

Dogs, Past and Present: An Interdisciplinary Perspective



To our fathers, Edoardo Fiore and Luciano Lugli who always respected their dogs and who taught us to love these splendid and extraordinary friends as well as all the animals.

Dogs, Past and Present

An Interdisciplinary Perspective

Edited by

Ivana Fiore and Francesca Lugli

ARCHAEOPRESS ARCHAEOLOGY



ARCHAEOPRESS PUBLISHING LTD

Summertown Pavilion
18-24 Middle Way
Summertown
Oxford OX2 7LG

www.archaeopress.com

ISBN 978-1-80327-354-9

ISBN 978-1-80327-355-6 (e-Pdf)

© the individual authors and Archaeopress 2023

Cover: Researcher Graziano Capitini with dogs Bankhar, Baatar, Baavgai, Arslan and Kurtan (camp 37/2011 of Narantsogt and Bolorman, N 48°03'158"; E 103°01'131", 1736 metres above sea level, December 2012). Photo by F. Lugli.

The publication of this volume was supported by ISMEO - *Associazione Internazionale di Studi sul Mediterraneo e l'Oriente* through the MUR Project 'Storia, lingue e culture dei paesi asiatici e africani: ricerca scientifica, promozione e divulgazione.'



ISMEO



This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

This book is available direct from Archaeopress or from our website www.archaeopress.com

Contents

Acknowledgements	v
List of Authors	vii
Presentation	xx
Adriano V. Rossi	
Forewords	xxi
Alberto Cazzella, Simon JM Davis, Dulam Sendenjav	
Introduction	xxv
Ivana Fiore and Francesca Lugli	
Calling on a Favour from Human’s Best Friend: Public Outreach in Science	1
David Ian Howe	
Section 1. Dog Genetics, Microtomography and Morphometric Techniques	
1.1 A Molecular View on the Domestication of Dogs	8
Carles Vilà and Jennifer A. Leonard	
1.2 Mitochondrial DNA Variation among Dogs of Mongolian, Tuvian and Altaic Nomads	17
Daria Sanna, Ilenia Azzena, Piero Cossu, Fabio Scarpa, Massimo Scandura, Marco Apollonio, Francesca Lugli, Paolo Francalacci, Paolo Mereu, and Marco Casu	
1.3 Ancient and Recent Changes in Breeding Practices for Dogs	24
Grégoire Leroy, Shi-Zhi Wang, Tom Lewis, and Sophie Licari	
1.4 Using X-ray Microtomography to Discriminate Between Dogs’ and Wolves’ Lower Carnassial Tooth	34
Francesco Boschini, Federico Bernardini, Clément Zanolli, Antonio Tagliacozzo, and Claudio Tuniz	
1.5 The Skull Shape of <i>Canis lupus</i>. A Study of Wolf and Dog Cranial Morphology	42
Raquel Blázquez-Orta, Laura Rodríguez, María Ángeles Galindo-Pellicena, Ignacio De Gaspar, and Nuria García	
Section 2. Wolf Versus Dog	
2.1 Size Variation of the Middle-Late Pleistocene Grey Wolf (<i>Canis lupus</i>) from the Italian Peninsula	54
Dawid Adam Iurino, Beniamino Mecozzi, Davide Persico, Lucia Maimone, and Raffaele Sardella	
2.2 The Advantages of Owning a Palaeolithic Dog	63
Mietje Germonpré, Martina Lázničková-Galetová, Mikhail V. Sablin, and Hervé Bocherens	
2.3 Why Wolves Became Dogs: Interdisciplinary Questions on Domestication	72
Juliane Bräuer and Blanca Vidal Orga	
2.4 Vector-Borne Diseases as Possible Constraints on the Spread of Dogs into the Tropics and Beyond	82
Peter Mitchell	

Section 3. *Dogs through Time: Role, Task and Position*

3.1 Urban Nomads and their Dogs	98
Christophe Blanchard	
3.2 ‘The Mayor is a Dog’: The Coming of Age of Contemporary American Pet Culture.....	101
Simona Bealcovschi	
3.3 Wolves, Dogs and Water – Dogs and Fishing Boats.....	109
Francesca Lugli	
3.4 Dogs, Nomads and Hunters in Southern Siberia	123
Francesca Lugli and Galina B. Sychenko	
3.5 The Dog – Human Interrelations in the Lower Amur Rural Regions (the Far East of Russia): Past and Present.....	141
Olga V. Maltseva	
3.6 The Mother of Dogs: Women, Power and Dogs in First Nations Societies in Northwest North America	150
Guy Lanoue	
3.7 Dogs through Time: An Ethno-Evolutionary Perspective.....	161
Tiziano Latini, Luca Pandolfi, and Saverio Bartolini Lucenti	
3.8 Dogs and the Afterlife in Southern Italy between Ethnology and Archaeology.....	169
Claudio Giardino and Tiziana Zappatore	
3.9 Faithful unto Death. Burial, Legends and Heroism of the Dog from Antiquity to the Contemporary Age	177
Jacopo De Grossi Mazzorin (†), Ivana Fiore, Claudia Minniti, and Antonio Tagliacozzo	

Section 4. *Dogs: Archaeological and Archaeozoological Cases*

4.1 <i>Ur-gir</i> and the Other Dogs from Abu Tberah (Southern Iraq): Considerations on the Role of Dogs in Sumer during the 3rd Millennium BCE	184
Francesca Alhaique, Licia Romano, and Franco D’Agostino	
4.2 Ritual Use of Dogs in the Neolithic Cultures of China	189
Maria Kudinova	
4.3 Neolithic Dogs in the Central Po Valley - A Review of Published Data and New Evidence	199
Fabio Bona, Daniela Castagna, and Raffaella Poggiani Keller	
4.4 Evolution and Utilisation of Dogs in Austria: The Archaeozoological Record from the Neolithic to the Roman Period	209
Konstantina Saliari, Erich Pucher, and Martin Mosser	
4.5 A Dog’s Head in a House Pit at the Early Iron Age Site of Verucchio. Butchery Waste or Ritual Sacrifice?	226
Marco Bertolini and Ursula Thun Hohenstein	
4.6 The Dogs from the Cult Layers of the <i>Ipogeo del Guardiano</i> (Trinitapoli, Barletta-Andria-Trani, Italy) ...	233
Martina Di Matteo, Anna Maria Tunzi, Rachele Modesto, and Francesca Alhaique	
4.7 Four Dogs in the Road and Other Canine Oddities from Gabii (Rome, Italy)	238
Francesca Alhaique	

4.8 The Discovery of a Dog in the Excavations of the Rome Underground Line C in Largo Amba Aradam	243
Simona Morretta, Giovanni Ricci, and Francesca Santini (†)	
4.9 Dog and Human Sepultures at <i>Peltuinum</i> (L'Aquila, Italy)	251
Ivana Fiore, Luisa Migliorati, Antonella Pansini, Tiziana Sgrulloni, and Alessandra Sperduti	
4.10 The Dog as a Companion in Life and Death: The Case Study of Dog Burials in a Human Grave (VII - VI BC) Loc. Collina dei Gelsi - Poggio Sommavilla (RI).....	268
Francesca Santini (†)	
4.11 The Role of Dogs in the Xiongnu Society.....	277
Evgeniy S. Bogdanov	
4.12 Dog Burial at the Ust-Voikarskoe-1 Settlement and its Interpretation Issues	282
Andrey V. Novikov and Yuri N. Garkusha	
4.13 The Dog in the Castle: A Dog Skeleton from the Castle of Santa Severa (Latium, Italy)	292
Eugenio Cerilli and Marco Fatucci	
 Section 5. Representation of Dogs in Different Cultures	
5.1 <i>Lupus in Fabula</i>: The Representation of the Wolf (<i>Canis lupus</i>) in European Palaeolithic Art.....	312
Gianpiero Di Maida, Margherita Mussi, Alberto Lombo Montañés, and Manuel Bea	
5.2 At the Beginning of a Beautiful Friendship. Canid Representations in Levantine Rock Art.....	319
Manuel Bea, Alberto Lombo, Gianpiero Di Maida, and Margherita Mussi	
5.3 Dog Images in the Altai Rock Art	328
Dmitry V. Cheremisin	
5.4 Representations of Dogs in Attic Funerary Monuments: A Question of Symbolism?	334
Francesco Tanganelli	
5.5 ‘Do Not Laugh, I Beg of You, for This Is a Dog’s Grave’: The Human–Canine Bond in the Ancient Greek World	339
Liubov Eliseeva and Eugenia Andreeva	
5.6 The Image of the Dog on Ancient Coins in the Mediterranean Area.....	347
Alessandra Bottari	
5.7 The Numismatist’s Best Friend. Images of Dogs on Roman Coins.....	356
Alessandro Crispino	
5.8 Dogs in Early Imperial China: Anthro-Zoological Reading of Iconographic Sources from the Han Dynasty (206 BC-AD 220).....	363
Frédéric Devienne	
5.9 ‘Cobalt Greyhounds’. An Artistic Proof in Ceramics	380
Silvia Nutini and Marino Marini	

Section 6. *Dogs: Myth and Symbolism*

6.1 ‘Implore Me Not, Dog’. The Dog in the Classical World: An Apotropaic View	386
Marco Giuman and Miriam Napolitano	
6.2 Dogs in Phoenician Culture	394
Giuseppe Minunno	
6.3 Dog in War, Hunting, Livestock Work and Everyday Life of Greco-Roman Society	407
Ana Portillo Gómez	
6.4 Dog in Philippine Life, Ritual and Creation Myths: In a Spirit of Hunting	418
Maria V. Stanyukovich	
6.5 Demonic Dogs of Mongolian Stag Stones and their Chinese Counterparts	434
Andrey V. Varenov	
6.6 A Few Days with Mongolian Dogs and their Herders	442
Graziano Capitini and Francesca Lugli	
6.7 Dog and Wolf in the Non-Tale Prose of the Turkic Peoples of Siberia	457
Galina B. Sychenko	

Acknowledgements

This volume originated from the conference 'Dogs, Past and Present: An Interdisciplinary Perspective' that was held at CNR (Consiglio Nazionale delle Ricerche) and at Sapienza University in Rome (14th-17th November 2018), promoted by the Italian Association for Ethnoarchaeology and organised by the editors. The conference was generously supported by CNR; Sapienza-Università di Roma; Museo delle Civiltà, Roma; ISMEO (Associazione Internazionale di Studi per il Mediterraneo e l'Oriente); AIAZ (Associazione Italiana di Archeozoologia); Is.I.P.U. (Istituto Italiano di Paleontologia Umana); SMA (Sistema Museale di Ateneo, Università di Ferrara); UNISS (Università degli Studi di Sassari); IIPP (Istituto Italiano di Preistoria e Protostoria); Eulabor Institute; Radmedica-Bologna; RadMed; Xilema; Lingue Merlis; Beta Analytic; ES srl Progetti, Sistemi and Agros, Luisa Migliorati, Alessandra Sperduti & Aki and Vienna Eleuteri & Sita.

The Conference had the patronage of Ministry of Foreign Affairs and International Cooperation – Italy MFA, Assessorato alla Cultura del Comune di Roma, Institute of Archaeology and Ethnography of SB RAS - Novosibirsk (Russian Federation), Universitat Pompeu Fabra - CaSEs (Spain), Università di Padova, ICOM-Italia, Ordine dei Medici Veterinari della Provincia di Roma, Land srl and Società Geografica Italiana.

We thank Umberto Albarella, Francesca Alhaique, Davor Antonucci, Marco Baldi, Stefano Biagetti, Alberto Cazzella, Catherine Filejski, Marco Giuman, Stefania Ghio, Tolga Kamil, Leonardo Salari, Raffaele Sardella, Assunta A. Stoppiello, Galina B. Sychenko, Ursula Thun Hohenstein, Alessandro Vanzetti, Massimo Vidale for their help and suggestions.

We thank Prof. Adriano V. Rossi president of ISMEO for endorsing our projects and ISMEO which generously supported the conference and made the open access publication of the volume possible.

A special thank to our husbands Gianfranco Calandra and Graziano Capitini for their help and support, Helena Lex who has meticulously proofread the volume. David Davidson for the opportunity to publish the volume with Archaeopress and for his constant availability and Erin McGowan for her constant and patient help in the various steps for the publication of the volume.

We remember Jacopo De Grossi Mazzorin, Filippo Maria Gambari, Ettore Janulardo and Francesca Santini whose last projects we are pleased to present.

Last but not least we are grateful to all the dogs of the world.

List of Authors

Francesca Alhaique

Degree in Natural Sciences and PhD in Prehistoric Archaeology, Sapienza University; MA in Anthropology, Washington University in S. Louis. She currently works at Museo delle Civiltà, teaches at Tuscia University and is Research Associate in the Department of Anthropology at Washington University in S. Louis (USA). For over 25 years she has been investigating faunal assemblages from Italian and foreign sites spanning from the Palaeolithic to the Early Modern period.

Eugenia Andreeva

Eugenia Andreeva studied ancient history at the Historical faculty of the Lomonosov Moscow State University (specialist degree; graduated with honours in 2011) and completed a postgraduate program at the Institute of the World History of the Russian Academy of Sciences (2015). She is currently a research associate at the Institute and is preparing a PhD thesis. She also teaches Latin (State Academic University for the Humanities) and Ancient Greek (Russian Presidential Academy of National Economy and Public Administration).

Marco Apollonio

Full Professor of Zoology at the Department of Veterinary Medicine of the University of Sassari, Italy. Born in Rome (Italy) in 1958, MS degree in Biological Sciences at the University of Milan (Italy) in 1981. School of Specialisation in wildlife management at the Italian Institute of Wildlife Management 1983–86. Main research interests: behavioural and animal ecology, wildlife management and conservation, ecological genetics and systematics of large mammals.

Ilenia Azzena

PhD student at the Departments of Biomedical Sciences and Veterinary Medicine of the University of Sassari, Italy. Born in Tempio Pausania (Italy) in 1993, graduated in Natural Sciences at the University of Sassari in 2015 and MS degree in Land and Environment Management at the University of Sassari in 2018. Main research interests: animal population genetics and molecular taxonomy.

Saverio Bartolini Lucenti

Postdoctoral researcher at the Earth Science Department and the Natural History Museum with a project on Virtual Palaeontology, science dissemination and valorisation of the palaeontological heritage. Member of the digital and virtual palaeontology laboratory of the Earth Science Department of University of Florence - Paleo [Fab] Lab. His main research topic focuses on the evolution of Neogene and Quaternary carnivorans, especially canids and mustelids.

Manuel Bea

Obtained his Doctorate in History (Prehistory) from the University of Zaragoza (2005), where he conducted a PhD focused on the study of Levantine rock art. He is currently senior lecturer at the University of Zaragoza (Spain), Researcher at the Group of First Settlers and Archaeological Heritage of the Ebro basin (University of Zaragoza), member of the Instituto Universitario de Investigación en Patrimonio y Humanidades (IPH), member of the National Scientific Rock Art Committee of ICOMOS and associated research at the Institut d'Arqueologia University of Barcelona. He has published more than 150 scientific publications and directed many archaeological projects.

Simona Bealcovschi

Simona Bealcovschi holds a PhD in Cultural Anthropology from the University of Montreal. She has worked as a researcher and visual anthropologist in a museum context. At the University of Montreal, she heads the Visual Anthropology Laboratory and teaches courses in visual culture. Research interests: visual anthropology, experimental ethnography, cultural and political ecology, pet-culture, Canada, Alaska.

Federico Bernardini

Federico Bernardini is an archaeologist with extensive experience in the application of scientific methods to archaeology to study and characterise ancient materials and investigate past landscapes. He currently holds a position as researcher at the Centro Fermi (Rome) and at the Multidisciplinary Laboratory of the Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste), where he coordinates the ICTP-Elettra laboratory for cultural heritage and archaeology.

Marco Bertolini

Marco Bertolini is a zooarchaeologist. He graduated in Prehistoric Science and obtained a PhD in Human Science with a thesis on the management and exploitation of fauna during the Bronze Age in north-eastern Italy. He deals with experimental archaeology aimed at reconstructing the manufacturing of animal hard materials and their use. He has analysed the bone tool collections of several Bronze Age sites.

Christophe Blanchard

PhD graduate in sociology and anthropology, Christophe Blanchard has been Associate Professor in educational sciences at the University of Paris 13 - Paris Sorbonne Nord since 2014 and is a member of the EXPERICE laboratory. His personal background (he holds a dog-handler degree) and his university research have led him to focus very closely on issues relating to the status and place of animals, particularly dogs, in our society.

Raquel Blázquez-Orta

Degree in Geology and Master's in Palaeontology at Universidad Complutense de Madrid (UCM). Currently, she is a PhD student at UCM granted by the Atapuerca Foundation and her investigation focuses on the analysis of the craniomandibular morphological changes of the genus *Canis* through traditional and geometric (2D and 3D) morphometric techniques.

Hervé Bocherens

Hervé Bocherens is a palaeobiologist, professor for biogeology at the University of Tübingen and at the Senckenberg Centre for Human Evolution and Palaeoenvironment at Tübingen. His main areas of research include reconstructing the diet and habitat of ancient vertebrates in terrestrial ecosystems using isotopic tracking, especially in connection with human evolution.

Evgeniy S. Bogdanov

Bogdanov earned his PhD in History, (2004) on 'The image of a predator in the plastic art of the nomadic peoples of Central Asia (Scythian-Siberian art tradition)'. Bogdanov currently works as a senior fellow at the Institute for Archaeology and Ethnography SB RAS, Novosibirsk. The focus of his research is culture and art of the ancient nomads in Central Asia, Volga, and Ural regions in the era of the early Iron Age. Bogdanov has been a leader and participant in many expeditions and scientific projects in China, Mongolia, Kazakhstan, Altai Mountains, Caucasus, and the Caspian Sea region.

Fabio Bona

After graduating in Geology (2001 - UniMi) and completing a PhD in Earth Sciences (2005 - UniMi), both with paleontological-Quaternary themes, he has been working as a freelance paleontologist and archaeozoologist. He carries out research in Quaternary paleontology with attention to the evolution and biochronology of mammals. He also deals with the study of Holocene faunas from anthropic contexts.

Francesco Boschin

Francesco Boschin is a zooarchaeologist at the University of Siena with extensive experience in the analysis of faunal remains from Palaeolithic and Mesolithic contexts from Italy. In the last years he focused his research on the study of Late Pleistocene hunter-gatherers from southern Italy and developed new applications of digital imaging techniques to taphonomy and zooarchaeology.

Alessandra Bottari

Alessandra Bottari trained in Numismatics obtaining the title of PhD in Archaeological and Historical Sciences at the University of Messina she specialised in Archaeological and Historical Sciences at the University of Naples Federico II. Her research focuses on Numismatics and in particular on the interpretation of monetary iconography.

Juliane Bräuer

Juliane Bräuer is the head of the Dog Studies Lab at the Max Planck Institute of Geoanthropology in Jena, Germany. She is a biologist working in comparative psychology with a special interest in investigating the cognitive skills that different species – particularly dogs – have evolved to survive in their ecological niche. Her research topics include communication, cooperation, perception, and domestication. Websites: <https://www.shh.mpg.de/person/47501/2375>; <https://www.psychologytoday.com/intl/experts/juliane-br-uer-phd>

Graziano Capitini

Architect. He is a member of the missions in the Russian Federation, Mongolia and Portugal promoted by the Italian Association on Ethnoarchaeology with the sponsorship of the Ministry of Foreign Affairs and International Cooperation – Italy MFA. The focus of his research is on the spatial organisation of the camps and their location, on the structure of Mongolian yurts; on the relationships between the nomads and their dogs in Mongolia and in Siberia and between the fishermen and their dogs in Portugal and in Italy.

Daniela Castagna

Daniela Castagna is a field archeologist who has worked in Northern Italy for over thirty years; she has participated in several joint operations with Soprintendenza Archeologia, particularly on prehistoric excavations. She is studying and publishing some neolithic contexts of the Mantuan territory.

Marco Casu

Associate Professor of Zoology at the Department of Veterinary Medicine of the University of Sassari, Italy. MS degree in Natural Sciences at the University of Sassari in 1997. PhD in Analysis and management of natural ecosystems at the University of Sassari in 2003. Main research interests: phylogeography, phylogeny and molecular taxonomy of marine invertebrates and fish.

Eugenio Cerilli

Eugenio Cerilli graduated in Geological Sciences from the University of Rome 'La Sapienza' with an experimental thesis in Vertebrate Paleontology. Later he specialised in vertebrate fossil conservation and archaeozoological analysis. He has participated in several archaeological excavations in Italy and abroad. The field of interest and paper topics are: paleontological and archaeozoological conservation, analyses of paleontological and archaeozoological remains and contexts, geoarchaeology and paleoenvironmental reconstructions, archaeological excavations, teaching, contributions for museums and temporary exhibits.

Dmitry V. Cheremisin

Dmitry Cheremisin has been Research fellow at the Department of the Bronze and Iron Ages in Siberia, Institute of Archaeology and Ethnography, Siberian Branch since 1990. From 2007–2017 he worked as a lecturer of Primitive Art at Novosibirsk State University. He has taken part in archaeological research in the Far East, Altai, Kazakhstan, and Mongolia. Since 1990 he has conducted independent research in the territory of Russian Altai. He is the author of over 200 publications in Russian, French and German. From 1990 - until the present - he has been a research fellow at the Institute of Archaeology and Ethnography, Novosibirsk.

Piero Cossu

Postdoctoral fellow at the Department of Veterinary Medicine of the University of Sassari, Italy. MS degree in Biological Science at the University of Sassari in 2001. PhD in Analysis and Management of natural ecosystems at the University of Sassari in 2005. Main research interests: phylogeography, seascape genetics, population genetics and phylogeny of marine organisms.

Alessandro Crispino

He has an undergraduate degree in Lettere Antiche and an M.A. in Classical Archaeology (with a focus on Greek and Roman Numismatics), and he has a PhD in Archaeological and Roman Historical Research at the University of Bari. His research focuses on the relationship between archaeological contexts and ancient numismatics, the interpretation of coins from excavation, monetary circulation in antiquity, and ancient trade. He has authored papers on coin findings in particular from Egnazia.

Franco D'Agostino

Is associate professor of Assyriology at the Italian Institute of Oriental Studies, Sapienza University of Rome. He is co-director of the Iraqi-Italian Mission at Abu Tbeirah and director of the Iraqi-Italian Mission at Eridu.

Ignacio De Gaspar Simón

Anatomy and Embryology Associate Professor in the Faculty of Veterinary Medicine of Universidad Complutense de Madrid since 1990. Member of the Research Team of Pleistocene Sites of Atapuerca since 2007, focusing his interest on Holocene fauna and the process of domestication. He has also been a member of an international research team working in Middle Awash (Ethiopia) since 2019, studying primates of Kesem Kebena. He has been awarded several times for his teaching work.

Jacopo De Grossi Mazzorin(†)

Jacopo De Grossi Mazzorin was professor of Archaeozoology at the University of Salento (Lecce-Italy), in the Department of Cultural Heritage. His work has resulted in more than 240 scientific papers. He has been involved in numerous Italian and International archaeological excavations within the Mediterranean Area. He was specialised in the study of animal remains from archaeological sites and their cultural interpretation. His research also included the integration of different archaeological disciplines linked to the relationship between humans and animals (economy, rituals, etc.).

Frédéric Devienne

Sinologist and specialist in animal iconography, Frédéric Devienne is currently co-leading a research program on the subject of Dogs in ancient China at the East Asian Civilisations Research Centre (CRCAO) in Paris. He is the director of the East Asian Languages and Civilisations (LCAO) department's library at the University of Paris, where he also teaches.

Gianpiero Di Maida

Completed his PhD at the CAU Kiel (Germany) in 2018, discussing a Thesis on the Lateglacial rock and portable art record of Sicily, which has been awarded with the Johanna Mestorf Price 2019. Between 2018 and 2021 he has served as scientific manager of the DISAPALE and the Wendel collection projects at the Neanderthal Museum (Germany), focusing in particular on digital methods of recording applied to the archaeological record. Since 2023 he works as scientific coordinator of the 'Climate Change and Early Humans in the North' SPRUNG-Project at the Lower Saxony Cultural Heritage Office in Hannover. His papers on the Lateglacial art, the first peopling of Sicily, digital methods of recording and documentation, the typology and technology of palaeolithic lithic artefacts have been published on several peer-reviewed journals. (Quaternary Science Reviews, PLoS ONE, Antiquity, Journal of Island and Coastal Archaeology, Open Archaeology).

Martina Di Matteo

Has a Master's degree in Prehistoric Ethnography of Africa from Sapienza University of Rome, where she is currently attending the School of Specialisation in Archaeological Heritage. She has participated in excavations in pre- and protohistoric sites in central and Southern Italy as well as abroad, particularly in Africa (Ethiopia, Kenya, and Tunisia). Her main research interests concern the analysis of archaeozoological remains from Holocene contexts, mostly in Africa.

Liubov Eliseeva

Liubov Eliseeva studied ancient history at the Lomonosov Moscow State University (MA; graduated with honours in 2017); completed a postgraduate program at the Institute of the World History of the Russian Academy of Sciences (2020). She is currently a junior research associate at the Institute of the World History, a member of a research project team at the Lomonosov Moscow State University (2020–2022), and teaches Latin and Ancient Greek at the State Academic University for the Humanities.

Marco Fatucci

Marco Fatucci graduated in Archeology from the Faculty of Conservation of Cultural Heritage of the University of Tuscia (Viterbo, Italy) with a thesis on the medieval faunal remains from the Santa Severa Castle. He has participated in archaeological excavations in Italy and abroad. He collaborates with museums, dealing with research and studies in the prehistoric field. He has published several essays and articles on the archaeozoological analysis of faunal remains.

Ivana Fiore

Zooarchaeologist, who collaborates with the Bioarchaeology Service at the Museum of Civilisations, in Rome. She is currently enrolled in the Doctoral Program in Environmental and Evolutionary Biology (Sapienza University of Rome). Her main interests are Zooarchaeology and Taphonomy. She has specialised in the study of faunal remains and bone artefacts found in archaeological sites. She has presented contributions at national and international conferences, authored many scientific papers, organised several conferences, and edited colloquium proceedings. She has taught Zooarchaeology at Sapienza University of Rome (Faculties of Natural Sciences and Humanities) and at the University of Cagliari (Scuola Specializzazione in Beni Archeologici).

Paolo Francalacci

Full Professor of Genetics at the Department of Life and Environmental Sciences at University of Cagliari, Italy. MS degree in Biological Sciences at the University of Pisa (Italy) in 1982 and PhD in Anthropological Sciences at the University of Florence (Italy) in 1986. Main research interests: human population genetics, mitochondrial DNA and Y chromosome molecular markers and ancient DNA.

María Ángeles Galindo-Pellicena

In 2007, Master's thesis 'Study of the micromammals from the Middle Pleistocene of the Covacha de Los Zarpazos, Atapuerca, Burgos', a four-year Pre-doc research grant from the Minister of Science and Competitiveness, part of the Atapuerca Project research team. In 2014, PhD on the study of macromammals from Holocene levels at El Portalón site (Atapuerca, Burgos), (Program of Geology and Geological Engineering at the Universidad Complutense de Madrid (UCM)). She has also been a member of the excavation team of Atapuerca since 2003 and of the Pinilla del Valle team since 2006. Currently, she works at the Regional Archaeological Museum of Alcalá de Henares (Madrid).

Nuria García

Professor of Paleontology at the Faculty of Geology of Universidad Complutense de Madrid (UCM). Bachelor's degree in biology and PhD in Paleontology specialised in Mammal Paleobiology. Member of the Atapuerca Research Project since 1994. She leads a University research group named Quaternary Ecosystems, focused on evolutions of ecosystems in the Human Evolution context. She collaborates with international teams which work in Europe and Africa (Ethiopia). In these projects, she is responsible for the paleobiological studies of order Carnivora and paleoecology of large mammals.

Yuri N. Garkusha

Garkusha Yuri Nikolaevich is a researcher at the Institute of Archaeology and Ethnography of the Russian Academy of Science SB RAS (Novosibirsk). He is a graduate of the Faculty of Humanities of Novosibirsk State University. He has taken part in expeditionary activities on the territory of the forest-steppe and south-taiga Ob-Irtysh, Northern Angara region, Northern and Middle Priobye, and the Altai Mountains. He has participated in the excavation of burial complexes with permafrost in the Republic of Mongolia. Garkusha is the author and co-author of more than 70 scientific publications including 5 collective monographs. His scientific interests include archaeology and the paleometallic era of Western and Southern Siberia and dendrochronology.

Mietje Germonpré

Mietje Germonpré is a palaeontologist and archaeozoologist at the Royal Belgian Institute of Natural Sciences (OD Earth and History of Life) in Brussels. Her main areas of research include human-animal interactions from hunting to domestication during the Middle and Upper Palaeolithic in northern Eurasia.

Claudio Giardino

Claudio Giardino is professor of Prehistory at the University of Salento (Lecce, Italy). He took part in archaeological missions in Europe and Asia. His main focuses are European and Asian prehistory, archaeometallurgy, experimental archaeology and ethno-archaeology. He is the author of numerous works, monographs and papers; he is also active in archaeological dissemination.

Marco Giuman

Marco Giuman is Associate Professor in Classical Archaeology at the University of Cagliari (Italy), where he is director of the School of Specialisation in Archaeological Heritage. Author of nine monographs and many dozens of articles published in specialised journals, he mainly deals with rituality, iconography and iconology of the Ancient World.

David Ian Howe

David Ian Howe (B.A., Anthropology, University of Tennessee; M.A., Anthropology, University of Wyoming) serves as a Laboratory Manager for New South Associates, Inc. David's research focuses on lithic technology, dog domestication, and hunter-gatherer ecology. Prior to working for New South, David worked for universities and cultural resource management firms, including SWCA Environmental Consultants and the U.S. Army Corps of Engineers.

Dawid Adam Iurino

Dawid Adam Iurino graduated in Natural Sciences at the Sapienza University of Rome in 2010 and in 2014 discussed a PhD thesis in Virtual Paleontology. From 2014 he has dedicated his research to the application of tomographic techniques in the study of fossil vertebrates, especially focusing on Quaternary carnivorans, acquiring and developing technical and theoretical skills required to process and manage CT data. During his academic career, he has participated in numerous excavations with international teams in some of the most renowned archeo-paleontological sites in Italy (Pirro Nord, Grotta Romanelli, Collepardo) and Tanzania (Olduvai and Laetoli). He is the author of more than 40 scientific articles and actively collaborates with numerous national and international research institutions and museums.

Maria Kudinova

Candidate of Sciences (History) (2017). Researcher at the Institute of Archaeology and Ethnography, Siberian Branch of the Russian Academy of Sciences (2020 – present). Associate Professor at the Chair of Oriental Studies, Novosibirsk State University (2009 – present). Graduated from Novosibirsk State University in 2009. Postgraduate study at the Institute of Archaeology and Ethnography, Siberian Branch of the Russian Academy of Sciences (2009–2012) and the School of Archaeology and Museology, Peking University (2017–2023).

Guy Lanoue

Guy Lanoue, PhD, Social and Cultural Anthropology, University of Toronto; currently, professor and Head, Department of Anthropology, University of Montreal. Extensive field research in northern North America and Italy. Interests: political organisation, myth, art; Native North America, Italy, Mesopotamia, New Guinea.

Tiziano Latini

Ministry of Cultural Heritage and Activities and Tourism Archaeologist Officer (MiBACT) engaged with Sapienza - Rome University and institutional organisations in national and international cultural heritage research.

Martina Lázničková-Galetová

Martina Lázničková-Galetová works as a researcher in Prehistory at the Moravian museum in Brno (Czech republic). She is interested in the use, technology and economics of hard animal tissue of artefacts, ornaments and art objects, and the human-animal relationship during the Upper Palaeolithic in Europe.

Jennifer A. Leonard

Jennifer Leonard is an evolutionary biologist and expert in the study of DNA from ancient remains, including samples from museum specimens that are just a few decades old to archaeological remains, of bones from specimens that can be tens of thousands of years old. During her research career she has studied wolf and dog populations from around the world.

Grégoire Leroy

Grégoire Leroy holds a PhD in animal genetics. He has been assistant professor at INRAE/AgroParisTech Génétique Animale et Biologie Intégrative joint unit since 2008, and has been seconded to the Food and Agriculture Organisation of United Nations since 2015. His research activities focus on characterisation, sustainable management and conservation of animal genetic resources.

Tom Lewis

Tom gained his PhD in quantitative genetics at the Roslin Institute and Nottingham University before spending 6 years at the Animal Health Trust researching the genetics of complex inherited disease in pedigree dog breeds. In 2014 he joined the Kennel Club where he continues to use pedigree and screening data to research disease and the genetics of populations.

Sophie Licari

Sophie Licari has been a cynologist journalist for 23 years and has worked for over 13 years for the official journal of the Société Centrale Canine. She is a specialist of the canine breed differentiation history and the history of dog uses in human societies. She is also a consultant in strategic communication and a lecturer in several French universities.

Alberto Lombo

Alberto Lombo holds a PhD in History (Prehistory) from the University of Zaragoza (Spain) (2015). His PhD on the study of Palaeolithic art focused on caricatures and laughing and smiling representations both on rock and mobile art. He often collaborates with the Department of Prehistory of the University of Zaragoza and has published numerous scientific papers.

Francesca Lugli

Francesca Lugli is the president of the Italian Association for Ethnoarchaeology. Currently, she is leading ethnoarchaeological investigations in Portugal, Mongolia and the Russian Federation supported by the Ministry of Foreign Affairs and International Cooperation – Italy MFA, and ISMEO. Her research focuses on modern nomads, their campsites, their land use strategies, their intangible heritage and also on the relationships between humans and dogs in different cultural and geographical contexts.

Lucia Maimone

Lucia Maimone graduated in Nature and Environment Sciences at the University of Parma in 2017 with a thesis in Paleontology. She then continued his studies attending the Second Cycle Degree in Ecology and Nature Conservation graduating in 2020 with a research thesis in the field of Biodiversity and Ecosystem Functioning entitled 'Deviation from theoretical gas saturation values in lotic systems: methodological approach and possible interpretations'. During her studies she collaborated with the University of Ferrara for the development of new techniques for the calculation of gas concentration in samples of lotic water through mass spectrometry through Membrane Inlet Mass Spectrometer (MIMS).

Olga V. Maltseva

Olga Maltseva has a PhD in Historical Science (Ethnography, Ethnology and Anthropology, 2008). She is a senior researcher in the Institute of Archaeology and Ethnography of the Siberian Branch of the Russian Academic Science. Her research focuses on the problems of human-animal relationships in fishing and hunting communities.

Marino Marini

Marino Marini is an Italian medieval archaeologist and curator of the ceramic collections of National Museum of Bargello and of the National Museum of Palazzo Davanzati in Florence. His preferred study field is Tuscan Renaissance majolica (Florence, Montelupo, Bacchereto, Cafaggiolo, Siena area) but several studies have also been aimed at the production of other ceramic centres such as Faenza, Deruta and the ancient Duchy of Urbino. He organised the exhibitions 'Fabulae Pictae. Miti e storie nelle maioliche del Rinascimento' at the National Museum of Bargello and 'Passione e collezione. Maioliche toscane dal XIV al XVIII secolo' at Casa Buonarroti Museum in Florence. He is currently engaged in the preparation of the majolica catalog of the National Museum of Bargello.

Beniamino Mecozzi

Beniamino Mecozzi graduated with a Bachelor's degree in Natural Science in 2014 and a Master's degree in Science of the Sea and Natural Landscape in 2016 at the Sapienza University of Rome, with a thesis on Paleontology. He discussed a PhD thesis in vertebrate paleontology in 2020, with a focus on mammal faunas from the late Middle to Late Pleistocene. In particular, he has studied the fossil remains from one of the most important sites of Mediterranean Europe, Grotta Romanelli. During the last years, he has participated in new research with international teams at renowned archeological and/or paleontological sites, such as Cimitero di Atella, Collepardo, Grotta Romanelli, Grotta Santa Maria d'Agnano and Notarchirico. During his research activity, he has published many scientific and informative articles.

Paolo Mereu

Assistant professor in Biochemistry at the Department of Biomedical Sciences of the University of Sassari, Italy. MS degree in Biological Sciences at the University of Sassari in 2002. PhD in Biochemistry, Biology and Molecular Biotechnology at the University of Sassari in 2006. Main research interests: phylogeny of mammals and bird mitogenomes, molecular dating and taxonomy; epigenetic alterations, DNA methylation and gene expression in vitrified oocytes.

Luisa Migliorati

Associate Professor of Ancient Topography, and qualified as a Full Professor, now retired. Her teaching activity took place in the Department of Ancient World Studies at Roma Sapienza University. She still teaches Ancient Topography in the Master's course in Classical Archaeology in UNITELMA Sapienza. She is teaching member of the Specialisation course of Conservación del Patrimonio Arquitectónico (MCPA) at the Universidad Autónoma de Yucatán, Fac. Arquitectura. She is Vice-president of the International Council for Philosophy and Human Sciences, member of the Board of the World Philology Union.

Claudia Minniti

Claudia Minniti teaches Bioarchaeology at the University of Salento (Lecce-Italy), in the Dep. of Cultural Heritage. She has been a staff member of the University of Sheffield (UK) as a Marie Curie Fellow. Her research interests include the study of animal remains from archaeological sites from Italy and other countries (Syria, Turkey, Iran, Iraq with integration of various disciplines (e.g. history, archaeology, ethnography, and zoology). Her work has resulted in more than 120 papers in national and international journals, conference proceedings and books.

Giuseppe Minunno

Giuseppe Minunno received his PhD in Ancient Near Eastern Studies from the University of Rome 'La Sapienza' in 2009, and his Specialisation degree in Archaeology from the University of Pisa in 2004. He is a member of the Editorial Scientific Board of the project 'An Encyclopaedic Dictionary of the Phoenician Civilisation'. His research interests include Phoenician culture and the religions of ancient Syria.

Peter Mitchell

Peter Mitchell read Archaeology and Anthropology at Cambridge and then completed his doctorate in Oxford (1987). After working in Cape Town and Wales, he returned there to take up his current post in 1995. He combines a long-term interest in the archaeology of southern African hunter-gatherers (including fieldwork in Lesotho) with broader themes in African archaeology as a whole and has more recently written extensively on aspects of the history of human relations with horses, donkeys, and dogs.

Rachele Modesto

Obtained a Master's degree in Archaeological Sciences (Prehistoric curriculum) at Sapienza University of Rome, then a Specialisation Diploma in Archaeological Heritage and a PhD in Prehistoric Archaeology with a dissertation focusing on Bronze Age cult/funerary structures. She has participated in many excavations especially in Southern Italy and in one case abroad (Malta); she currently works as a freelance archaeologist.

Martin Mosser

Completed his MA and PhD in Classical Archaeology at the University of Vienna. Already during his studies, he was employed at the Department of Urban Archaeology in Vienna, where he is still works today. He has directed numerous excavations in the city of Vienna and evaluated a lot of excavation records. His special field of expertise is the Roman Vienna, in particular the legionary fortress of Vindobona.

Margherita Mussi

Associate Professor, Univ. di Roma Sapienza, Director of the Italian Archaeological Mission to Melka Kunture and Balchit (Ethiopia). Fieldwork: Surveys and excavations since 1977 (Italy and Eastern Africa). Research interests: the Palaeolithic of the Horn of Africa the palaeolithic peopling of Italy (mainland and islands)- the earliest peopling of Europe- Palaeolithic art and burials.

Miriam Napolitano

Miriam Napolitano is a PhD candidate in Classical Archaeology at the University of Cagliari. Her research regards the Roman material culture, especially the Roman engraved gems and the pottery discovered in Sardinia. She has presented her research results at national and international conferences and spent a period of research at the Beazley Archive of Oxford University. She is a member of the editorial staff of 'Medea. Rivista di Studi interculturali' (Università di Cagliari), <http://ojs.unica.it/index.php/medea>.

Andrei V. Novikov

Andrei V. Novikov, PhD, is a senior researcher at the Institute of Archaeology and Ethnography of the Russian Academy of Science SB RAS (Novosibirsk). He graduated in 1982 from the History Faculty of the Novosibirsk State Pedagogical Institute. Since 1982, he has been conducting expeditionary archaeological research in the Ob-Irtysh interfluvium and Priobye. He has studied various archaeological sites in Priobye from the forest-steppe zone to the subarctic. His scientific interests include the archaeology of paleometals (mainly 1st - mid 2nd millennium AD) and the ethnography of the indigenous population of the north of Western Siberia. He teaches various disciplines at Novosibirsk State University. Novikov is the author and co-author of 190 publications in Russia and abroad (including 11 monographs, and 6 textbooks for students in archeology and ethnography).

Silvia Nutini

She graduated at the University of Pisa with a thesis in archaeozoology and recently obtained her master's degree in Museum Services Management at Palazzo Spinelli, Institute for Art and Restoration in Florence. She became a coworker of the Ministry of Cultural Heritage and Activities in 2011; worked for the National Museums of Lucca, specifically for the National Museum of Villa Guinigi; and is a coworker of the National Museum of Bargello in Florence; she is in a training project on the enhancement of the Medici Villas and Gardens. In 2018 she carried out an internship at the Florentine Civic Museums for the public qualitative and quantitative analysis for the development of strategies for promoting the different collections. She is the author of publications about archaeozoology and the iconographic study of ceramic decorations.

Luca Pandolfi

After getting a PhD in Vertebrate Palaeontology at the Roma Tre University in 2015, he had research experience in several institutions in Italy, the UK, and other countries around Europe. He worked as a postdoctoral researcher at the University of Florence from 2018 to 2022, and he presently holds a tenure-track position at the University of Basilicata. His research is focused on the study of large mammal fossils from Eurasia and Africa.

Antonella Pansini

She has a PhD and is an expert on the subject of the ‘Survey and technical analysis of ancient monuments’ at the Sapienza University of Rome. She has specialised in Ancient Topography at the ‘Scuola di Specializzazione in Beni Archeologici’ of the same university. She has experience as a freelance archaeologist, surveyor and collaborator at universities and public institutions, including international ones, in the field of archaeological excavations and research and enhancement projects. In 2019 she was a postdoctoral student at the Italian Archaeological School of Athens where she carried out various studies on Roman architecture in Greece.

Davide Persico

Davide Persico graduated in Natural Science at the University of Parma and discussed a PhD thesis on Micropaleontology from the Southern Ocean (Antarctica) to understand the paleoclimate and palaeoceanographic evolution. In 2006 and 2007 he was a member of the international program of Antarctic research ‘ANDRILL’ with which he participated in two scientific missions on ice. He is the author of 56 scientific papers in international and national journals. The life on the Po River, the naturalistic interests and the passion for paleobiology lead him to know and study the Quaternary paleofauna of the Po Valley publishing articles and monographs on the subject. He is currently Associate professor of Paleobiology and evolution of vertebrates and Naturalistic Museology at the University of Parma.

Raffaella Poggiani Keller

A specialist in pre-protolithy, she has worked for the Archaeological Superintendence of Lombardy since 1980 where she has also been involved with UNESCO sites and the design and management of museum networks and archaeological parks. She has taught seminars in Italian protohistory at the university of Pavia (2001–2006) and was the first Superintendent for archaeology in Abruzzo (2009) and then Lombardy (2009–2013). She is the author of over 300 publications including articles, monographs, and edited volumes.

Ana Portillo Gómez

Holds a PhD in Archaeology from the University of Córdoba (2016) and she has a degree in Art History from the University of Seville (2007). Professionally, her work as a Research Fellow in the Archaeology Area of the University of Córdoba and her experience as an archaeologist, working as a professional in this sector in different areas, stand out. Currently, she continues her research work within her research group ‘Ancient cities of Andalusia’ PAI HUM-882, to which she has belonged since 2009.

Erich Pucher

Obtained his PhD in Biology at the University of Vienna. After completing his studies, he worked as an archaeozoologist and director of the Archaeological-Zoological Collection at the Natural History Museum Vienna. During his career, he has analysed numerous faunal assemblages and he is author of many important archaeozoological publications, covering a wide spectrum of topics from the Neolithic period to Modern times.

Laura Rodríguez

Associate Professor in the Facultad de Cc Biológicas y Ambientales of Universidad de León. Degree in Biological Science at Universidad de Oviedo and PhD in Paleoanthropology at Universidad de Burgos. Part of the Atapuerca investigation team since 2006. Main investigation focus on the analysis of human fossil record from the anatomical and biomechanical point of view and using 3D methodologies such as CT scan, 3D scan and geometric morphometric analysis, in order to detect species and sexual differences.

Licia Romano

Completed an MA in Archaeology of the Ancient Near East at the Sapienza University of Rome (2007), followed by a PhD at the same university (2010). She now has a research contract at the Department of Oriental Studies, Sapienza University of Rome. After several years of field research at Ebla (Syria), she has been the field director and co-director of the Iraqi-Italian mission at Abu Tbeirah since 2011.

Mikhail Sablin

Mikhail Sablin is a Senior Scientist at the Zoological Institute of Russian Academy of Sciences in Saint-Petersburg (Theriology department). His main areas of research include zoology, palaeontology, systematic and zoogeography of mammals; problems of domestication and the history of the northern Eurasia fauna during the Quaternary.

Konstantina Saliari

Received her BA and MA degrees in archaeology at the University of Athens. She received her PhD on archaeozoology at the University of Vienna with distinction. Since 2019 she has been curator of the Archaeozoological Collection at the Natural History Museum Vienna. She has participated in numerous archaeological excavations and scientific conferences and she is involved in various interdisciplinary projects, courses and seminars.

Daria Sanna

Assistant professor of Genetics at the Department of Biomedical Sciences of the University of Sassari, Italy. MS degree in Biological Sciences at the University of Sassari in 2003. PhD in Environmental Biology at the University of Sassari in 2007. Main research interests: human and animal population genetics, phylogeography, phylogeny and molecular taxonomy.

Francesca Santini (†)

She graduated from the Sapienza University of Rome with a dissertation based on the animal remains from Pescorocchiano, an important Roman temple site in Central Italy. In 2013 she obtained a master's degree in Osteoarchaeology from the University of Sheffield with a dissertation focused on the analysis of dog remains outlined in this conference. In 2001 she started to collaborate with Soprintendenza Archeologica of Lazio as an archaeozoologist in several excavation and study projects. She has also worked with other institutions such as the British School at Rome, CNR and Soprintendenza of Rome. In 2017 she moved to England to work for the Museum of London Archaeology.

Raffaele Sardella

Raffaele Sardella graduated in Geological Sciences at the Sapienza University of Rome, with a thesis on Paleontology. He discussed his PhD thesis in 1994 on vertebrate paleontology entitled: 'Systematic and geographic distribution of machairodont from late Miocene to Pleistocene'. During his academic career, he participated in many research projects in Italy and abroad (Sweden, Spain, France, UK, and Germany). He is the scientific director of Grotta Romanelli (Lecce, southern Italy) excavations and the research project authorised by Soprintendenza – MiC. He is currently Full professor of paleobiology and evolution of terrestrial ecosystems at the Sapienza University of Rome.

Massimo Scandura

Associate professor of Zoology at the Department of Veterinary Medicine of the University of Sassari, Italy. MS degree in Biological Sciences at the University of Pisa (Italy) in 1996. PhD in Biology at the University of Bielefeld (Germany) in 2004. Main research interests: population genetics, phylogeography, sociality and ecology of wild mammals (in particular ungulates and wolves).

Fabio Scarpa

Postdoctoral fellow at the Department of Veterinary Medicine of the University of Sassari, Italy. MS degree in Land and Environment Management at the University of Sassari in 2010. PhD in Environmental Biology at the University of Sassari in 2014 and Second Level Masterorn in A in Bioinformatics at the Sapienza University of Rome (Italy) in 2015. Main research interests: phylogeny, phylodynamics and molecular taxonomy of aquatic animals.

Tiziana Sgrulloni

Archaeologist, Specialist in Archaeological Heritage and PhD in Ancient Topography (Sapienza University of Rome). She has been collaborating for several years with the chair of Ancient Urban Planning (Sapienza University of Rome) participating in the teaching, research and excavations of *Peltuinum* (Aq), in the field and dealing in particular with the study of ceramic materials. She is the author of several scientific publications.

Alessandra Sperduti

Bioanthropologist, head of the Bioarchaeology Service at the Museum of Civilisation in Rome. Adjunct Professor in Anthropology at the University of Naples 'L'Orientale'. She coordinates, promotes and conducts scientific research on human skeletal samples, cremated and inhumed, from archaeological contexts of various chronological horizons. She has published articles and book chapters on anthropological methodologies, funerary rituals, paleodemography, paleopathology, skeletal/dental indicators of occupational activities, paleogenetics, mobility, paleodiet, Science and Society.

Maria V. Stanyukovich

Maria V. Stanyukovich is a Chair of a research department of MAE (Kunstkamera), Russian Academy of Sciences. Her interests are in epic, ritual, shamanism, Philippine oral literature, anthropology, ethnolinguistics and ethnobotany, on which topics she has published extensively in Russian, English and Spanish. She conducted fieldwork in Central Asia, Kazakhstan, Dagestan, Cuba (1976–1993), Cambodia (2015, 2017) and the Philippines (1995–2020). She worked as a Visiting Professor in Japan and UK.

Galina B. Sychenko

Ethnomusicologist. Art Criticism Candidate (1998), Docent (2001). Since 1984 she has been working at Novosibirsk State Conservatory 'M. I. Glinka'; at the Institute of Philology, Siberian Branch of the Russian Academy of Sciences and other institutions. Now she is living in Rome and manages the Archivio Eurasia 'Romano Mastromattei'. Her main spheres of scientific interest are performing traditions (ritual, epic, song) of peoples of Siberia, Mongolia, Himalaya (field research) and Southeast Asia (comparative research). Since 1984 she has taken part and organised about 50 expeditions in Siberia, Mongolia and Nepal; and has participated in 30 research projects.

Antonio Tagliacozzo

Currently retired. He was Archaeologist Director at the Prehistoric Ethnographic Museum L. Pigorini (in Rome today the Museum of Civilisations). He directed the Museum's Archaeozoology Laboratory, developing new study methodologies and collaborating with the most prestigious international research bodies. He was President of the Italian Association of Archeozoology. He has directed and participated in numerous excavation and research campaigns both in Italy and abroad. He has curated and participated in the creation of numerous exhibitions. He is the author of books and more than 200 articles in the main archaeological and scientific journals, both Italian and foreign.

Francesco Tanganelli

Italian archaeologist, and a current PhD student in *History, culture and knowledge of Mediterranean Europe* at the University of Basilicata. He graduated from the University of Florence, with a degree in Greek Archaeology and a dissertation about dog typologies in Classical Attic tombstones. His interests range from Greek and Roman marble sculpture to ancient epigraphy and literature, with particular emphasis on animals in Antiquity.

Ursula Thun Hohenstein

Ursula Thun Hohenstein is Associate Professor in Methods for Archaeological Research at the University of Ferrara. She graduated in Natural Science and obtained a PhD in Anthropological Science analysing faunal assemblages exploited by Neanderthals. She is an archaeozoologist, specialised in taphonomy. She has been analysing fauna assemblages coming from important Pleistocene sites in Italy and he applied taphonomic study to fauna remains of protohistoric sites too, focusing on the manufacturing of bone tools from a technological point of view.

Claudio Tuniz

Claudio Tuniz is a Consultant at the Abdus Salam International Centre for Theoretical Physics in Trieste, and collaborator of the Enrico Fermi Centre in Rome. He has recently been promoting evolutionary perspectives to understand constraints and potentialities of our relationships with intelligent technologies.

Anna Maria Tunzi

Anna Maria Tunzi is an Archaeologist working for the Italian Ministry of Cultural Heritage in the Soprintendenza Archeologia, Belle Arti e Paesaggio per la città metropolitana di Bari. She has been the director of many archaeological excavations especially in prehistoric sites in Apulia, she has been curator of several exhibits and has been adjunct professor at the University of Foggia.

Andrey V. Varenov

Andrey V. Varenov has graduated from Novosibirsk State University in 1977. For 30 years he has worked as senior research associate at the Institute of Archaeology and Ethnography of the Siberian Branch of Russian Academy of Science. At the same time, since 1980 Andrey V. Varenov is the associate professor at the Department of Humanities of Novosibirsk State University. He lectures on Chinese, Japanese and Indian history.

Blanca Vidal Orga

Blanca Vidal Orga is a PhD researcher in the Dog Studies Lab at the Max Planck Institute of Geoanthropology in Jena, Germany. She is a psychologist with an additional interdisciplinary background in Neuroscience, Philosophy, and Evolutionary Science. Working in animal cognition -particularly dogs and non-human great apes -with a comparative approach, her research interests include communication, domestication, and a topic focus on interspecies cooperative behaviour.

Carles Vilà

Carles Vilà started his research career in 1986 studying the ecology of wolves. Later on, he introduced himself to the use of genetic tools to better understand the ecology, behaviour and evolution of natural population and to understand the domestication process, with a particular interest in dogs and wolves.

Shi-Zhi Wang

Shi-Zhi Wang graduated from AgroParisTech and Swedish University of Agricultural Sciences in 2018 with a PhD study in animal breeding and genetics. Currently, he is working on the genetic factors influencing hip and elbow dysplasia (HD, ED) in pedigree dogs in the Roslin Institute of the University of Edinburgh as a postdoctoral researcher.

Clément Zanolli

Clément Zanolli is a Paleoanthropologist at the PACEA Laboratory (UMR 5199 CNRS) of the University of Bordeaux in France and expert in the study of dental structural organisation, tooth-related biomolecular processes, and ontogenetic developmental/growth aspects. His research project aims to precise the hominid paleobiodiversity, the evolutionary trends and phylogenetic relationships, as well as to uncover some disregarded paleobiological aspects.

Tiziana Zappatore

She graduated from the 'School of Specialisation' in Archaeology of the University of Salento. She published studies concerning prehistoric archaeology, ethnoarchaeology and archaeometallurgy. She participated in archaeological excavations and surveys.

Presentation

Adriano V. Rossi

President, ISMEO
a.rossi@ismeo.eu

When I brought my greetings to the participants of the opening session of the First International Conference 'Dogs, Past and Present: An Interdisciplinary Perspective' (15-18 November 2018, Roma, CNR-Sapienza), organised by the Italian Association of Ethnoarchaeology, with the patronage and support of many institutions, including the Italian National Council for Scientific Research, Sapienza University of Rome, Museo delle Civiltà, and ISMEO, I remembered the path traveled by Giuseppe Tucci's ISMEO (founded in 1933) to the new ISMEO re-founded in Rome in November 2012 as ISMEO - The International Association for Mediterranean and Oriental Studies.

Many of our members, having been members of the formerly dissolved Institute, have been involved during their scientific careers in studies and research relating to the different countries of the Asian world, especially those which had always been at the centre of Tucci's ISMEO, in all their linguistic, religious, geographical and cultural forms, i.e. Tibet, Nepal and Central Asia, including Mongolia and Siberia.

When Giuseppe Tucci and ISMEO in the 1950s marked the start of the Italian archaeological exploration of the Middle East and Central Asia, ethnoarchaeology as a scientific discipline (e.g. as formalised by David and Kramer in *Ethnoarchaeology in Action*, Cambridge 2001) had not yet been forthcoming: neither ethnographic data were gathered with specific archaeological goals in mind, nor vice versa.

Yet, as the young archaeologists who at the end of the 1960s and the beginning of the 1970s were involved with Maurizio Tosi and Shahr-e Sokhte excavations could confirm (particularly Lorenzo Costantini and Massimo Vidale, who sat in the scientific Committee of the Conference 'Dogs, Past and Present') ISMEO archaeological missions were on the forefront of this approach, and this remained the seal of ISMEO/ISMEO archaeological methodology in the next generations after that of Giuseppe Tucci's direct pupils.

This explains why the 5th Conference of the Italian Association of Ethnoarchaeology was held in Rome on the 13th-14th May 2010, in collaboration with ISIAO – the new incarnation of Tucci's ISMEO from which we are proud to descend as direct scientific heirs - on the subject: 'Ethnoarchaeology: current research and field methods'; and on that occasion a specific session of the Conference, under the chair of Francesca Lugli and Maurizio Tosi, was dedicated just to the Ethnoarchaeology of pastoralism.

The 2018 International Conference 'Dogs, Past and Present' (the Eighth Conference organised by the Association in its 25th-year) convened over 200 scholars from different fields of research (such as Genetics, Archaeology, Archaeozoology, Anthropology, Ethnoarchaeology, Folklore), ideally representing 20 countries and more than 60 Italian and foreign institutions, all of whom addressed (each one from its own perspective), the problems related to the role played by dogs in the past and in traditional societies of our days.

We think that the results of that Conference, now embodied in the present book, show that a concrete sharing and exchange between the different disciplines is indispensable in order to analyse and understand the human-dog relationship - which is at the heart of this book - in different cultural, chronological and geographical contexts. Bringing all these issues together makes this volume a unique work that appeals not only to academics, but to a wider audience as well.

It is in this spirit of international, interdisciplinary, and open cooperation that we are ready to work again, in future occasions, with the Italian Association of Ethnoarchaeology, and with all the scientific institutions involved in the organisation of the First International Conference 'Dogs, Past and Present'.

Forewords

Alberto Cazzella

'Former' Dipartimento di Scienze dell'Antichità, Roma, Università Sapienza
alberto.cazzella@gmail.com

Ivana Fiore and Francesca Lugli, organisers of the conference 'Dogs, Past and Present', in the first instance, and now editors of the homonymous volume, have dealt with both a very specific (dogs and their relationships with human beings) and wide theme, as it includes a wide variety of fields. Approaches of the various papers are manifold and suitably they are all interdisciplinary. Particularly (in my opinion), studies using the most recent bioarchaeological methods, on one hand, and research on symbolic aspects implying a specific role played by dogs (they are often confused in our thinking), on the other hand, are of greatest interest. I do not specifically discuss the various papers constituting the volume: there are too many and too varied. I limit myself to expressing my appreciation on the work carried out not only by the editors, but also by all of the authors. I am not an expert on dogs and their relationships with human beings through time and in various contexts, but as a prehistoric archaeologist particularly interested in an anthropological approach to research (a palaeoethnologist, using a customary term in Italy and France) I feel at home as regards many of the themes carried out. Obviously, also research which addresses post-prehistoric contexts are of interest to me from an ethnoarchaeological point of view, i.e. such as situations offering wider interpretive suggestions to archaeologists. In any case, beyond my personal perspective, layers of meaning may be manifold for all different scholars interested in the theme dealt with in this volume.

Continuing to express general opinions, I would like to highlight that on one side the volume cannot be considered a definitive study as many problems are still open (and this is a fine perspective for future research), and on the other side it is very wide, and going to become a benchmark for this theme in the next years. Its potential developments in various directions can be seen, for example, in the conference 'Canis em Ambiente Aquatico', that took place in Lisbon the last May 5th, organised with the participation by one of the two editors of this volume. Although this is not my field, I would also like to suggest other specific items linked to the roles played by dogs: they are to be considered not as lacking aspects, but as some of many other possible developments of the general theme. 1) The effect of dogs on archaeological deposits (as regards not only remains of fauna, dogs can cause post-depositional disturbances to be aware of?); 2) dogs and archaeology of the senses (we know the particular sensitive skills of dogs, but how these animals are perceived by human beings in different cultural contexts by senses such as either smell or hearing); 3) the roles played by dogs in traditional medicine (for example, I think about the 'strange' belief of ancient Romans according to which Maltese dogs leant upon stomach can help digestion).

With my best wishes that this volume will give a strong stimulus to continue widening the research on dogs and their relationships with human beings through time and in various cultural contexts, I conclude this brief introduction.

Simon JM Davis

Zooarqueologia, Laboratório de Arqueociências, DGPC, Lisbon
simonjmdavis@gmail.com

That an association of wolf and man is perfectly conceivable, especially when pups are taken, is confirmed by the most interesting experiences of Mr and Mrs Crisler in northern Alaska . . . These explorers . . . adopted wolf pups which grew up in human company and revealed their social propensities. It is evident from Lois Crisler's report that hunters on the Mesolithic (and indeed Upper Palaeolithic) level would have found it easy to associate with wolves. (Zeuner 1963: 84).

Where did dogs come from? How can dog remains be distinguished from those of their wild ancestor? When were dogs first domesticated? How have our ancestors treated them? Where and when was/cynophagy practised? Why did it take so long for dogs to be present in tropical regions? How important have dogs been to people? These are some of the questions that articles in this book attempt to answer. They are written mainly by anthropologists,

historians, zoologists, zooarchaeologists, and geneticists among others. There is a vast array of subjects treated here and so for dog lovers everywhere this book should serve as an important source of information.

For a long time, zoologists were unsure about the origin of our oldest friend. There were several contenders within the Canidae – a family that includes wolf, jackal, fox, coyote, as well as some extinct taxa. Charles Darwin (1885) for example was puzzled by the huge variety of dog breeds and suggested that the dog must be descended from several different species of canid, extinct and recent. Most zoologists today agree that the dog is descended from the wolf, a supposition confirmed by modern genetics as Carles Vilà and Jennifer A. Leonard write herein. One early study that indicated a closer link between dogs and wolves than between dogs and, say, coyotes, jackals, or foxes, was the electrophoretic work done by Vibeke Simonsen in the 1970s (1976: 7-18).

The dog is also considered to be man's first domesticated animal. By domesticated we mean that its evolution was, and is, largely the result of artificial selection by people with natural selection playing a somewhat less important role. Man's control of this animal has given rise to the vast array of breeds that range in size from the tiny Chihuahua to the Great Dane. Since the original domestication of the wolf probably happened many millennia ago, research concerning this event or series of events (since it may have happened more than once and in several locations) lies within the domain of zooarchaeology – the study of animal remains from archaeological sites. How then is it possible to distinguish archaeological remains of a dog from those of a wolf? This can be problematical as the teeth and bones of dogs and wolves are very similar. There are at least three indicators that help. The first is size. The wolf is generally larger than the dog, a difference that is readily apparent in the teeth and bones. The second is a cultural one. Occasionally archaeologists uncover a complete *Canis* skeleton, sometimes even buried alongside that of a human. The third has to do with how these animals eat. Both dogs and wolves, being carnivores, are known to swallow small bones of their prey such as phalanges, carpals, and tarsals, that are smaller than about 3 or 4 centimetres. Sometimes these are regurgitated and/or pass through the gut. Some partially survive the passage through the gut almost complete with characteristic signs of semi-digestion, a phenomenon described by Sebastian Payne and Pat Munson (1985: 31-39). Finds of all three indicators – reduced size, careful burial, and semi digested prey bones – in a site or several contemporary sites can be a strong indication that the *Canis* in question was a domesticated one, i.e., a dog rather than a wolf. In the 1970s François Valla uncovered a *Canis* puppy skeleton beneath the left hand of an elderly human skeleton, probably a woman, at the Natufian (a Mesolithic culture) site, Ein Mallaha in northern Israel. Small carnassial teeth of *Canis* similar in size to dogs but significantly smaller than wolves were also found at this and another contemporary Natufian site as were semi-digested bones of gazelles and caprines. Such semi-digested bones are unknown on earlier sites in the Levant. Thus, the combination of all three indicators suggested that 12,000 years ago *Canis* and people had an affectionate rather than a gastronomic relation (Davis and Valla 1978: 608-610). In this book Francesco Boschin and colleagues describe a new criterion for distinguishing wolf carnassial teeth from those of dogs using X-ray microtomography. They noticed that the lower carnassial teeth (the M_1) of dogs have a lower proportion of dentine than those of wolves. It will be interesting to apply their technique to the Natufian specimens as well as the so-called Palaeolithic dogs like the ones from Bonn-Oberkassel, Goyet cave, Eliseevichi, and others.

It seems that in many regions dogs played different roles. For example, according to Konstantina Saliari and colleagues, in Austria dogs were eaten but under Roman rule cynophagy became rare and Giuseppe Minunno writes that the Phoenicians sometimes consumed dog flesh but Darius, the Persian king, asked the Carthaginians to abstain – dogs had high status in Persia.

Francesca Lugli writes about dogs that serve a useful function among fishermen, they draw sleds in the Amur region, and as Olga Maltseva notes, wide paws are indispensable for dogs walking on snow in southern Siberia.

One little-known aspect of canine zoogeography is the dog's late appearance in the tropics – Peter Mitchell explains this as being due to the presence there of certain diseases like sleeping sickness.

While many if not most modern breeds of dogs probably originated two or three centuries ago, there is plenty of iconographic and osteological evidence described here in this book for different kinds of dog in antiquity. In terms of their overall body structure, many can be compared to modern breeds even though they may not necessarily be genetically related. The Iron Age and especially the Roman period, was characterised by a great increase in *Canis* variability and the Romans were among the first to breed lap dogs. Numerous examples of dog skeletons and burials in various periods and in many places are described, even in the Largo Amba Aradam on the 'C' line of the Rome underground! And many articles provide clear evidence that dogs have been our oldest friends for many millennia. Indeed, their great intelligence probably rendered them 'pre-adapted' to become part

of human society: dogs can understand certain human cues like pointing to a cup with food hidden underneath and their sense of smell is one or two orders of magnitude greater than ours as Juliane Bräuer and Blanca Vidal Orga point out.

Congratulations to Fiore and Lugli for their efforts in amassing this array of canine articles!

References

- Darwin, C.R. 1885. *The variation of animals and plants under domestication*. 2nd edn. London: John Murray.
- Davis, S.J.M. and F. Valla 1978. Evidence for the domestication of the dog 12,000 years ago in the Natufian of Israel. *Nature* 276: 608-610.
- Payne, S. and P.J. Munson 1985. Ruby and how many squirrels? The destruction of bones by dogs. In Fieller, N.R.J., D.D. Gilbertson and N.G.A. Ralph (eds), *Palaeobiological investigations; research design, methods and data analysis*: 31-39. Oxford: BAR International Series 266.
- Simonsen, V. 1976. Electrophoretic studies on the blood proteins of domestic dogs and other canidae. *Hereditas* 82: 7-18.
- Zeuner, F.E. 1963. *A history of domesticated animals*. London: Hutchinson.

Dulam Sendenjav

Professor, National University of Mongolia, Ulaanbaatar
sosedula@gmail.com

It is my pleasure and privilege to present the volume 'Dogs, Past and Present: An Interdisciplinary Perspective'. From the very first pages, the interaction and synergy between the authors is apparent, who come from different disciplines and geographical areas. They all wish to reconstruct and to tell the history of the dog, which has been man's loyal companion since antiquity. Reading this book is a fascinating journey that retraces the ancient and long adventure of this animal. The authors begin by considering the dog's ancestors and the first steps of its life among human beings, and continue retracing the complex relationships that the dog has had with women and men throughout the ages. Dogs are present in many varied circumstances of humans' lives where they assume the most and often-antithetical positions in emotional, working and religious spheres. The book is certainly a crucial reference point for scholars, but it is also interesting for non-experts due to the breadth of topics, which cover both technical-scientific as well as historical-anthropological studies.

It was 17 years ago when Prof. G. Nandinbilig and I first met with Italian ethnoarchaeologists, Francesca Lugli and Graziano Capitini who became my closest friends. Their research topic was so intriguing and multidisciplinary as it required to study the Mongolian nomadic people's way of life in different geographical locations such as the Khangai mountainous region of northern, central, and western Mongolia, the Gobi semi-desert region in southern Mongolia, and the endless steppe in eastern Mongolia. Their research involved studying and tracking four seasonal camps of nomadic peoples across time and space. Their social anthropological research methods combined with archaeological ones allowed them to penetrate deeply into the local communities and the different historical eras of the nomadic peoples. This resulted in a fantastic study with tremendous results.

The academic conference of ethnoarchaeologists in Rome which we attended that was hosted by our friends, helped me understand this research discipline's latest developments. There is no doubt that Francesca Lugli and Graziano Capitini's studies have paved a new way in ethnoarchaeology. I want to highlight that their research of Mongolian nomadic people and pastoralism in the past, present, and future – or from a diachronic perspective – has revealed the vital qualities of the nomads, which are climate resilience and an adaptive capacity for change and uncertainty. Especially their study of the role of Mongolian dogs in a nomadic lifestyle, pastoralism, and the security of the camps was timely by filling the research gaps. This type of international research was new to Mongolia and had many challenges. I remember that we, were gathered together to request permission from the customs inspectors to send the samples for analysis abroad, collected from the dog dens of pastoralists living in the Mogod subdistrict of Bulgan, Mongolia. In this way, their work expanded, and served as the basis for more detailed studies, and further contributed to this edited book.

Ten years ago, three of us - Françoise Aubin, a respected Mongolia researcher, Isabelle Bianquis, a researcher of Mongolian culture, and I - co-authored the article 'Le chien et la bru, deux êtres liminaires en Mongolie (the dog and the daughter-in-law, two liminal beings in Mongolia)'¹ and it was a huge work for us from a social anthropological perspective. But Ivana Fiore and Francesca Lugli's edition of 'Dogs, Past and Present: An Interdisciplinary Perspective' is a complete book from various interdisciplinary perspectives including ethnoarchaeology and biology.

¹ Bianquis, I., F. Aubin and Dulam Sendenjav 2013. Le chien et la bru, deux êtres liminaires en Mongolie, in Buffetrille, K., J.L. Lambert, N. Luca, and A. de Sales (eds) *D'une anthropologie du chamanisme vers une anthropologie du croire. Hommage à l'œuvre de Roberte Hamayon*: 303-322. Études Mongoles & Sibériennes, Centrasiatiques & Tibétaines, Centre d'Études Mongoles et Sibériennes. Paris: Ecole Pratique des Hautes Etudes.

Introduction

Ivana Fiore and Francesca Lugli

Dogs have currently many traditional and non traditional tasks and roles in human societies. Companions, guard dogs, shepherd dogs, hunting dogs, guide dogs for the blind and sledge dogs are among the most famous ones. Dogs also assist people with different physical disabilities or psychic disorders and Kea Grace published a list of more than one hundred examples on that topic subdivided into General Service Dog Tasks, Medical and Alert Service, Brace and Mobility Support Service, Virtual Assistance and Guide Service, Hearing Service, Psychiatric Service, and Other Services.¹

Dog meat had an important role in many cultures worldwide and it is still currently consumed in various countries on all the continents, where it can also have a ritual significance, especially in Asia and Africa. According to the Humane Society International in Asia (especially in China, South Korea, Philippines, Thailand, Laos, Vietnam and Cambodia), perhaps more than 30 million dogs are killed every year for that purpose. China which is supposed to consume more than 10 million dogs per year is the biggest consumer of dog meat.²

In western countries, dog meat consumption is generally frowned upon and forbidden. Stefan Häne in 2012 inquired and wrote that in Switzerland perhaps 3% of the population, especially in rural areas, eat dog meat as jerky or traditional sausages.³ The World Population Review also mentions Poland where dog fat is believed to have medicinal properties and the United Kingdom where the sale of dog meat is forbidden but it is allowed to eat it if the animal belongs to the killer/consumer and it is killed humanely. In the US it is forbidden, but the law does not include Native American rituals and traditions. In Canada and Australia, dog meat consumption is not explicitly illegal, but with stipulations that render it impossible.^{4, 5}

Even if it is very difficult to know how many dogs there are worldwide, recent studies estimated that the global dog population was around 471 million in 2018⁶ and around 900 million in 2020.⁷ It means that the total dog population had nearly/almost doubled in two years. There were 7,631,091,040 in 2018 and 7,794,798,739 billion people in 2020 (that means around 1 dog per 8.66 persons).⁸

In the European Union, it seems there are around 89,821,000 dogs⁹, 17.1 million in Russia¹⁰, 89.7 million in the US¹¹, 5.9 million in Canada, over 5 million in Australia, and 52.2 million in China.¹² More than 75%-85%¹³ of the worldwide dog population is free-ranging (wild, feral, stray, city, and village ones), which means that 200 million are stray dogs.¹⁴

Since the Victorian age, dogs have become more and more important as companions, especially in Western countries. The dog is certainly the species with the most macroscopic physical differences. Just think of toy dogs and Great Danes and how they differ in size and aspect. Nowadays, there are 340 dog breeds known throughout the world and the American Kennel Club recognises 199 breeds (<https://www.akc.org/dog-breeds/>). Many of these breeds are the result of selections that were carried out in the last two centuries.

⁶ <https://www.statista.com/statistics/1044386/dog-and-cat-pet-population-worldwide/>

⁷ <https://pawsoftheadvice.com/dog/how-many-dogs-are-in-the-world/woofdog.org/how-many-dogs-are-in-the-world/>

⁸ <https://statisticstimes.com/demographics/world-population.php#:~:text=The%20World%20population%20is%20projected,to%20more%20than%208%20billion>

⁹ <https://www.statista.com/statistics/515579/dog-population-europe/> The first five countries are Germany (10,700,000), United Kingdom (8,500,000), Poland (7,850,000), France (7,500,000) and Italy (8,300,000).

¹⁰ <https://www.statista.com/statistics/515543/dog-population-europe-russia/#:~:text=Number%20of%20dogs%20in%20Russia%202010%2D2020&text=The%20gradually%20growing%20number%20of,pets%20in%20Russian%20households.>

¹¹ <https://pawsoftheadvice.com/dog/how-many-dogs-are-in-the-world/#:~:text=In%202020%2C%20the%20US%20had%20about%2089.7%20million%20dogs.>

¹² <https://www.statista.com/statistics/992408/china-number-of-dogs/>

¹³ Canines that do not have a home and are not owned by people are referred to as free-range pooches. They are the most numerous group, estimated to make up between 75% and 85% of all dogs.

¹⁴ <https://pawsoftheadvice.com/dog/how-many-dogs-are-in-the-world/>

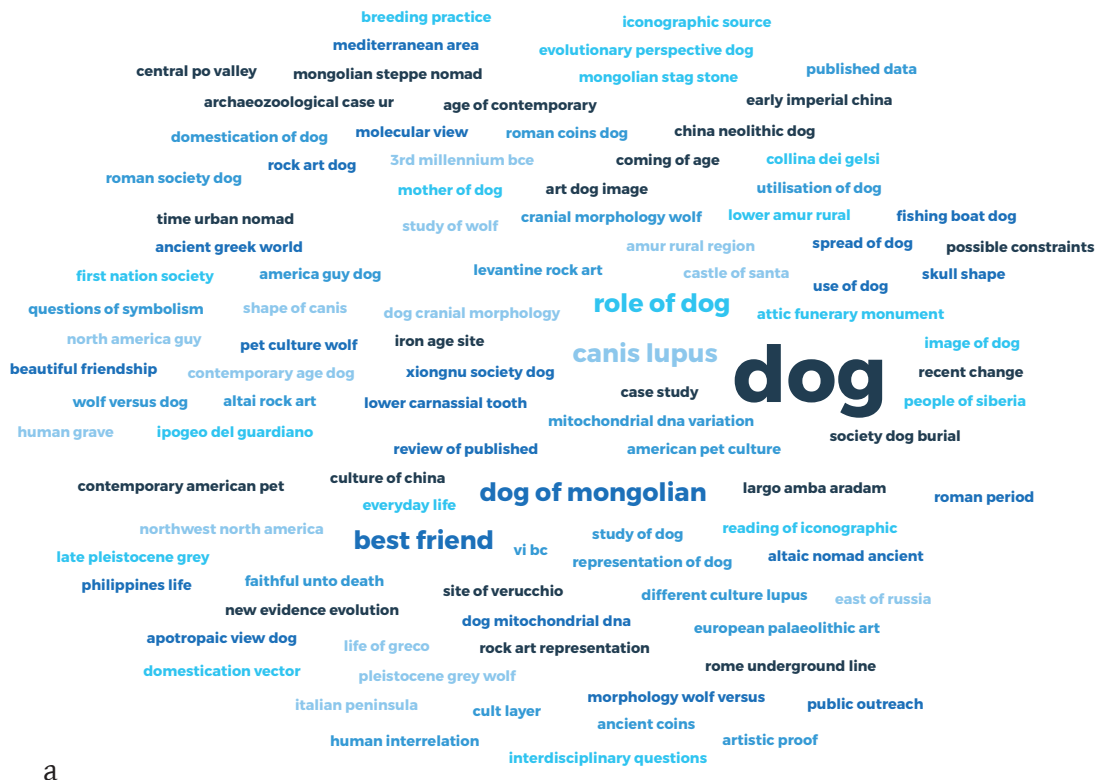
¹ All websites were viewed between December 2021 and May 2022. <https://anythingpawable.com/100-examples-service-dog-tasks/>

² <https://worldpopulationreview.com/country-rankings/what-countries-eat-dogs>

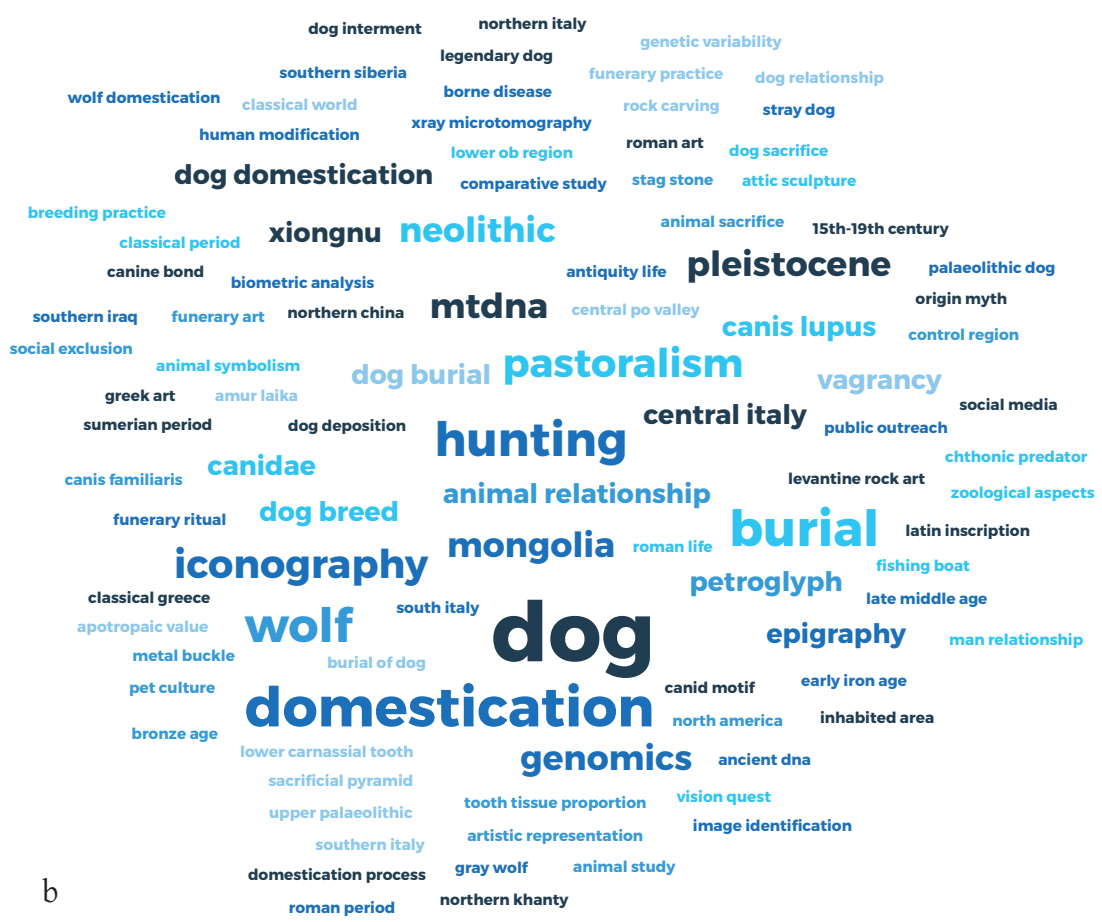
³ <https://www.tagesanzeiger.ch/schweiz/standard/schweizer-sollen-keine-hunde-und-katzen-mehr-essen/story/19945914>

⁴ <https://worldpopulationreview.com/country-rankings/what-countries-eat-dogs>

⁵ <https://www.sbs.com.au/news/dataline/article/the-places-around-the-world-you-can-still-eat-dog-meat/1cudici96>



a



b

Figure 1: Key words (a) and those of the titles of the article in this volume (b) in two cloud graphs (<https://tagcrowd.com/>).

A flourishing industry has exploded and grown in an exponential way related to the number of dogs and the increasing importance that they have in the lives of people. According to the American Pet Products Association (APPA), the Pet Industry reached \$179.4 billion in 2020 with a Grow Rate (CAGR) of 5.2% from 2020 to 2027 and it is expected to reach \$255.4 billion by 2027. The global dog food market was around \$54.08 billion in 2020 and it is expected to grow up to \$65.8 billion in 2026 (Expert Market Research).¹⁵

Over the last decades, countless studies have examined the current life of dogs and their new place in our societies as well as their crucial part in human life and history. Especially dog domestication and its success during prehistory is a fascinating theme that scholars of various disciplines are involved with.

In the last few years, data and hypotheses have progressively increased, sometimes controversially, in each field of investigation.

Thousands of texts are published every year and it is practically impossible to be up to date with the publications and there is not a real exchange between the various disciplines. The final effect is that scholars might often ignore what happens in the various fields of research that are not close to their own. Therefore, it is extremely complex to reach a complete perspective of dogs' importance and their history until today.

The volume is entirely dedicated to dogs and it is focused on the necessity of an 'interdisciplinary perspective' to reach a better comprehension of the phenomena. We hope that it will contribute to bridging the gap that is created by the lack of communication among the various disciplines. We also wish that it will be a platform for the exchange of practical and theoretical approaches to the problem for scholars from different fields of research.

It gives the chance to read articles that all together give a wide and diachronic viewpoint of the history of dogs since their domestication which occurred in the mists of time.

The dog is considered from the point of view of genetics, archaeology, archaeozoology, ethnoarchaeology, anthropology, ethnology, ethnography, history, linguistics, iconography, numismatics and art history. All the authors made an effort to have an interdisciplinary point of view so it was impossible to classify them according to strict and rigid subdivisions.

In the opening, David Howe stresses the importance of a research journal on dogs but also with a 'strong public outreach component' as a topic that 'solicits higher engagement from students and the general public', in order to demonstrate that it is a field which warrants appropriate funding. Then, the articles, are divided into six sections (Dogs: Genetics, Microtomography and Morphometric Techniques; Wolf Versus Dog; Dogs through Time: Role, Task and Position; Dogs: Archaeological and Archaeozoological Cases; Representation of Dog in Different Cultures; Dogs: Myth and Symbolism) to accompany the reader across the long and intricate voyage that dogs and humans have covered together throughout the millenniums. It is important however to bear in mind that the sections are only generally indicative because each article considers various questions from an interdisciplinary and diachronic perspective.

In section 1 'Dogs: Genetics, Microtomography and Morphometric Techniques' the most widely used methodologies in the study of dog history - from the earliest days of its arrival in human communities to the present- are presented. Genetics and new non-invasive analysis technologies such as microtomography are crucial for the study of dog domestication and history. They enable the comparison of different findings and samples of different chronologies and origins. Every day precise and sophisticated analyses flow into general databases where they are easily accessible to the scientific community. So scientists progressively have new and often revolutionary data but, as Carles Vilà and Jennifer A. Leonard write, the huge amount of data often does not have a univocal answer and a constructive criticism of the results is indispensable.

The section is articulated between various paradigms that consider different methodologies and subject matters.

A brief history of dog breeds since antiquity is considered by Grégoire Leroy *et al.* who highlight how the great current variety of canine morphotypes was modelled for various functional and social roles. But breeders are more interested in beautiful rather than behavioural aspects. The same specimen is often used for many litters to maintain the purity of the breed and that is highly negative for the health and the character of dogs. The authors suggest how genomic and computer science discoveries should be applied to dog breeding. Daria Sanna *et al.* also work on the current dog population and they present a molecular survey on the dogs of the Mongolian and southern Siberian herders as well as the southern Siberian hunters. The ethnographic data shed light on the genetic ones and vice-versa and give a picture of the intentional and unintentional mechanisms that have occurred in central Asian pastoralism and hunting.

¹⁵ <https://www.expertmarketresearch.com/>; <https://woofdog.org/how-many-dogs-are-in-the-world/>; How many Americans have pets? An investigation of fuzzy statistics - [washingtonpost.com](https://www.washingtonpost.com); Pet statistics - www.iii.org; Shelter Intake and Surrender - Pet Statistics - www.aspc.org; Ending Pet Homelessness - www.humanesociety.org

Other authors deal with innovative methodologies. For example, Francesco Boschin *et al.* provide a reliable and non-destructive method (such as thin sections of teeth) to distinguish between dogs and wolves that is based on the analysis of the dentine volume proportion. Analyses were carried out using X-ray microtomography and the lower dentine thickness of the dogs made it possible to distinguish them from the wolf.

Raquel Blázquez-Orta *et al.* are also interested in the wolf-dog distinction. They analyse their skulls and jaws by combining traditional and geometric morphometry.

In section 2 'Wolf versus Dog' various authors give great attention to the ancestor of the dog, its early stages of domestication and the spread of *Canis familiaris* throughout the different continents.

An extensive and detailed overview of the presence of wolves in Italy in the Pleistocene is proposed by Dawid Adam Iurino *et al.* who reconstruct a trend of the dispersal of large wolf forms from north to south.

One of the crucial issues in the study of domestication is the question of how this took place. The proposal of Mietje Germonpré *et al.* - analysing the various models of wolf domestication proposed in the literature - is that of the occasional capture of the fearsome Pleistocene predator and the consequent raising of its pups in captivity. Captive breeding could have produced a selection towards a more tame behaviour of the first dogs.

Also, Juliane Bräuer and Blanca Vidal Orga study the process of domestication but point out how the recent comparative psychology helps to understand that the dogs' selected skills during domestication were for communicating and cooperating with humans.

The work of Peter Mitchell is important in relation to the spread of *Canis familiaris* which suggests new arguments that had been given little consideration previously. Diseases may have limited the expansion of dogs into tropical environments.

Dogs have had a complex relationship with humans which means mutual changes and adaptations throughout time. The dog is present in many spheres of human life, including utility, affectivity and symbolism.

In section 3 'Dogs through Time: Role, Task and Position' the authors highlight how the dog has certainly enabled man to develop special economic activities exploiting various ecosystems as well as regulating human societal relations, from the very

beginning. Guy Lanoue stresses that the relationship between the sexes is symbolically regulated by the dog. The role of pet dogs, how they have acquired a new symbolic position and how they now have a quasi-human status in Western society are examined by Simona Bealčovschi. Not only do humans influence and modify dogs, but dogs can be decisive in human societal changes.

The ethnographic perspective turns out to be crucial for obtaining a multifaceted and diachronic understanding of the phenomenon under consideration. The different degrees of the indispensability of the dog in the societies of shepherds and hunters in Mongolia and southern Siberia are highlighted by Francesca Lugli and Galina Sychenko. Lugli also focuses on the importance of the use of dogs in aquatic contexts and highlights how that topic has been neglected by scientific research.

But there is not only continuity in human-dogs relationships. Sometimes real and often dramatic fractures can also occur. Christophe Blanchard analyses French homeless people and their dogs and describes how they are often dramatically separated due to health issues. Another break in the fruitful relationship between man and dog is described in Lugli's work. Dogs were used on fishing vessels for defence and aid in fishing, but this practice has now fallen into disuse due to recent health regulations and new fishing technologies. Another caesura in the man-dog relationship is dealt with by Olga Maltseva, who tells the story of the Amur *laika* dogs that have become strays because they were no longer useful for fishing and hunting activities.

Section 4 'Dogs: Archaeological and Archaeozoological Cases', contains the most contributions, confirming the indispensability of collaboration between archaeologists and archaeozoologists for the understanding of the role of dogs in past societies. In particular, Andrei V. Novikov emphasises that not only is the archaeological context and faunal remains fundamental, but the integration and comparison of archaeological, ethnographic data and written sources is necessary to help improve and broaden the interpretation of ancient remains.

The dichotomy of the relationship between humans and dogs and its wide variability has been documented in many regions since prehistory. Dogs' remains allow researchers to reconstruct the history of dog from the Palaeolithic to modern times. Maria Kudinova highlights the relationship between past and present in how dogs or their representations are ritualised and how those identified as early as the Neolithic period in the spiritual culture of the peoples of China still survive today.

The cases analysed contextualise and provide valid support for the hypotheses put forward. They show us in concrete terms the role of the dog from both a utilitarian and a symbolic point of view and indicate which clues are useful or not for a correct interpretation. No element must be missed or underestimated, all data must be recorded, as noted in the work of Eugenio Cerilli and Marco Fatucci in order to have a plausible interpretative hypothesis.

The dog interprets its role alongside man as a guardian of property; a guardian and helper in the management of flocks; a companion and aid in hunting and fighting; a companion and guide in the afterlife; a sacrifice in special purification rites to female deities of the chthonic world; a ritual closure of sacred areas; and immolated as a guardian in foundation rites of structures or walls.

The association between man and dog in burials shows us the close emotional relationship between man and dog. But in emphasising these findings it is also necessary to emphasise the point of view of the dog, which was immolated at the death of its owner and therefore was a poor sacrificial victim. Archaeological data clearly demonstrates that already in Roman times there was a variety of breeds and sizes of dogs (Konstantina Saliari *et al.*), manipulated and selected by man for their aptitudes (dwarf companion dogs, slender and fast hounds, and powerful war dogs).

Humans' oldest and dearest friend becomes a source of food, as shown by the traces of slaughter found on the dogs studied by Francesca Alhaique, Marco Bertolini and Ursula Thun Hoenstein, in some cases perhaps out of necessity, but in others out of established tradition. Bogdanov's ethnographic data also confirm the consumption of dog meat, as the half-breed/hunting dogs that lived near the camps were killed and consumed when resources were scarce.

The hypothesis of stray 'street dogs,' who are probably driven off and hit, still retain wounds (Ivana Fiore *et al.*). This is evidence of the ambivalent relationship between man and dog, permeated with love, nevertheless most often exploited and battered.

Dog representation is crucial for a better understanding of the relationships between dogs and humans. The interpretation of figurative and written sources includes problems that range from the reality of the represented subject but also its symbolic value. In addition, the artist, craftsman or writer who created the representation is important as well as the cultural context and the collective imagination of the society to which the artefact is addressed.

Section 5 'Representation of the Dog in Different Cultures' shows the great variability of contexts which have produced depictions of dogs and also the many materials and techniques that were used for that purpose. The articles make clear the relevance of the data which can be obtained. In fact, it is possible to follow the history of dogs from the representation of its Palaeolithic ancestor (Gianpiero Di Maida *et al.*) to the Tuscan Renaissance ceramics (Silvia Nutini and Marino Marini) and the ancient and recent rock representations in Southern Siberia and Mongolia (Dmitry V. Cheremisin). It is possible to identify physical features (size, breed etc) but also the activities performed and the dogs' roles, especially in cultures without the use of writing as in some ethnographic or pre-protolithic populations. In some cases, dogs are the favourite subject of artistic styles. Frédéric Devienne analyses how during the Chinese Han Dynasty there is an impressive variety of representations: engravings, paintings on stone and stone slabs for funerary structures such as tombs, sarcophagi, memorial shrines reliefs in bricks and perforated bricks, terracotta funerary figurines, decorations and ornaments of glazed and unglazed earthenware vessels and artefacts, bronzes, lacquers; paintings on silk; textiles, etc.

Numismatics is also a precious information source as it is easily possible to deduce from the research made by Alessandra Bottari and Alessandro Crispino who interpret the depictions of coins to determine the physical features of dogs as well their real and symbolic role in ancient societies.

Clearly, written sources are crucial. Liubov Eliseeva and Eugenia Andreeva consider the Greek epitaphs in a comparison with Latin inscriptions and literature and Greek funerary inscriptions and they demonstrate the abundance of data that can be deduced. The Antiquity is also analysed by Francesco Tanganelli who analyses the representation of dogs in Attic funerary monuments and takes into account depictions and written sources in the Greek and Roman world.

The study of myths, symbolism, legends and folklore gives important information about the complexity of the position of the dog in different cultures. They can be analysed from different sources such as archaeological remains, texts, iconography and the observation of current cultures. Some authors have focused their attention on myth and symbolism in a more comprehensive and detailed way, although it is a theme that recurs in most of the articles.

In section 6 'Dogs: Myths and Symbolism' the authors debate this topic according to different perspectives and

provide a complex and articulate view. The three articles, respectively by Giuseppe Minunno, Ana Portillo-Gómez and Marco Giuman with Miriam Napolitano consider the everyday life of dogs and their symbolic value in the Phoenician and classical world and highlight the positive and negative roles and perceptions that they lived at the same time. The same dichotomy is evident in the article of Maria V. Stanyukovich who analyses the role of the dog in past and present everyday life in the Philippines but also folk beliefs, rituals and mythology. Ambivalence is also described and analysed by Galina B. Sychenko who studies the relationship between dogs, wolves and humans in the Turkic cultures of Siberia in a comparative perspective that considers texts of non-tale prose - myths, legends, everyday stories - of the Siberian Turk as well as ethnographic data.

We wished to see how the volume would appear to a reader reading the Index and doing a keyword search, to see what slant the volume takes after the contributions were delivered. We plotted the keywords and titles in two cloud graphs, selecting the words that were repeated at least twice. In the two graphs, the impact of the volume is evident:

- domestication, words wolf and domestication are often present
- breeds
- art and representations of the dog are recurrent themes, even in works that do not have this subject as their main focus,
- culture, human, burial, nomads are often present.

We close with a thought for all dogs, but especially for sad and abused dogs. To the sacrificed and slaughtered dogs described in the book, but above all to the ill-treated and malnourished dogs, to those whose tails and ears have been amputated, to those who have ended up in lager kennels, to those who are beaten or whose muzzle is clamped with scotch tape.

We hope that our volume will contribute to creating awareness and sensibility to these matters, besides giving a voice to dogs who cannot express their suffering.

4.1 *Ur-gir*¹ and the Other Dogs from Abu Tberah (Southern Iraq): Considerations on the Role of Dogs in Sumer during the 3rd Millennium BCE

Francesca Alhaique¹, Licia Romano², Franco D'Agostino²

¹Archaeozoology Division, Bioarchaeology Service, Museum of Civilisations, Piazza G. Marconi 14, Rome, Italy, francesca.alhaique@cultura.gov.it

²Department of Oriental Studies, Sapienza University of Rome, P.le A. Moro, 5 Rome, Italy, licia.romano@uniroma1.it; franco.dagostino@uniroma1.it

Corresponding author: Francesca Alhaique, francesca.alhaique@cultura.gov.it

Abstract

The site of Abu Tberah is located about 15 Km NE of Ur (Southern Iraq) and is dated to the second half of the 3rd millennium. The large faunal assemblage includes mainly domestic animals associated with many fish and mollusk remains. Dog elements are in general rare and were recovered in some cases associated with human burials, while in others they seem to represent isolated intentional interments of this animal; these findings will also be considered within the framework of the beliefs regarding the animal world in the Sumerian culture as we know it from literary sources and iconographic evidences.

Keywords: Sumerian period, burials, Southern Iraq, religion, rituals.

1 Introduction

The medium sized city of Abu Tberah, Iraq (30° 98' 43.93" E, 46° 26' 97.35" N) is situated about 15 Km NE of Ur (Nasiriya, DhiQar province, Southern Iraq) and covers a surface of about 42 ha. Since 2012, archaeological investigations have been carried out by an Iraqi-Italian archaeological mission in different areas of the site evidencing, so far, some buildings, several burials and a harbour dated to the second half of the third millennium BCE, between the end of the Early Dynastic and the beginning of the Akkadian period (D'Agostino and Romano 2018; D'Agostino *et al.* 2015; D'Agostino *et al.* in press); at this time the region was a marshy area near the ancient Gulf shoreline (Romano 2019; Milli and Forti 2019). One of the main goals of the interdisciplinary research project was to reconstruct human adaptations to this water-rich environment and to understand how people coped with changing climatic conditions.

In Area 1, located in the southeastern part of the site, a very large household (Building A, ca. 600 m²) was discovered providing evidences of daily life activities as well as of burial practices, the latter because of the presence of sub-pavement graves both inside and outside the building. The structures of the household

were then cut by several graves of a cemetery and garbage pits in the latest occupation phase of the area (Romano 2019). Other domestic structures belonging to the end of the third millennium BCE were uncovered in Area 2, in the northeastern part of the site, where a similar situation occurred: such structures were in fact cut by graves (one of them, Grave 100, was particularly rich) that were in turn severely disturbed by later activities, possibly belonging to a now eroded more recent phase (D'Agostino and Romano 2015).

2 Faunal background

A relatively large faunal assemblage was collected during all the field seasons in the different areas of the settlement. The archaeozoological and taphonomic analysis of the remains is still in progress, but has been completed and published for the material from the latest phases of Area 1 (Alhaique 2019); other faunal data relevant for this paper come from Area 2, especially from the burials.

In general, the study mainly identified domestic animals associated to many fish and mollusk remains which, as mentioned before, together with other archeological, geological and environmental evidences (Celant and Magri 2019; Jotheri 2019; Milli and Forti 2019; Romano 2019), show that the sea was much closer and therefore the environment in the surroundings of the site was very likely similar to the current situation in the Iraqi Marshes. The animal remains were collected in domestic contexts referred to the most recent phase (Phase 1) of

¹ The word for '(domestic) dog' in Sumerian is *ur*, often to be found with the specification *ĝi* (also read *gir*) meaning probably 'native', as *ur-ĝi* or *ur-gir*, translated with doubts as 'native dog, hound'. In the lexical texts we have information on many different dogs, for instance the *ur-Elam*, 'dog from Elam' (Persian dog) or *ur-Marhaši* (dog from Asia), etc.

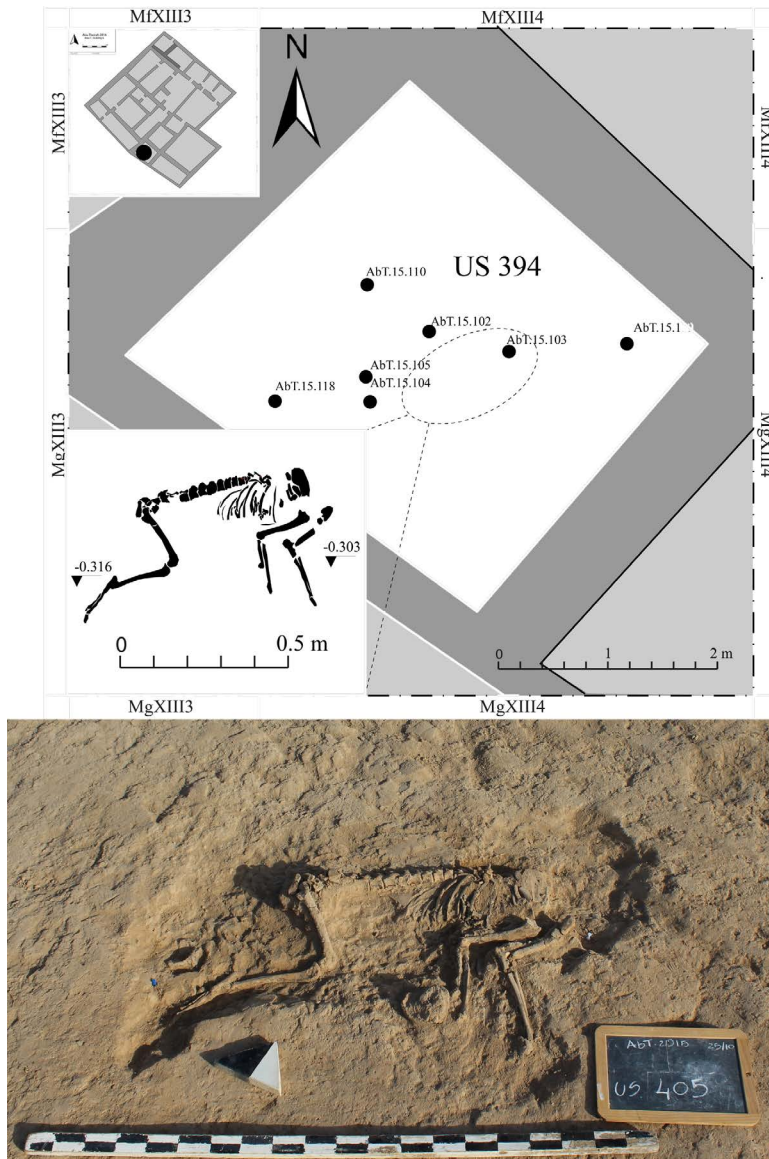


Figure 1. Dog Burial in Room 22, Building A, Area 1 (Images Iraqi-Italian mission in Sumer).

With the possible exception of the skeletal elements collected from a pit below Graves 15 and 16, they have so far all been associated with human burials or were interred in their own grave. Wild mammals are extremely rare: wild boar was almost exclusively found in graves, while gazelle bones were only found in Building A. The occurrence of fox and tortoise only in Grave 100 may indicate some particular meaning for these species, although the specimens are too few to be confident with this interpretation. The constant presence in both domestic and funerary contexts, of marine and freshwater taxa (both fish and mollusks), suggests a strict relationship between humans and the surrounding environment with the exploitation of all the available resources. These aquatic species were used not only as food, but also as raw materials for making tools and objects or, in the case of mollusks, as containers (the so called 'cosmetic

shells'). use of Building A as well as in association with human burials (both the sub-pavement graves of the Building and the Cemetery above it) as food offerings or leftovers of funerary banquets (Alhaique 2019; Alhaique *et al.* 2019; Alhaique, Tafuri *et al.* 2021). In general, the faunal composition does not show particular differences in the use of the main species in daily life and funerary rituals. Ovicaprines and pigs are the most common taxa in all contexts, but subtle differences between 'sacred' and 'profane' settings may be suggested by the age at death (Alhaique *et al.* 2021) with younger animals being more frequently associated to the deceased. In contrast, there is a general scarcity of cattle, both in ritual and domestic contexts; this could be explained by the ecological features of the territory surrounding the site, which were probably not appropriate for a large-scale cultivation for which such taxon could have been used. As far as the equids are concerned, both domestic donkeys and *Equus hemionus* or *Equus hemionus*-donkey hybrids have been discovered (Gabbianelli *et al.* 2015).

shells').

3 Discussion about dogs and conclusions

Dog remains are in general extremely rare in the faunal assemblage, although carnivore gnawing, probably produced by dogs, is documented in domestic contexts, suggesting the actual presence of these animals in everyday life of the people living at Abu Tbeirah. However, so far, all the specimens of this taxon were recovered either in association with human graves or their bodies were intentionally interred as isolated depositions.

In particular, during the 2015 field season, the almost complete skeleton of a single dog was found under the pavement of Room 22 of Building A in Area 1 (Figure 1). The animal was still in anatomical position with slightly flexed limbs and was laying down on its left side with a North-East/South-West orientation, facing North-East. Notwithstanding the general completeness of the

skeleton, the head and neck vertebrae were completely missing.

This dog skeleton, although a well-defined pit was lacking, but given the absence of head and neck, very likely represents a ritual interment, possibly suggesting the sacrifice of the animal. This practice is widely attested in the ancient Near East (Ramos-Soldado 2016) and over all the Mediterranean region, and might be interpreted both as an offering and/or as protection for the building.

The archaeozoological analyses evidenced that the individual was about 2 years old and had a withers height between 52 and 55 cm. It was not possible to unquestionably define the sex of the animal because on one end the absence of the *baculum* may suggest that it was a female, but this lack may just be the result of a loss of this small element during the excavations. No bone modifications were detected on the skeleton and the black colour of many of the elements is not related to burning, but to accidental manganese staining (E. Peverati, pers. comm.), as is the case of many other animal and human remains from the site.

The only other dog bones recovered so far at the site come from Area 2. At least one adult animal, represented by relatively few skeletal elements (Figure 2) and with



Figure 2. Selected dog elements from Grave 100, Area 2 (Photo by F. Alhaique).

a shoulder height of about 50 cm, was associated with Grave 100, a very rich human burial that was unfortunately heavily disturbed by later activities (D'Agostino *et al.* 2011). A second dog was a 5–6 months old puppy that was found in the fill of a pit (Figure 3); it may either represent an animal burial or have been associated with a disturbed human grave.

Textual sources attest to a wide range of attitudes towards dogs, based on their role in domestic contexts as well as on their healing properties connected to the cult of Gula (Nett 2021, Ramos-Soldado 2016, Tsouparopoulou 2020). Dogs are also present in Mesopotamian literature



Figure 3. Dog Puppy remains from a pit, Area 2; the portions recovered are highlighted in the skeleton (Photo by F. Alhaique; skeleton modified from ArcheoZoo.org/Michel Coutureau (Inrap) 2013).

and are frequently mentioned in proverbs and fables, emphasising both their positive aspects (guarding, shepherding, hunting etc.) and negative ones (Gordon 1958, Wu 2001, Tsouparopoulou 2012, Tsouparopoulou and Recht 2021). Although the seated dog only clearly became a divine symbol in the Old Babylonian period, third millennium iconography also depicts dogs in a range of contexts. An Early Dynastic votive plaque from Nippur shows a dog in a typical domestic scene, under the chair of a banqueting character (Hansen 1963, Plate V); in contrast, the Sargon Stele, Louvre Sb1 (Nigro 1998, Figure 12), shows domestic dogs and vultures devouring and dismembering the bodies of the enemies (Tsouparopoulou and Recht 2021). In any case, besides the religious and cultural role of this species for the Sumerians, the data from Abu Tbeirah suggest a special care for this animal connected with the nature of the strict relationship, even in the afterlife, between humans and dogs.

References

- Alhaique, F. 2019. Faunal remains, in L. Romano and F. D'Agostino (eds) *Abu Tbeirah Excavations I. Area 1 Last Phase and Building A - Phase 1*, Rome: Sapienza University Press, 419-438.
- Alhaique, F., M.A. Tafuri, L. Romano and F. D'Agostino 2021, *Cibo per i morti e cibo per i vivi, una prospettiva dalla Mesopotamia meridionale all'alba della storia. Atti L Riunione Scientifica dell'Istituto Italiano di Preistoria e Protostoria*. Studi di Preistoria e Protostoria, 6: 997-1004.
- Alhaique, F., L. Romano and F. D'Agostino 2019. *Vita quotidiana e morte ad Abu Tbeirah (Iraq meridionale) nel III millennio a.C.: dati preliminari dalle faune dall'Area 1*, in M. Baldi, R. Dan, M. Delle Donne, G. Lucarini and G. Mutri (eds) *Archaeology of Food - New Data from International Missions in Africa and Asia*. Serie Orientale Roma, n.s. 17: 63-74.
- Alhaique, F., L. Romano and F. D'Agostino 2021. *Between sacred and profane: human-animal relationships at Abu Tbeirah (Southern Iraq) in the 3rd millennium BCE*, in L. Recht and C. Tsouparopoulou (eds) *Fierce lions, angry mice and fat-tailed sheep: Animal encounters in the ancient Near East*. McDonald Institute Conversation Series: 63-75.
- Celant, A. and D. Magri 2019. Palaeoenvironment, climate, and land use in Southern Mesopotamia/Nasiriyah Area, in L. Romano and F. D'Agostino (eds) *Abu Tbeirah Excavations I. Area 1 Last Phase and Building A - Phase 1*, Rome: Sapienza University Press, 39-48.
- D'Agostino, F., M. Vidale, L. Romano and M. Angelozzi 2011. Abu Tbeirah. Preliminary Report of the First Campaign (January-March 2012), *Rivista degli Studi Orientali* 2011: 17-34.
- D'Agostino, F. and L. Romano 2018. The Harbor of Abu Tbeirah and the Southern Mesopotamian Landscape in the 3rd Mill. BC: Preliminary Considerations, *Rivista degli Studi Orientali* 2018: 19-31.
- D'Agostino, F., L. Romano, A. Kadhem 2015. *Abu Tbeirah, Nasiriyah (Southern Iraq). Preliminary Report on the 2013 Excavation Campaign*, in M.G. Biga et al. (eds), *Homenaje a Mario Liverani, fundador de una ciencia nueva (II)/Omaggio a Mario Liverani, fondatore di una nuova scienza (II) (= ISIMU 13)*, Madrid 2011(2015): 209-221.
- D'Agostino, F., L. Romano, A. Khadem Ghanim, F. Alhaique, A. Celant, G. Festa, V. Forte, C. Lemorini, L. Medeghini and M.A. Tafuri in press. Tell Abu Tbeirah. Preliminary Report of the First Four Campaigns, *Sumer*.
- Gabbianelli, F., F. Alhaique, L. Romano, F. D'Agostino and A. Valentini 2015. mtDNA Analysis for the Characterization of Sumerian Equids, *Italian Journal of Animal Science* 14, 112.
- Gordon, E.I. 1958. Sumerian Animal Proverbs and Fables: 'Collection Five' (Conclusion), *Journal of Cuneiform Studies* 12 (2): 43-75.
- Hansen, D.P., 1963. New Votive Plaques from Nippur. *Journal of Near Eastern Studies* 22 (3), 145-166.
- Jotheri, J. 2019. The environment and landscape archaeology of the Abu Tbeirah region, in L. Romano and F. D'Agostino (eds) *Abu Tbeirah Excavations I. Area 1 Last Phase and Building - Phase 1*, Rome: Sapienza University Press, 49-58.
- Milli, S. and L. Forti 2019. Geology and Palaeoenvironment of Nasiriyah Area/Southern Mesopotamia, in L. Romano and F. D'Agostino (eds) *Abu Tbeirah Excavations I. Area 1 Last Phase and Building A - Phase 1*, Rome: Sapienza University Press, 19-38.
- Nett, S. 2021. The dogs of the healing goddess Gula in the archaeological and textual record of ancient Mesopotamia, in L. Recht and C. Tsouparopoulou (eds) *Fierce lions, angry mice and fat-tailed sheep: Animal encounters in the ancient Near East*. McDonald Institute Conversation Series: 55-62.
- Nigro, L. 1998. The Two Steles of Sargon: Iconology and Visual Propaganda at the Beginning of Royal Akkadian Relief, *Iraq* 60: 85-102.
- Ramos-Soldado, J.L. 2016. *Structured Deposition of Animal Remains in the Fertile Crescent during the Bronze Age*, Archaeopress Publishing, Oxford.
- Romano, L. 2019. Abu Tbeirah and Area 1 in the second half of the 3rd millennium, in L. Romano and F. D'Agostino (eds) *Abu Tbeirah Excavations I. Area 1 Last Phase and Building A - Phase 1*, Rome: Sapienza University Press, 59-91.
- Tsouparopoulou, C. 2012. *The 'K-9 Corps' of the Third Dynasty of Ur: The Dog Handlers at Drehem and the Army*. Zeitschrift für Assyriologie und vorderasiatische Archäologie, Volume 102 (1): 1-16.
- Tsouparopoulou, C. 2020. The healing goddess, her dogs and physicians in the late third millennium

- Mesopotamia. *Zeitschrift für Assyriologie und vorderasiatische Archäologie* 110 (1): 14–24.
- Tsouparopoulou, C. and L. Recht 2021. Dogs and equids in war in 3rd millennium Mesopotamia, in L. Recht and C. Tsouparopoulou C. (eds) *Fierce lions, angry mice and fat-tailed sheep: Animal encounters in the ancient Near East*. McDonald Institute Conversation Series: 279–289.
- Wu, Y. 2001. Rabies and Rabid Dogs in Sumerian and Akkadian Literature, *Journal of the American Oriental Society*, 1218 (1): 32–43.