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Deschler-Erb, Sabine – Schafnitzl, Andreas

## **A herd of sheep led to the slaughter – Evidence of hecatombs at Losodica/ Munningen (Bavaria)**

in: Deschler-Erb, Sabine – Albarella, Umberto – Valenzuela Lamas, Sílvia – Rasbach, Gabriele (Hrsg.), Roman animals in ritual and funerary contexts: proceedings of the 2nd Meeting of the Zooarchaeology of the Roman Period Working Group, Basel 1st-4th February 2018, 53-60.

DOI: <https://doi.org/10.34780/zc8bd66aa0>

**Herausgebende Institution / Publisher:**  
Deutsches Archäologisches Institut

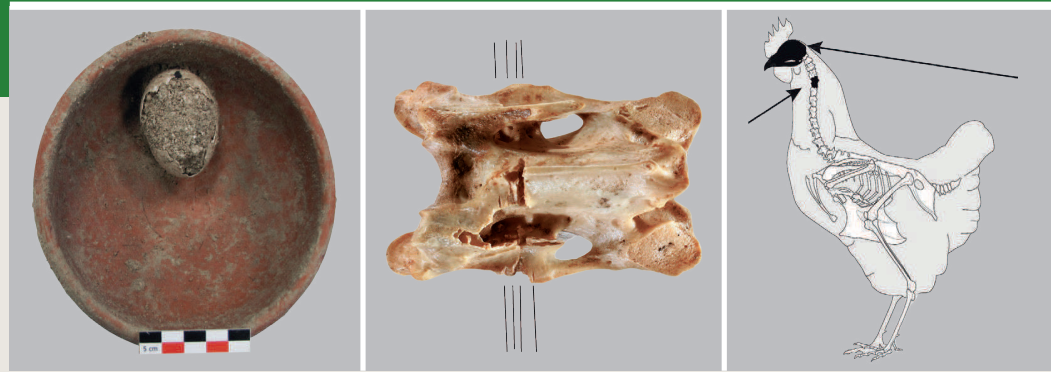
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# KOLLOQUIEN ZUR VOR- UND FRÜHGESCHICHTE 26



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.

ISBN 978-3-447-11641-1



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.

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HARRASSOWITZ VERLAG • WIESBADEN

XVI, 256 Seiten mit 146 Abbildungen

Library of Congress Cataloging-in-Publication Data

A CIP catalog record for this book has been applied for at the Library of Congress.

Bibliografische Information der Deutschen Nationalbibliothek

Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie;  
detaillierte bibliografische Daten sind im Internet über <https://dnb.de/> abrufbar.

Verantwortliche Redaktion: Redaktion der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main

Verantwortlicher Redakteur: H.-U. Voß, Formalredaktion: J. Gier, Bildredaktion: O. Wagner

Umschlagfoto: A.-S. Vigot, Einband: Catrin Gerlach

Buchgestaltung und Coverkonzeption: hawemannundmosch, Berlin

Prepress: le-tex publishing services GmbH, Leipzig

© 2021 Deutsches Archäologisches Institut

Otto Harrassowitz GmbH & Co. KG, Wiesbaden · <https://www.harrassowitz-verlag.de/>

ISBN 978-3-447-11641-1

doi: 10.34780/b03671ada6

Gedruckt auf säurefreiem und alterungsbeständigem Papier

Printed in Germany

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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  
Deputy Director

Alexander Gramsch  
Head of the editorial office

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(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.



# A herd of sheep led to the slaughter – Evidence of hecatombs at *Losodica*/Munningen (Bavaria)

by Sabine Deschler-Erb / Andreas Schaflitzl

## Keywords

Sanctuary, *collegium*, burnt offering, *vicus*, *Raetia*

## Schlüsselwörter

Heiligtum, *collegium*, Brandopfer, *vicus*, Raetien

## Mots-clés

Sanctuaire, *collegium*, offrande incinérée, *vicus*, *Raetia*

## Introduction

In 2009 parts of the Roman *vicus* of *Losodica*, today Munningen in Bavaria, were excavated and an unparalleled quantity of cremated bones was found. Initially, it was thought that these were the remains of several cremation graves, however, other interpretations had to be

considered, such as industrial waste or ritual deposits in non-funerary contexts. Therefore, the material was subject to archaeozoological analysis to provide further interpretative information. Here we present our first results<sup>1</sup>.

## The site

Munningen is situated in the western part of Bavaria near the northern rim of the Nördlinger Ries, a 15 million year old impact crater 20–25 km in diameter, filled with fertile sediments (*fig. 1*). Thus, the region has good conditions for farming, and we know that this activity

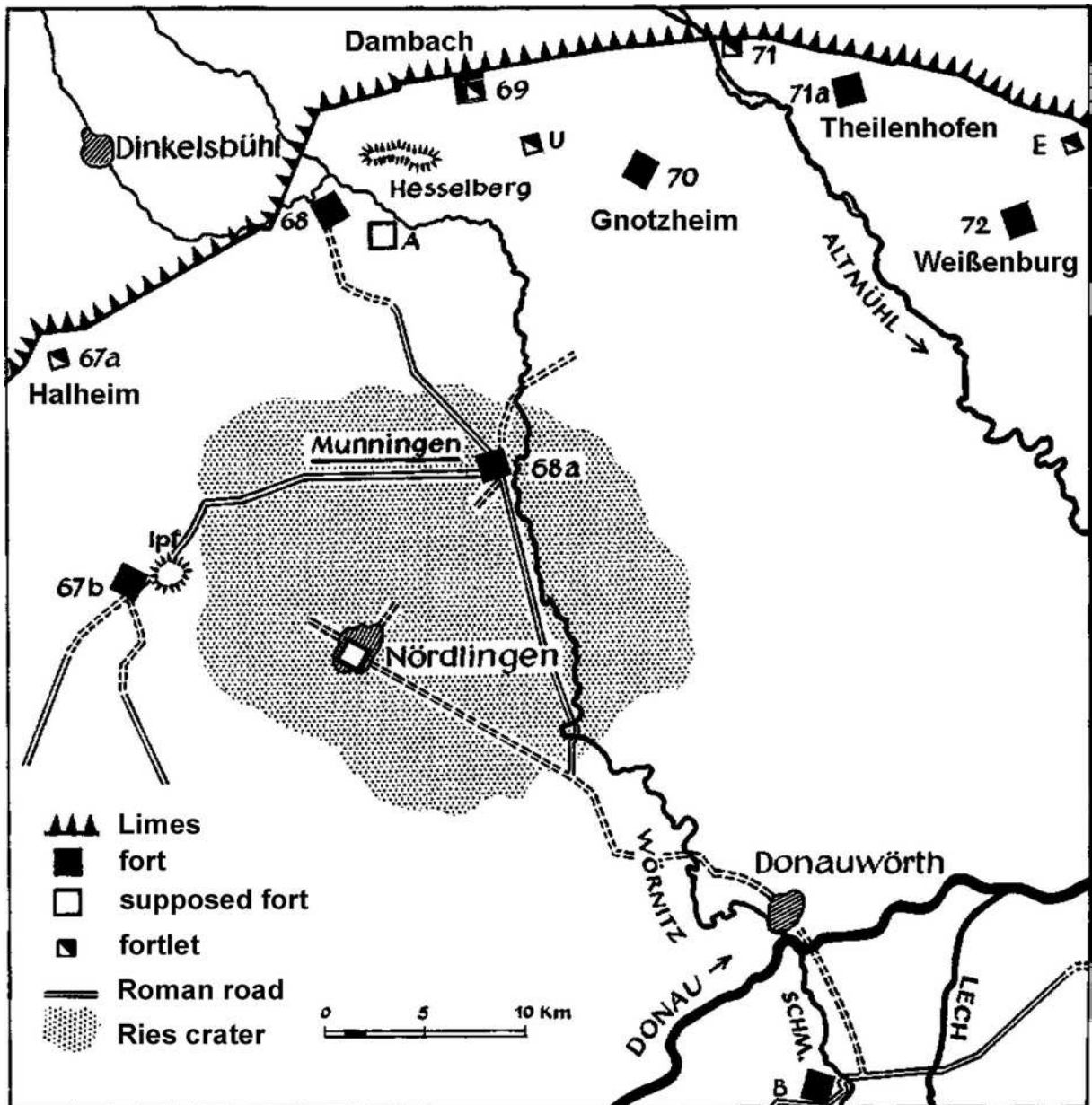
took place here during Roman times<sup>2</sup>. This *limes* region was protected by several Roman camps, among them the fort of Munningen, which was founded at the end of the 1<sup>st</sup> century AD<sup>3</sup>. It had good connections to the Roman road system, and some roads even changed direction

<sup>1</sup> The recent excavations of 2009 are the subject of an ongoing dissertation by Andreas Schaflitzl at the University of Bern. The documentation and analysis of the objects are still in progress, so this article can only give a rough overview of what is already known – especially in reference to the fine dating of the feature sequence.

<sup>2</sup> The climate is a little warmer and arid in the Ries compared to the surrounding parts of South Germany (ONGYERTH 1998, XIII).

<sup>3</sup> There are different opinions on the foundation date of the fort. For the variously discussed dates see for example BAATZ 1976, 34 (around AD 90); HEILIGMANN 1990, 196 (refers to a dendrochronological date of AD 104 ± 10 for a construction of part of





1 Map of the area around the Nördlinger Ries with Munningen and its correlation to the Limes (after BAATZ 1976, fig. 1).

whilst crossing the camp<sup>4</sup>. This military base seems to have been abandoned only after a short period of occupation before AD 110<sup>5</sup>. When the soldiers left, the ditches were filled up and civilian buildings were constructed in the former military area. A massive destruction event is attested by the so-called ‘Munninger Brandschicht’, which D. Baatz dates to the 170s<sup>6</sup>. The settlement seems

to end no later than the end of the 2<sup>nd</sup> century AD, but some rare finds indicate that people may have been present until the middle of the 3<sup>rd</sup> century AD.

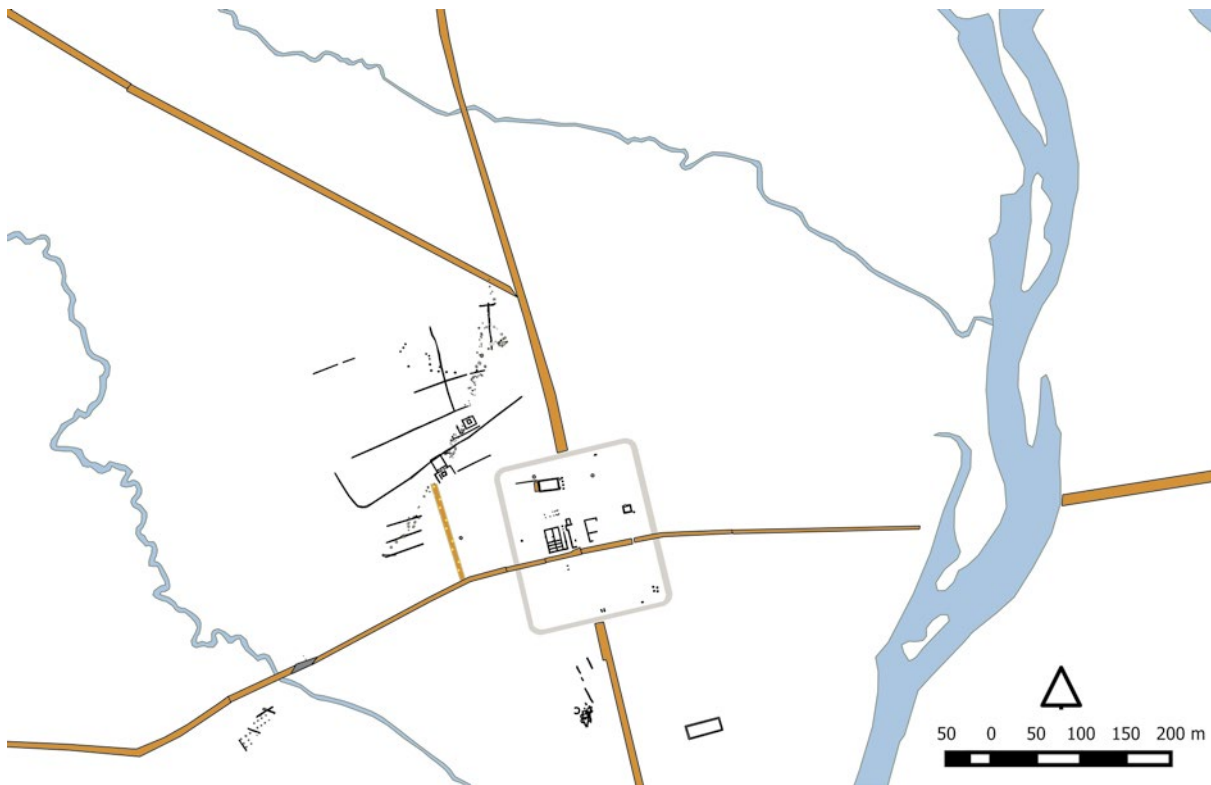
Since the discovery of the camp in 1893, investigations have focused on the camp itself and the later *vicus* built in the former military area. In 2009, the construction of a bypass finally gave archaeologists the chance to

the fort) and KORTUM 1998, 44 (see the beginning around AD 110).

<sup>4</sup> For an analysis of the infrastructure in Munningen see SCHAFLITZL 2016, 84–86.

<sup>5</sup> BAATZ 1977, 27.

<sup>6</sup> BAATZ 1976, 16–17 confirms the late dating suggested by R. Nierhaus. Th. Fischer sees the incident later after the Marcomanic wars maybe at the time of Commodus or Septimius Severus (FISCHER 1994, 346–347).



2 Map of the *vicus* of Munningen following the results of magnetic surveys and excavations (SCHAFLITZL 2016, fig. 1).

excavate parts of the *vicus* outside the military area for the first time<sup>7</sup>.

Roman remains were found within a 600 m long and rather narrow area (fig. 2). In the northern area, a zone with public buildings and the foundation of a Romano-Celtic temple were excavated. No Roman layers survived here because of the ground erosion, and finds are very rare and cannot unequivocally be connected to any religious activities.

About 40 m to the south, a stone building – probably a temple – with different construction phases survived (fig. 3)<sup>8</sup>. In its first phase the building measured about 16 x 13.5 m. The interior was divided into two rooms: a rectangular main room and, in front of it, a corridor, which was likely the main entrance (Room 2). In a second phase a forecourt was added (Room 3). Supposedly at the same time or earlier, another, almost rectangular structure was constructed (Room 4).

In the southern corridors of Room 3 fragments of two inscription tablets were found<sup>9</sup>. One is obviously a building inscription. It mentions a *collegium* as the ded-

icator and a *templum*. The second was found along the latest wall and proves the reconstruction of an ambulatory in Severan times.<sup>10</sup>

Many remarkable objects were found in the building: parts of small sandstone statues were found in Room 1. Furthermore, several pieces of plate armour (*lorica segmentata*) were found in Room 1 and 3. One of these was a back-plate, with two rectangular holes indicating that the armour was fixed somewhere with nails. A spearhead and a shield rim were also discovered. Additionally, a bronze lyre key belonging to a musical instrument was recovered from Room 2.

Room 4 was filled with a large quantity of highly fragmented and burnt bones, and this kind of material was also found to the north-west in Room 3 and Room 2 (fig. 3). These layers were not found on or between the walls, which indicates that they were deposited when the building was in use and not afterwards<sup>11</sup>. No burnt sediments were recognised, so this bone material, which is mixed with charcoal, must have been burnt somewhere else and brought here when it had cooled.

7 Preliminary reports are published by LORÉ 2010 and HERZIG/BERG-HOBOHM 2010.

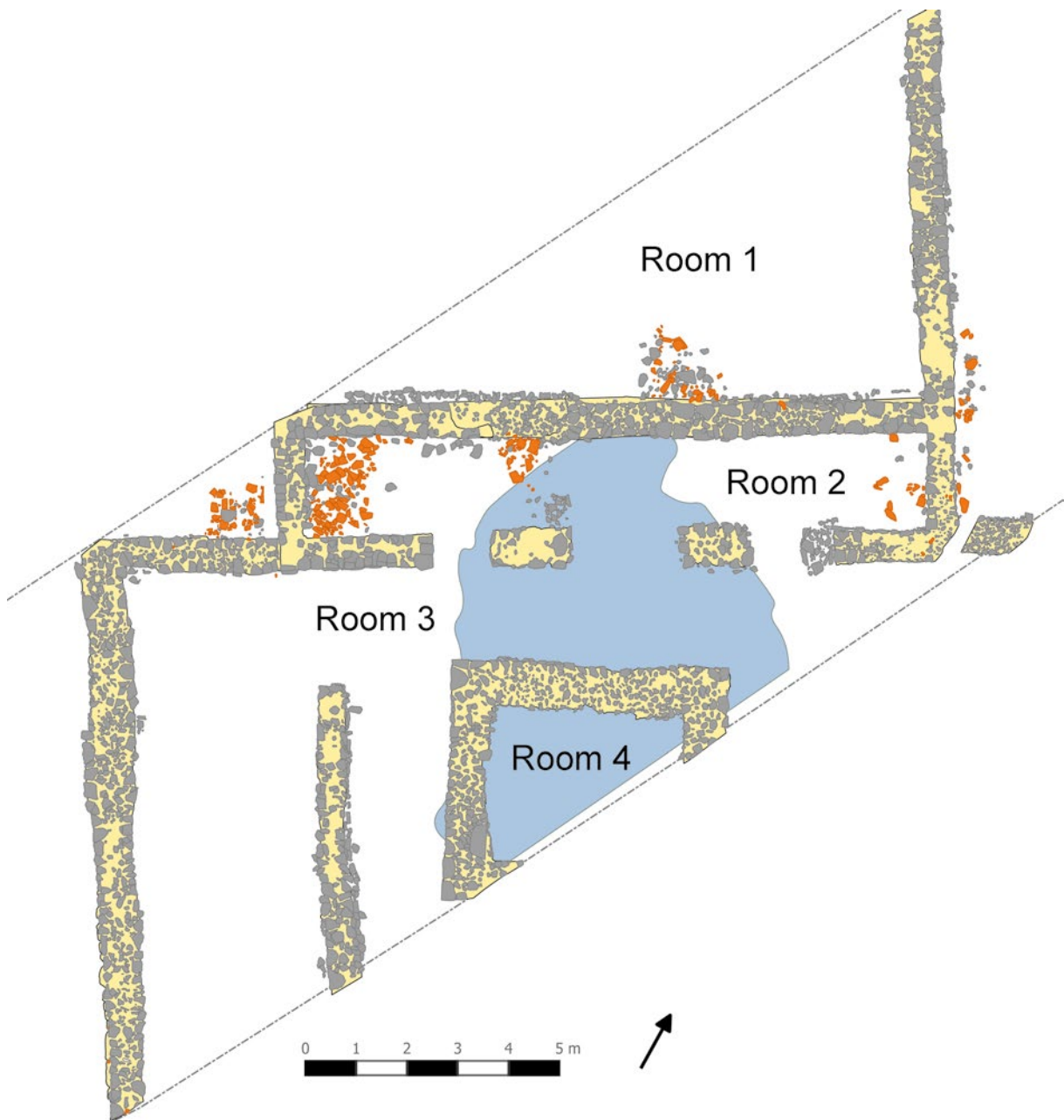
8 LORÉ 2010, 97–98.

9 SCHOLZ/ SCHAFLITZL 2018.

10 Cf. inscription 2 in SCHOLZ/ SCHAFLITZL 2018.

11 Of course, there are some findings on top of the walls but this is likely caused, when the plug spread the interior of Room 4, so they are mixed up with debris from the demolition of the buildings.





3 Ground plan of the stone building. Blue is the layer where the carbonised bones were found (feature no. 187) (A. Schafnitzl).

## The cremated bones

The sediments with the bone concentration were sieved (mesh sizes 4 and 2 mm) resulting in about 250 litres of burnt bones. Due to this large volume, only a small quantity of the total material could be analysed. We de-

cidated to take out samples of 250 ml from 32 units. The determinable bones (n = 3353) were sorted and recorded with OSSOBOOK<sup>12</sup>. The remaining bones were weighed and the number of fragments was estimated at about

12 KALTENTHALER et al. 2019.



4 Profile in feature no. 187: carbonised bones within the debris of the walls (photo: ADILO).

2.5 million. For the whole structure this number has to be doubled, because only half of Room 4 was excavated.

91 % of the determined bones were heavily burnt, mostly at temperatures clearly over 600 °C. 94 % of these bones come from sheep or goat. Some of them could be specified as sheep, but none as goat, therefore it's quite probable that all of these bones belong to sheep. 59 % of

these animals were adult when they were killed. 4 % of the remaining bones come from cattle and 1 % from pig (fig. 5). The analysis of skeletal elements indicated that, for both sheep/goat and cattle there is an overrepresentation of bone fragments from the feet (*autopodium*) and to a lesser extent from the head (fig. 6)<sup>13</sup>.

## Discussion

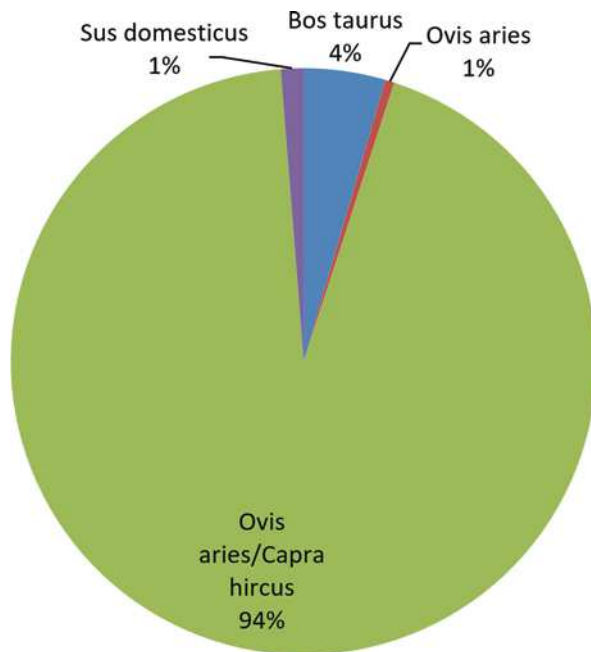
The fact that only animal and no human bones were recovered contradicts the theory that these are funerary remains. The large quantity of heavily burnt bones from sheep/goat however is quite unusual for the living areas of a Roman *vicus*. The animal species frequency among food remains from other areas of Munningen is also completely different: cattle bones and also pig bones are clearly more important than sheep/goats, which never

reach a proportion higher than 30 %<sup>14</sup>. But what is the reason for the selection of sheep/goat bones in the 2009 excavation? One possibility is that this is industrial waste, e. g. from tanneries. In Roman times head and foot bones were still attached when tanners got the hides from the butchers. Therefore, archaeozoologists often interpret a concentration of such bones as tannery waste. However, these bones are not normally burnt<sup>15</sup>. Another

<sup>13</sup> For the reference skeletons used see <https://ipna.duw.unibas.ch/de/forschung/archaeobiologie/archaeozoologie/methodik/>.

<sup>14</sup> NAPIERALA unpubl.

<sup>15</sup> AMREIN et al. 2012, 127–135.



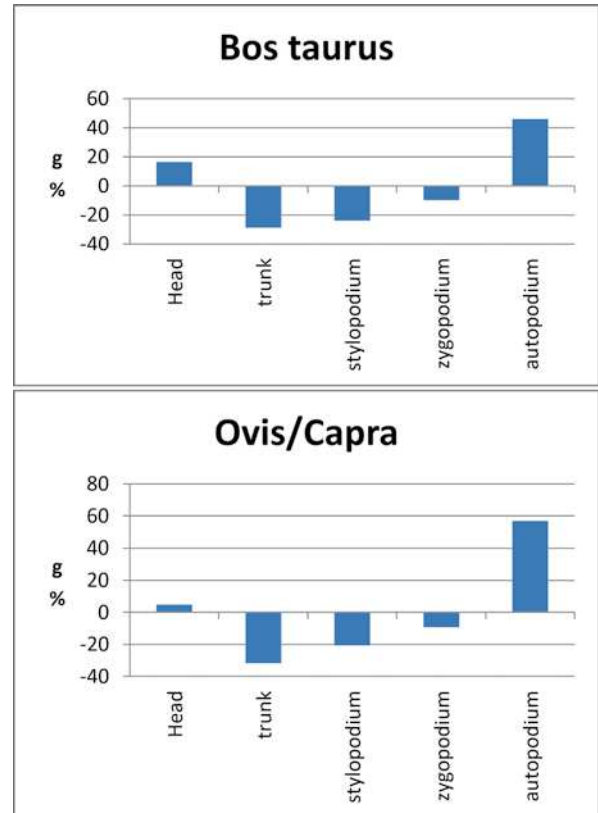
5 Animal species frequency (n=3353).

possibility could be that these bones were used as fuel for metal working, as was the case at the site of Courrendlin in the Swiss Jura. But there the larger cattle bones were used<sup>16</sup> and enough larger bones would have been available for industrial use at the *vicus* of Munningen if necessary. Therefore, just a single interpretation remains: the bones could be the vestiges of a ritual act.

Burnt offerings – mainly of sheep/goat and pig – have been found e.g. in different temples of *Aventicum* (Avenches, CH). There is even evidence that complete animal bodies have been burnt (so called *holocausts*)<sup>17</sup>. However, in *Aventicum* far fewer burnt bones than in the building of Munningen have been found, so it is unlikely that they belong to a single ritual action, but rather to a longer lasting ritual practice. Similar concentrations of heavily burnt cattle and sheep/goat head and foot bones, as well as massive assemblages of bones dating from the

## Conclusion

Through this study of the burnt bones from a building of the *vicus* of Munningen it was possible to reject a number of potential interpretations, for example that



6 Proportion of the weight of cattle and sheep/goat bones for each body part compared to a modern reference skeleton.

Bronze Age to the Roman period have been found at several off-site areas (so called '*Brandopferplätze*') in the alpine region. At these sites, which were often located on prominent landmarks, animals and plants, but also ceramics, weapons and tools have been sacrificed on altars over a long period. Some of the heaps of bones found at these places have a diameter of more than 20 m<sup>18</sup>. The closest Roman example is about 70 km away<sup>19</sup>. It seems that Munningen could be the first case of such a local ritual act in a Roman *vicus*.

this assemblages represented funeral remains or industrial waste. Instead, our work has shown that the most plausible interpretation is that these bone remains are

<sup>16</sup> DESCHLER-ERB 2011.

<sup>17</sup> DESCHLER-ERB 2015, 103–105.

<sup>18</sup> WISCHENBARTH 2017.

<sup>19</sup> WISCHENBARTH 2017.

the vestiges of a ritual act that has its roots in a local tradition north of the Alps. However, for tangible con-

clusions further investigation into other similar places and features is needed.

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## References of figures

Fig. 1: After BAATZ 1976, fig. 1. – Fig. 2: SCHAFLITZL 2016, fig. 1. – Fig. 3: A. Schaflitzl. – Fig. 4: Photo: ADILO). – All other figures: Authors.

## Abstract

In a building within the Roman *vicus* of Munningen a huge amount of heavily burnt bones were recovered. The

archaeozoological analysis presented here provides evidence for ritual acts following a local tradition.

## Zusammenfassung

### Eine zum Schlachter geführte Schafherde – Hinweise auf Hekatomben in *Losodica*/Munningen (Bayern)

In einem Gebäude des römischen *vicus* von Munningen fand sich eine große Menge an stark verbrannten Knochen. Die archäozoologischen Untersuchungen lassen

Überreste ritueller Handlungen vermuten, die in einer einheimischen Tradition stehen.

## Résumé

### Un troupeau de moutons mené à l'abattage – présence d'hécatombes à *Losodica*/Munningen (Bavière)

Une énorme quantité d'os fortement brûlés a été mise au jour dans un bâtiment du *vicus* romain de Munningen.

L'analyse archéozoologique présentée ici établit l'existence d'actes rituels perpétuant une tradition locale.