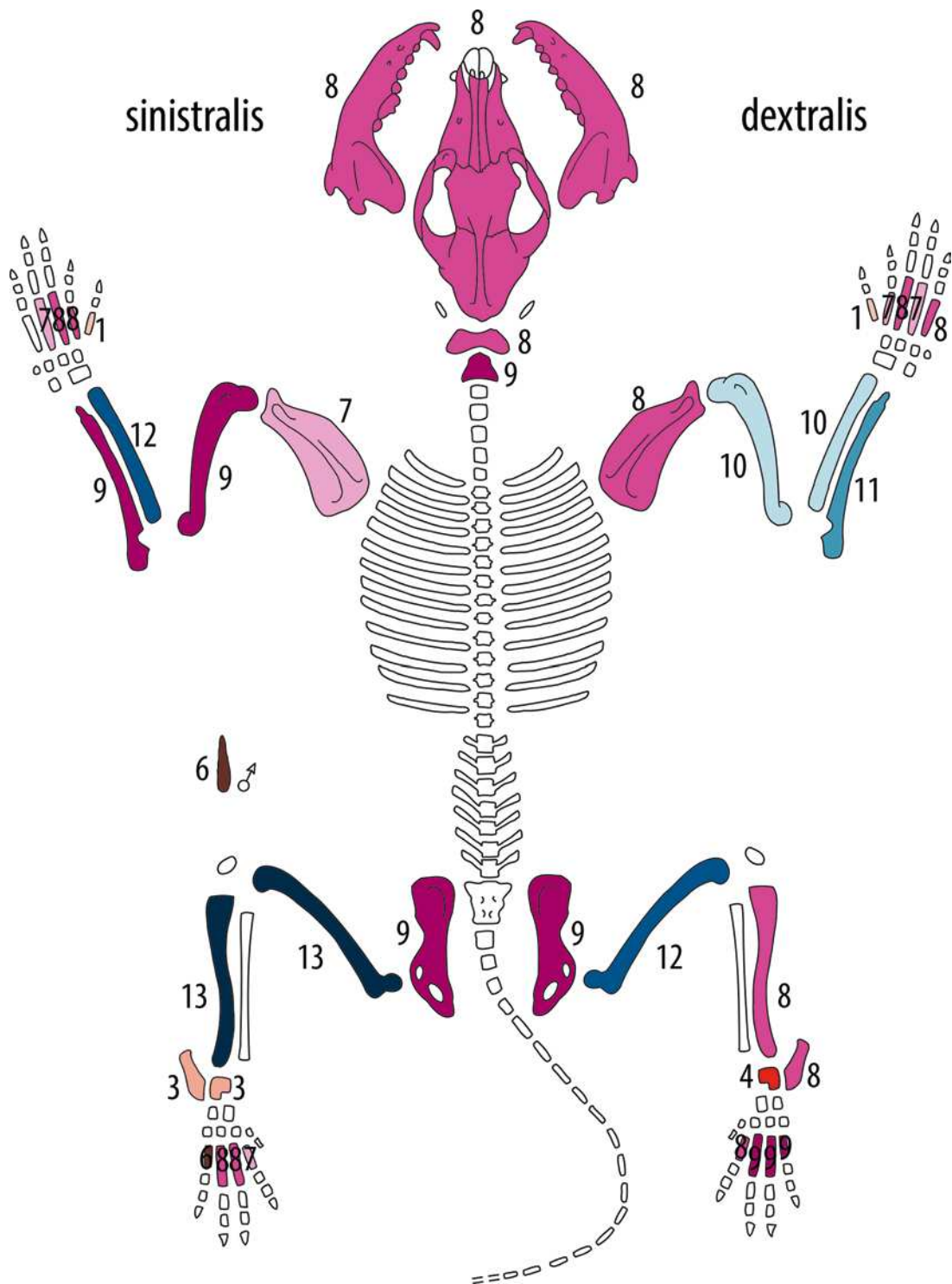
The dogs from the pit differ in age: there was one neonate dog (fig. 14), at least one juvenile, and three sub-adults, while the others were adult dogs, as the epiphyses were mainly fused. According to the presence of six penile bones, it can be concluded that at least six dogs were males. Different wither heights, that could be calculated on nine individuals suggest different statures of these animals. They vary between 23 and 61 cm (tab. 1). The smallest one was a dwarf type dog (fig. 15) with twisted

and short limbs, while the others mostly fall within the most abundant group of dogs in *Viminacium* which were medium-sized dogs (between 50 and 60 cm)<sup>27</sup>.

GL tibia (mm)	Wither height (cm)
76.1	23.2
167.7	49.9
167.9	50
170.7	50.8
180	53.5
195.3	58
196	58.2
203.8	60.5
205.7	61

Tab. 1 Wither height calculations (HARCOURT 1974) of the dogs from the deposit according to the greatest length of tibia.

27 VUKOVIĆ 2015.



7 Skeletal parts distribution of dog remains from the deposit within the layout of dog skeleton (layout by M. Coutureau (Inrap, Archaeozoo) according to HELMER 1987).

Traces of pathological alternations were noticeable on nine specimens. They include the following anomalies: genetic abnormalities, such as the presence of a supernumerary third lower molar in both mandibles of the

same specimen; joint diseases (*osteoarthritis*) probably due to the old age of animals observable at both the 3<sup>rd</sup> metacarpal bone (*fig. 16d*) and the 1<sup>st</sup> phalanx (*fig. 16e*); buttressing on a distal end of the 3<sup>rd</sup> metacarpus, also the



8 Long bones with visible color alternations.

consequence of senility; exostosis on a femur (*fig. 16c*) that might have caused difficulties in movement; traces of infection within a proximal radius (*fig. 16b*) and tibia

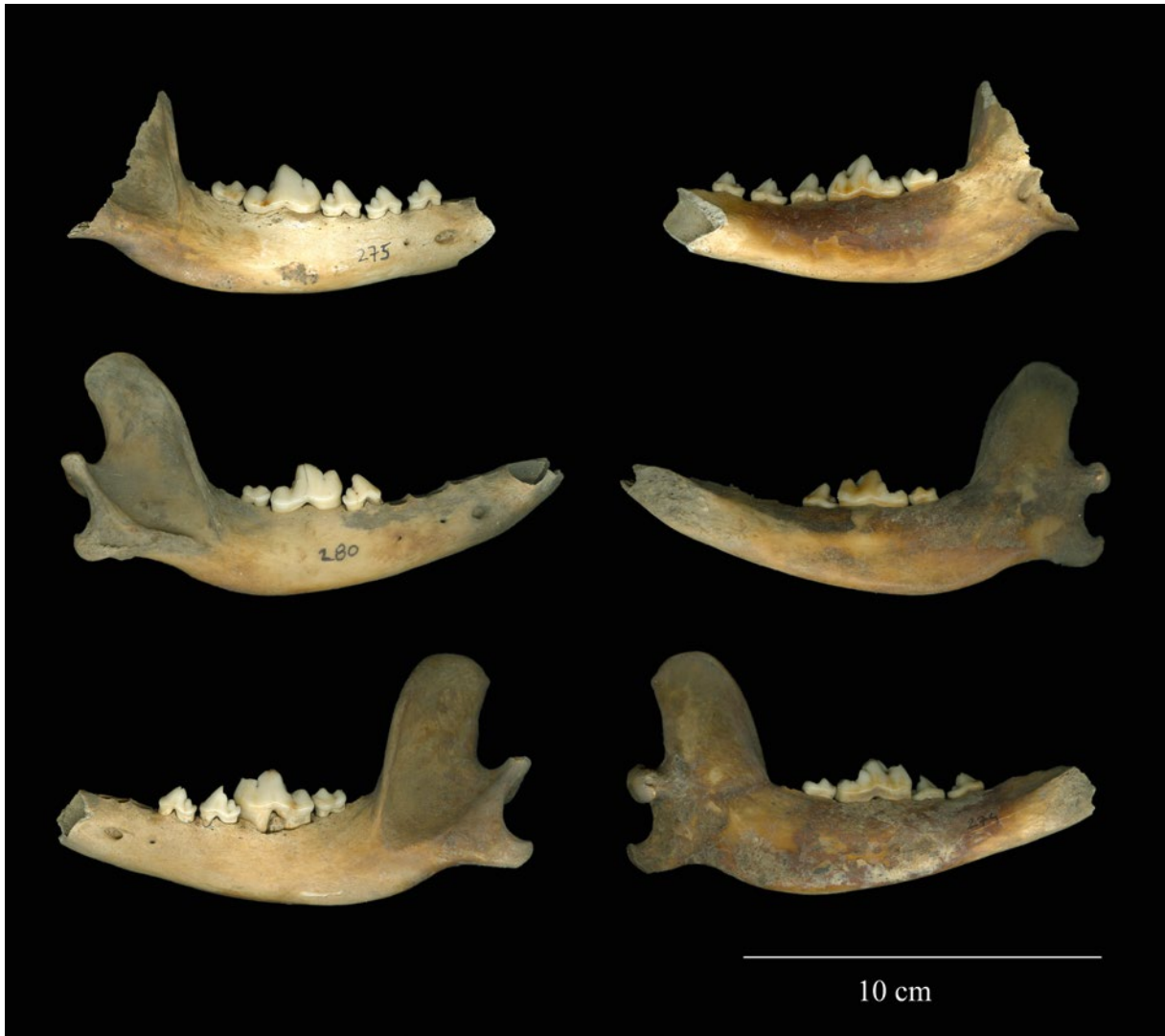
in the form of porosity of bone tissue; and a healed fracture of a rib (*fig. 16a*).

## Discussion

It is obvious that these dog remains are not waste and that they had been intentionally buried here: the bones are in a good state of preservation, no weathering or gnawing marks are present, so it can be concluded that the animals were buried soon after their death, and that their burial occurred in the course of the same event.

### Life history of dogs from the deposit

Although we are confident that these dogs had been placed at the site intentionally and that humans had influenced the formation of these associated bone groups (ABG), in order to interpret them we chose to look at the



9 Mandibles with color alternations.

life histories of both the animals and animal corpses. For that reason, we found that the biographical approach to these deposits as suggested by J. Morris<sup>28</sup> on the basis of anthropological theories was highly useful for our better understanding of the situation. We can assume that at least 13 dogs of different breeds and ages had been chosen for slaughter. As they belonged to different phenotypes that were common in *Viminacium*<sup>29</sup>, and as they had some pathological alternations common to dogs<sup>30</sup>, they had probably been bred as regular dogs and could have been chosen randomly for this occasion. As a result, they represent the transformation of regular dogs into victims that were chosen to be killed. There is also the possibility that they lived as stray dogs. How they were killed is im-

possible to answer, as we do not have any information from the bones that point to the method of slaughtering and killing. We also do not know whether the dogs were killed in a ritual manner and what had happened to the remaining body parts that were not placed here – they could have been placed somewhere else, or thrown away as waste. After being killed, the dog corpses might have been exposed to heat, probably roasting, as suggested by the bone colouring. Several butchery marks as well as broken long bones point to the fact that some of their remains were processed, but we cannot state for sure that they were used as food. Butchery marks on previously discovered dog bones from *Viminacium* are extremely rare and have mostly been related to ritual activities, as

28 MORRIS 2011; MORRIS 2012.

29 VUKOVIĆ 2015.

30 VUKOVIĆ 2015.



10 A fragmented skull with color alternations.



11 A skull with color alternations.



12 Long bones with old breakages.





13 Chop marks on the following specimens: a. distal left humerus; b. diaphysis of right humerus; c. dorsal 3<sup>rd</sup> metacarpus; d. dorsal 1<sup>st</sup> phalanx.

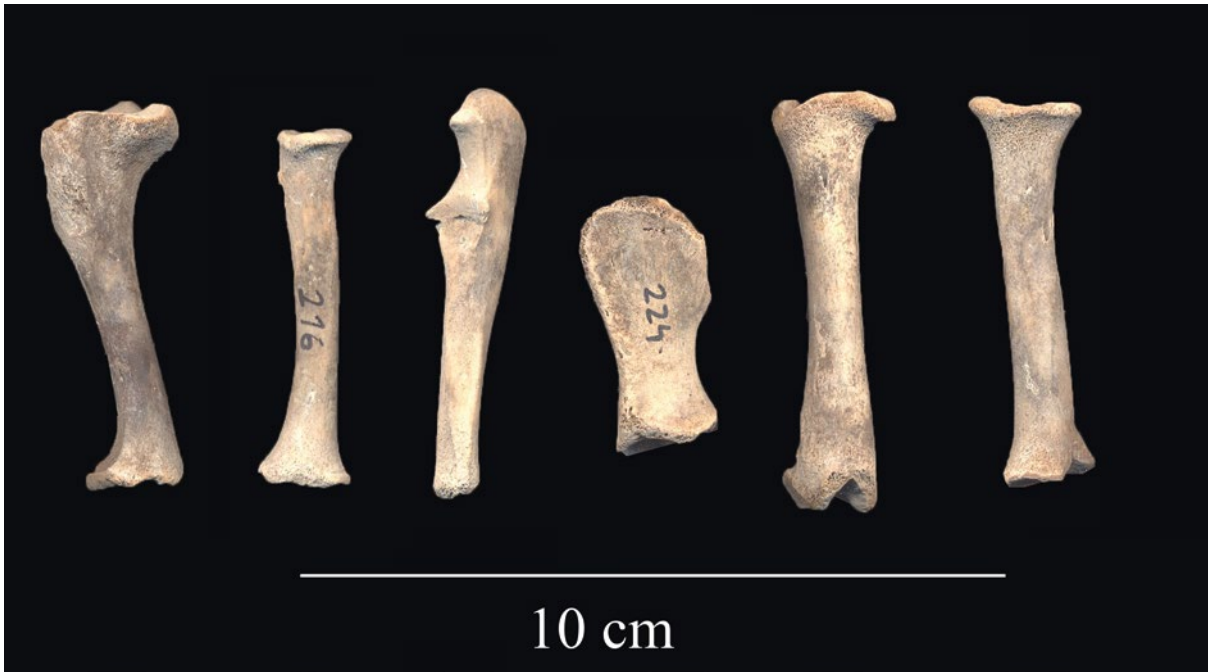
was the case for a skinned dog recovered from the eastern *Viminacium* cemetery<sup>31</sup>. Absence of butchery marks and the low fragmentation of dog bones from other *Viminacium* faunal assemblages suggest that dogs were not consumed in this Roman city<sup>32</sup>. The dogs were most likely kept as pets, while they could have also been used for guarding herds of livestock, or as hunting companions, etc. Dog body parts were all put together in this pit, although this was not done with much care. After this the pit was closed by bricks that may have been meant to mark the place of burial.

31 VUKOVIĆ / JOVIČIĆ 2015.

## Cultural significance of the deposit

If we assume that the dogs were killed, roasted, processed, and buried in a ritual manner, it is possible that they were sacrificed and offered. However, it is difficult to relate the dog deposit to a specific deity as there is no direct evidence for this. In ancient mythology dogs were linked to chthonic gods, such as Hades, Serapis and Hecate, and they played the role of guardians of the entrance to the

32 VUKOVIĆ 2015.



14 Remains of a neonate dog.



15 Remains of the dwarf type dog.

underworld, a Cerberus<sup>33</sup>. Ancient texts mention that young dogs were offered to Hecate in the course of purification rituals<sup>34</sup>. Evidence of the cult of the goddess of Hecate is pretty scarce within the territory of the Roman provinces in Serbia<sup>35</sup> and they have not yet been confirmed in *Viminacium*. On the other hand, the cult of Diana, the presence of which has to a great extent been confirmed in this part of the Roman world<sup>36</sup> including in *Viminacium*<sup>37</sup>,

might also be related to dog sacrifice. It is known that one of the forms of Hecate was called Artemis Hecate to whom dogs (and other animals) were offered, possibly as part of chthonic rituals. As dogs were considered to have iatric character<sup>38</sup> and were therefore related to Asclepius or Epونا, there is a possibility that in *Viminacium* they were offered in that manner. It is also possible that these animals were sacrificed in rituals of purification<sup>39</sup>.

33 TOYNBEE 1973, 123.

34 PLUT. *Quaestiones Romanae* 52, 277; PAUS. 3, 14.9–10.

35 PLEMIĆ 2011, 119–127.

36 PLEMIĆ 2017.

37 ZOTOVIĆ 1996, 132.

38 TOYNBEE 1973, 123.

39 DE GROSSI MAZZORIN/ MINNITI 2006, 63–64.



16 Pathological alterations on the following specimens: a. healed rib fracture; b. proximal radius with traces of an infection; c. exostosis on the femur; d. osteoarthritis evidence on the 3<sup>rd</sup> metacarpal bone; e. osteoarthritis evidence on the 1<sup>st</sup> phalanx.

The biggest question and challenge in relating the dog deposit from *Viminacium* with the sacrifice and to certain deities concerns the context of the find: its location and its date. It was not found within the sacrificial area proper, but within the area of the abandoned amphitheatre. In the immediate vicinity of the deposit, a small contemporaneous late Roman necropolis had been set. The deposit dates back to the 2<sup>nd</sup> half of the 4<sup>th</sup> century AD, when pagan Roman religious cults had already become less practiced and were gradually substituted by Christianity<sup>40</sup>. However, in the course of the 3<sup>rd</sup> and 4<sup>th</sup> century AD, Germanic tribes invaded the Danube provinces<sup>41</sup>. As noted in a paper published by L. Bartosiewicz<sup>42</sup>, “multiple dog burials are not uncommon in Germanic ritual contexts”, so there is also the possibility that the dogs represent remnants of a Germanic ritual custom. The identities of the people buried within the abandoned area of the amphitheatre are still unknown, so if the dog deposit is related to the offerings to the de-

ceased buried there, there is the possibility that the dogs were offered in accordance with the autochthonous or Germanic obituary rituals.

Archaeological finds from the deposit – pottery sherds, a fragmented glass beaker, and a glass bead – are not considered to represent direct evidence for a ritual interpretation of the dog remains. They were not found at the same depth as the dogs and as they originate from the sediment that buried dog skeletons, it is likely that they represent common waste, and we assume that they were not associated with the dogs.

The possibility that the dogs had met their natural death as the consequence of a deadly disease, such as rabies, or for any other functional reason, such as population control, also cannot be completely ruled out. Regarding dog disease and also dog roasting, there are interesting accounts written by the Roman author Claudius Aelianus (c. 170–235 AD) in his work *De Natura Animalium* “[...] He is so keen-scented that he will never touch the roasted

40 JEREMIĆ / ILIĆ 2018; SPASIĆ-ĐURIĆ 2015; KORAĆ 2007; ZOTOVIĆ 1994.

41 MIRKOVIĆ 1968, 73; SPASIĆ-ĐURIĆ 2015, 28.

42 BARTOSIEWITZ 2009, 166.

flesh of a dog, be it bewitched by the subtlest and craftiest of rich sauces [...]”<sup>43</sup>. While this reference mentions roasted dogs and a dislike of dog meat, it does not refer to dog meat consumption by humans, and it is not clear from this text what is the reason for roasting these animals which were not commonly included in the diet. The quotes regarding dog diseases follow the aforementioned sentences: “[...] Now there are three diseases which fall to the lot of a dog and no more – dog-quinsy, rabies, and gout – while mankind has an infinite number. Everything that is bitten by a mad dog dies. If a dog once gets gout you will rarely see him recover his strength [...]”<sup>44</sup>. These different quotes relate to dog roasting and dog diseases follow each other, and they are not necessarily mutually related. However, regarding the assumption that dogs from *Viminacium* deposit might have been killed because of an illness, such as rabies mentioned by Aelian who also warned that mad dogs might kill other beings, it seems that a relationship between roasting, killing, and burying sick dogs might be suggested, too. In any case, the dogs at *Viminacium* might have been killed due to a disease, and their corpses might have been treated by fire and were then finally buried, while the bricks that covered the burial, might have been used for burial closure, in order to protect the living beings from illness.

Indeed, Roman deposits with multiple dog burials have mostly been interpreted in a functional manner. At Owslebury (Hampshire, UK) deposits dated to the 3<sup>rd</sup>/4<sup>th</sup> centuries AD contained multiple (at least 55) mostly foetal and neonate dog skeletons, and were interpreted as the control of the dog population<sup>45</sup>, or related to selective breeding practices<sup>46</sup>. At least six partial skeletons of both adult dogs and puppies were found buried together in a well in the vicus of the Roman fort of *Favianis* in Mautern, Lower Austria<sup>47</sup>. According to the author, the dogs were killed for unknown reasons, probably during the course of a dog extermination event. Another similar deposit, with 8 dog skeletons of different phenotypes from the area that surrounded a legionary camp in Augsburg in Bavaria, has also been interpreted in a functional manner. The dogs had many ante mortem injuries and J. Peters<sup>48</sup> suggested that they were stray dogs which somebody wanted to get rid of by killing them, possibly by poison. The *Viminacium* feature described in this paper consists mostly of adult dogs, while processing and potential roasting marks, suggest a

possible ritual significance of the deposit. Perhaps a more similar deposit of 6 adult dog skeletons<sup>49</sup> was found in a pit within the necropolis Sontheim/Brenz (Braike) near Heidenheim, dating to the 2<sup>nd</sup> century AD. The dogs were probably violently killed as their skulls are fractured, some body parts are missing and some of the leg bones bear butchery marks. Within the deposit, a strap divider, possibly a part of hunting gear, was also found, and the interpretation is that the deposit is the burial ground for three pairs of hunting dogs which were sacrificed and later buried.

The context of the *Viminacium* dog finds, which is the area of an abandoned amphitheatre, is meaningful when other instances of dog skeleton discoveries in Roman amphitheatres are considered. Although it is worth noting that other examples mostly originate from the periods of the usage of those buildings. This is the case for the fragmented dog skeletons in the amphitheatre in London<sup>50</sup> and those from the *Virunum* amphitheatre<sup>51</sup>, where quite frequent butchery marks suggest that these were the remains of dogs fed to beasts involved in the entertainment. In the *Viminacium* amphitheatre, within the features related to the usage of the object, namely *cavea*, other complete and fragmented dog skeletons have been also discovered<sup>52</sup>. Dog skeletons have also been found together with human skeletons and a goat skeleton in the fills of relieving arches at the *Augusta Raurica* amphitheatre<sup>53</sup>. This faunal assemblage includes material dating back to the periods of the building and rebuilding of the amphitheatre as well as the periods following the usage of the building. As the amphitheatre is located in the outskirts of the city, the dogs deposited here are thought to represent animals discarded there because it was at a distance from the residential areas<sup>54</sup>. Considering that *Viminacium* amphitheatre was also located at the city outskirts, recalling *Augusta Raurica* example, it also might be suggested that the citizens might have used the areas of abandoned amphitheatres for discarding or burying their dogs.

Besides varieties of explained interpretations for the cultural meaning of the *Viminacium* dog deposit, the possibility also stands that the deposit consists of remnants of dogs killed or died for ‘functional’ reason and that they were later buried with a symbolic connotation, that might or might not include any religious or spiritual act.

43 AEL. *De natura animalium* 4.40.

44 AEL. *De natura animalium* 4.40.

45 MALTBY 1987.

46 GRIEVE 2012, 223.

47 KUNST 2006, 702–703.

48 PETERS 1998, 186.

49 NUBER/ KOKABI 1993.

50 LIDDLE 2008.

51 GALIK 2004.

52 VUKOVIĆ 2015.

53 GRÄDEL 1989.

54 GRÄDEL 1989, 155.

## Conclusions

The late Roman deposit from the area of the arena in the previously abandoned *Viminacium* amphitheatre is thus far the only isolated case of multiple animal burials from *Viminacium* and the broader area of the Balkan provinces of the Empire. The contextual, archaeozoological and taphonomic studies of the deposit have revealed that at least 13 partial dog carcasses representing individuals from different age groups and statures were buried in the course of the same event. Human treatment of the carcasses, evidenced by bone colour alternations indicating possible roasting, as well as fresh breakage of the bones and butchery marks, point to unusual activities. Since dogs had had a special symbolic meaning in the Roman world, related to the underworld and to particular deities, we believe that this unusual late Roman deposit represents the remnants of a ritual practiced in the vicinity of the graveyard in the period when pagan rituals had become less common. Within the deposit and in its vicinity, there are no findings that could be related to possible dog sacrifice to a particular deity, although we have indirectly associated it with chthonic deities, whose cults

were attested in *Viminacium*. An alternative interpretation refers to plausible Germanic rituals, in view of Germanic invasions and also of their settling within the Roman provinces in the course of the late antiquity. However, there is also the possibility that the deposit represents remnants of dogs killed for a practical and non-symbolic reason, such as disease, so a possible simple functional meaning of the deposit cannot be completely eliminated. It is also possible that the deposit could represent a combination of both functional and symbolic activities.

Although we could trace the life histories of the dogs buried in the abandoned amphitheatre of *Viminacium*, we could not illicit the exact meaning of this deposit, due to the absence of any direct evidence of their possible sacrifice (or any other religious or spiritual act) or their being discarded without any symbolic connotations. Nevertheless, this unusual deposit is certainly a specific example of the way in which dogs were treated by the people of *Viminacium*, and therefore adds evidence for the understanding of human-dog relationships in *Viminacium* and consequently in the Roman world.

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Fig. 7: Layout by M. Coutureau (Inrap, Archaeozoo) according to HELMER 1987. – Tab. 1: HARCOURT 1974. – All other figures: Authors.

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## Abstract

In the course of excavations at the arena of the abandoned *Viminacium* amphitheatre (Serbia), within the broader area of the late Roman graveyard, a deposit has been discovered of a multiple dog burial that dates back to the 2<sup>nd</sup> half of the 4<sup>th</sup> century AD. Archaeozoological and taphonomic studies of dog remains have revealed that at least 13 partial dog carcasses of both puppies and adult dogs of different phenotypes had been jointly bur-

ied, after possible roasting and carcass processing. By corroborating archaeological, archaeozoological, ancient text data, as well as similar instances of dog burials from the Roman world, a number of potential interpretations of the deposit have been arrived at, from ritual sacrifices to chthonic deities, all the way to the functional slaughter, or some kind of combination of the two.

## Zusammenfassung

### Hundeopfer in der spätrömischen Welt? Eine Fallstudie einer Mehrfach-Hundebestattung aus dem Amphitheater von *Viminacium*

Bei Ausgrabungen im Amphitheater von *Viminacium* (Serbien), im weiteren Bereich des spätrömischen Friedhofs, wurde ein Depot mit mehreren Hundebestattungen aus der 2. Hälfte des 4. Jahrhunderts n. Chr. aufgedeckt. Archäozoologische und taphonomische Untersuchungen an den Überresten der Hunde haben ergeben, dass mindestens 13 Teilkadaver von Welpen und erwachsenen Hunden unterschiedlichen Phänotyps nach möglicher Röstung und Kadaverbearbeitung gemein-

sam niedergelegt wurden. Durch die Bestätigung archäologischer, archäozoologischer, antiker Textdaten sowie ähnlicher Fälle von Hundebestattungen aus der römischen Welt erscheinen verschiedene Deutungen möglich. Es könnte sich um Reste ritueller Opfer für chthonische Gottheiten, um die Hinterlassenschaften einer Schlachtung oder um eine Kombination beider Praktiken handeln.



## Résumé

### Sacrifices de chiens dans l'Antiquité tardive ? Etude de cas de sépultures multiples de chiens dans l'amphithéâtre de *Viminacium*

Lors de fouilles menées dans l'arène de l'amphithéâtre abandonné de *Viminacium* (Serbie), dans le périmètre plus large de la nécropole romaine tardive, fut découverte une sépulture multiple de chiens datée de la 2<sup>e</sup> moitié du 4<sup>e</sup> siècle ap. J.-C. Les études archéozoologiques et taphonomiques des restes ont révélé qu'au moins 13 carcasses partielles de chiots et de chiens adultes appartenant à différents phénotypes furent enterrées au

même moment après avoir peut-être été rôties et traitées. En comparant les données archéologiques, archéozoologiques et les sources écrites, ainsi que des cas similaires de sépultures de chiens dans le monde romain, on peut proposer plusieurs interprétations pour ce dépôt, allant de sacrifices rituels à des divinités chthoniennes jusqu'à l'abattage fonctionnel, ou une combinaison des deux.