Museologia Scientifica e Naturalistica

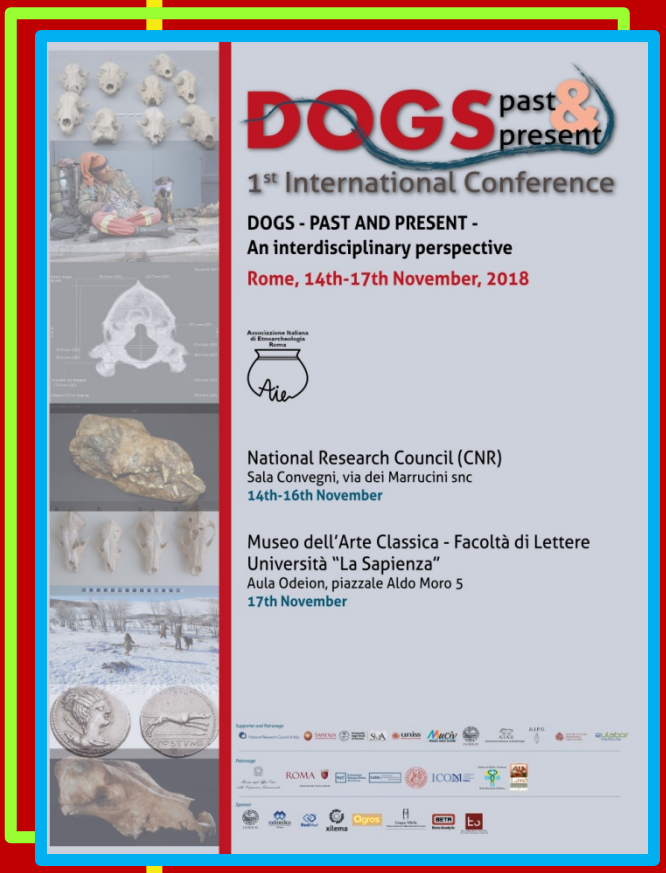
Volume 14 (2018)

1st International Conference

DOGS - PAST AND PRESENT -

An interdisciplinary perspective

14th-17th November, 2018



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Ivana Fiore
Francesca Lugli

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DOGS past & present

1st International Conference

DOGS - PAST AND PRESENT -
An interdisciplinary perspective

Rome, 14th-17th November, 2018

Associazione Italiana di Etnoarcheologia
Roma

National Research Council (CNR)
Sala Convegni, via dei Marrucini snc
14th-16th November

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Università "La Sapienza"
Aula Odeion, piazzale Aldo Moro 5
17th November

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DOGS, Past & Present - An interdisciplinary perspective
Rome, 14th-17th November, 2018

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DOGS, Past & Present - An interdisciplinary perspective
Rome, 14th-17th November, 2018

Program

Wednesday, November 14th

08:30 Arrival of participants/registration.
09:00 Rossi V.A., Santori P., Novikov A.V. - *Welcome and Institutional greetings*.
09:45 Gambari F.M. - *The role of purebred dogs within aristocratic symbols in Iron Age Italy.*
10:00 Howe D.I. - *Calling on a favor from man's best friend: Public Outreach in Science.*

Genetics/New technology

10:15 **Carles Vilà** (*Keynote speaker*) - *A molecular view on the domestication of dogs.*

Coffee break

11:30 Cilli E., Ciucani M.M., Koupadi K., Maini E., Nenzioni G., Reggiani P., De Fanti S., Serventi P., Palumbo D., Fabbri E., Curci A., Cattani M., Luiselli D., Galaverni M., Caniglia R., Gruppioni G. - *Looking for traces of domestication and population dynamics in Late Pleistocene and Holocene Italian canids by ancient mitochondrial DNA analysis.*
11:45 Leroy G., Wang S. - *Recent changes in breeding methods and tools for dog breeding.*
12:00 Perri A., Larson G., Frantz L., Ni Leathlobhair M., Irving-Pease E. - *The Evolutionary History of Dogs in the Americas.*
12:15 Boschin F., Bernardini F., Zanolli C., Tagliacozzo A., Tuniz C. - *Using X-ray microtomography to discriminate between dogs' and wolves' lower carnassial tooth.*

Lunch - 13:00-14:00

14:00 Nottingham J.A. - *The changing nature of dogs in (Post) Medieval England: a bioarchaeological approach to investigating the human-dog relationship in historic time.*

Discussion

Domestication

14:45 Iurino D.A., Mecozzi M., Persico D., Maimone L., Sardella R. - *Canids from the last 30.000 years of the Italian Peninsula: an overview.*
15:00 Ben-Dor M. - *Why domesticate wolves at the end of the Pleistocene.*
15:15 Germonpré M., Lázničková-Galetová M., Sablin M.V., BaÜer C.C., Bocherens H. - *Palaeolithic dogs: their origin and meaning.*
15:30 Boudadi-Maligne M., Mallye J.-B., Costamagno S., Ferrié J.-G., Barshay-Szmidt C., Deguilloux M.-F., Pémonge M.-H., Barbaza M. - *The relationship between humans and dogs in the Azilian layer of the Moulin rock-shelter (Troubat, Hautes-Pyrénées, France).*

Coffee break

16:15 Arbogast R.-M., Turck R. - *Diversité du statut, des conditions de vie et d'intégration du chien au Néolithique en Europe occidentale.*
16:30 Bräuer J., Stenglein K. - *Cooperation in a hunting-like paradigm: wolves versus dogs.*
16:45 Maltseva O.Vl. - *Dog: reverse evolution from domestic to wild form.*

Discussion

Thursday, November 15th

Role and tasks of the dog

08:45 Janulardo E. - *Entre la métaphysique et l'attente: les chiens de Carlo Carrà.*

09:00 Plankājs E. - *Dog co-burials as elite manifestations of the Late Iron Age Liv society.*

09:15 Morretta S., Ricci G., Santini F. - *The discovery of a dog in the excavations of the Rome Underground Line C in Largo Amba Aradam.*

09:30 Blanchard C. - *Les sans-abris accompagnés de chiens: analyse anthropologique autour d'une marginalité urbaine méconnue.*

09:45 Bealcovschi S. - *La place du chien de compagnie dans la culture, les pratiques et l'imaginaire nord-américain contemporain.*

10:00 Eleuteri V., Lugli F. - *Dogs and fishing boats.*

10:15 Pasaric M. - *Dogs at the crossroads - from hunter's best friend to farmer's best fiend?*

Coffee break

11:00 Lévesque F. - *Inuit and dogs in a multicultural and (post) colonial Arctic city: an examination of the contemporary roles of dogs in Iqaluit, Nunavut (Canada).*

11:15 Filejski C., Reynolds A., Hueffer K. - *Reflections of the whole: dogs in remote Northern Indigenous Communities in North America from the 19th Century to the present.*

Discussion

Diffusion of dogs

11:45 Yeomans L. - *Did dogs help humans negate the effects of environmental change in the Early Holocene of eastern Jordan?*

12:00 Milheira R.G., Borges C., Loponte D., Acosta A. - *The domestic dog (*Canis lupus familiaris*) in the pre-colonial period of Brazil. New evidence and social meaning.*

12:15 Rodriguez Loredo C. - *Évidence de chien (*Canis familiaris*) chez les premiers pêcheurs du littoral pacifique dans l'extrème sud péruvien, Quebrada de los Burros.*

12:30 Mitchell P. - *Disease as a constraint on the spread of dogs into the tropics and beyond.*

Discussion

Lunch - 13:00-14:00

Breeds

14:00 Bona F., Castagna D., Poggiani Keller R. - *Neolithic dogs in the central Po Valley. Review of published data and new evidence.*

14:15 Cerilli E., Fatucci M. - *The dog in the castle: a dog skeleton from the Castle of Santa Severa (Latium, Italy).*

Discussion

Pastoralism

14:45 Lugli F., Capitini G. - *Mongolian steppe nomads and their dogs (Bulgan, Arkhangai and Dundgovi).*

15:00 Sanna D., Dedola G.L., Cossu P., Lai T., Scarpa F., Canu A., Scandura M., Apollonio M., Lugli F., Francalacci P., Mereu P., Casu M. - *Mitochondrial DNA variation among dogs of Mongolian, Tuvinian and Altaic nomads.*

Coffee break

15:45 Bogdanov E. - *The role of the dog in the society of the Xiongnu (fine arts and written sources).*

16:00 Lugli F., Sychenko G. - *Dogs, nomads and hunters in Southern Siberia.*

16:15 Varenov A.V. - *Demonic dogs of the Mongolian stag stones and their Chinese counterparts.*

Folklore

16:30 Sychenko G. - *Dog and Wolf in Non-Folktale Prose of Southern Siberia Turks.*
16:45 Kolosova V. - *"Dog" plants in Slavonic folk botany.*

Discussion

17:15 **Poster Session**

Friday, November 16th

Ritual and Sacrifice

08:45 Santini F. - *Dog as companion in life and in death: the case study of dog burials in human grave (VII-VI BC) in Loc. Collina dei Gelsi - Poggio Sommavilla (Rieti, Italy).*
09:00 Fiore I., Migliorati L., Pansini A., Sgrulloni T., Sperduti A. - *The tower, the sewer and the shafts. Dog and human sepultures at Peltuinum (L'Aquila, Italy).*
09:15 Guoqiang L. - *Le sacrifice du chien dans les inscriptions oraculaires des Shang (1200-1045 a. J.-C.).*
09:30 Novikov A.V. - *Burials of dogs at the ancient settlements of Western Siberia.*

Discussion

Coffee break

Myth and Symbolism

11:15 Giuman M., Napolitano N. - *"Implore me not, dog". The figure of the dog in the ancient Greek world.*
11:30 Portillo Gómez A. - *Roman and Greek dogs in rituals and in the world of the dead. Uses, meanings and symbolism.*
11:45 Devienne F. - *L'iconographie du chien dans l'Antiquité chinoise: approche anthropozoologique.*
12:00 Stanyukovich M. - *The Dog in Philippine creation myths: in a spirit of hunting.*

Discussion

Lunch - 13:00-14:00

Art and representations

14:00 Cheremisin D.V. - *Dog images in Altai Rock Art.*
14:15 Bottari A. - *The image of the dog on ancient coins in the Mediterranean area.*
14:30 Crispino A. - *Dog: the numismatist's best friend.*
14:45 Iuffrida M. - *Dogs in the Vatican Museums collections.*
15:00 Kubarev G.V. - *Images in the rock and small plastic arts of Southern Siberia in the early Middle Ages.*
15:15 Kudinova M. - *Dogs in the rituals and art of Neolithic cultures in China.*

Discussion

Coffee break

Dogs as Food - Dogs as Sacrifice

16:15 Galindo-Pellicena M.A., Sala N., García N., De Gaspar I., Arsuaga J.L., Carretero J.M. - *Dog consumption in the copper and Bronze Age at the El Portalón site (Atapuerca, Burgos, Spain).*
16:30 Horard-Herbin M.-P. - *The consumption and status of dogs during the Iron Age in France.*
16:45 Hirsch-Matsioulas O. - *"If You eat dogs, You'll eat people" - Otherizing on a Greek Island in an economic crisis.*

17:00 Avieli N. - *Thai migrant workers in Israel and the dog-eating myth.*
17:15 Shelach-Lavi G. - *Dogs as humans and humans as dogs: dogs in early Chinese rituals and art.*

Discussion

Saturday, November 17th

Perception of dog in different cultures

09:00 Saliari K., Pucher E. - *Dogs in Austria from the Neolithic to the Iron Age.*
09:15 Minunno G. - *Dogs in Phoenician and Punic culture.*
09:30 Wybult D. - *The role and significance of dogs in the Roman Iron Age in the Kujavian region.*
09:45 Bottéro F. - *The dog and the Chinese script.*

Discussion

Coffee break

Dogs. Past/Present

10:45 Albarella U. - *General introduction.*
11:00 Braulinska K. - *A kitchen dog was never good for the chase. Dogs in ancient Egypt and their modern descendants.*
11:15 De Grossi Mazzorin J., Fiore I., Minniti C., Tagliacozzo A. - *Faithful unto death. Burial, legend and heroism of the dog from antiquity to the contemporary age.*
11:30 Tourigny E. - *Do all dogs go to heaven? The archaeology of post-medieval dog burials and their role in understanding the origins of the modern animal welfare movement.*
11:45 Lanoue G. - *The role of dogs in Native Societies in Northwest North America.*
12:00 Latini T., Pandolfi L., Bartolini Lucenti S. - *Dogs through time: an ethno-evolutionary perspective.*

Discussion

Closing Remarks

Posters

Thursday, November 15th - 17:15

Alhaique F.
Four dogs in a road (to say nothing of the fox).

Alhaique F., Romano L., D'Agostino F.
Urgir and the other dogs from Abu Tberah (Southern Iraq): considerations on the role of dogs in Sumer during the 3rd millennium BCE.

Andreeva E.N., Eliseeva L.G.
"Do not laugh, I beg of you, for this is a dog's grave": Human-Canine Bond in the Ancient Greek World.

Baüer C.C., Germonpré M., Lázničková-Galetová M., Bocherens H.
Special treatment of large canids in the Gravettian? Bone and ivory objects in the mouth of the Předmostí (-) canid skull specimen revealed for the first time using a CT scan.

Bea M., Lombo Montañés A., Di Maida G., Mussi M.
Canidae motifs in Levantine rock art.

Bertolini M., Thun Hohenstein U.
A dog head in a house pit at the Iron Age site of Verucchio. Butchery waste or ritual sacrifice?

Blázquez Orta R., Rodríguez García L., Galindo-Pellicena M.A., García García N.
Cranial and mandibular morphometric analysis of Canis lupus *Linnaeus, 1758.*

Brassard C., Bréhard S., Callou C., Cornette R., Tresset A., Bălăşescu A., Guintard C., Monchatre-Leroy E., Barrat J., Gares H., Fleming T., Herrel A.
Commensalism and "domesticity" in canids from the Old World from the Late-Glacial to the Holocene: a diachronic comparative study on the morphological evolution and function of the mandible in the red fox and dog.

Brennan W.
'The Dingo and the Moon' Aboriginal stories and ceremony: The depiction of Native Dogs in South east Australian rock art.

Chilardi S., Iovino M.R., Natali L., Zampetti D.
Evidence of Wild Canidae from Prehistoric Layers at Grotta Giovanna: Reflecting Patterns of Past Human Behaviour and Symbolic Tradition (s)?

Di Maida G., Mussi M., Lombo Montañés A., Bea M.,
"*Lupus in fabula" the Representation of the wolf (*Canis lupus*) in the European Palaeolithic art.*

Di Matteo M., Tunzi A.M., Modesto R., Alhaique F.
Dogs from the cult layers of the Ipogeo del Guardiano (Trinitapoli, Barletta-Andria-Trani, Italy).

Giardino C., Zappatore T.
The dog and the afterlife in Southern Italy: between ethnology and archaeology.

Gil Cano F., Catagnano V., Vázquez J.-M., Soler M., Lomba J., Saña M.
Foramen magnum with a dorsal notch in a dog from 4,000 years ago.

Janulardo L.
Chiens et bergers dans la terre orobique.

Nutini S., Marini M.
"Cobalt Greyhounds". An artistic proof in ceramics.

Stoppiello A.A.
Ancient dogs and children perspective in primary school.

Tanganelli F., Masseti M.
Representations of dogs in Attic funerary monuments: a question of symbolism?

Preface

Dogs have been important, often indispensable to man in various cultural and geographical contexts from prehistory to today's modern world. Today, in addition to their traditional activities (guarding, shepherding and hunting) their usage has multiplied. Actually the canine is a unique life partner to millions of people across the globe as well as being a international economic asset. Just how crucial is this partnership? When, where, why and how did this domestication occur? What is its history? What is its role in both traditional and modern societies?

Dog domestication and its success in prehistory and the role of dogs in the history of humankind are complex themes, which are currently being studied and discussed by scholars of various disciplines. In the last few years, data and hypotheses have progressively increased, sometimes controversially, in various fields of investigation. However, a lack of exchange between scholars of different backgrounds has hampered a real advance in the study of the connections between humans and dogs in history until the present day.

We are fully convinced that the interdisciplinary scientific exchange through scholars from different fields of research is indispensable for the future of research in this field. Therefore, we decided to organize the 1st International Conference "Dogs, Past and Present – an Interdisciplinary Perspective" to create a platform for the exchange of practical and theoretical approaches for scholars from different fields of research (genetics, archaeozoology, archaeology, ethnoarchaeology, ethnography, anthropology, folklore and ethnomusicology) in order to reach a real interdisciplinary perspective on the history of dogs.

The conference was promoted by the Italian Association for Ethnoarchaeology which carries out two interdisciplinary projects on nomadism and dogs in Southern Siberia and in Mongolia with the sponsorship of the Italian Ministry of Foreign Affairs and International Cooperation, and it happened in Rome (14th-17th of November 2018) at both the National Research Council (CNR) and at the University "La Sapienza". For the first time, more than one hundred scholars from different disciplines and from twenty countries met and exchanged views on both their research and the crucial questions about the role that dogs have had in human history since the dawn of time.

During the four days of the conference various topics were dealt with through an interdisciplinary perspective: Genetics/New Technologies, Domestication, Role and Tasks of the Dog, Diffusion of Dogs, Breeds, Pastoralism, Folklore, Ritual and Sacrifice, Myth and Symbolism, Art and Representations, Dogs as Food-Dogs as Sacrifice, Perception of Dog in different cultures, and Dogs. Past and Present.

It is possible to affirm that the conference is the first 'photography' of the current knowledge and hypotheses about the role of dogs in human history in an interdisciplinary perspective and we think that it will be pivotal for the future of research.

The Conference was made possible thanks to the generous help and support of public and private subjects who firmly believed in the initiative including the CNR, the University of Rome "La Sapienza", the University of Ferrara and ISMEO (International Association of Studies for the Mediterranean and the East).

Ivana Fiore & Francesca Lugli

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A special thanks to Adriano Rossi, Alberto Cazzella, Massimo Vidale, Luisa Migliorati, Alessandra Sperduti and Ursula Thun Hohenstein who believed in our project and helped us to realize it.

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A special thank to Gianfranco Calandra and Graziano Capitini for their help and patience.

To all the colleagues and friends of ours who helped us and showed their esteem and affection and to all the dogs of all over the world and their ancestors.

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Oral Presentations

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ORAL PRESENTATIONS

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Status and role of dogs in neolithic western Europe

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Obernai, vue du squelette de chien pendant les fouilles.

This presentation aims at providing a record of the role and function of dogs in western Europe Neolithic pastoral societies. Through the integration of recent and original archeozoological data we could develop a detailed analysis of some aspects of the peculiar relationship that existed between man and dog, ands which generally escape classical archeological reconstitutions. Whereas many uses of the dog such as his assistance for hunting or as a shepherds dog cannot be detected, our data on funerary and worship treatments of dog remains shed a new light on the tight bonds that had developed between prehistoric men and dogs, whether social, symbolic or religious.

Keywords: Neolithic, Western Europe, Dogs, Burial.

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Thai Migrant Workers in Israel and the Dog-Eating Myth

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It is considered a fact in Israel that Thai migrant workers, who make up the bulk of the agricultural workforce in the country, systematically hunt and eat pet dogs. Anthropological fieldwork I conducted in Israel since the late 1990s suggests, however, that despite media reports and widespread public consensus, Thai migrant workers do not hunt or eat dogs, and accounts and accusations of dog-eating by Thai migrant workers were never established. In this paper, I follow the emergence of this culinary myth and decode its meanings. I discuss the ambivalent position of the dog in Thailand, describe the eating patterns of the Thai migrant workers in Israel and analyze media reports that accused Thai workers of hunting and eating dogs and other animals. I argue that Israel's socialist ethos is incongruent with the notion of migrant labor, especially when it came to farming and to the 'working settlements': kibbutzim and moshavim, the iconic manifestations of Zionism. Moreover, as Thailand has become a most popular destination for Israeli tourists, a gap has developed between the exotic and attractive Thailand, and the exploitation and ill-treatment of Thai workers back home. Within the context of Israel's official "racial division of migrant labor", a culinary myth has emerged, which has nothing to do with the eating patterns of the Thai migrant workers but, rather, with the cultural meaning and social position of pet dogs in Jewish-Israeli culture. This myth defines a particular kind of "negative exoticism", which facilitated a specific mode of dehumanizing of the Thais and allowed for their ongoing exploitation.

Keywords: Thai Migrant Workers, Culinary Myths, Stigmatization, Dog Meat, Israel.

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La place du chien de compagnie dans la culture, les pratiques et l'imaginaire nord-américain contemporain

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Tess.

Accessoire à la représentation canonique du bonheur individuel ou familial, le chien occupe une place particulière dans l'imaginaire de la classe moyenne nord-américaine et dans l'imagerie de la culture contemporaine. Jusqu'à la fin du 19e siècle l'histoire de l'humanité le note comme animal destiné aux taches utilitaires des hommes (chien de chasse, gardien de troupeaux, chien de ferme ou de maisonnée). Cependant, avec l'industrialisation occidentale et l'émergence des métropoles, le chien deviendra «pet», un animal petit qu'on caresse ou chien de compagnie, un surrogate pour l'intimité protectrice (d'une enfance consommée, ou d'un être absent) qui pourrait soulager l'aliénation et la solitude des individus. Le chien sera alors sémiotiquement transféré dans un autre champ, où il ne sera plus perçu comme un simple animal, mais comme un compagnon demi-humain, car, comme Donna Haraway (2010) le remarque, tout en pensant à la possibilité d'envisager une histoire «biosociale», les chiens et les humains «ont coévolué».

En même temps, de plus en plus de publicité nord-américaine va faire l'éloge d'un style de vie urbain dans la compagnie d'un chien. Dans les années 1950, le chien de compagnie comble l'imaginaire d'un nouveau type de famille, la famille nucléaire banlieusarde composée des parents, de leurs enfants et un chien devenu membre de la famille (le Golden Retriever ou le Boston Terrier le plus souvent). Sa présence dans la famille est censée renforcer «nos attachements» aux émotions, aux routines quotidiennes, aux lieux et à l'environnement ou aux objets (dans le sens de Bruno Latour), tout en consolidant notre identité.

Dans un monde occidental de consumérisme et d'exacerbation de l'individualisme triomphant, de quête du bonheur et de transformation corporelle de l'individu censé devenir un parangon, ou un modèle d'un humain éternellement jeune et en santé, les chiens de compagnie ne s'échappent pas aux dynamiques de la culture contemporaine. Des dizaines de pratiques et de politiques, d'organismes et de structures auxiliaires vont émerger

pour modifier et humaniser la représentation du chien: par exemple,- toute une industrie de produits alimentaires pour les chiens, des produits vêtements chiens, des médicaments, des hôtels pour les chiens, des parcs pour les chiens, des centres de récupération des chiens abandonnés comme la SPCA au Canada et ASPCA (American Society for the Prevention of Cruelty to Animals) aux États-Unis, des cliniques vétérinaires spécialisées, des salons de toilettage, des concours comme le Westminster Kennel Club Show de New York qui continue à inclure de nouvelles races de chien, des revues de spécialité- comme «Animal Fair», des organismes de protection comme PETA.

Ma présentation se concentre sur une exploration de ces dynamiques de la culture de consommation nord-américaine (en montrant du matériel visuel également). Je propose d'explorer particulièrement les pratiques de l'humanisation du chien et de son objectivation qui sont liés directement aux dynamiques culturelles identitaires et aux mécanismes économiques et de marketing de la Postmodernité. Dans cette nouvelle dynamique d'une vie occidentale urbaine marquée par les horaires épuisants de travail quotidien, par l'agglomération citadine, par le consumérisme et l'hyper pouvoir des médias, le chien de compagnie acquiert une nouvelle place dans la société et un nouveau rôle symbolique. Il miroite la culture, dans une structure sémantique fondamentale, et représente son pouvoir et ses failles; il miroite également les orientations politiques ou écologiques de ses compagnons humains. Le chien «objectifié» est en fait, un autre lieu des projections de l'humain et de la société.

Mots clés: Chien De Compagnie, Culture Nord-Américaine, Objectivation, Imaginaire, Dynamiques Identitaires, Consommation.

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Why domesticate wolves at the end of the Pleistocene

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The role of dogs as human partners in hunting is not in contention. For most of the Pleistocene, humans obtained meat without the aid of other animals, so why did the human-dog partnership appear towards the end of that period?

Carnivores are adapted to obtain most of their energy from protein (Macdonald *et al*. 1984). Humans, on the other hand, are limited in their consumption of protein to about a third to a half of their daily caloric intake (Speth 1989). This limitation leads to an obligatory consumption of two-thirds to a half of the daily calories from fat and carbohydrates. During harsh winters or dry periods, the supply of carbohydrates from plants is limited, so humans depended on the acquisition of animals that contain a high percentage of their calories as fat to complete their obligatory non-protein caloric requirements.

Large animals contain a higher percentage of their caloric value as fat (Pitts and Bullard 1967, Ben-Dor et *al*. 2011), and arguably more critically, lose much less fat than smaller animals during winters or dry periods (Lindstedt and Boyce 1985).

This paper is an application of The Obligated Dietary Fat Bioenergetic Model, previously applied in Ben-Dor *et al*. (2011) and Ben-Dor *et al*. (2016) to support the hypothesis that the domestication of wolves to dogs was a cultural adaptation to the decline in prey animals' size during late Pleistocene.

As the size of available prey animals declined, starting some 50 Ka, in what is known as the megafauna's extinction, humans faced increasing energetic demands in the acquisition of a higher number of smaller animals. Additionally, the higher ratio of the protein to the fat content in the smaller animals led to a surplus of protein which humans could not metabolize to energy and therefore could not consume. This surplus gave rise to a profitable joint venture between humans and dogs in hunting smaller animals. In this joint venture, dogs received protein and protection, while humans saved energy in the acquisition of a larger number of smaller animals.

The hypothesis also points to a process of domestication in which a continuous availability of surplus fresh meat protein around humans' camps attracted wolves who were less afraid of humans, creating the initial close and uncompetitive contact between humans and wolves.

Keywords: Domestication, Protein, Fat, Hunting, Megafauna, Hypothesis.

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Les sans-abris accompagnés de chiens: analyse anthropologique autour d'une marginalité urbaine méconnue

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Punks à chiens.

La vie à la rue est-elle compatible avec la possession d'un animal?

Depuis une vingtaine d'années, l'acquisition d'un chien constitue l'une des étapes préalables à l'inscription d'un individu au sein de la communauté des «Zonards» ou des «Punks à chiens». C'est en effet l'animal qui va singulariser l'individu et lui permettre de façonner son identité.

La présence du chien auprès des maîtres sans abris influe d'ailleurs directement sur leurs parcours. Auxiliaire fonctionnel ou exutoire affectif, il permet ainsi aux propriétaires de mieux survivre dans un contexte urbain difficile.

Toutefois, stigmatisés par une opinion publique souvent méfiante et mal pris en charge par les pouvoirs publics, de plus en plus de propriétaires d'animaux, en situation de précarité, se retrouvent aujourd'hui prisonniers de cette rue d'où ils ne peuvent plus sortir.

En m'appuyant sur l'analyse des parcours biographiques des propriétaires de chiens à la rue que j'ai rencontrés durant mes enquêtes anthropologiques, je tenterai de mettre en perspective l'identité réelle de ces binômes méconnus.

Mots clés: Errance, Exclusion, Chiens, Ville, Pauvreté.

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The role of the dog in the society of the Xiongnu (fine arts and written sources)

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The formation of the Xiongnu empire at the end of the III century BC became the largest event in the ethno-cultural history of the peoples of Central Asia. The preserved written sources and objects of material culture allow us to consider war and hunting as the main occupations of the nomadic elite and rank-and-file members of the Hun community. But if war was an emergency event, then hunting was an almost daily one. As reported in the Chinese chronicles, during summer, the Huns "as usual following their cattle, engage in field hunting". "In the autumn, as horses become fat, everyone gathers to go around the forest". According to written sources, the hunting activity was considered not only entertainment, but also a means of combat training of soldiers. Good hunting of animals depended on the successful, orderly and quick action of the raiders. Thus, young warriors mastered tactical techniques that could be useful in case of an attack on hostile tribes. There are repeated references in Chinese chronicles to the grandiose hunting rounds of the Xiongnu, in which tens of thousands of cavalry took part. Apparently, there were also special hunting reserves. About the Yin-Shan ridge, we read in Qianhanchu: "These mountains are prized with wood and grass, abounding with bird and beast. Shanyui (leader) Mode, having established himself in these mountains, prepared bows and arrows and from here carried out raids. It was his menagerie. It is quite natural that that dogs (*Canis familiaris*) were used in such hunts. We can get a sense of their appearance from petroglyphs and metal finds found on archaeological objects of the ornaments of nomads, mainly belts. The bronze and horny plates depicted not only individual images of animals, but whole hunting scenes (e.g. mountain goat hunts). These dogs can be identified as huskies. This is evidenced not only by the proportions, but also by the characteristic tail ";bagel;. In addition to small items found in funerary and settlement complexes, there is other archaeological evidence. For example, in three burials of ordinary Xiongnu in Ilmova Pad (Buryatia) skulls of dogs were found. Their breed turned out to be a common one among steppe dogs, with a rather short muzzle.

Since the Xiongnu were cattle breeders and constantly roamed, it was quite certain they had guard dogs. Most likely, they were large specimens, whose descendants are still preserved on the territory of Mongolia, i.e. the khonch *nokhoi* (mong.) – "dog with sheep" and bankhar. Their ancient origin is confirmed by the results of studying the remains of dogs found during excavations conducted at the Ivolginsky hillfort (Buryatia). Images of this breed of dogs can be seen only on petroglyphic monuments, as there is no archaeological evidence of representations in smaller plastic arts. Although in such definitions there is a share of conventionality, since it is possible to depict not wolves but dogs. Information on the attitude of the Xiongnu to dogs can be gleaned from the data obtained during excavations of funerary monuments. In this sense, the custom of burying a symbolic animal herd at the head of the deceased, at a special step, is very noteworthy. Most often, these are skulls of various domestic and wild animals. Therefore, it is not at all surprising that ritual burials of dogs near humans were discovered, as at the Cheryomukhova Pad (Buryatia) cemetery. And in some cases, the dog was buried entirely and covered with stone slabs. Such a rite, in which the dog was the conductor of the soul of the deceased, was recorded among the eastern neighbors of the Xiongnu - Uhuanei and Xianbi.

Keywords: Central Asia, Dog, Nomadic elite, funerary monuments, hunting.

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Neolithic dogs in the central Po Valley. Review of published data and new evidence

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The burial 5 (Tb. 5), Valdaro (Mantova).

The aim of the present work is to analyse the morphological and morphometric features of various dog remains found in the central Po Valley as far north as the Pre-Alpine valleys, including the territories of Brescia, Mantova, Parma and Reggio Emilia. The archaeological contexts are dated between the Middle Neolithic (Square Mouthed Pottery culture) and the Late Neolithic (Chassey-Lagozza culture).

The materials examined in the present work come from various contexts:

- habitations (Tosina di Monzambano, MN) - rare remains in anatomical connection and abundant disarticulated bones, sometimes with cut marks, found in midden deposits with other food remains;
- intentional burials in association with human inhumation (Mantova Valdaro);
- single burials near funerary areas (via Guidorossi, PR);
- in association with large polylobate pits (Pontetaro, PR).

Our first step is the study of published, but never anatomically analysed, dog remains, bringing together as much data as possible on osteological elements of dogs from different contexts. The second step involves comparing morphometric data to identify the extent of homogeneity or heterogeneity of dog populations. The third step, proceeding directly from the second, is to analyse the complex and composite picture of human-dog relationships – for which we currently have only spotty available data – and develop our thesis.

Finally, drawing together materials from the various contexts, we consider the impact of selective breeding on the physical characteristics of the dogs and address questions concerning the selection of particular forms of dog to work in symbiosis with humans or to form elements of ritual and burial practice.

Keywords: Neolithic, Dogs, Central Po Valley, Burials, Inhabited Areas.

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Using X-ray microtomography to discriminate between dogs' and wolves' lower carnassial tooth

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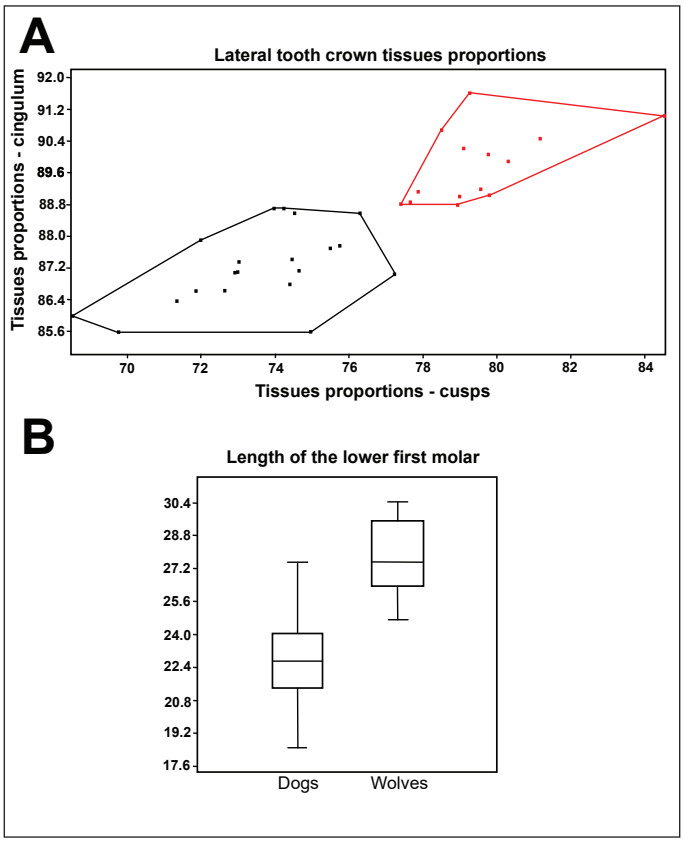

A: Lateral tooth crown tissue proportions in dogs (black) and wolves (red). B: length of analysed teeth.

As they belong to the same species, dogs and wolves exhibit similar dental features. Zooarchaeologists have already considered the possibility of differentiating between these two taxa using the size of isolated lower carnassial teeth (Pluskowsky 2006). Here we explore a new method to differentiate between the wild and the domestic forms, based on the analysis of the tooth's internal structural signature. Using methods deriving from the field of virtual dental palaeoanthropology, we focus here on the study of the tooth tissue proportions and variations in enamel thickness in various regions of the lower carnassial tooth. In this exploratory study, we analyzed the lower first molar of 18 modern dogs, three archaeological Holocene dogs from Slovenia, 11 extant Italian wolves, one extant zoo-wolf originating from a population of northern Europe and five Middle to Upper Palaeolithic wolves from Southern Italy. X-ray microtomographic analyses were performed at the Abdus Salam International Centre for Theoretical Physics (ICTP) of Trieste (Tuniz *et al*. 2013). Image segmentation was carried out using a semi-automatic threshold to separate different dental tissues. We estimated the relative amount of

lateral crown enamel and dentine, by extracting two sub-volumes, one corresponding to the area of the cingulum, and one in the protoconid-paraconid region. Tooth tissue proportions were assessed here by the ratio (normalized to 100) between dentine volume and total volume (Vcdp/Vc %). As shown in Figure 1, dogs show a higher percentage of dentine (expressed by a lower value of Vcdp/Vc %), especially in the protoconid-paraconid region, even when tooth size is comparable to that of wolves. This analysis demonstrates an ability to differentiate between domestic and wild animals, with promising perspectives for zooarcheological applications.

Keywords: X-ray microtomography, Dental Tissue Proportions, Lower Carnassial Tooth.

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The image of the dog on ancient coins in the Mediterranean area

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Segesta, Ar, Didrammo, 455-50 BC.

The dog is characterized in many ways on Greek and Roman coins. Its diatopic and diachronic study allows the reconstruction of meanings that, beyond the representation of the faunistic reality, tied up to the places, to which in some cases explicit references can be recognized, reveal symbolic values. Such values are sometimes easily recognizable because they are linked to the behavioral characteristics typical of the animal, but, more often, they are attributed to local uses and traditions that can be identified only through the reconstruction of the historical context from which they came. These considerations are the basis of the methodology which aimed at the creation of LIN, Lexicon Iconographicum Numismaticae Antiquitatis et Mediae Aetatis, carried out by the Numismatics Professors of Messina, Bologna, Genoa and Milan Universities, within which the research on the dog coin iconography of is placed.

The dog is shown through different modes of representation. As a main type, it appears to a partial figure (head, forepart) or full-length in different position (standing, looking back, sniffing, crouched, sitting, sleeping, moving, following a track, raising the front leg, jumping, running).

The dog can be part of the main type together with god: (Artemis/Diana, Asklepios, Dionysos, Dioscuri, Lares Praestiti, Nike), mythical or historical personalities (Androklos, bowman, hunter, knight, Krimisos, Kydon, Iolaos, Ulixes), other animals (deer, hart, dolphin, hare, tuna, Pegasus), or it can represent a secondary element as a symbol (head or full figure).

The first appearance of the dog as coin type occurs in 475/70 B.C. on the silver didrachms of Segesta, where the animal, in most cases, is combined with a female deity/eponymous nymph of the city on the other side of the coin. From here it spreads to many cities of Western Sicily with which Segesta entertain significant relationships, as Erice, Motya and Panormos. From the 4th century B.C., the dog is also present on some issues of smaller denominations, of Eastern Sicily, where, thanks to cults and local traditions, it is enriched by new combinations and types. The animal as coin type is also found in the Italic context - especially during the Second Punic War -as well as in Rome, Epirus, Samos, Epidaurus, Crete and Madytos. While in Sicily most of the numismatic evidences show the dog alone, as a main type, in other context it is more often represented as a companion of the gods or personifications and mythical figures.

The dog frequently also appears in decorations on different kind of archeological materials. Regarding the pottery decoration, analyzed on a sample of 300 vases collected in the Corpus Vasorum Antiquorum, the dog is present in many scenes according to the following categories: running dog and hare hunting; wild boar hunting; cervids hunting; dog with warrior, knight, quadriga; courtship and gymn scenes; other scenes. Although hard to be directly compared with the coin iconography, carrying an official message and influenced by the small flan, the scenes in which the dog is depicted on pottery provide important information about the meaning that the animal plays in the ancient imagery, and explain the meaning of some coin types. Its presence as a companion of gods and men in different moments of human life makes it the partner par excellence, especially in changing times.

The dog also frequently recurs in decorations on different types of supports. Regarding the vascular decoration, analyzed on a sample of 300 vases collected in the volumes of the *Corpus Vasorum Antiquorum*, the dog is present in many scenes that can be summarized in the following categories: running dog and hare hunting; wild boar hunting; hunting of deer; dog with warrior, knight, quadriga; courtship and gym scenes; other scenes. Although hard to be directly compared with the monetary iconography, conveying official messages and conditioned by the small space of the coin blank, the scenes in which the dog is depicted on ceramics provide important information on the meaning that the animal plays in the ancient figurative imaginary, and clarify the attitudes and combinations with other subjects characterizing it in coin types. Its presence as a companion of gods and men in different moments of life makes it the partner par excellence, especially in liminal situations.

Keywords: Dog, Iconography, Coin.

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The dog and the Chinese script

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In China, two terms are traditionnally used to refer to the dog: quǎn and gǒu. The first term quǎn is written 犬 in modern script, but at the beginning of the 13th century BC, represented a schematic drawing of a dog. This character was soon employed as a graphic constituant in combinations with other constituants to form characters refering to different terms such as «hunt», «smell», «sacrifice», «lawsuit», or different types of animals from gǒu «dog» to «fox», and «wolf», etc.

The study of most of the characters formed with the constituant 'dog' allows us to grasp the semantic, graphic, and classificatory role attributed to the dog in ancient China as well as the motivation at the basis of the inclusion of this graphic constituant in the creation of characters (written words). In this presentation, I will examine the oldest documents written on bones, bronzes and bamboo manuscripts from the 13th century BC down to the 3rd century BC. But I shall also present the chapter dedicated to the dog in the oldest dictionary of characters written in 100 AD by Xu Shèn. As I will show, this chapter can be seen as a monograph on the dog as well as the first proto-scientific approach to the dog.

We will see what the Chinese script can tell us about the semantic and the symbolic function of this age old partner of man in the traditional Chinese society.

Keywords: Chinese Writing, Classification, Terminology.

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The relationship between humans and dogs in the Azilian layer of the Moulin rock-shelter (Troubat, Hautes-Pyrénées, France)

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Metacarpals of dog.

The Moulin rock-shelter located at Troubat, was excavated between 1986 and 2002 under the direction of Michel Barbaza. The site presents an important stratigraphic sequence attesting to the occupation of this cavity by human groups from the Middle Magdalenian to the Sauveterrian period.

The study of faunal material from layer 6, attributed to the Azilian, revealed the presence of bone remains of a small *Canis* and many digested remains of small ungulates. Our morphometric analysis demonstrates that these canid remains, which came from inside the cave, can be attributed to the dog (*Canis familiaris*) and that two individuals can be identified. Their direct radiocarbon dating confirms that they are linked to the Azilian occupation of the site. Although it is now admitted, thanks to morphometry, radiocarbon dates and chronocultural data that some human groups possessed dogs, from the Upper Magdalenian onwards, the links that united them in daily life and death are rarely accessible. Troubat offers us new insights into these matters. The presence of digested bones gives us the opportunity to discuss the diet of these Palaeolithic dogs. The distribution of the remains of the two dogs in the cave allows us to discuss the status of these domestic canids after death.

Our interdisciplinary approach, combining biometry, taphonomy, genomics and spatial data, thus opens a global discussion on the place of dogs within Tardiglacial human groups.

Keywords: Domestication, Tardiglacial, Human-Dog interaction.

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Cooperation in a hunting-like paradigm: wolves versus dogs

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The Wolf.

Cooperative hunting is a cognitively challenging activity since individuals have to coordinate movements along with a partner and at the same time react to the prey. Wolves are said to engage in cooperative hunting regularly, whereas dogs could either have kept, improved or reduced their cooperative hunting skills during the domestication process.

We compared members of two wolf packs with members of two dog groups of a similar age structure. Pairs of these four groups were tested in a hunting-like paradigm (1), in which they were presented with a reward behind a fence with two openings in it. A sliding door operated by the experimenter could block one opening but not both simultaneously. Subjects needed to coordinate their actions, so that each was in front of a different opening, if one of them was to cross through and get food. Most pairs could solve the problem, with remarkable differences in their performance, motivation and food sharing - both within and between sub-species.

Keywords: Domestication, Wolves, Cooperation.

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A kitchen dog was never good for the chase. Dogs in ancient Egypt and their modern descendants

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Hieroglyph.

The idea that the cat was the most typical animal in Ancient Egypt is unfounded, as dogs were documented in the Egyptian context from the earliest moments of the formation of the state, and certainly long before. Dogs were present, participating in human activities, not only as a resource, but also as companions. Cats seem to appear much later. However, it is cats that capture the imagination of modern societies as the animal species most connected to ancient Egypt. There is a simple explanation for this misconception.

Ancient Egyptians never showed affection for their animals in artistic production, however their appreciation for dogs may be evidenced in several other ways. Dogs assisted humans not only in life on earth, but also in the afterlife, and were praised as well as feared. These attitudes towards dogs contributed to their long ancient Egyptian history.

The modern situation of dogs in Egypt is very different. The present author, an archaeologist studying ancient and modern dogs, combining disciplines, working with Egyptian street dogs and owning two herself, has observed several tendencies, which appear to be intriguing as a social phenomenon. The local cultural background, trends from different civilization circles, and increasing awareness make the phenomenon surprisingly complex. What also contributes is conservativism, which is composed of seemingly conflicting elements referring to the history of Egyptian society. The current tendencies seem to be a transition point which however results in a very difficult situation for dogs in modern Egypt.

A comparison between their ancient past and the present may not be done directly, particularly due to the gap between these two worlds, in terms of the amount of data obtained. Nevertheless, making Egyptians aware of their own dog-heritage is a chance to improve the situation of modern representatives of the species. The process seems arduous, but is nevertheless possible, and it may be foreshadowed by some early evidence. A crucial element is also a set of features of the native dogs themselves, which may have been revealed already in antiquity, and which is attested by the direct study of local dogs, also as modern comparative material for historical research.

Keywords: Dogs, Ancient Egypt, Ancient dogs, Modern Egypt, Dogs in Egypt.

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The dog in the castle: a dog skeleton from Castle of Santa Severa (Latium, Italy)

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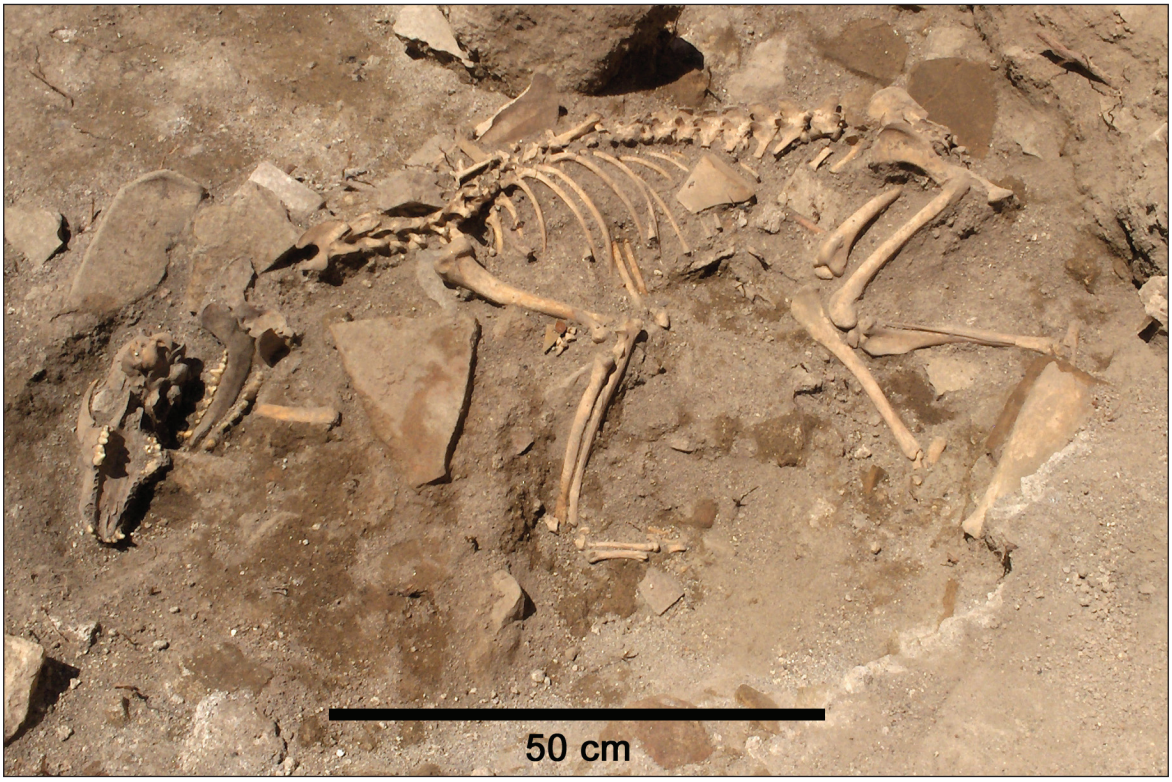

The skeleton of an adult dog.

Between 2003 and 2009, several soundings and excavations were carried out within the Castle of Santa Severa in various sectors of the citadel and the village (Enei 2013).

In particular, the remains of an early Christian church, partially hypogean, were identified in the Piazza della Rocca under the modern pavement. This church was built starting in the second half of the 5th century. During the second half of the 14th century, when the castle was owned by the Bonaventura and Venturini, noble and powerful Roman families of Trastevere, due to a series of renovations the walls of the church were partially leveled and the interior was filled with several layers of rubble, containing archaeological and osteological materials that permit a reconstruction of the history and daily life of the castle between the 13th and the mid-14th centuries (Fatucci, Cerilli 2016).

The refurbishment of the castle could be potentially related to the disastrous consequences of the plague that swept Italy and Europe between 1348 and 1350, resulting in the decline, collapses, fires and improper uses of the internal structures of the castle.

During the investigations inside the church and along its northern wall, two burials of adult men were brought to light and, along the same alignment and within the same depositional horizon, the skeleton of an adult dog (*Canis familiaris*). This canine skeleton was in anatomicaly complete and placed on its right side (fig 1). A third adult man was buried a ways inside the church, but close to the nave.

The direct radiocarbon dates on the human skeleton without legs placed near the dog skeleton, indicate that the burials occurred between 1380 and 1450, just before the leveling of the walls of the church and the completion of the refurbishment of the castle. If the upper limit of the dating range for this skeleton indicates the end of the demolition and filling of the church, these could also have been completed at the same time as the acquisition of the property by the powerful Di Vico Roman family.

The skeletal elements of the dog were analyzed from an anatomical, morphological, biometric, and taphonomic point of view.

The biomorphometric parameters indicate that it was an adult individual, with fairly pronounced height at the withers and slender proportions.

The presence of some cut marks on some metapodials, produced by a metal tool, suggests that the animal had been skinned before the burial.

The multivariate analysis on the biometric parameters of the skull and of the bones of the appendicular skeleton, compared to those of numerous modern canine breeds (cluster analysis, PCA, PCoA) allowed the development of hypotheses on the type and appearance of the dog buried in the Castle of Santa Severa.

An iconographic search for artistic representations of dogs (e.g., frescoes, paintings, miniatures) produced in the centuries around the date of the dog burial, showed that the hypothesized canine form was actually present, well known and used in various human activities.

Keywords: Dog, Burial, Castle, Santa Severa, Artistic Representations, Late Middle Ages.

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Dog images in the Altai Rock Art

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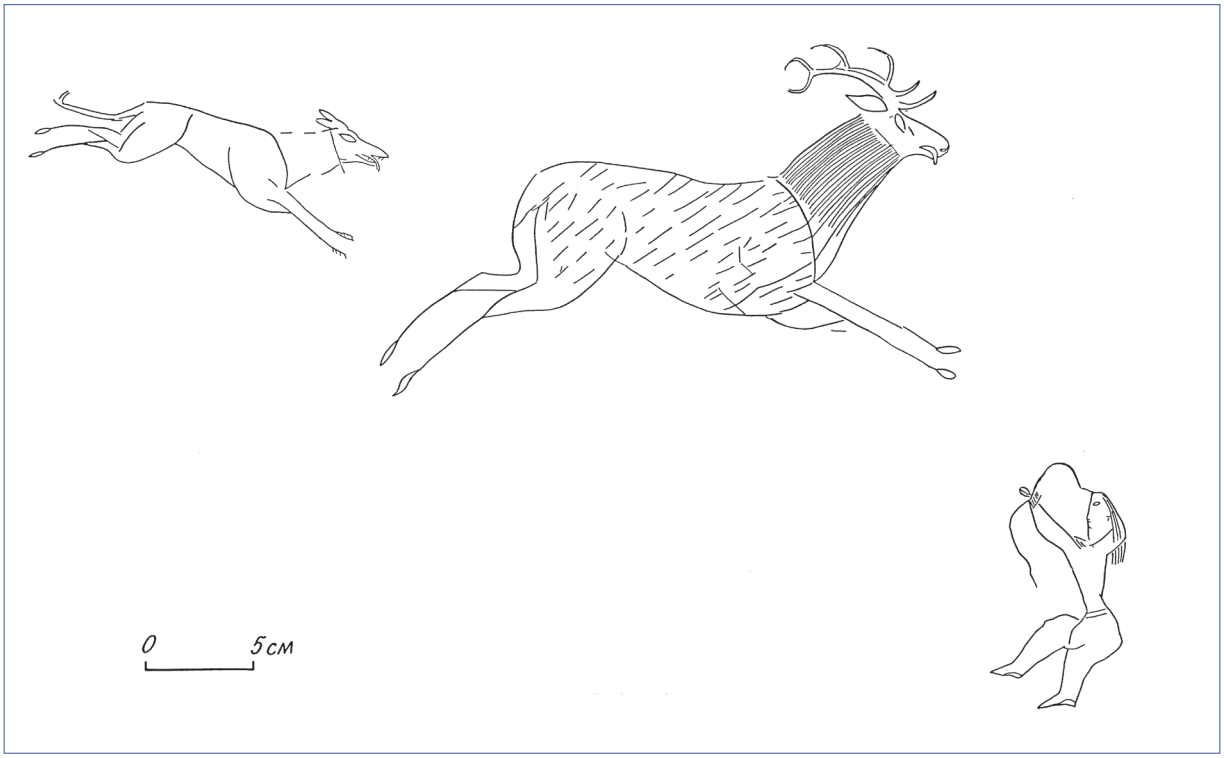

Hunting scenes with dogs and hunters with bows.

More than 200 rock art sites representing petroglyphs of various periods have been discovered in the Russian Altai. Rock images portraying dogs, wolves and imaginary creatures resembling dogs and wolves have been found in various contexts and dated to the chronological range from the Bronze Age until now. Dog images of the Bronze Age (late 3rd - 2nd millennia BC) have been noted in the compositions showing dogs chasing and attacking ungulates as well as in hunting scenes. The most typical hunted animals are red deer and ibexes. Abundant hunting scenes with dogs show hunters armed with bows, arrows and javelins pursuing wild boars.

Apparently, the Bronze Age Rock Art in the Altai illustrates real hunting practices including hunting with dogs on a leash. Despite the typical conventionality of rock art, the images of hunting dogs are distinct from those of wolves in certain features (the dog tails are upturned on the backs). The dogs are usually shown pursuing ungulates, while the predators resembling wolves as well as imaginary carnivores with their tails turned up to the backs participate in the attacks on anthropomorphic heroes. Such compositions have been reported from the Russian, Mongolian and Chinese Altai and the Ala-Too-mountain.

In Pazyryk Rock Art (middle - end of the 2st millennium BC), the dog and wolf images are hardly discernible; moreover, these images demonstrate a certain relation to the funerary ceremonies: both dogs and wolves bear torques on their necks. Semantics of the dog and wolf images are related to the Indo-European mythologems, the ideology of man's martial unions and the archaic mythological-epic concepts of wolf-dogs and heroes: unbeaten warriors, excellent hunters and tribal chiefs.

The repertory of Ancient Turkic petroglyphs dating from 600-900 AD includes compositions of high artistic value with hunting dogs, whose conformation was rendered in detail through fine engraving techniques. The petroglyphs show hounds chasing prey with a mounted hunter. Only steppe aristocrats and chiefs were able to own such pure-bred dogs and precious weapons. Compositions showing hunting scenes with dogs driving prey towards the hunter have also been recorded. Various breeds of dogs were reproduced – one for hounding prey (like a hound), and another type like a Siberian husky.

Rock art traditions have survived in the Altai until the recent past. Modern petroglyphs show dogs in hunting and cattle herding compositions. The hunters are shown with guns rather than bows and arrows. Many ancient compositions have been reconsidered; new heroes have been included into the old scenes, original images have been updated. Dog hunting is an everlasting theme in rock art.

The Kalbak-Tash rock art site in the Central Altai represents a unique Simurgh image of an imaginary creature combining the features of the dog and bird in Iranian mythology. This image was most likely executed by Sogdians and indicated the inclusion of the Altai into the communication net along the Silk Road.

The Altai rock art tradition reflects the significant role of the dog and the wolf in mythology and epics from antiquity until now.

Keywords: Rock art, Dogs, Wolves, Altai.

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Looking for domestication traces and population dynamics in Late Pleistocene and Holocene Italian canids by ancient mitochondrial DNA analysis

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Ancient canid samples from the Late Pleistocene to the Middle Ages from central-northern Italy.

Dog domestication represents one of the most fascinating and unresolved events in history, which has evolved in parallel with that of the humankind. The origin of dogs' roots goes back to the ancient coevolution and mutualism established between Paleolithic humans and wolves (Wang *et al.* 2013). Scientific literature suggests that dogs could have been domesticated prior to the diversification of present-day grey wolf populations or that the wild ancestors of dogs are now extinct (Skoglund *et al*. 2015). Furthermore, the number of domestication events, as well as their geographical location and timing, are still highly contentious (Frantz *et al. 2016*). Ancient DNA, thanks to the recent methodological improvements in this field, allows the study of the bygone genetic variability

and a wealth of fundamental events to be addressed at unprecedented resolution, such as patterns of evolution, ancient population genetics, bio-cultural processes and paleo-ecological changes. To date, only five Italian canids, dated from 15,000 to 3,000 years ago, have been genotyped and published (Verginelli *et al*. 2005).

In this study we analysed a portion of the hypervariable region 1 of the mitochondrial DNA in ancient canid samples ranging from the Late Pleistocene to the Middle Ages from central-northern Italy (Figure 1). The analysed fragment provides a great deal of information for wolf and dog phylogenetic analyses (Germonpre *et al*. 2009, Pilot *et al*. 2010) and we used it to perform a preliminary screening of the mitochondrial haplotypes in Italy. The aims of this project were: i) to obtain insights in the understanding of ancient population dynamics of wolves in this timeframe, and ii) to provide new data about the genetic variability of dogs, which is useful to deepen our knowledge on domestication process.

The data showed that the exhibited a higher genetic variability than that currently found in the Italian population. The detected wolf haplotypes appeared closely related to the two current Italian ones, even though they matched haplotypes carried by ancient wolves from northern Europe and Beringia, but also modern Eurasian wolves. Interestingly, among the canine haplotypes there were two Pleistocene samples that matched primitive and contemporary dog sequences and seemed to fall in the canine clade A.

This study allowed a preliminary overview of the genetic variability of ancient Italian canids, providing both insights in the past population dynamics of Italian wolves and also new paleogenetic data about ancient dogs from this region.

Keywords: Ancient DNA, Canids, Domestication, mtDNA, Italy.

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Dog: numismatist's best friend

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Denarius of *Caius Postumius* (74 B.C; *RRC* 394/1).

Coins are sources of primary interest to historians because they can provide complete information or, in some cases, confirm correct information derived from other sources. An experienced historian should use all sources, which the past has given us: written historical sources, inscriptions, archaeological finds, or coins. Archaeology and numismatics form some of the documentary basis of ancient history. Ancient currency is an archaeological monument. It is one of the smallest monuments of Antiquity, a monument 'in miniature', and it is also full of information and as relevant as other sources, which are necessary to interpret and reconstruct our past appropriately. Among them, several Greek and Roman coins report the image of man's best friend: the dog. From the study of Roman coins, we can get several data on different dog breeds in the Mediterranean area, what role they had in ancient society, what link there was between dogs and gods. The Romans classified the dogs in *pastoral* (shepherd's), *venaticus* (hunting dogs) and *villaticus* (guard dogs of farms, houses, fields and camps). For Romans, the dog was a real and irreplaceable 'workforce' especially in pastoralism. The *Canis pastoricus* was raised with great care. It is not a case that on the first roman and bronze coins of the third century B.C. there was the representation of the molossus dog. Dogs are often associated with noble families of the Roman Republic or they are represented together with specific pagan gods. In 82 B.C. *Caius Mamilius Limetanus* put on his coin the image of Odysseus, just returned home, whit the faithful Argo. The coin magistrate choose this image because *Mamilia* family came from *Tusculum*, who was considered an Odysseus' descendant. In the artistic representations, as well as on coins from the Romane age, the dog often accompanies the goddess Diana in hunting scenes. In 74 B.C., *Caius Postumius* places on the obverse the beautiful head of Diana with quiver, arrows and hair gathered while on the reverse a beautiful greyhound running (*RRC* 394/1). In 71 B.C., *Lucius Axius Naso* chooses two gods: Mars on the obverse and Diana on a two-elks-pulled chariot on the reverse, followed by two greyhounds while another one precedes her in the race (*RRC* 400/1a). In 68 B.C. *Caius Hosidius Geta* will always choose on the oberse Diana, while on the reverse one of the most successful artistic scenes and a status symbol for noble and aristocratic families: the boar hunt (*RRC* 407/1). No less important are the artistics aspect of these coins of Republican age, in which the coiners could show their extreme technical skills and exploit the beauty of these animals to obtain extraordinary rare coins.

In fact, very different are coins of Imperial age from first to third century after Christ where the Goddess Diana is always represented with only one dog. The scene results fixed and standard. In fact, the Goddess is represented standing up with the hunting attributes in the coins of Augustus, Nerva, Faustina, Caracalla and Gallienus.

With more aggressive features here is Cerberus, another famous mythological dog that has the role of protecting the door of the underworld, preventing the entrance from humans but also blocking the escape of the dead from the kingdom of Hades. In many represantations this dog is a Molosser. We have coins of Caracalla, Elagabalus, Gordianus, Probus. In the fourth century after Christ, the dog only appears in the coinage of Alexandria of Egypt, related to the last years of paganism of the empire. Indeed, we can find Serapis or the Goddess Isis sitting on the god Sothis in the shape of a dog. Then, on Roman coins the images become simple and fixed, losing the realism that in art heralds the advent of the Middle Ages.

Keywords: Rome, Coins, Empire, Diana, Hunting.

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Faithful unto death. Burial, legend and heroism of the dog from Antiquity to the contemporary Age

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"Lampo il cane viaggiatore" with Miro and Jacopo.

Among pets, the dog has always had a special relationship based on collaboration, trust, love and friendship with humans, but humans are ferocious and also exploit dogs in various ways, sometimes with cruelty (i.e. dogs sacrificed following the death of the master, abandoned, used in dogfights, dog meat festivals, etc.). The privileged relationship between human beings and dogs is archaeologically attested in the Paleolithic and Mesolithic and from different Natufian burials in the Near East. Yet even in these cases, man was cruel, as the dogs were likely killed. In Italy dog burials are documented in the Neolithic: in Valdaro (Mantua) a dog was found in the burial called "the hunter", together with a set of arrowheads and blades, in Ripoli (Macerata) in a woman's burial site. During the Calcolithic in central and southern Italy canine burials occur more frequently, such as at Mirabella Eclano (Avellino), Tursi (Matera), Gaudo (Salerno), Casale del Dolce (Frosinone), Ponte S. Pietro (Viterbo), and Fontenoce (Ancona). In the Bronze, Iron and Etruscan-Roman Ages, the findings of dogs are numerous and popular in Italy: cemeteries entirely devoted to dogs, such as that found along Via Nomentana in Rome, or cemeteries consisting of dog burials mixed with human tombs, such as the case of the necropolis in via Radicofani at Fidene (Castagna *et. al.* 2014; De Grossi Mazzorin, Minniti 2000, 2006; De Grossi Mazzorin, Tagliacozzo 2000; Fiore, Tagliacozzo 2000). The dog is a guardian, a companion in life, close to the owner during transitions and in moments of passage from life to death. The dog assumes particular significance in contexts where it is

associated with newborns or aborted foetuses (*Peltuinum* - Aquila and Lugnano in Teverina) where this animal probably had magical or therapeutic value (Fiore, Salvadei 2012, Migliorati *et al.* 2018, Sperduti *et al.* 2018). Its sacrifice in other archaeological contexts (Kolonos Agoraios of Athens, Eretria and Messenè) was considered part of a purification ritual for the premature death of infants. This work aims to assess all findings of dogs associated with human burials, through a detailed collection of data on dog remains, their position, completeness of the skeleton, description of the individual anatomical elements, number of individuals, age, sex, burning and butchery marks. We will try to highlight particularities and differences among the different contexts and periods. Dog burials continue through until the contemporary Age, contributing to wintness, along with the remains and sources in literature, frescoes and paintings, films and comics, the extent to which the link between this animal and humans is indissoluble. Our work ends with the most famous contemporary cases of legendary dog loyalty, like those of Achiko, Pal'ma, Bobby and Lampo, just to name a few.

Keywords: Italy, Life/Death, Burial, Sacrifice, Legendary dog.

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L'iconographie du chien dans l'Antiquité chinoise: approche anthropozoologique

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Chien ratier, motif sur pierre gravée (Sichuan, Han de l'Est).

En Chine, l'iconographie canine occupe une place importante dans l'art funéraire de l'époque Han (206 av. notre ère - 220), avec plusieurs centaines d'artefacts ou d'images. Sur le plan morphologique, on relève une grande variété de profils de chiens: lévrier, molosse, chien-loup, chien courant, etc. Concernant la fonction de ces chiens, l'iconographie les montre dans plusieurs situations: boucherie, garde, chasse, auquel on peut ajouter une dimension sociale dans différents domaines, comme les loisirs, le sacrifice et la vie à la cour impériale. Les textes de l'époque permettent une compréhension plus précise de ces scènes imagées. Dans le domaine symbolique, le chien est fortement associé à la pensée confucéenne et aux pratiques religieuses. Les tombes historiées des Han attestent encore du rôle que joue le chien dans le passage vers l'au-delà. Ce motif renvoie aussi à la légende d'un canidé solaire. En cela, se dessine un lien étroit entre homme et chien, ainsi que le statut spécifique du chien dans la société des Han.

Mot-clés: Chien, Chine des Han, Iconographie, Anthropozoologie, Fonctions et Symboles.

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Dogs and fishing boats

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**Equipaggio motopeschereccio Don Abbondio.
Foto ricordo con il cane *Burgo*
fine anni 50**

The use of dogs on fishing boats is known in many Mediterranean and non-Mediterranean regions.

The Cão de Água Português and Terranova are certainly the most famous breeds for their constant presence on fishing boats in the past. But also the Labrador Retriever, the Golden Retriever and the Spanish perro de agua, which were hunting dogs in swampy areas, could be used by fishers on fishing boats.

The presence of dogs on fishing boats was also an important feature for fishers in many Italian regions until a few years ago. This is because new technologies have replaced dogs in their tasks and new health regulations don't allow fishermen to have dogs on their boats.

According to some fishermen that we were able to interview, at one time there was not a single fishing boat which did not have a dog on board. This use was so common that it was taken for granted. For example, newspapers often wrote that a dog was found and saved several kilometers from the shore. Journalists wrote that dogs had fallen out of a fishing boat.

Usually, no special Italian dog breeds were used, different types of dogs and many half breeds are documented. An exception is the 'lagotto Romagnolo', which was a water dog and which was preferred by fishermen on the Adriatic coast. Lagotto romagnolo is currently well known for being an exceptional truffle dog.

The main task of dogs on fishing boats was to guard against thieves when the boat was in ports. But a more complex use is also documented: dogs could also could point out shoals of fish, as they could help to remove the hawsers and, very importantly, they could retrieve a man who had fallen into the sea.

Testimonies of dogs on fishing boats document a very close relationship between the dogs and the fishermen, often one of mutual respect and other times one of great suffering for the dog.

This relationship can now be investigated only by interviews with fishermen and through rare written sources. Rare because, although dogs were a constant feature on fishing boats, their presence and their use has been completely ignored by studies on Italian fishing and fishermen.

Keywords: Tradition, Fishing boats, Tasks, Italy.

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Reflections of the Whole: Dogs in Remote Northern Indigenous Communities in North America from the 19th Century to the present

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For thousands of years, dogs played a crucial role in remote indigenous communities in northern Canada, providing protection and means of transportation, as well as assistance with hunting. However, over the past 100 years, the role and function of dogs in these communities changed radically as a result of the convergence of a number of factors.

More than a hundred years of government policies of "cultural genocide", including the creation of Canada's residential school system for Aboriginal children, in existence from 1879 to 1996, had a profound impact on indigenous communities. In particular, the residential school system, with its stated aim to "kill the Indian in the child", sought to eradicate indigenous language, traditions and culture, and led to the generational loss of traditional skills and indigenous identity. The historical and intergenerational trauma suffered by 150,000 of the First Nations children who attended residential schools contributed to profound collective psychological and emotional injury to Canada's indigenous peoples, leaving them at increased risk of developing post-traumatic stress disorder, and its common secondary issues, including social dysfunction, substance dependency/abuse, depression, and suicide. Stressful living conditions on reserves, resulting from high levels of poverty and abuse, only serve to compound these problems further.

Symptomatic of the loss of indigenous peoples' ties to their cultural traditions and their very identity was the loss of traditional relationships between indigenous communities and their dogs. In Canada's eastern Arctic region, government sanctioned slaughter of Inuit dogs occurred for a variety of reasons between 1950 and 1975, but was generally perceived by the Inuit as a means by which the government sought to "control Inuit and to bring about rapid change". The arrival of gas-powered engines as the main means of transportation in the north in the late 1960s was another, and perhaps the final, major blow to the traditional human-canine relationship in indigenous communities in the north, as it reduced the reliance of indigenous peoples on dogs as their primary means of transportation, particularly in the winter.

As a result, the plight of dogs in remote indigenous communities today is the result of the disappearance of traditional knowledge of, and approaches to, dog management, further exacerbated by a lack of access to veterinary services. From a broader One Health perspective however, in many ways that plight also reflects the profound and broad social and cultural problems created by more than a century of Canada's Aboriginal policies.

This conference presentation will not only examine the story of dogs in Canada's northern communities over the past 150 years, but will also discuss some preliminary results from pilot projects in the north to improve both human and canine health and safety. These projects seek to provide indigenous communities with access to new technologies for dog population management, but perhaps more importantly, they seek to rebuild the relationships between these communities and their dogs as a means of healing the profound collective psychological and emotional injuries of the past.

Keywords: Northern Remote Indigenous Communities, North America, PTSD, Dogs, One Health.

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The tower, the sewer and the shafts. Dog and human sepultures at *Peltuinum* (L'Aquila, Italy)

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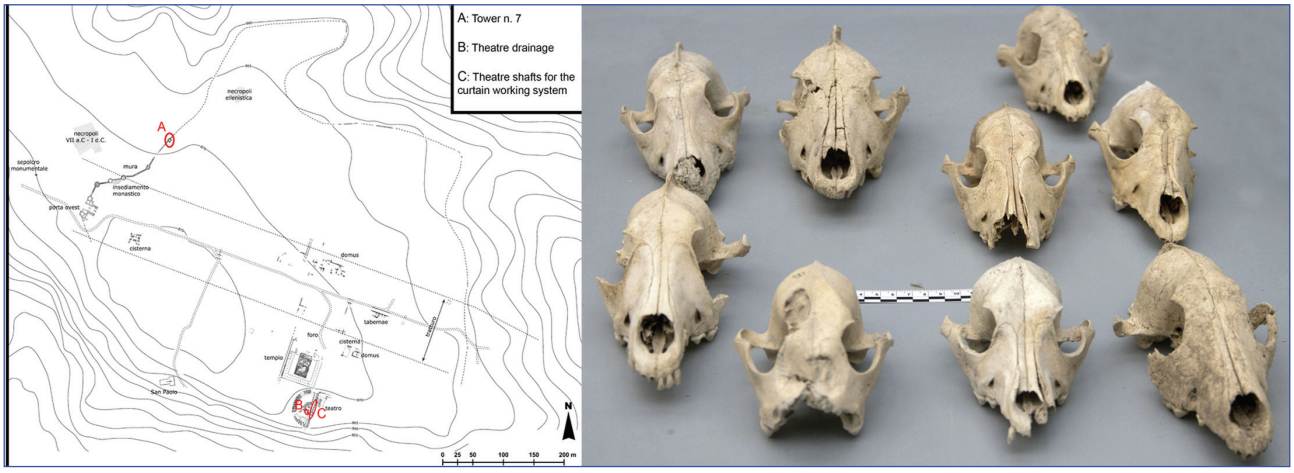

Map of the discovery contexts of dog and human remains. Dog skulls from shafts.

Peltuinum is a Roman town in the central Apennines. Since pre-Roman times, the plateau, where the city remains lay, was used as a strategic resting stop for flocks of sheep moving from central Italy (*Sabina*) to North Apulia. The city was founded in the mid-1st century B.C. precisely to manage and control revenues from transhumance, and was abandoned in the 5th century A.D., when a violent earthquake struck the city. Public buildings started being dismantled, serving as quarries of building materials for churches, forts and new small towns of the neighborhood. In the complex and diversified phenomenon of associated burials of dogs and humans across time and space, the site of *Peltuinum* provides three relevant funerary contexts. The archeological structures related to the shafts of the theater, a sewer serving the theater and a tower have yielded evidence of three distinct funerary events, only partially overlapping with similar published contexts and suggesting different interpretative scenarios.

The tower

Survey and excavations have shown the city walls were bound to the shape of the plateau and the northwestern side was moreover protected by a number of towers. The excavation of the northern section of the walls has been recently carried out bringing to light a new tower. The filling of the inside, below the plowed soil, consisted of a layer about 1.30 m thick, characterized by the presence of numerous animal and human bone remains, numerous squared blocks of medium and large dimensions and various ceramic fragments, which fall within a very broad chronological context (4th/3rd c. BC - 4th c. AD). Commingled disarticulated human material corresponds to dozens of individuals, both adults and subadults and are associated with the remains of domestic animal species, including at least 2 dogs in partial anatomical connection.

The sewer

Recent excavations have brought to light a semi-circular sewer serving the Roman theatre. A part of the structure was partially excavated during the Renaissance. The other part remained untouched once the theatre collapsed, as revealed by its fill (earth and architectural fragments, ceramics). This portion of the sewer yielded the skeletal remains of an adult male associated with the remains of an adult dog.

The shafts

The most substantial case of an associated presence of dogs and humans in *Peltuinum* comes from the shafts used to operate the stage curtain of the theater. More than 80 human fetuses and newborns associated with the remains of more than 60 dogs and dozens of other domestic animals were discovered. Contrary to the human individuals, the dogs are of all ages, and there is clear evidence of at least one intentional killing of an adult dog. A complete set of data supports the interpretation of the occurrence of a multiple differential burial of neonates within a disused building and the ritual role of dogs (and possibly of horses).

These three contexts can be described as atypical burials in disused structures within the city which also have in common a strong funerary association between humans and dogs. Still, they differ from each other largely in relation to the modality of deposition, the age at death profile of the human individuals, the number of associated dogs, and the presence/proportion of other domestic fauna. The evidence depicts rather complex funerary in late Roman *Peltuinum*. The aim of the presentation is to describe these cases in detail and speculate on possible interpretative scenarios of funerary habits especially in relation to the symbolic, chthonic role of dogs.

Keywords: Central Italy, Theatre, Human and dog depositions, Anomalous burial contexts, Dogs sacrifice.

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Dog consumption in the Copper and Bronze Age at the El Portalón site (Atapuerca, Burgos, Spain)

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Picture. Examples of cut marks found on the dog remains from Bronze Age levels of El Portalón site.
A. Two cut marks located on dorsal view of left calcaneus. B. Four cut marks observed on ventral view of atlas.

Consumption of domestic dogs was not common during the Holocene in the Iberian Peninsula. This activity has been observed more frequently in Bronze Age levels of the Iberian sites. This work presents a detailed taxonomic, zooarchaeological and taphonomic study of bone remains of a domestic dog from the Metal Age from the El Portalón site (Atapuerca, Burgos) to gain a better understanding of the consumption of this species during the Holocene in Iberia.

The El Portalón site includes an almost complete and continuous stratigraphic sequence ranging from the Neolithic/Mesolithic to the Middle Age. The studied material was recovered from the habitational context of the final Chalcolithic level or Campaniform (Level 6), Middle (Levels 3, 4) and Early Bronze Age levels (Level 5). The Chalcolithic bone remains studied in this work come from the current excavations, whereas the Bronze Age remains were recovered in previous excavations during the seventies and eighties of the last century (Carretero e*t al.* 2008; Pérez-Romero *et al*. 2017).

The dog (*Canis familiaris*) bones were quantified using NISP (identified number of specimens), MNE (minimum number of elements) and MNI (minimum number of individuals). The age of death was established according to Hillson (2005) and Barone (1969). Stone-tool modifications were classified as: cut marks (including

incisions or slicing cut marks, scrape marks and chop marks) and percussion marks (percussion pits, conchoidal scars and flakes, and adhered flakes). With respect to bone fractures, the outlines (curved/oblique, longitudinal and transverse), angles (oblique, right and mixed) and edges (smooth and irregular) of the fracture planes were included. Hominin tooth marks were identified following the criteria of Saladié *et al.* (2013), based on their morphological features, location, dimensions and their relationship with other anthropic modifications. Evidence of cooking was identified on the basis of tbones with smoother, lighter and more transparent surfaces, than the unboiled bones, as defined by Botella *et al*. (2000).

The faunal sample from Chalcolithic is composed of 2,265 identifiable remains, of which 16 belong to *Canis familiaris*. The sample from the Bronze Age is composed of 1,769 identifiable remains, of which 95 belong to *Canis familiaris*, 34 of them originating from the Early Bronze Age level and 61 from the Middle Bronze Age level. Butchery marks, bone breakage, tooth marks, burning and boiling observed on most of the bone surfaces from each level indicate occasional dog consumption by humans that inhabited the Chalcolithic and Bronze Age levels of El Portalón.

Keywords: Dog Management, Taphonomic Analysis, Meseta Castellana, Metal Age.

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The role of purebred dogs within aristocratic symbols in Iron Age Italy

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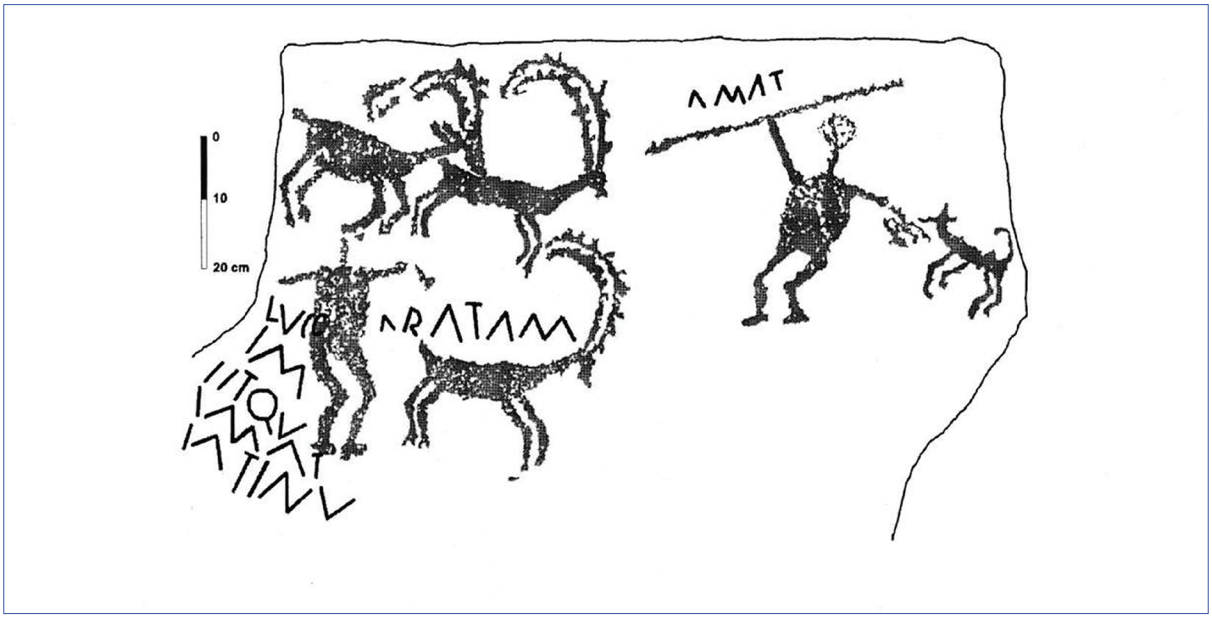

Moncenisio. Rock engraving of the VI century BC with Roman overwrites.

In Iron-Age Europe, hunting for certain animals represented a special activity for the king or chief and confirmed evidence of divine favor (rather than the king/chief's courage), indissolubly linked to the chief's charisma. This activity took on forms and ritual meanings, and determined the selection of particular animals to accompany and support the lord, who had to act alone in particular moments. Starting from the Iron Age, in Europe as well as in Mediterranean courts, dog breeds specialized for noble hunting activities can be seen. The fundamental model remains that of the Assyrian court, whose influence spreads in the VII-VI centuries to the entire Mediterranean basin. The ancient sources, from Xenophon to Arrian, Oppian, Strabone and Pliny, identified specific European breeds of quality alongside the dogs of India and Asia, such as the Gallic *vertragos* (in Celtic "with quick feet", described in particular by Arrian and Ovidio), a racing greyhound also used for hare hunting, ancestor of the medieval veltro. The vertragos is well represented, if not original, in western Cisalpine breeds, distinguished by the greyhound best represented on Greek ceramics and recognizable in the Italic tomb of Matelica. It seems probable that a meticulous selection occurred during the Iron Age, focused on producing a breed specialized for rare utilitarian use, but above all for use by nobles in hunting. An unexpected role of this selective breeding can be seen in the western Alps, in relation to the selection of hounds destined to hunt deer and ibex. In the 2nd century A.D., Arrian explicitly cites from a previous source, probably from the Hellenistic age, a breed of hunting dogs, *Egusii* or *Segusii*, originally from the Alpine area, which takes its name "from a Celtic people". The confirmation that the *reguli* of the Western Alps used to select and surround themselves with purebred dogs comes from a passage in Appiano, where he recalls the meeting in 121 BC. between Gnaeus Domitius and the pompous procession of an ambassador of the king of the Allobroges. The alpine *segusii*, the ancestors of the modern breeds of bracchi and the Italian hound, are dogs particularly suited to chasing fast and robust prey, such as deer, biting them from the back and landing them. Thus, they become valuable to the hunter as a means

to capture injured prey rather than to flush it from cover. it from cover. Their particular role would continue to be celebrated, even in typical representations, throughout the Middle Ages. It is also possible that the introduction of molossoid breeds (such as the Saint Bernard dogs) in the Alpine area derive from particular selections of "court" dogs during the second Iron Age in the western Alps. Naturally, the dog's role as companion also continues in the Iron Age. It is attested especially in the necropolises, which indicate the dog's typical symbolic function as guardian of the threshold and it's ability to track: This magical and infernal character of the dog is best evidenced in grave goods associated with children, as in the finding of an amulet in an 8th century BC child's grave from Castelletto Ticino.

Keywords: Protohistoric purebred dogs, Iron Age Alpine area, Noble hunting, Ancient dogs literary sources.

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Palaeolithic dogs: their origin and meaning

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One of three skulls of the earliest domesticated dogs found in Czech Republic. This one was buried with a mastodon bone in its mouth.

Pleistocene wolves are the single ancestors of dogs (Thalmann *et al*. 2013). We must therefore study Palaeolithic Eurasia to learn about the first dogs. Although the ethnographic record from the circumpolar North cannot be used as a direct basis for a comparison with Palaeolithic Eurasia, it can help to envisage how Upper Palaeolithic humans and animals regarded each other and interacted (Germonpré and Hämäläinen, 2007). Several hypotheses have been proposed to explain the initial steps in the domestication process of the wolf. We favour a human-initiated model in which wolf pups were adopted by Upper Palaeolithic people. Wolf denning (culling or capturing of wolf pups at dens in spring) is traditionally practiced to reduce interspecific competition for prey or to protect herds of domestic ungulates. Possibly, a comparable tradition existed in some regions of Eurasia during the Upper Palaeolithic. Captive wolf pups could then have been raised at Upper Palaeolithic camps for several motives and likely some pups, the most docile and least fearful ones, could have survived until adulthood and reproduced, permitting a new selection on every next generation, ultimately leading to Palaeolithic dogs. One motivation for the keeping of captive wolves could be related to the animistic cosmology of some Upper Palaeolithic societies. In that sense, the captive canids could have been considered as invited guests that were ceremonially killed upon adulthood. Another motive may lie in the guaranteed access to wolf skins to tailor cold-adapted clothing. Further hypotheses, which, however, would not leave traces in the archaeological record, could be the use of young wolves at the camp sites as pets and sentinels. Also, it is conceivable that wolf keeping may

have enhanced status. All these incentives were probably intertwined. We propose that the initial beginning of the wolf domestication process was linked with the cultural traditions of some Upper Palaeolithic societies (Germonpré *et al*. 2018). Here we detail the close relationships that existed between prehistoric humans and the first domestic canids. It can be expected that the presence of Palaeolithic dogs at camp sites and gathering localities conveyed some selective advantage to the people. These palaeodogs could have been very useful as guards, serving to warn of the approach of predators or unfamiliar humans through vocalizations; this would have provided protection to the inhabitants of the camps and to gatherers away from the settlements, likely women and children. Palaeolithic dogs could potentially have been suitable for the logistical and residential mobility of their people, helping with the transportation of firewood, lithics, gear, body parts of prey, etc. Furthermore, the anthropogenic manipulations of several Palaeolithic dog skulls, such as the perforation of the brain case or the insertion of objects in the mouth cavity, testify of the special social standing these canids held within some Upper Palaeolithic societies (Sablin and Khlopachev 2002, Germonpré *et al*. 2012). Finally, some Palaeolithic dogs, but not all, could have been the direct ancestors of recent dogs.

Keywords: Upper Palaeolithic, Dog, Wolf, Domestication.

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"Implore me not, dog". The figure of the dog in ancient Greek world

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Terracotta rhyton in the shape of a dog's head.

In the world of ancient Greece, the dog has a polysemic meaning, as well reflected in the analysis of poetic and ethological ancient sources (above all, Aristotle and Aelianus). An emblem of absolute fidelity to its owner, as it appears to be in the famous Homeric episode of Argos (Odyssey, XVII, 290-327), the dog represents a fundamental iconographical marker for aristocratic self-representation, particularly in the Archaic age. This could be the case for the Greek artistic repertories related to hunting activities and/or to the context of symposium. But the very link between the dog and the idea of fidelity, whilst it accentuates the prophylactic value of the figure of the dog, which becomes central in many funerary iconographies or in the images against the evil-eye, can be interpreted as a negative meaning. We can find a good exemplification of this concept in the sentence scornfully directed by Achilles to the dying Hektor (Iliad, XXII, 345-348): "implore me not, dog, by knees or parents. Would that in any wise wrath and fury might bid me carve thy flesh and myself eat it raw, because of what thou hast wrought, as surely as there lives no man that shall ward off the dogs from thy head". In Achilles' words we can interpret a first exegetical level, in which the epithet 'dog' is used to underline the servility of the loser of the battle, who exactly like a dog is submissive to its owner. But this sentence contains additional context and levels of meaning, with its further depiction of dogs as man-eating animals that tear apart unburied corpses. Here we see the dog transformed into a symbol of impiety, a characteristic feature which in the Greek imaginary describes the Eastern world of the barbarians. So writes Eurypides in Hecuba (vv, 1076-1079): "Where now? My children deserted. Torn apart by those Bacchantes of Hell. Slaughtered, a gory meal for dogs."

The focus of this contribution will be to investigate, through an interdisciplinary approach, the functional and symbolic links that connect the figure of the dog with the world of Greek art, to finally recreate the diachronic evolution of its figure.

Keywords: Dog, Greek Art, Antiquity.

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Le sacrifice du chien dans les inscriptions oraculaires des Shang (1200-1045 avant J.-C.)

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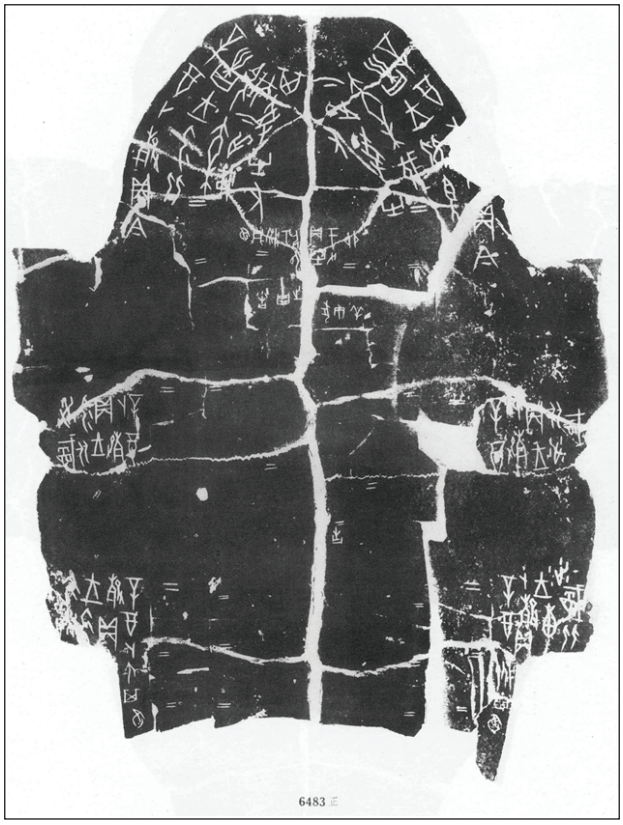

Inscription oraculair sur carapace.

Dans les premiers écrits paléographiques chinois connus, les inscriptions oraculaires sur os et carapaces, il existe 172 inscriptions concernant le sacrifice du chien. Les sacrifices de chien sont adressés à deux types de divinités, les esprits naturels d'une part et les ancêtres royaux d'autre part. Dans le premier cas, le chien est la victime la mieux adaptée à la communication avec les puissances naturelles, telles que les quatre orients, les nuages, les montagnes, etc. L'objectif de ce type de sacrifice est d'implorer la pluie et la récolte, ainsi que d'apaiser les vents violents. Très solennels, ces sacrifices sont pratiqués avec des modes d'oblation souvent sanglants. Dans le second cas, plus modeste dans son envergure, le chien est sacrifié aux ancêtres hiérarchisés, afin d'exorciser les influences maléfiques, causes de maladies graves, et de demander une bénédiction. Les fonctions sacrificielles du chien sont en rapport avec son statut atypique par rapport aux trois autres espèces animales du système purement agricole: le bœuf, le mouton et le cochon. Animal auxiliaire de chasse et de garde dans les sociétés de chasseurs-cueilleurs, il était aussi devenu un animal domestique dans la société agricole. Ainsi, il était non seulement la victime dotée du pouvoir extraordinaire à communiquer avec les puissances du monde surnaturel, mais encore l'humble victime pour honorer les ancêtres royaux du monde humain.

Mots clés: Chien, Chine Des Shang, Inscriptions Oraculaires, Sacrifices, Anthropozoologie.

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"'If You Eat Dogs, You'll Eat People' - Otherizing on a Greek Island in Economic Crisis

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This presentation deals with material and symbolic roles that dogs play during a social and economic breakdown in a specific human society. The recent economic crisis in Greece shook the foundations of contemporary Greek society (Herzfeld 2011), and one of the social expressions of this anomaly is social fear. While most anthropological literature concerning interactions among humans is devised so as to manage this chaotic reality, this presentation examines how social fear is mitigated with the assistance of unexpected nonhuman allies - dogs.

As part of ethnographic research conducted on the Greek island of Paros, from 2010 and 2013, I studied the roles played by the island's dogs in the conflict between the local Greek community and Afghani and Pakistani immigrants and asylum seekers on the island. The main hypothesis is that the island's dogs, which were initially perceived by the rural community as secondary working tools or property guardians, are now conceptualized as the main symbolic and material protectors and "gatekeepers" of the local society. Rumors spread among Greek Parians about Muslim immigrants eating the island's dogs have led to a moral panic. The immigrants were socially constructed as "the wild others", motivated by their "animal instincts" in order to survive and occupy the island and its resources. The ambition to manage the "animal threat" from immigrants has led to different practical actions, as well as to the emergence of new political agents from the Greek radical right wing. By accusing Muslim immigrants of eating dogs, a symbolic line is being drawn between 'us' and the 'savage other'. Thus, the dogs serve as mediators that are transforming the social reality from chaos to the "familiar" state of things and legitimizing political demands for deportation of the "savage other".

Dealing with the process of otherizing during a period of socio-economic turmoil, while focusing on daily connections between dogs and humans, could be insightful for multi-species ethnography (Kirksy and Helmreich

2010) and ‘anthropology beyond the human’ (Kohn 2007), as well as the reexamination of theories of otherness in times of crisis.

Keywords: Human-Canine Bond, Multi-Species Ethnography, Greece.

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The consumption and status of dogs during the Iron Age in France

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In the last thirty years, archaeozoological research on hundreds of Iron Age sites in Western Europe has highlighted the regular association of dog remains with food waste. In some habitats, data concerning their management show a systematic slaughter of individuals reaching mature weight, like for meat-producing species. A survey of cutting patterns reveals a fairly homogeneous series of procedures for slaughter and butchery between one site and another, with choice cuts such as grilled dog head. The comparison with the treatment of the domestic triad species (pork, beef and mutton) confirms that some dogs were raised to the status of "slaughter animals", and that their meat was popular.

However, some individual dogs escaped this common fate, especially in funerary settings, where some were cremated and buried with a human, while others are featured as pieces of meat as simple food offerings. Other dogs were deposed complete in silos, sanctuary enclosures or pits in farm and village environments, with deposits being either monospecific, or plurispecific with other species.

Morphological variations among dogs raise another question. From the 2nd century BC, a diversification took place in dog size and morphology with the emergence of very small- and very large-sized animals. These belonged to morphological groups distinct from that of the ubiquitous medium-sized dog common in sites of this period, raising the question of whether the former were also consumed.

Overall, the frequency of canine remains is often limited. It gradually decreases across the Iron Age, and stops at the end of the 1st century A.D. In some sites, this can be linked to the increasing contacts with the Roman world, and even a gradual acculturation to Roman life leading to the end of cynophagy.

Thus, knowing the symbolic importance of the dog in human societies, we wonder about the status and function of dog meat during the Gallic and Roman period in Gaul. Ethnographic examples and textual sources make it possible to examine different hypotheses of the role of dog meat, including therapeutic use, symbolic warrior, ostentatious practices or simple meat consumption.

Keywords: Cynophagy, Iron Age, Uses of Dog, Butchery.

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Calling on a Favor from Man's Best Friend: Public Outreach in Science

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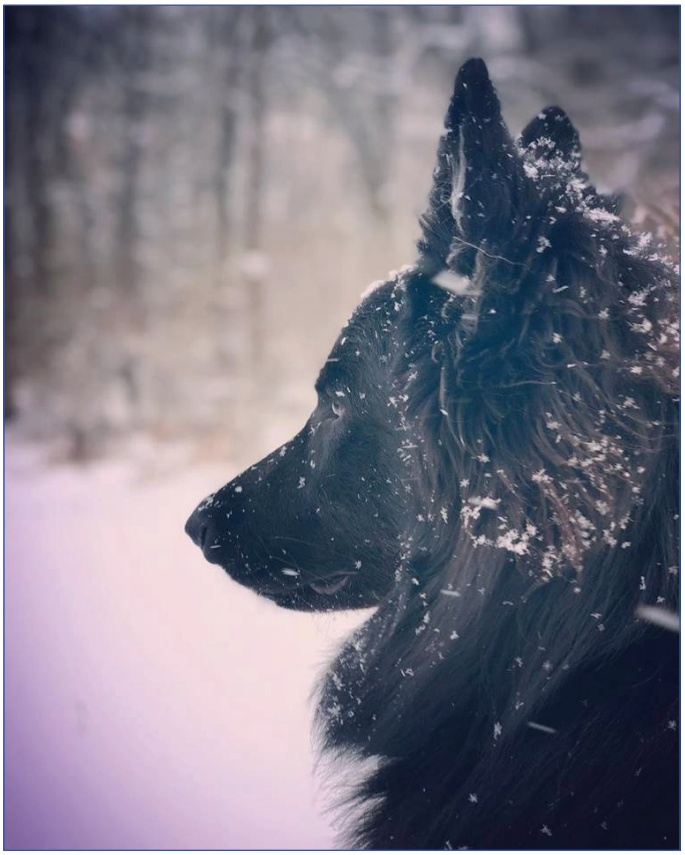

Popularization and public outreach in science is a difficult aspect facing all fields of science – especially anthropology. When the public has access to scientific information and new findings, science is often misrepresented by the mediums in which it is provided. However, in my professional career I have found that one subject of science that unites and interests all audiences is that of cynology – the study of dogs. With many recent New York Times best-selling books having to do with the science of dogs, (i.e. Inside of a Dog, Being a Dog), a recent TedEd video on the subject of dog domestication for which I am the scriptwriter, and the Studio 8 blockbuster film titled "Alpha", it is easy to see that public interest in dogs is growing. For this reason, I believe that focusing our various fields of study onto the subject of dogs, will allow for a much broader interest by the public, and possibly lead to more funding overall. In this paper, I outline ways in which various sciences can contribute to cynology while also improving public outreach and interest in their respective subjects overall. Among these avenues are: videos, books, novels, publicly accessible databases, a website or journal dedicated to cynological news, etc.

Keywords: Dogs, Cynology, Anthropology, Public Outreach, Science Outreach.

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Dogs in the Vatican Museums Collections

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It should be said straightaway that a great variety of historical sources exist on what is generally defined as the 'canine' question, and these include oral traditions, written documents, literature and figurative art. This last category has been chosen to guide my proposal on an exceptional visual route: the Vatican Museums. Among the extraordinary works of art kept in the various sections which together make up the Papal museums, we shall follow the traditional visitors' route, looking at the imprints which the dog has left on sculpture, brushstrokes, and the creations of artists who have given such vital force to the universal history of art.

Between Late Antiquity and the Middle Ages the dog became so identified as the religious icon of absolute loyalty that the Church made it a new testimonial of faith, conceding to it a place of honour in animal symbolism. Visiting the Vatican Museums we realise that in some centuries, the dog, as emblem of loyal dedication to its master, as to the Shepherd, often appears in paintings concerning the Last Judgement, the Nativity, the Adoration of the Magi, stories of the Saints, and Paradise. That 'sacred' figurative participation of the dog continues to be sustained in the art of the Renaissance, so much so as to be included in those marvellous wall-hangings which were exhibited for the first time in the Sistine Chapel in 1531 and which can be seen today in the Gallery of Tapestries. A spectacular fresco from the 1400s in the Sistine Chapel shows that the dog ended up by finding itself even under the table of the Last Supper, this time fighting with a cat over a bit of fallen food: while the dog represents devotion both to humankind and to Christianity, the cat represents a diabolical presence and the contested food the search for the Truth. But the visitor to the Sistine Chapel finds him or herself in front of an unexpected surprise, because of the many times little dogs have been playfully hidden here in the chapel of the Pontiffs. With modern times, the dog and its symbolic connotation as faithful companion assumes an increasingly more intimate and realistic religious value in art. And so, among the works of the Modern Religious Art Collection, the image of the dog is associated with a contemporary interpretation of the Church, something which restores the soul and is a repository for the most private sentiments.

Much has been claimed from the dog over the course of centuries: adored and then refused by art, a living weapon in the service of hunting, the vigilant custodian of stalls and flocks against wolves and wild beasts, guardian of the house, and a status symbol as much as a resource against human solitude. Consequently, allusions to dogs in the cultures and arts of the world are not limited to just a few. We are therefore able to learn about the affective and religious evolution of the artistic links between humans and dog: the story of dog in the art of Vatican Museums continues to confirm this.

Keywords: Dogs, Arts, Vatican Museums, Religion, Archaeology.

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Canids from the last 30.000 years of the Italian Peninsula: an overview

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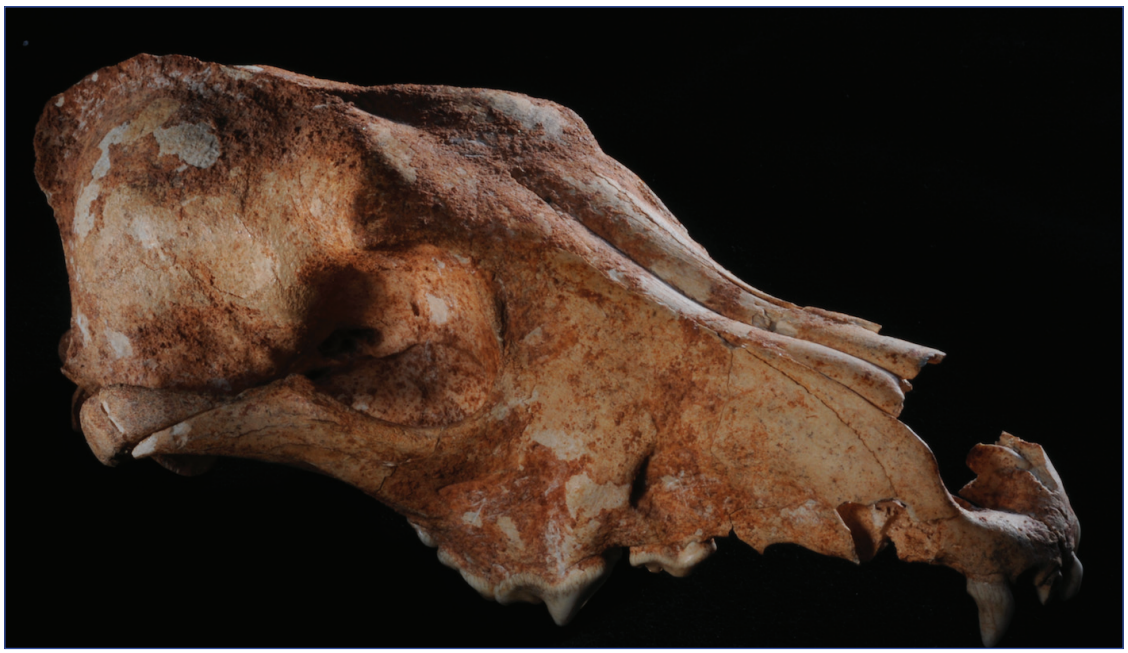

Canis lupus from the level G of the Grotta Romanelli (Apulia, Southern Italy). Specimen P3580 (Museo delle Civiltà).

The process and timing of dog domestication is an important topic in human evolution and one that has inspired strong debate among specialists. The human-wolf interaction which occurred during the Late Pleistocene represents not only the "virtual" start of the domestication process, but also an important opportunity to better define human-carnivore interaction and competition.

Recently, canid specimens from Aurignacian (Goyet, Belgium, dated 31.680+-250 BP) and Gravettian (Predmostí, Czech Republic dated 31.000 BP and Kostenki 8, Russian, dated 33.500-26.500 BP) sites, have been reported as the earliest domesticated Paleolithic dogs.

Despite the doubtful attribution, these findings suggested that dog domestication took place before the Last Glacial Maximum (LGM). Based on genetic studies, a Late Upper Paleolithic (ca. 16.000 BP) timing for dog domestication is generally accepted by the scholars and probably started in the Eastern Asian regions. However, the wide chronological and geographical variability of the extant and fossil wolves, make the morphological studies, and especially the identification of the early domesticated forms, a very tricky issue.

The peculiar geographical position of the Italian Peninsula and its richness in fossil and subfossil wolves from the Late Pleistocene to the whole Holocene, highlight the crucial role of theItalian fossil record for the study of the evolutionary history of the wolf both in Italy and Europe.

Here we provide a brief review of the Italian samples of Late Pleistocene-Holocene wolves and a preliminary analysis of their morphometric and morphological variability.

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Entre la métaphysique et l'attente: les chiens de Carlo Carrà

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Les visions spatiales de Carlo Carrà (1881-1966), si figées et intériorisées dès la moitié de la deuxième décennie du XX^{e} siècle, parviennent à concevoir l'habitat des hommes comme une cachette de l'esprit et de ses souvenirs. S'il commence très jeune son activité et s'inscrit en 1906 à l'Académie de Brera à Milan, on découvre dans sa formation des traces du romantisme lombard et des affinités avec la variante italienne du *pointillisme*, le divisionnisme. Dès 1910, il participe à l'expérience futuriste, avec d'importants tableaux et des textes théoriques. Après ces expériences, attentif aux problèmes stylistiques et formels, Carrà commence sa démarche vers la peinture métaphysique en passant par un nouvel intérêt pour le primitivisme. En 1916, il peint des œuvres néo-primitives et rencontre à Ferrare de Chirico et son frère, Alberto Savinio, dont il subit l'influence. Leur collaboration continue jusqu'en 1921, lorsqu'une ultérieure évolution du processus de simplification formelle conduit Carrà à l'idéalisation géométrique du réel selon la tendance des «Valori Plastici». Cette recherche d'une image archaïque le mène vers une personnelle reconstruction synthétique de la réalité.

En se consacrant à la simplification formelle de la perception italienne de l'espace et des lieux, la vision métaphysique se fond progressivement avec la tendance européenne du "retour à l'ordre". Les constructions et les fragments des tableaux métaphysiques se présentent à notre perception historique dans le cadre de la tradition nationale. Les «Valori Plastici» donnent ainsi la mesure d'une redécouverte qui ne peut se passer de la solidité architecturale du Trecento et du Quattrocento. Mais le désir d'aller au-delà de la réalité immédiatement perceptible peut se transformer en voyage dans l'au-delà, dans le monde des morts qui est aussi celui du vide, de l'absence de la construction: et cette négation se confond avec celle de la communication, impossible dans un royaume non édifié.

Et les messages qui dépassent la communication humaine et verbale, là où l'on peut croiser le museau d'un animal en tant que témoignage d'une attente et d'une atmosphère suspendue, se lient parfaitement à la saison métaphysique de Carrà. Les chiens qu'il peint se situent au centre du tableau et deviennent des protagonistes nous questionnant sur les choix faits ou à accomplir: l'attente et la suspension du temps sont ainsi représentées par les profils d'animaux qui sont aux aguets et semblent également remplacer le protagoniste humain de la scène, comme dans le contexte des *Filles de Loth*. En reprenant l'héritage des symboles artistiques de la mélancolie, Carrà nous montre des chiens capables de percevoir et ressentir ce que les hommes cachent ou ignorent, en communication avec l'inconnu et suspendus entre la terre et l'inconnu.

Keywords: Carrà, Métaphysique, Attente, Valori Plastici.

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"Dog" Plants in Slavonic Folk Botany

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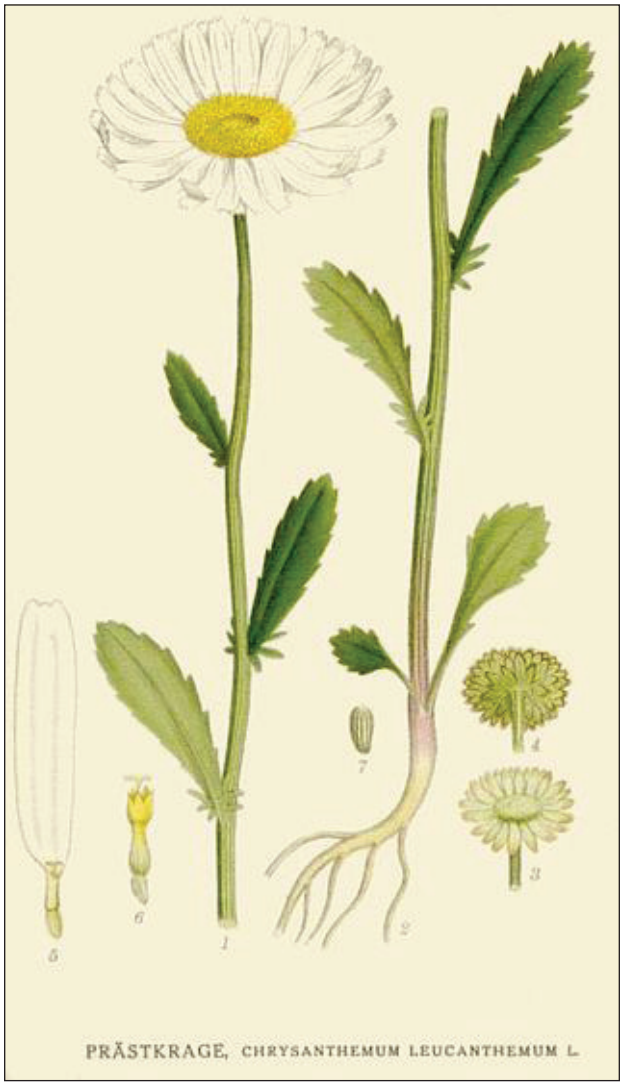

Chrysanthemum leucanthemum, the name выпусти собачек [lit. "let the dogs out"].

This paper analyses the Russian dialectal plant names formed from the words meaning 'dog'. Ethnolinguistic studies are important for understanding an ethnic group's ideas on the world, expressed in its language. The purpose of this paper is to identify the plant features which served as the basis for their naming, that is to find out the reasoning behind dog-related names in Russian dialects, as well as differences and similarities between the patterns. The total sample taken from The Russian Dialects Dictionary yielded about 170 phytonym use records (combinations of a local name and a meaning) for approximately 120 plant and fungal *taxa*. One might argue that the most important features in dog-related plant names are:

Shape. This group consists of plants having some organs resembling a dog, or rreminiscent of a dog's behavior. It can be divided into subgroups: a) plants having thorns/hooks and able to cling people's clothes and animals' fur, e.g. собачки [literally "doggies"] '*Bidens tripartita* L.'; b) plants with leaves looking like a track of a

dog's paw, e.g. собачья лапа [lit. "dog's paw"] 'trefoil'; c) plants with leaves resembling a tongue, e.g. собачий язык [lit. "dog's tongue"] '*Plantago major* L.'; d) plants with flowers resembling a muzzle with open mouth, e.g. собачки, собачья морда [lit. "doggies; dog's muzzle"] '*Antirrhinum* L.'

Toxicity. Like many other zoonyms, the lexeme 'dog' is used to mark poisonous or inedible plants, as дягиль собачий [lit. "dog's angelica"] '*Cicuta virosa* L.'. This group also includes a numerous sub-group of poisonous mushrooms: собачий груздь [lit. "dog's milk mushroom"] 'toadstool'.

Sometimes a 'dog' name underlines the low status of a plant. In such cases, the second part of the phytonym is often a name of a cultivated plant, e.g. рожа собачья [lit. "dog's rose"] '*Althaea officinalis* L.'; собачья мята [lit. "dog's mint"] '*Balota nigra* L.'

Malodorous plants may be marked by dog-related name: собачий помет [lit. "dog's dung"] '*Lepidium ruderale* L.'. Plants serving as surrogates may also receive dog-related names: собачье мыло [lit. "dog's soap"] '*Saponaria officinalis* L.'

Contradictory characteristics. For example, both plants poisonous for dogs (as собачкина трава [lit. "dog's herb"] 'herb making cattle or dogs crazy') and medicinal for dogs (as собачатник [lit. "dog's plant"] 'a plant, greedily eaten by a dog, suffering from strong thirst or больная бешенством') may bear dog's names.

Folklore motives. Some names are in fact a "compressed" variant of a folk motive. The name выпусти собачек [lit. "let the dogs out"] '*Chrysanthemum leucanthemum* L.' comes from a verse ("Priest, priest, let the dogs out, To the boyar's yard, to noble children') accompanying a children's game with a chamomile flower.

Calques. Word-by-word translations of plant names from Latin is another source of plant names. In the group of phytonyms analysed these included, for example, собачий язык [lit. "dog's tongue"] '*Cynoglossum officinale* L.' and собачий зуб [lit. "dog's tooth"] 'Erythronium dens canis L.'. Some plants have names with the analogous inner form in many European languages, including Russian, as ромашка собачья [lit. "dog's chamomile"] '*Anthemis cotula* L.' or пёсья вишня [lit. "dog's cherry"] '*Physalis alkekengi* L.'.

So, a dog-related name may be based upon some real features of the animal, which are actualized due to certain plant characteristics (smell, thorns, etc.). However, it can also be based on a generalization, as a result of which the zoonym, in fact, loses a reference to the specific animal and just highlights a negative characteristic.

Keywords: Ethnobotany, Plant Names, Ethnolinguistics, Russian Dialects, Dog.

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Images of Canis in the early Middle-aged rock and small plastic arts of Southern Siberia

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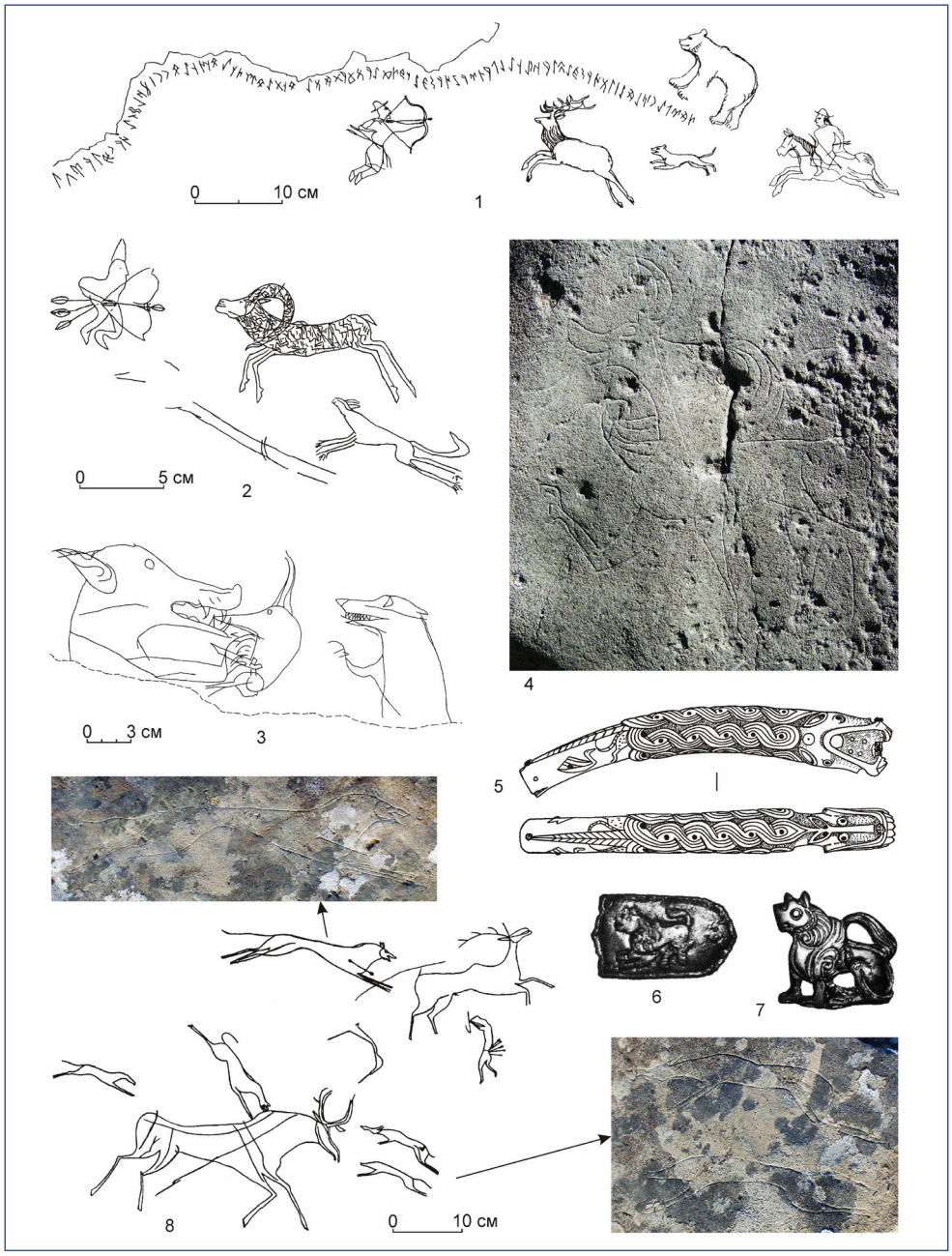

Images of Canis in the early Middle-aged rock and small plastic arts of Southern Siberia. 1, petroglyphs of Kurgak; 2, petroglyphs of Tsagaan-Salaa; 3,4, 8, petroglyphs of Kalbak-Tash; 5, bone pommel of Ak-Kyun's whip; 6, belt ornament; 7, belt ornament from Oltar'. (1, 3-5, 8 Russian Altai; 2, Mongolian Altai; 6, Minusinsk Basin; 7, Novosibirsk region).

Images of Canids on the territory of Southern Siberia are represented both in small plastic objects and in the rock art of the early Middle Ages (6th-10th centuries AD) (Fig. 1-8). Dogs and wolves were depicted in the petroglyphs especially often. Differentiation between these representations of wolves and dogs can only occur on

the basis of the context of the petroglyphic compositions. In addition, the ancient images of these animals often record a "dog-wolf" synonymy (Kubarev V.D. 1991, p. 147).

In petroglyphs dogs were depicted in scenes of the chase and hunting of various animals (deer, argali etc.) (Fig. 1, 1,2). The dogs are marked by bent and raised tails, and their images are qquite realistic. They are usually shown running rapidly, with a dog alone or accompanied by a rider, barking at the prey and driving it towards an archer. In a marked contrast to the hunting scenes of the previous Scythian epoch in which, as a rule, a dog pack was depicted, in the ancient Turkic period, scenes of individuals hunting with the participation of a single dog were the most popular.

Less common is the scene of the wolves' attack on two deers in the petroglyphs of Kalbak-Tash I in the Altai region (Fig. 1, 8). Their number – a pack of 5 animals, their characteristic physical features (a powerful chest, a large heavy head, a straight or a downturned tail) and also the fact that one of these canids (not a deer) is wounded by an archer's arrow are all features confirming that these animals are not dogs, but wolves.

The most interesting scene dates back to the ancient Turkic period (Fig. 1, 3). It depicts the culmination of a hunt, when two predators, likely wolves, encircle and attack a small herbivorous (?) animal. The technique of carved engraving has allowed the ancient painter to reproduce several details such as the grinning mouths of predators, ears pinned to the head, the nose tip raised in a growl. Curiously, the artist did not show the whole figures of the predators but depicted them as partially, using the edge of the rock surface. Probably, this scene reflects the ancient mythological opposition (predators - herbivorous animals) often represented in Scythian-Siberian art. In this scene, a wolf as a chthonic creature represents the opposite of all living things, a monster-predator (Kubarev V.D., 1991, p. 151).

A unique example of the bone-carving art of the ancient Turks is the pommel of Ak-Kyun's whip, found in one of the early medieval burials in the Altai region (Fig. 1, 5). The predator can be identified as a wolf, due to the morphology of the head. It is well known that the wolf was a totem animal among many Turkic and Mongolian peoples of Central Asia and Southern Siberia. The cult and worship of the wolf explain the presence of his images on cult related and everyday objects of this time.

Examples of representations of the hybrid Simurgh ("dog-bird" or "winged dog") in the toreutics of the early medieval nomads of Southern Siberia are images on belt plaques (Fig. 1, 6,7). This is one of the earliest representations of an intermediary between heaven and earth and a symbol of fertility. The most popular Simurgh was in the Iranian-speaking environment – Sassanian Iran and Sogd. However, the image of a winged dog was widespread in the early Middle Ages in the folklore and art of many peoples of Central Asia and Eastern Europe. The image of the Simurgh rarely occurs in the rock art of Southern Siberia as for example in the petroglyphs of Kalbak-Tash I (Fig. 1, 4).

Along with written sources and epics, images of Canis on objects of small plastic arts and especially in petroglyphs are the main sources of information on the role of these animals in the life and beliefs of the early medieval nomads of Southern Siberia. As can be seen from the material presented in this paper, realistic representations of canids in hunting scenes and attacks on wild animals prevail in the petroglyphs. By contrast, representations of wolves and the Simurgh are most widely used in objects of small plastic arts, possibly indicating a mystical and apotropaic function for these images on clothing and objects used in daily life.

Keywords: Images Of Canis, Rock Art, Small Plastic, Southern Siberia.

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Dogs in the rituals and art of Neolithic cultures in China

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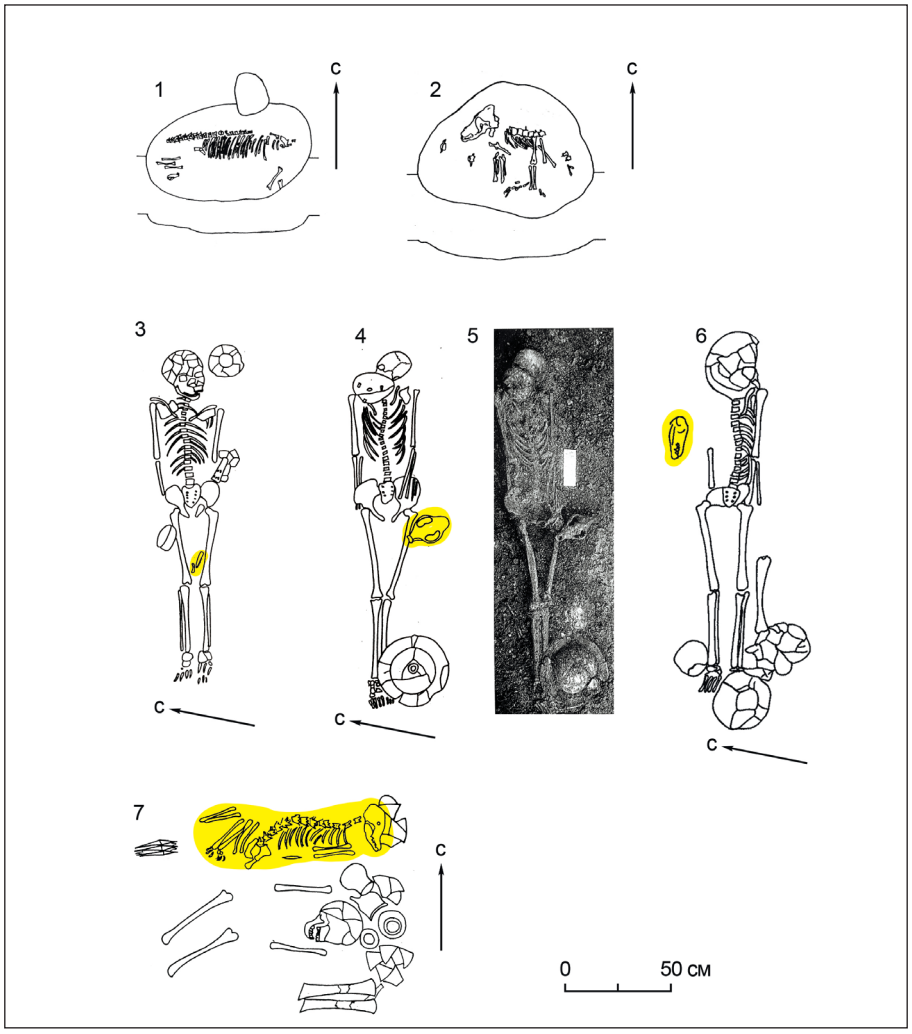

Finds of dogs remains at Longqiuzhuang site.

Dog breeding began to spread over the territory of China c. 10000 BP. A dog was an economically important animal (as a source of protein food), as evidenced by archaeological and ethnographical data. In all likelihood, dogs were also used for hunting, guarding or as a partner in children's games.

In the Middle Neolithic (c. 7000 BC) a tradition of burying dogs in human graves emerged. At least 65 graves with buried dogs (whole skeletons or parts of bodies - skulls, mandibles, limb bones) at 19 sites of different cultures are known to date. Dog burials in sacrificial pits and ash-pits have been found at more than 40 sites. Judging by the context of these finds, it can be presumed that dogs were used in funerary rites (as accompanying burials, sacrifices connected with mortuary practices) and also served as sacrifices during building processes, due to the perception of dogs as protectors against evil forces.

The earliest evidence of dog sacrifices and burials was found at the Jiahu site (Wuyang County, Henan Province) and belongs to Peiligang culture (7000-6000 BC). The next phase of this tradition is represented by burials

belonging to different cultures of the Yangshao cultural community (6000-2000 BC), such as those found at: the Xiawanggang site (Xiawanggang culture), the Jiangzhai site (Banpo culture), the Dadiwan site (culture of the 2nd period of Dadiwan), Zhanmatun site (Qinwangzhai culture). In the Neolithic era the custom of dog sacrifice ((including funerary sacrifices in human graces) widespread in Dawenkou culture (4300-2200 BC, Liulin site, Dadunzi site, Huating site and Yedian site). Burials of dogs at the Longqiuzhuang site (Longqiuzhuang culture) (Fig. 1) and the Weidun site (Majiabin culture) are nearly synchronous to those at the sites of the Dawenkou culture. The late stage of the tradition in Neolithic period is connected with Liangzhu culture (3200-2200 BC, Guangfulin site, Zhuangqiaofen site, Wujiachang cemetery etc.) and the Longshan cultural community (2900-1900 BC).

A relatively small number of images of dogs have been found in Chinese Neolithic art to date. These include a painting on the surface of a Yangshao pottery vessel, a dog-shaped pottery vessel (Dawenkou culture), a relief figure of a dog on the fragment of a pottery vessel (Hemudu culture) and numerous small-sized clay sculptures of dogs found at the sites of the Shijiahe culture. Different types of depictions (small clay figurines, painted pottery, etc.) also reflect the important role of the dog in beliefs and rituals. The painting on the late Yangshao (3500-2900 BC) vessel found at the Dadiwan site (Qing'an County, Gansu Province) depicts scenes of two pairs of dogs fighting. In the center of one of the compositions there is a fish, lthe reason for the fight. The fish image, which is relatively common on Yangshao painted pottery, may place the whole scene in the underworld. Another possible interpretation is that the dogs stand as mediators on the border of two worlds. Both explanations correspond to archaeological materials from the Yangshao cultural community. Small clay figurines of dogs found at the Dengjiawan site (Tianmen County, Hubei Province) are numerous and of varying types. Dogs are depicted in various attitudes: standing, sitting, lying down, dogs with bones in chaps, adult dogs with puppies etc. There are also some figurines of humans stroking dogs. Analogies to dog figurines from Dengjiawan can be found in contemporary folk crafts of China, proving the stability of ritual practices in traditional culture.

Keywords: China, Neolithic, Funerary Practices, Building Sacrifice, Art.

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The Role of Dogs in Native Societies in Northwest North America

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Dog in the Athapascan societies.

Dogs share a long history with North American Native societies, especially the Athapascan-speaking Dene of Northwestern North America. The people of this region dominated by forest and tundra generally hunted solitary animals such as moose, woodland caribou and smaller species such as beaver. Here, dogs were and are extremely useful: as hunters, as pack animals able to carry huge loads, and as sled animals for mobility. In the 1960s, people began using snowmobiles in place of dogs but are once again returning to dogs as they realise that modern snow vehicles cost too much money for the relatively meager returns from hunting and trapping. Given their economic importance, it is not surprising that dogs play an important role in the symbolic life of these northwest North America peoples. More important than their economic contribution, however, is their role as mediators between nature and culture and especially between male and female. I shall explore the structure of the imaginary and the role of dogs in particular among the Dene of northern British Columbia and the Northwest Territories.

Dene use animals to create fields of shared meaning. Stories describe the actions of animals. These become metaphors for human agency and for a united community, which empirically is very difficult to bring into being. Because people spent 90% of their time in small, isolated hunting groups with little interaction with others, communities were fragile. When people did come together, interactions were dominated by individualism, which is not surprising when one thinks of the many challenges people had to face when living in these difficult environments. As a result, people created an imagined mythical field in which animals have more power than humans, thereby shifting responsibility for individual success onto an invisible and untestable dimension. To counter their relative weakness, men can sometimes receive power from certain animals. While this augmented power may seem to reinforce individualism, it is forbidden to speak about individual contact with animals of power. The community arises from the whispered gossip that fills the official silence surrounding the world of animals.

Dogs, however, are the exception in the animal pantheon. Dogs whould be powerful, in this mythical logic: like humans and their wolf cousins (who do have power), they are carnivorous they live in packs (societies) and understand language. In an imaginary populated with stories that relate how the animal world shapes human society, dogs stories always portray them negatively. People stress that dogs are the living embodiment of everything that invalidates the superiority of animals: 1) unlike animals, they are dependent on humans; 2) unlike humans, they understand human language; 3) unlike animals, dogs cannot survive alone. Consequently, dogs are not considered humans, but neither are they considered animals.

A clue for the paradoxical position of dogs is their position vis-à-vis women and animals. Biological animals still contain traces of primordial power, so can only be hunted if they are willing to sacrifice themselves for humans. Their blood is the sign of the sacrifice they make (which people honour with certain rituals that are not important in this context). Women's menstrual blood is also a sign of their innate power to reproduce human society. Unlike naturally inferior men, women are considered to be embodiments of powerful, primordial animals: both shed their blood reproduce society. As such, they cannot acquire more power from contact with primordial animals for fear of increasing their individuality and of disturbing social equilibrium. Their innate power must be contained and counterbalanced by associating them to weak animals, I argue that dogs serve precisely this symbolic purpose: with no power, they are raised by women, who are generally the only people who will play with puppies. More important, dogs are pack animals, and transporting goods was always a woman's responsibility. In this sense, dogs are associated with women. In brief, 'weak' men augment their power by seeking contact with powerful animals, while 'powerful' women dilute their power by being associated with powerless dogs.

In my presentation, I will describe the ambivalent position of dogs in northwest Native North American Athapascan societies by presenting the structures of the human and animal worlds. In the last 50 years or so, massive changes Native societies caused by White intrusion has led to the loss of animal stories: if communities are weak and fragmented, it is more due to Eurocanadian political and cultural domination than intrinsic features related to a hunting economy. As weak and power-less creatures, dogs can still play a role as metaphors of the subordinate position of Natives vis-à-vis Whites, and of the ambiguities of contemporary Native societies caught between modernity and tradition.

Keywords: Dogs, Animals, Native Indian, Dene.

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Dog through time: an ethno-evolutionary perspective

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A dog sharing a human activity, Guagnin *et al.* 2017, fig. 3, modified.

The origin of the dog and the domestication of the wolf (*Canis lupus*) are still matters of harsh debate among researchers. As some have pointed out, some archaeological evidence suggests that dogs emerged about 16,000-17,000 years BP. Other archaeological and molecular studies suggest an older chronology for the origin of dogs. Indeed, these authors indicate some canid remains collected from various Eurasian sites (see Thalmann and Perri, 2018, and references therein), correspond to a time span of 17,000 to 40,000 years BP, with archaic dogs (or proto-dogs) suggesting a domestication of the wolf as early as 36,000 years BP (Germonpré *et al.* 2017). The hypothesis of a much earlier origin of dogs may be supported by genetic analyses on modern and ancient canids. The mtDNA analyses for the fossil dog skull recovered at Razboinichya cave (Altai mountains, Siberia; which returned an age of about 33,000 years BP) revealed more affinities to living and fossil dogs than to wolves.

In relation to human activities, proto-dogs could represent the first abortive attempts at a domestication process or a successful taming of the wolf.

Despite the controversies about its origin and chronology, the domestication of dogs could constitute an example of morphological changes induced by artificial selection on a natural species. Just as with goats/sheep, the domestication of dogs had an impact on human cultural behaviour. In several time periods and geographical environments (Guagnin *et al.* 2017), in urban areas, cemeteries and in ritual contexts, there is ample evidence of the presence of dogs, often related to human evidence (Lupo 2017). The evolution of the relationship between dogs and humankind has undergone several adaptations due to the different needs faced in every historical period to date.

Based on osteological data, it would seem that the tight connection between proto-dogs and humans could be initially related to an initial functional taming of some wolves. By contrast, over the following millenia, dogs become a loyal partner of humans in various aspects of human life..

Keywords: Proto-Dogs, mtDNA, Domestication Process, Dog-Man Relationship, Ethnoarchaeology.

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Recent changes in breeding methods and tools for dog breeding

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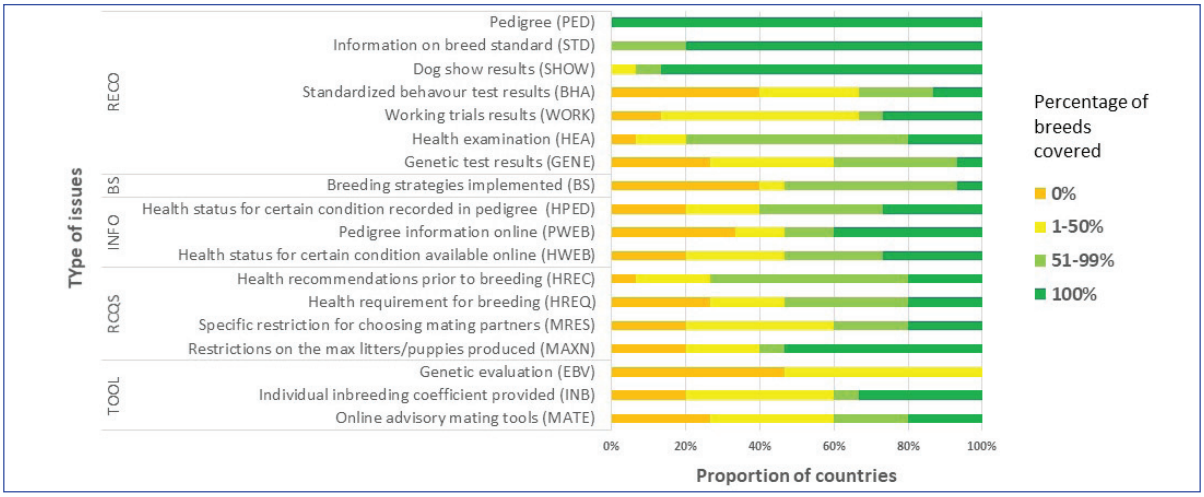

Extent of breeds coverage for different information collected and tools implemented, reported by 15 national kennel clubs (adapted from Wang *et al.* 2018).

From the beginning of their domestication to recent times, dogs have been selected to fulfil various purposes, empiric principles generally guiding the breeding choices of users. It is only with the onset of the Industrial Revolution that the concept of breed, as we know it, appeared, as well as the principles that continue to guide dog breeding todays. In the last years, however, the dog world has been shaken by a number of challenges, mostly related to animal health and welfare concerns, and iis being re-shaped by recent technological advances.

Indeed, some breeding practices, including the popular sire phenomenon, mating between close relatives, or selection toward exaggerated morphological features have led to the emergence of a large number of inherited disorders in pedigree dogs. Results from an international survey underline that health issues have become a priority for national Kennel Clubs inside and outside Europe, while at the same time, pedigree analyses show that the frequency of mating between close relatives has largely decreased over the last two decades, with these tendencies being especially notable in Nordic countries.

In parallel, the recent development of genomic and quantitative tools offers opportunities to select for morphological, health or even behavioural traits, of simple or more complex inheritance modes. An increasing number of DNA tests have been developed to detect individuals prone to express inherited disorders, or to identify dogs of interest for the genetic variability of the breed. In addition, several organizations have implemented genetic evaluation programmes to assess quantitatively the genetic level of individuals with respect to complex traits, such as hip or elbow dysplasia. Work is also ongoing with respect to the genomic evaluation of those traits.

Given the number and complexity of challenges related to health and welfare improvements, it is necessary for involved stakeholders (breeders, clubs, veterinarians etc.) to work together on implementing positive and evidence-based changes. To that end, there is a strong need for standards and policies which can advise breeders and organizations on how to assess breeding priorities and use the various tools available in an effective manner.

Keywords: Dog, Breeding Practices, Health, Genomics.

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Inuit and dogs in a multicultural and (post) colonial Arctic city: an examination of the contemporary roles of dogs in Iqaluit, Nunavut (Canada)

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Road sign a Iqaluit.

This talk seeks to examine the roles currently played by dogs in Iqaluit, a small Arctic city of close to 8,000 inhabitants situated in Nunavut, Canada. Iqaluit is home to a majority of Inuit (formerly known as Eskimos) from the Canadian Eastern Arctic who settled around a military airfield in Frobisher Bay, Baffin Island, in the 1950s-60s. Up until their relocation around the base and the creation a settlement, Inuit used working dogs extensively. These dogs, which belong to a breed called Qimmiq (*Canis familiaris borealis*) played a crucial role in their everyday life. Inuit used them to pull sleds in winter, to carry packs on their back during the summer and fall months, and to assist them during seal and bear hunts. Although Inuit never brought their dogs into their houses, even in the coldest temperature in the dead of winter, they both shared the same space in the camp and ate the same food. Dogs were, in fact, animals members of Inuit society, as they shared kinship relations with Inuit and as they formed symbolic units with their owners. The migration of Inuit to permanent settlements in the in mid-20th century was followed by a series of at least four events that contributed to the radical alteration of their relationship with their dogs: a) the killing of ill and potentially dangerous dogs by territorial and federal authorities in the 1950s and 1960s; b) the imposition of dog-control measures meant to recreate in the Arctic a microcosm of the Canadian welfare state; c) the apparition of the Bombardier snowmobile, and d) the urbanization of the community over the past 30 years. Today, very few Iqaluit Inuit keep dog teams to travel on the land or to go hunting (although several non-Inuit have dog teams of their own for tourism). Yet, most Iqaluit Inuit still have one or two "working" dogs that they bring along during hunting or leisure trips on the land. These dogs, which are mostly Arctic breeds like the Qimmiq, Huskies or Samoyeds, are not used for transportation any longer. Inuit prefer boats in summer and snowmobiles in winter. Yet, they still bring these "working" dogs with

tthem, so that they can be warned if there are bears or wolves lurking around the camps. Most Inuit keep these "working" dogs outside of their houses all year long when they are not on the land. More and more Inuit now also have pet dogs, which are often non-native breeds. These pet dogs are a new category of dogs that did not exist previously among Inuit and they play a role that differs in many ways from that of contemporary "working" dogs. Accordingly, they are treated very differently. Informed by close to twenty years of fieldwork, this talk proposes to examine the roles currently played by dogs in Iqaluit. It will focus especially on the redefinition of what a "working" dog is, as well as describing the emergence of pet dogs as a new category. In order to do so, this talk will first focus on the traditional role and place occupied by dogs in the traditional Inuit society. It will then describe the contemporary roles played by dogs. It will finish by proposing plausible explanations as to why the roles of dogs have changed over time.

Keywords: Inuit, Dogs, Iqaluit, Pets, Nunavut.

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Mongolian steppe nomads and their dogs (Bulgan, Arkhangai and Dundgovi)

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Khotoch and Khailag and their owner (Winter camp 12/2016 - Mogod, Bulgan, Foto G. Capitini).

The old dog Paatsag froze to death and the herders performed the traditional funeral rite: they cut of the dog's tail and placed it under its head, put white food into its mouth (Winter camp 156/2016 - Ochir Khuyag, Arkanghai, Foto G. Capitini).

The Italian Association for Ethnoarchaeology, with the sponsorship of the Italian Ministry of Foreign Affairs (MAECI) and the collaboration of the National University of Ulaan Baatar (prof. Dulam Sedenjav), started the project "Camps of Mongolian nomads – an Ethnoarchaeological perspective" in 2002. The project focused on the study and documentation of the nomadic camps, with particular emphasis on ethnographic and archeological questions which can contribute to a better understanding of the success of steppe nomadism.

During the research, the importance of dogs became clear. In fact, 100% of interviewed nomads said that their life would be impossible without dogs. Consequently, since 2012, dogs have become part of the research and are considered as one of the crucial points of steppe nomadism (Lugli 2014:19-21, Lugli 2016: 125-139, Fiore 2016: 136-137, Vidale 2016:132-134).

Since 2007, research has been focused on winter camps, in Bulgan, Arkanghai and Dundgovi aimags. Nomads can change summer and autumn camp or camps every year, but in winter they always use the same camp where they stay put. So, the research has been able to document in details the life of dogs in winter camps and during the harsh season.

Dogs are part of the life of the camp, and nomads' families usually have 2-3 dogs, no matter how many animals they have. The presence of dogs is always expected and assumed. Anyone approaching a nomads' camp calls out "Hold your dog!". These words are also a greeting to a family and its dogs, a sort of idiomatic phrase which confirms the constant presence of dogs in the camps. Even if it has currently lost its original meaning and it can be used also when there are no dogs, i.e. in a village.

The main task of Mongolian dogs is essentially to guard against wolves. Dogs bark to warn the herders that something dangerous or unusual is occurring. This is their main task. Mongolian dogs do not help the herders in managing the animals but can be companions for herders during the day.

The dog is considered part of the family. In fact, it has a name, it has a place close to the tent and a specific funeral rite when it dies (it is usually placed in a protected place, its tail is cut off and placed under its head, and fat, milk or butter is put into its mouth). It is important to note that as part of the funeral rite, the herder can says the same words which are used during a human funeral.

It is also notable that Mongolians and dogs share a mythological kinship. In fact, a male wolf and a female dog are considered to be the mythological ancestors of Mongolians and a wolf is also the dog's ancestor (Bamana 2014:8).

Dogs can reincarnate as humans and humans as dogs (Bianquis *et al.* 2013: 303-321). This is another clue pointing to the strong relationship which exists between Mongolian nomads and dogs and oof the crucial position of dogs in Mongolian nomadism.

The observation, analysis and documentation of the life of dogs in nomad's camps, can substantially contribute to identifying the role that dogs have played in central Asian nomadism since the dawn of time.

Keywords: Pastoralism, Relationship, Task, Italy.

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Dogs, nomads and hunters in Southern Siberia

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Nai and Marsik with herder and horses in the summer camp of Trektinskii Khrebet Mountain - Ongudai district (Altai 2014) (F. Lugli).

The Italian Association for Ethnoarchaeology with the sponsorship of the Ialian Ministry of Foreign Affairs (MAECI) began the "Siberian nomads and their dogs" project in 2013. Between 2013 and 2017, five expeditions to the Republic of Tyva (in 2013 and 2017), the Republic of Altai (in 2014 and 2016) and the Kemerovo region (in 2015) were conducted in collaboration with the Novosibirsk State Conservatory, Institute of Philology (SB RAS, Novosibirsk), Institute for Humanities and Kyzyl College of Arts (RT), Institute of Altaistics (RA).

The project aimed at observing, documenting and analyzing the relationships between humans and dogs in various pastoralist and nomadic cultures living in different ecosystems (steppe, taiga, mountains, mountain tundra, rivers and so on) in Southern Siberia.

The research was based on the interdisciplinary approach previously elaborated by F. Lugli in Mongolia (Lugli 2016) and then supplemented during the field research. It consisted of ethnoarcheological, anthropological, folkloristic and ethnomusicological methods. Biological material for the genetic research was also obtained. Since 2013, the authors have managed to observe several different ethnic groups in Southern Tuva (2013, Erzin Tuvas), Central Altai (2014, Altai-Kizhi), Southern Kemerovo (2015, Shors), Northern Altai (2016, Chalkans) and North-Eastern Tuva (2017, "Tayga" Tuva-Toju, "River" Tuva-Toju). All of them belong to the Turkic linguistic group but, from a cultural point of view, they represent different types of economy:

	nomadism	**semi-nomadism**	**transhumance**	**settled way of life**
Pastoralism	"Tayga" Tuva-Toju	Erzin Tuvas	Altai-Kizi	"River" Tuva-Toju
Hunting	"Tayga" Tuva-Toju		Chalkans, Shors, "River" Tuva-Toju	

All of these societies are characterized by the presence of dogs, which are often considered indispensable. On the other hand, each individual observed case is characterized by a different kind of relationship between humans and dogs. Analyzing our materials, we didn't take into account occasional and evidently modernized situations. On the basis of this analysis, the following conclusions were reached.

The presence of dogs has an important role in all the societies we were able to observe. We did not encounter a single case of people living without dogs. Its crucial and indispensable to the pastoralism of semi-nomadic subsistence methods, such as the Mongolian one (Erzin Tuvas). This is true also for the modernized variety of pastoralism, which appears nowadays in the Central Altai Mountains (Ongudai district and "River" Tuva-Toju). It is less important for the "Tayga" Tuva-Toju, which represent the only case of reindeer-breeders.

This importance is explained by the presence of wolves and the danger they pose to herds of domestic animals. The main task of dogs in this case is to guard and to raise the alarm. All other functions are facultative. None of the above mentioned societies use dogs for shepherding. Thus, dogs are less important to reindeer-breeders, as wolves are not regarded as being overly dangerous to reindeer.

The reindeer-breeders, also being good hunters in return use the dog as a helper in hunting. The same attitude is typical for transhumance kinds of hunting, both traditional and professional. No matter what varieties of hunting dominates in a particular society, the role of the dog as a helper for human activity is always mentioned. Individual hunters can increase the dogs 'role' as a companion in the taiga. The use of dogs depends on the season, and stops during snowy periods. Evidently, for hunters dogs have a lesser importance as guardians.

Relationships between human beings and dogs reveal themselves in many other aspects of culture: the criteria for choosing a dog, their names, feeding, care, funeral rites as well as other customs that will be discussed in the paper.

Keywords: Human-dog relationship, Southern Siberia, nomadic, Hunting societies.

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Dog. Reverse evolution from domestic to wild form

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Ulika dogs.

In the Far East, the laika (husky) dog was a companion and helper for humans, assuming draft, guard and hunting functions. This domesticated breed of dogs, which responded to the hunter's needs, was developed by selecting puppies with certain instincts and regulating dog breeding. Parameters taken into account were the animal's light weight to permit the dog good speed on the crusted snow, an interest in prey and ability to keep it in place ("tenacity"), endurance, agility. Including fish in the dog's diet ensured its removal from the category of carnivorous predators, whose food base consisted of herbivores, rodents and small predators.

During the 20th century, the existing food chains and hierarchy of animals in the Amur community were restructured because of industrial and agrarian changes. The descendants of the Amur anglers and hunters were forced to adopt the typical model of life of an agrarian society. The breeding of large ungulates - horses and cattle - became elements of this new life. This experiment assumed coexistence in a small rural area of antagonistic animals, such as laika dogs (with their wolf-like instincts) and herbivorous cows. There were cases when dogs mauled foals and calves, taking them for prey. Therefore, in the 1960s, the planned shooting of the Amur laika dogs led to a significant reduction in the breed's numbers. In addition, the relationship between humans and the natural environment was on the verge of a breakdown in the industrial era. The Amur rural districts located close to industrial centers have became isolated places where some wildlife was preserved. With the changes in the Russian economy since the beginning of the 21st century, the "offending wildlife" in this world, previously mastered by people, has been observed. An example of the new relationship between humans and animals was observed in the Nanai village of Ulika- Natsional'noe numbering 170 people. Today it is a place almost entirely isolated from other settlements. The villagers have chosen a natural form of economy because of the underdeveloped infrastructure of roads in the area. Traditional hunting is complicated because the Ministry of Natural

Resources has developed new rules, making hunting activities unprofitable. The decline of hunting has led to low demand for hunting dogs. Currently, the villagers are confronted with a veritable “army” of previously managed domesticated animals, including cows, pigs, and dogs. In the era of collective farming, the farmer inside his settlement managed the movement, pasture, feeding and reproduction of cattle, pigs and dogs. These animals now represent self-organized animal populations that coexist with people. The increasing number of animals allows them to stray into herds and packs, in which the inter-animal relationships are built on the principle of subordination. In the hierarchy of the animal community, the highest level is occupied by two related groups of dogs, each of them having their own territory. Each member of the dog packs has certain responsibilities. The lack of leashes and the possibility of moving freely within the rural area has enabled descendants of laika dogs to establish dominance over other groups of animals - cows, pigs, which also now exist out from under human influence. The subordinate position of ungulates to canids is expressed in the shift of their activities to the night hours when dogs are unlikely to disturb them. To protect their young, they usually go to abandoned, hard-to-reach areas where there is minimal interaction with domesticated predators. Such examples demonstrate a clear organization in the domesticated animal community without necessity for human intervention. Their self-organization allows to establish a hierarchy, at the top of which we find dogs.

Keywords: Amur Laika, Domesticated, Animal-Antagonists, Self-Organization, Hierarchy.

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The domestic dog in the pre-colonial period of Brazil. New record and social meaning

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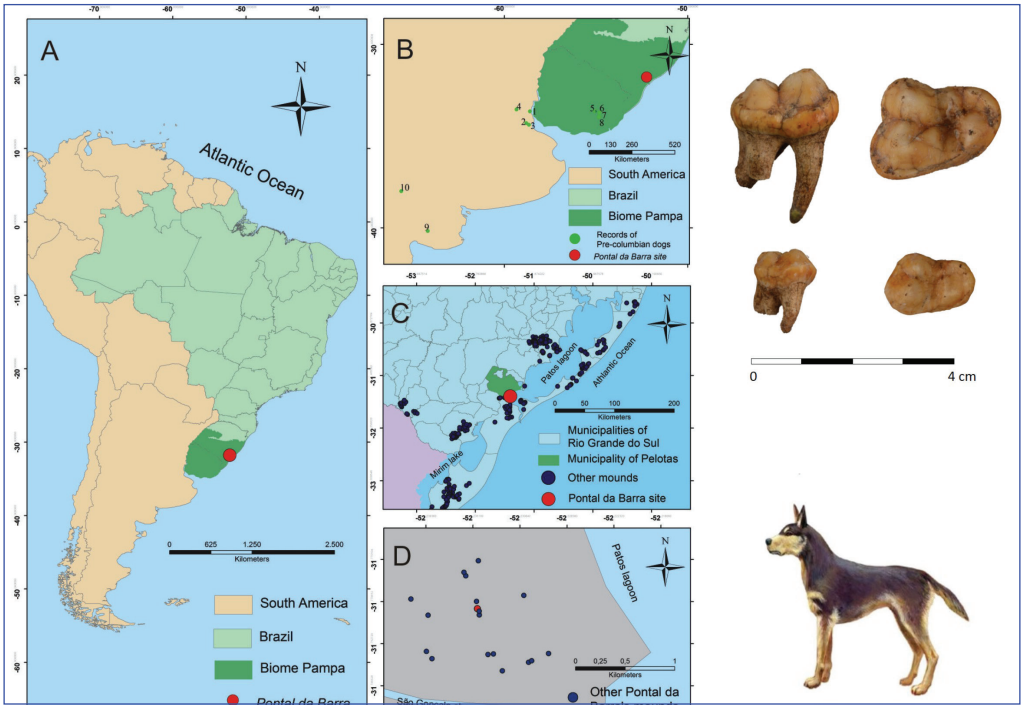

The remains of dogs in Brazilian pre-colonial contexts.

This work discusses the remains of domestic dogs (*Canis familiaris*) found in Brazilian pre-colonial archaeological contexts. Although widely and assuredly present in different archaeological contexts, chronologies and regions of the American continent (for review see Morey 2006, Sthal 2013), including the South American lowlands (Acosta and Loponte 2011), until recently, no trace of a dog had been effectively identified in Brazilian archaeological sites dating from periods prior to the arrival of European colonizers. It was believed that dogs had been incorporated by indigenous societies only following the contact with Europeans as suggested by the fifteenth-century chroniclers (for review see Velden 2009). Recently, the identification of teeth and bone fragments from a domestic dog from cerritos (earthen mounds) located in the area of Pontal da Barra (Pelotas, RS), southern Brazil (Milheira *et al*. 2016) changed this scenario, with the first evidence of domestic dogs in pre-colonial Brazil. Recently, the remaining fauna collected from the Cerrito of Pontal da Barra was the subject of zooarchaeological analysis and other potential bone remains of dogs were found. In this paper, we present the new material that has been found, and discuss the apparent lack of domestic dogs in Brazilian pre-colonial archaeological contexts as well as ssome aspects of the social meaning of dogs in the context of the mound builder societies of the Pampas.

Keywords: Domestic dogs, Earthen Mounds, Indigenous Societies, Pampa Biome.

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Dogs in Phoenician and Punic culture

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"Hercules' dog discovers purple dye" by Peter Paul Rubens.

Several studies have already been devoted to the investigation of the various aspects of the role played by dogs in the ancient world. However, most of them are especially or solely concerned with, and interested in, Greek and Roman cultures. Admittedly, the evidence available for investigation of the role played by dogs in Phoenician and Punic cultures is much more scanty than that available for the study of dogs in the classical world. There is, however, sufficient evidence to shed some light on several interesting features relevant to dogs in Phoenician and Punic religion, society and economy. Available data are provided by written sources (classical writers as well as Phoenician and Punic inscriptions), archaeozoological remains from different contexts, and archaeological evidence (dogs were represented on coins and other artefacts). As in many other respects, differences are detectable between the Phoenician cities, as well as between the Phoenician motherland and Phoenician and Punic settlements in the West. Some of these could simply be due to the present state of our knowledge. Only recently dog burial grounds been discovered in Beirut and Tel Buraq (another one had been previously identified at Khalde). A Phoenician inscription from Cyprus mentioning "dogs" can be interpreted as attesting to either a presence of real dogs in a temple, or cultic personnel, perhaps male prostitutes, labelled as "dogs" (as is supposed also for some Old Testament passages). Accepting the latter interpretation, the name could derive from dogs' faithfulness towards their masters. In Phoenician and Punic personal names, the element "dog" (klb) presumably hints at the faithfulness of the devotee to the god (i.e. the devotee is the faithful dog of the god), rather than qualifies the devotee as a "dog" in self-abasement, according to an ancient Near Eastern practice. The positive qualities of dogs were therefore most probably recognized in Phoenician and Punic culture. A positive attitude towards dogs is also suggested by the legendary tradition (known from rather late sources) attributing a

role in the discovery of purple dye to a dog. Nonetheless, dog bones which have been found in ceremonial (both cultic and funerary) contexts suggest that dogs were also killed, and/or their bodies employed, in ritual activities. There is also increasing evidence suggesting that, at least in some areas, dogs could be simply consumed as a kind of meat. Dogs clearly played a significant role in Phoenician and Punic cultures, and the development of research and further excavations will certainly widen and improve our knowledge about this topic.

Keywords: Phoenician, Punic, Dogs.

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Disease as a constraint on the spread of dogs into the tropics and beyond

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First domesticated in Eurasia (Freedman and Wayne 2017), dogs were present as far afield as Europe, China, and North America by the early Holocene. However, their spread into (and then south of) the tropics appears to have been a much slower and later process. Current evidence, for example, suggests that they were still absent from much of South America's Southern Cone (as well as most of Amazonia and the Gran Chaco) at the time of European contact, that they probably reached southern Africa no earlier than 1,500-2,000 years ago, and that they entered Australia little more than two millennia before that (Larson *et al.* 2012; Stahl 2012; Mitchell 2015; Piper 2017). Although cultural choice has sometimes been invoked to explain this contrast, especially in the Americas (e.g. Koster 2009; Stahl 2012), this paper explores the possibility that infectious disease constrained the spread of dogs into (and beyond) tropical environments. Its point of departure is that the dog's ancestor, the grey wolf (*Canis lupus*), was absent from those environments and that when dogs entered them they therefore necessarily encountered novel disease challenges for which native mammals (including endemic wild canids) acted as reservoirs. Expansion was constrained or precluded where dogs needed time to evolve resistance to those challenges or where the latter's presence negatively affected the cost/benefit ratio of keeping them. In Sub-Saharan Africa relevant diseases likely included canine trypanosomiasis, canine visceral leishmaniasis, canine babesiosis, African horse sickness, and canine monocytes ehrlichiosis, whereas in South America other forms of the first two of these conditions, along with canine distemper and canine rangeliosis, presented serious epidemiological challenges (Mitchell 2015, 2017). For now, the situation in South and Southeast Asia (and thus Sahul) is less clear,

but the paper concludes by suggesting ways in which the general hypothesis that disease constrained canine expansion south of the more temperate parts of the northern hemisphere can be investigated further.

Keywords: Expansion, Sub-Saharan Africa, South America, Disease Challenges.

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The discovery of a dog in the excavations of the Rome Underground Line C in Largo Amba Aradam

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Microexcavation of the dof unearthed on the Metro C, Q15 well in Largo Amba Aradam.

During the archaeological excavations for the construction of the Rome underground Line C, in the Q15 Well "Compensation grouting" of Largo Amba Aradam, some rooms of a building from Hadrian's time (early 2nd century AD) have been found, probably related to the ancient barracks found not far away (called "Caserma di via Ipponio"). During the excavation of Room I, below the remains of the wooden floor collapse which occurred as a result of a fire that broke out in the middle of the 3rd century B.C., the the almost complete, articulated skeleton of a dog was found.

The taphonomic analysis during the micro-excavation and the interdisciplinary consultation between archaeo-zoologists and archaeologists allowed the reconstruction of the events that occurred: the fire caused the collapse of the ceiling and the animals (two chickens were recovered besides the dog) were caught inside the room, presumably in an attempt to escape. It is likely that the animals died of asphyxiation and/or injury. The room in which the dog was found was originally a representation room, with mosaic pavement and painted walls of very good quality. On the other hand, at the moment of the fire this room had already lost its function, as suggested by the gaps in the mosaic, which would be unthinkable in a representation room. Of equal interest to the discovery of a dog in a building likely used as a barracks is the nature of the dog itself, being a young male, of medium-large size, which, basing on its body structure can be likened to the modern breeds of the Setter, Pointer, Poodle or Doberman. Thus, it is likely this was a dog used for hunting or as a guard dog. The presence of dogs in Roman barracks in Rome has not otherwise been attested.

Keywords: Dog, Ancient Roman Barrack, Rome.

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The changing nature of dogs in (Post) Medieval England: a bioarchaeological approach to investigating the human-dog relationship in historic time

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Gaston III, Count of Foix, Book ofthe Hunt,1387-88.

The development of the human-dog relationship in historic time is poorly understood; research has largely focused on prehistoric origins or individual cases of post-mortem treatment. This research aims to partly address this gap, focusing on Medieval and Post-Medieval England. While the focus of this research is rooted in historic time, contemporary documentary sources cannot be used in isolation to critically examine dog-human relationships. These sources are often skewed towards a narrow subset of dog-human interactions and do not offer a true reflection of the deeply complex relationship the two species share. Archaeological research, on the other hand, has focused largely on site- or context-specific interpretations.

The skeleton preserves a biographic record of an individual or animal's life. Biographic data, evidence of health and disease, morphological variation and *post-mortem* treatment are all ascertainable by analysing remains macroscopically. Skeletal remains also preserve a record of the individual's diet, observable via stable isotope analysis. Presently, however, extant stable isotope research featuring archaeological dog remains has largely been anthropocentric: domestic dogs have predominantly been used as a carnivore proxy (e.g. Müldner and Richards 2007), or as surrogates for past humans (e.g. Burleigh and Brothwell 1978; Guiry and Grimes 2013). The aforementioned strands of evidence are, directly or indirectly, influenced by how past humans perceived dogs. Only by adopting a dual-faceted approach, engaging with archaeological remains on macroscopic and molecular scales, can we as researchers evaluate these interrelated issues of human-dog interactions in historic time.

This talk will present preliminary results from the combined application of macroscopic and isotopic analyses of dog remains from a number of medieval sites, showcasing how an amalgamation of historical sources, biomolecular sciences and archaeology can shed light on past human-dog interactions.

Keywords: Zooarchaeology, Isotopes, Diet, Biographies.

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Burials of Dogs at the Ancient Settlements of Western Siberia

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Settlement of Ust-Voikarskoye. Photo of the dog burial N 1 (view from the South).

Classification of canine bones, which have been found in the dwelling places of the ancient populations living in Western Siberia, makes it possible to distinguish the following types:

I. Various individual postcranial parts of the skeleton, found outside of any settlement structures;

II. Complete skeletons of the animal in various archaeological contexts. This type includes the following subtypes:

II. 1. Complete skeleton of the animal in the pit in the inner area of the dwelling;

II. 2. Complete skeleton of the animal in the layer of the site, which is not associated with the inner space of the dwelling, and

II. 3. Complete skeleton of the animal in the area of the sanctuary;

III. The skull of the animal in various archaeological contexts. This type includes the following subtypes:

III. 1. Accumulation of skulls in the inner area of the dwelling;

III. 2. The skull in the layer of the site, which is not associated with any structure;

III. 3. The skull in the layer of the site above the pit;

III. 4. The skull in a separate pit, and

III. 5. The skull in the ditch of the fortified settlement.

The chronological distribution of dog bone remains which have been found at the settlement sites of Western Siberia, suggests that beliefs about the special role of the dog in the worldview system and associated ritual practices of the population inhabiting this region became widespread around the mid-1st millennium A.D. and were manifested in various forms. This certainly does not exclude the existence of such beliefs in the earlier periods, but the available data suggest that such beliefs were less common (or were not reflected to any significant extent in archaeological contexts). The dating of the majority of these finds and the reconstruction of various types of ritual practices involving dogs makes it possible to draw sufficiently accurate parallels between the observed archaeological facts and ethnographic materials obtained in Western Siberia in the 19th and 20th centuries.

We will briefly describe three burials of dogs found at the Ust-Voykarskoye fortified settlement during our research in 2012-2015. Archaeological studies of this site, which can be identified with the Voykar town well-known from the written sources, have been carried out intermittently since 2003. The site is located in the subpolar zone of Western Siberia near the confluence of the Voykar River and the Gornaya Ob River. It is a hill consisting of accumulated organic cultural deposits from wood chips and other residues of woodworking, and containing permafrost formations, which makes it possible for the finds made of organic raw materials to survive. Samples of wood taken from the structures located at the foot of the hill were dated to the 14th and 15th centuries, and the samples from the top of the hill were dated from the 17th to the late 19th century. The northern taiga zone of the Lower Ob region was and still is the habitation area of an Ob Ugrian ethnic group of the Northern Khanty people. A territorial ethnic subgroup of the Voykar Khanty people has emerged based on the Samoyedic substrate and migrations of the Ugrian population in the basin of the Voykar River.

In the course of research in 2012-2015, three complete skeletons of dogs were found in special pits in the inner area of dwellings located on the upper ground; these burials contained the accompanying inventory. In our opinion, it is quite possible to interpret the burials of dogs at the Voykar fortified settlement as remains of ritual activities undertaken following the deliberate killing of the animals. Ethnographic observations indicate the existence of the ritual of deliberate burial of dogs as an expression of special respectful attitude towards these animals on the part of the Ugrian people.

The contexts of the dog burials discovered at the Voykar fortified settlement do not allow us to interpret the burials as resulting from ritual actions associated with the house-building rituals ("construction sacrifices"). However, special beliefs of the Ob Ugrians are associated with the territory of the abandoned settlements and individual dwellings even going so far as to grant them the status of a sacred place. These beliefs entailed various ritual actions in the area of the abandoned settlements (and in the area of individual dwellings). In our opinion, this series of canine burials provides evidence that the Voykar Khanty knew the tradition of deliberate killing of dogs with their burial in the inner area of the dwelling as a part of the rituals associated with the abandonment of the dwelling and its subsequent reverence.

Keywords: Archaeology, Western Siberia, Ob Ugrians, Dog, Burial ritual.

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Dogs at the crossroads - from hunter's best friend to farmer's best fiend?

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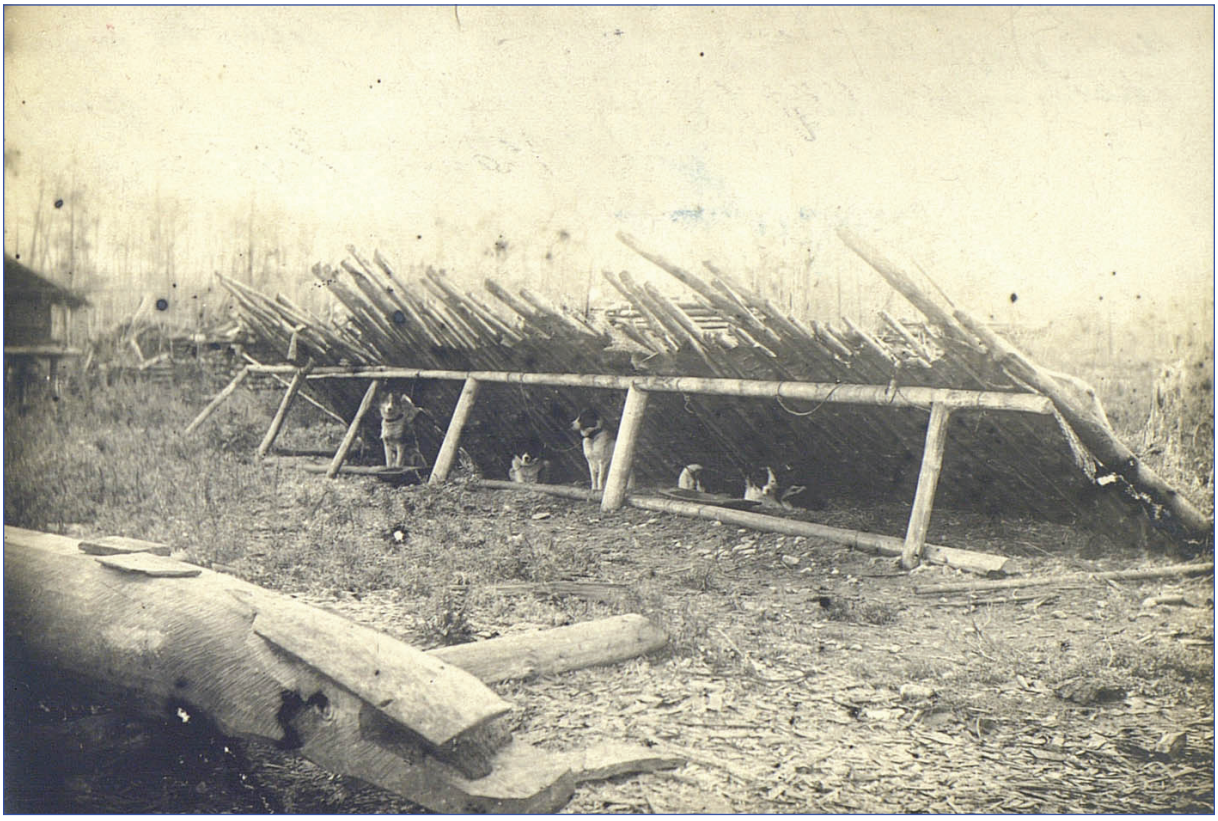

Shelters Nivkh built for their dogs.

The transition from hunters and gatherers to farming communities, from Mesolithic to Neolithic, is often considered to be associated with significant changes to human-animal rrelationships, and sometimes as a fundamental break from perceiving animals as a different kind of person to seeing them as property. On one hand, such general notions require further questioning while on the other, dogs as animals "filling virtually every role in the whole spectrum of human–animal relationships" (Russell 2012, 280) might be a rather exceptional case in discussions of how animals were placed within the Mesolithic nd Neolithic worldviews. Nevertheless, with reference to Northern Europe, it has been proposed that the social and cosmological importance of dogs linked in particular with their role as hunting aids significantly declined with the end othe Mesolithic period. In the following Neolithic period, dogs occupied a less central position among other domesticated species (Vang Petersen 2011). Referring to a wider variety of possible human - dog relationships this paper aims to explore continuity or change in how dogs were placed in the worldviews of Mesolithic and Neolithic communities across northern parts of Europe. The contribution will utilise ethnographic evidence from East Siberian indigenous groups to highlight a complex, nuanced and ambivalent nature of human relationships with dogs and increase archaeological awareness of these possibilities. The corpus of ethnographic data refers to East Siberian indigenous people (Nivkhs, Nanai, Udege, Ulchi) that have not received much attention in Anglophone hunter-gatherer literature,

and in comparison to some other Siberian groups, have been less visible in related anthropological or archaeological comparative discussions. While some contexts may reveal respectful yet diverse treatments of dogs where they could be understood as animals simply caught up in mutual "joie de vivre" interactions with humans or as working companions, others may indicate violence and unequal power in human-animal relationships. The multitude and variety of archaeological evidence for distribution, placement and treatment of dog remains throughout Mesolithic and Neolithic Europe allow such possibilities to be manifested through material culture as well.

Keywords: Mesolithic, Neolithic, Northern Europe, Ethnography, East Siberia.

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The Evolutionary History of Dogs in the Americas

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A dog buried in the Americas.

Dogs were present in the Americas before the arrival of European colonists, but the origin and fate of these precontact dogs are largely unknown. We sequenced 71 mitochondrial and 7 nuclear genomes from ancient North American and Siberian dogs from time frames spanning~ 9000 years. Our analysis indicates that American dogs were not derived from North American wolves. Instead, American dogs form a monophyletic lineage that likely originated in Siberia and dispersed into the Americas alongside people. After the arrival of Europeans, native American dogs almost completely disappeared, leaving a minimal genetic legacy in modern dog populations. The closest detectable extant lineage to precontact American dogs is the canine transmissible venereal tumor, a contagious cancer clone derived from an individual dog that lived up to 8,000 years ago.

Keywords: Dogs, Ancient DNA, Archaeology, Evolution, Domestication.

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Leathlobhair, Máire Ní, Angela R. Perri, Evan K. Irving-Pease, Kelsey E. Witt, Anna Linderholm, James Haile, Ophelie Lebrasseur *et al*. 2018, "The evolutionary history of dogs in the Americas". *Science* 361, no. 6397 (2018): 81-85.

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Dog co-burials as elite manifestation of the Late Iron Age Liv society

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Dog and human depositions.

In the Late Iron Age, the Eastern region of the Baltic Sea corresponding to Present-day Estonia and Latvia was an area inhabited by Baltic, Slavic and Finno-Ugric peoples, such as Estonians, Osilians, Voti, Vends and Livs.

Late Iron Age dog (*Canis familiaris*) bone depositions have been found in both occupational contexts and burials. Dog bones are mainly unburnt as well as their owners with whom dogs are buried together. In Liv societies dogs probably aided in hunting and were used as home guards, shepherds and consumers of surplus food as well as one of the main sacrificial animals in ritual activities. Dog bone depositions have been found in 49 graves at 14 Liv burial grounds; all of them have been found as part of high status burials - both cremations and inhumations with dog bones have typical prestigious artefacts as grave goods, originating from Western Europe, Scandinavia, Kievan Rus and Byzantium. In addition, it is important to note that among the Eastern Baltic Finns

the tradition of co-burials of dogs appears at a time when in Scandinavia it has ceased along with the spread of Christianity.

The main written source about the Baltics from the beginning of the 13th century – the Chronicle of Henry – mentions the sacrifice of dogs done by the Livs, but does not describe how they were killed. This is a stimulus to perform analysis of the cervical vertebrae of the buried dogs (in the case of a full skeleton with cervical vertebrae preserved) with the aim of identifying injuries and traumas that could have been left by the sacrificial process. It is possible as well that the placement of dogs in the graves served a special purpose. They are found at the feet of their deceased owner, lying on the side or even on the back. Identifying dogs in the grave pits filling allows to form a hypothesis that the ritual killing of a dog was one of the final parts of the funeral process, which could be an argument for the dog's symbolism as guard and companion to man afterlife. Also, dogs found in female Liv graves suggest that some women had a high social role in Liv society, similar to that found in Scandinavia during the Viking period.

The purpose of the palaeodietary analysis is to compare palaeodiets of dogs found in high social status burials with those found in occupational contexts of villages and hill-forts (likely, evidence of ritual bone depositions in the foundations of buildings).

Keywords: Finno-Ugrs, Burial traditions, Palaeodiet, Archaeozoology, Dogs.

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Roman and Greek dogs on rituals and in the world of the dead. Uses, meanings and symbolism

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Roman marble tombstone for a dog named Aminnaracus.

The field of rituals and, especially, the funerary environment, are two of the most interesting contexts in the study and evaluation of the role of the dog during the Classical period. This animal has a series of values and connotations that are always associated with the underworld. Dogs appear as partners of those living in Hades' kingdom; individuals arriving at the gates of the underworld are confronted by the frightful figure of Cerberus; and dogs participate in the sepulchral banquet of the Heroes. The unbreakable loyalty of dogs to their owners, in many cases, these animals were buried with their masters since ancient times. On other occasions, however, dogs were buried, or sculptures of them were placed, at the entrance of tombs, or nearby, serve as guardians of both worlds. The role of dogs as tomb guardians can be seen to persist even to the present day with different verified cases. Other times, after the death of these animals, dedicated epitaphs are raised in which we can find not only representations made in marble, but also inscriptions where their virtues are praised. This demonstrates the enormous affection fof dog owners for their animals, and documents a desire to preserve their bond with these life partners even in the underworld.

In ancient times, dogs often served as propitiatory offerings in domestic or military rituals, or those associated with the laying of building foundations, acquiring importance as expiatory elements. Likewise, dogs were sacrificed on certain occasions as ex-votos to certain deities such as the warrior deity of Sparta Ἐνυάλιος, or to the infernal deity Robigus during the Roman festival of Robigalia, fulfilling, in every circumstance, a particular function linked to regeneration. This communication aims at show in detail the different interactions and behaviours between humans and dogs during the Classical period, analyze the uses and meanings of this animal in the funerary and ritual context, through different preserved archaeological and literary sources, and also present the most significant data on the most recently documented cases in the Mediterranean area.

Keywords: Dogs, Funerary Rituals, Classical Period, Propitiatory Rituals, Archaeological Testimonies.

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Évidence de chien (*Canis familiaris*) chez les premiers pêcheurs du littoral pacifique dans l'extrême sud péruvien, Quebrada de los Burros

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Les fouilles de la Quebrada de los Burros (Lavallée et Julien 2012), sur la côte de Tacna (Pérou), ont découvert un camp de pêcheurs et les collecteurs de mollusques (QLB) occupaient entre 10000 et 6000 a.p., durant l'Holocène ancien et moyen. Plusieurs niveaux successifs d'occupation ont été creusés par le décapage, chacun ayant des sol d'habitat, des foyers, diverses zones d'activité et des accumulations de déchets alimentaires marins, mélangés avec des restes de la faune terrestre. L'ensemble de ces déchets montre que, dès le début de l'occupation, les occupants ont parfaitement dominé l'environnement marin mais ils ont aussi exploité les collines. Deux phases d'occupation ont été distinguées, la première au cours de l'Holocène précoce (de 10000 à 7000 a.p.), la deuxième pendant l'Holocène moyen (environ 7000 à 6000 a.p.). Les analyses réalisées suggèrent une succession pour la première phase de courtes occupations et de contacts possibles avec les hauts plateaux et, au contraire, une occupation plus intense et presque tout au long de l'année pour la deuxième phase. Les restes de faune terrestre dans la première phase qui montrent un éventail d'espèces un peu plus réduit que dans les niveaux plus récents, mais unique dans la séquence, a ont fourni des restes d'un chien (*Canis familiaris*). Nous écrivons "d'un chien" et non pas "de chien", car les 47 fragments retrouvés dans le même m2 dans le niveau N7 et représentant à peu près toutes les parties du corps ne peuvent provenir que d'un seul et même animal abandonné là, voire enterré. En Amérique du Sud, aucun chien a été sûrement identifié durant l'Holocène temprano. Les plus anciens chiens connus d'Amérique ont été trouvés en Amérique du Nord et sont datés autour de 8500 BP, et dans les deux cas enterrés. Notre chien de QLB serait donc leur contemporain, mais tellement plus au sud…

Mots clés: Amérique Du Sud, Holocène Ancien, Chien, Campement De Pêcheurs-Collecteurs, Osteometrie.

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Dogs in Austria from the Neolithic to the Iron Age

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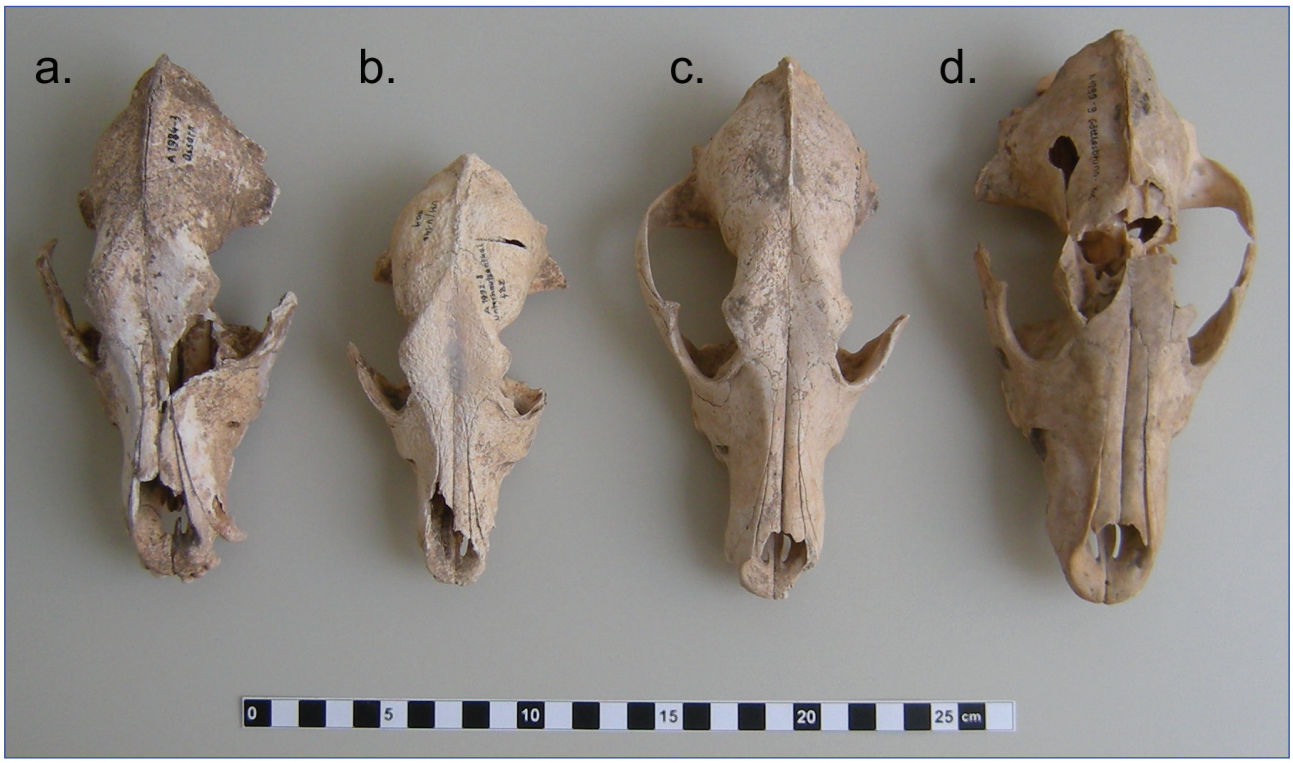

Dog skulls from: a. Ossarn (Corded Ware culture, Late Neolithic), b. Unterhautzenthal (Early Bronze Age), c. Schleinbach (Early Bronze Age), d. Göttlesbrunn (Hallstatt Culture, ca. 600 BC).

Archaeozoological assemblages illustrate the long history of the human-dog relationship within the boundaries of modern Austria (e.g. Pucher 2018). However, it remains challenging to reconstruct the role and function of dogs in society due to the low number of finds, applied methods, and research orientation. This study reviews the archaeozoological investigations of dogs from Austrian sites. Aspects that will be addressed include the quantitative representation of dogs, possible forms of exploitation, pathologies, and morphometric changes from the Neolithic to the Iron Age. This interdisciplinary research constitutes an effort to better understand the cultural significance of dogs in the area of modern Austria and to discuss future research perspectives.

Dog bones are found as early as Early Neolithic sites, but their abundance is very low (Wolff 1977, Pucher 2018). Although more finds are documented from Middle and Late Neolithic sites, dog bones are still found in relatively limited numbers (e.g. Kunst 2005) and hardly exceed 3% (Schmitzberger 2001, Pucher 2006a). Indirect evidence like gnawing marks provide additional indications concerning their presence (Schmitzberger 2001, 2009a: 50). Neolithic dogs suggest a polymorphic population with distinct size differences. They were small to middle-sized dogs, standing between 35 and 50 cm tall at the withers (Pucher 1997, 2004a, Schmitzberger 2009b). Dog bones from the pile dwelling sites of Mondsee (Mondsee culture 3800-3200 BC) are very similar to other dog remains of this period; in contrast other species like cattle and small ruminants differ significantly from contemporaneous finds, for example from the Danube region (Pucher & Engl 1997: 37-38).

During the Bronze Age, dogs are still found at low numbers usually ranging from about 0.3% (e.g. Brixlegg-Mariahilfbergl, Boschin & Riedel 2011) to 7% (e.g. Buchuberg, Pucher 1996). Although, morphologically, the Bronze Age dogs are similar to the Neolithic type of animals, dogs with height at withers around 50 cm become more often in the archaeozoological assemblages. Dog bones from sites related to mining in western Austria constitute a distinct exception, comprising considerably larger-sized animals of about 70 cm in height at the withers (Riedel 2003, Boschin & Riedel 2011, Saliari & Pucher in preparation).

In Iron Age faunal remains, dog bones are usually represented with less than 5% (Pucher 2004b, Czeika 2006, Schmitzberger 2010, Tecchiati 2012, Saliari et al. 2016). The average size of dogs increases and middle-sized individuals of about 60 cm at withers dominate (Pucher 1999), whereas small-sized dogs become rare (Czeika 2006, Schmitzberger 2010, Abd el Karem 2013).

Butchery marks on bones of young dogs indicate their contribution to the diet already since the Neolithic period and onwards and thus highlight an important aspect of their role in society (Pucher 1997). In some Bronze Age and Iron Age sites, cynophagy even seems to have been a regular practice (Pucher 2006b, in press). Occasionally, severe chop marks indicate the very intensive smashing of bones and especially of skulls; sites that exhibit such kind of marks date from the Neolithic to the Iron Age (e.g. Pucher 1996, 1997, 1998, 1999, 2004b). Furthermore, the analysis of cut marks suggests skin exploitation (e.g. Pucher et al. 2013). Dogs used in ritual activities from cultural and funeral contexts are scarce throughout Austrian prehistory, with some noteworthy exceptions (e.g. Bauer & Ruttkay 1974, Leskovar 1996, Galik 2002, Böhm 2010, Abd el Karem 2014). Finally, although the use of dogs for hunting and guarding has been suggested (e.g. Schmitzberger 2009a: 50), so far there is no osteological proof.

Keywords: Archaeozoology, *Canis lupus f. familiaris*, Prehistoric Austria, Alpine mining sites, Morphometrics, Dog exploitation, Butchery marks, Cynophagy.

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Mitochondrial DNA variation among dogs of Mongolian, Tuvinian and Altaic nomads

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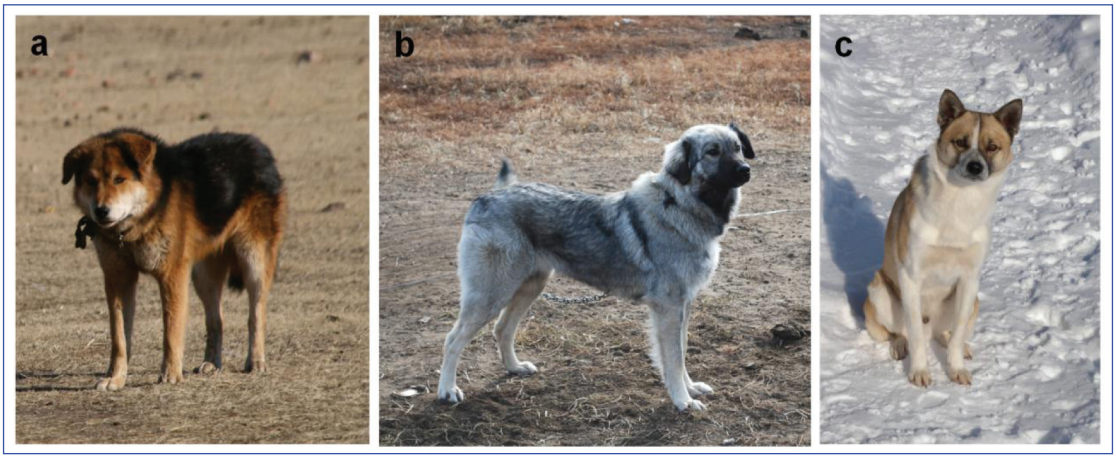

Some of the individuals whose hairs were collected to perform non invasive DNA extractions in the present study. Letters above on the left in the images indicate the sampling site: a) Mongolia, b) Tuva, and c) Altai.

Dogs were the first domesticated species, which likely originated in the upper Paleolithic from Eurasian gray wolves (i.a. Shannon *et al.* 2015). Under a genetic point of view, domestic dogs are grouped into two main, highly divergent, clusters, represented: the first by a large variety of several hundred of pure breeds obtained by means of artificial selection; and the second by a large and strongly diversified group of free-ranging animals adapted to a human commensal lifestyle (the so-called village dogs).The highest level of genetic variation are generally reported in populations from central Asia, as natural consequences of the closeness to the center of domestication. However village dogs populations (in particular those from isolated areas) shows peculiar genetic traits involved in private demographic dynamics which deserve to be investigated. In such a context, we report a preliminary molecular survey, performed by means of the mitochondrial hypervariable region I (HVS-I) marker, aimed to deepen the knowledge on the genetic variability and demographic dynamics of village dogs from nomads camps of the rural areas of Mongolia, and Republics of Tuva and Altai (see Fig. 1). The large geographic area neighbouring the current Mongolia is considered to be the region where the first multiple events of wolf domestication occurred. The analysis of a 348 bp-long HVS-I fragment in 79 dogs (33 from Mongolia, 23 from Tuva and 23 from Altai) showed high levels of genetic variability at each sampling location, resulting in a total of 24 haplotypes. Lower levels of genetic variation were found in the camps of the North of Altai (Turochaksky district). The frequency of distribution of the two main mitochondrial haplogroups found in the present study (A, B) are consistent with the values retrieved in almost all dog populations of the Old World (Savolainen *et al.* 2002; Ardaland *et al.* 2011, and references therein), with the only exception for the dogs from Altai. The haplogroup A was the most common in the Mongolian and Tuvinian dogs, whereas, the dogs from Altai showed an uncommon higher frequency of the haplogroup B. We hypothesized the latter occurrence as consequence of repeated founder effects produced by the artificial selection which affect the population from Altai. The haplogroup C was reported only in Tuvinian dogs, as possible consequence of genetic drift. It is also worth to note that

a mitochondrial lineage, likely belonging to the genetic pool of Siberian wolves, was found in one individual from Mongolia (a 3-years old male from the district of Bulgan) and one from Altai (a 1-year old female from the district of Kurmach Baygol). Such a finding may be the result of a past accidental domestication of wolf females or cubs in nomads camps. Overall, the phylogeographic analyses carried out in the present study on dogs from central Asia suggested the occurrence of five Bayesian genetic groups, three of which were shared whitin the whole area, without evidence of a geography-based genetic structuring. In conclusion, each region showed high levels of genetic divergence consistent with the occurrence of permanent dog populations with multiple origin, as a result of repeated genetic exchanges among populations likely mediated by human activities. In the future, the analysis of individuals from further Mongolian, Tuvinian and Altaic sites, will provide a deeper insight on the evolutionary processes which involve the peculiar genetic structure of village dogs populations in these Asiatic regions. The research is part of the Mission “Camps of Mongolian nomads - an ethnoarchaeological Pespective” anethnoarchaeological perspective” and “Siberian nomads and their dogs” promoted by the Italian Association-for Ethnoarchaeology with the sponsorship of the Italian Ministry of Foreign Affairs (MAECI).

Keywords: *Canis lupus familiaris*, mtDNA, Control region, Genetic variability, Central Asia.

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Dog as companion in life and in death: the case study of dog burials in human grave (VII-VI BC) in Loc. Collina dei Gelsi - Poggio Sommavilla (Rieti, Italy)

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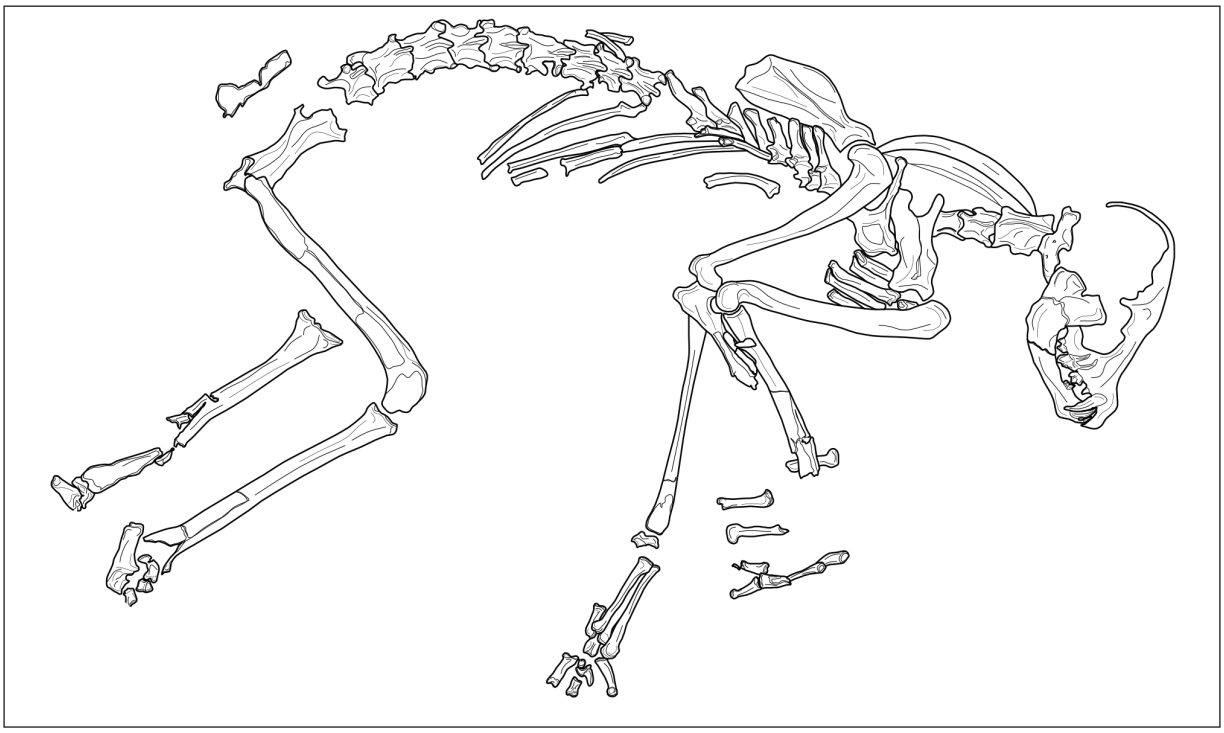

Drawing of one of the five dogs recovered in Loc. Collina dei Gelsi (Collevecchio, Rieti).

The purpose of this study is to show the funerary context at the Italian site of Loc. Collina dei Gelsi - Poggio Sommavilla (Collevecchio, RI), dating back to the 7th - 6th centuries BC, where five dog burials were found in a multiple human grave. In particular, the archaeozoological analysis focuses on the dog remains unearthed and their presence as an indication of the importance of dogs as a partner of humans not only during life but also after death.

In this work we attempt to understand the role of the dog in funerary contexts, and to present a complete scenario of the interpretation of the dog burials. We take into consideration the role of this animal in daily life: dogs were very close to humans, as valued companions in hunting and sporting activities, as guardians of humans, houses and flocks, in the war, and as pets. Looking at how ancient Greek society considered the dog, it emerges a twofold ambivalent image of it and its behaviour, it is faithful yet disloyal, clever yet stupid, watchful yet irresponsible. The dog represents a unique model of domestication because, unlike other species, savageness and domestication coexist in its dual nature.

We will demonstrate that dogs are characterized by a preferential relationship/friendship with humans when compared to the other domesticated animals. This involved the participation of dogs in every aspect of human social life. Dogs lived in conditions of cultural, social and even religious... that in turn could have led tto their burial, close to humans. Dogs protected man in life as well as in death.

Keywords: Dog Burials, Dog Sacrifice, Dogs And Human Remains.

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Dogs as Humans and Humans as Dogs: Dogs in Early Chinese Rituals and Art

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Animals have an important place in Chinese art and religion of the Bronze Age and early Imperial era (from the late 2nd millennium BCE to the beginning of the 1st millennium CE). Animal motifs appear on bronzes and other materials; animal bones are found in graves and sacrificial pits, and the sacrifice of animals is mentioned in Oracle Bone inscriptions and in traditional texts. This paper analyzes those diverse data types and argues that during the Bronze Age, dogs had a special liminal position in the Chinese cosmology. While their sacrifice is in many cases similar to that of other domesticated animals, in other contexts they are treated like humans. This, I argue, reflects the unique qualities of dogs which are, on the one hand, domesticated but, on the other hand, quite different from all the other domesticated animals. The ambivalent classification of dogs went both ways, as humans were sometime sacrificed in the same way as dogs. This situation changed dramatically after the 5th century BCE, when the hierarchy between humans and animals became more rigid. From this time on, dogs are often depicted in art as human's close companions but are never again treated in a way that would suggest that they were interchangeable with humans.

Keywords: Bronze Age, Shang, Zhou, Sacrifices, Archaeology.

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Dogs in Philippine creation myths: in a spirit of hunting

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Hunting with dogs, once the major source of protein for the inhabitants of the Philippine archipelago, is now reduced to a few mountainous areas inhabited by the Agta and similar previously hunter-gatherer groups. However, it has left traces in mythology: in a number of ethnic traditions we find hunting gods, accompanied by spirit dogs; lightning is believed to be a dog of the mighty god Kadaklan (as in Tingguian, Cole 1922) etc. Among the multiple aspects of representations of dogs in Philippine folklore, mythology and ritual, we have chosen to focus on its role in creation myths, i.e. the stories about the origin of human beings and of specific ethnic groups, the origins of landscape (mountains and rocks), and the acquisition of fire in flood narratives. This paper examines these motifs in the mythology of the so-called Lumad and Igorot (umbrella terms for various animistic indigenous groups of the inner areas of the islands of Mindanao and Luzon).

The folklore and mythology of these ethnic groups were less influenced by the early Indo- Islamic and later colonial era European and American Christian traditions; the texts recorded at the turn of the 20th century and earlier are of particular value. Within these texts, the divine/ancestral character, responsible for the creation or modification of the present-day landscape, is often a hunter, accompanied by one or several dogs. The creation-mountains, the prevalent feature of the landscape of the Philippine archipelago, is attributed to the hunter's need to be able to hear the hunting dog's bark echoing from the mountain slopes. Inducing a great flood is chosen by hunting gods as a means to change the terrain from the plain into mountains. Flood causes the death of all the inhabitants of the earth except for a brother and a sister, who are left freezing on top the mountain. The god then sends a dog and a deer (his helper in the hunt and his prospective prey) to bring fire to the siblings, in order to warm the future ancestors of present day mankind. Sources: 1. Mountains or rocks are created as a result of the action of a hunter with a dog (Manobo of Mindanao; Bontoc, Ifugao of Northern Luzon, cf. Beyer 1912). 2. A dog and a deer are sent by a god to bring fire to the survivors of the flood, but fail to succeed (Bontoc, Ifugao of Northern Luzon, cf. Seidenadel 1909, Beyer 1912). The dog's involvement with a group of myths that depicts a vegetative origin of humans (i. e. humans originating from a certain plant) in Philippine mythology results from the intersection of two different motifs: 'Dog mates a human' and 'First humans come out of bamboo'. Both are also represented separately, the latter being the most widespread version all over the archipelago. Source: 1. Dog and human ancestors coming from bamboo: a dog and a woman who came out of two bamboo joints were the ancestors of the Moro (Bukidnon of Mindanao, cf. Cole 1916). Some (but not all) of the motifs discussed in the present paper can be found in the 'World mythology and folklore: thematic classification and areal distribution of motifs' database by Yu. Berezkin (http://www.ruthenia.ru/folklore/berezkin; http://mapsofmyths.com).

Keywords: Dog, Philippine mythology, Hunting, Creation, Flood.

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Dog and Wolf in Non-Folktale Prose of Southern Siberia Turks

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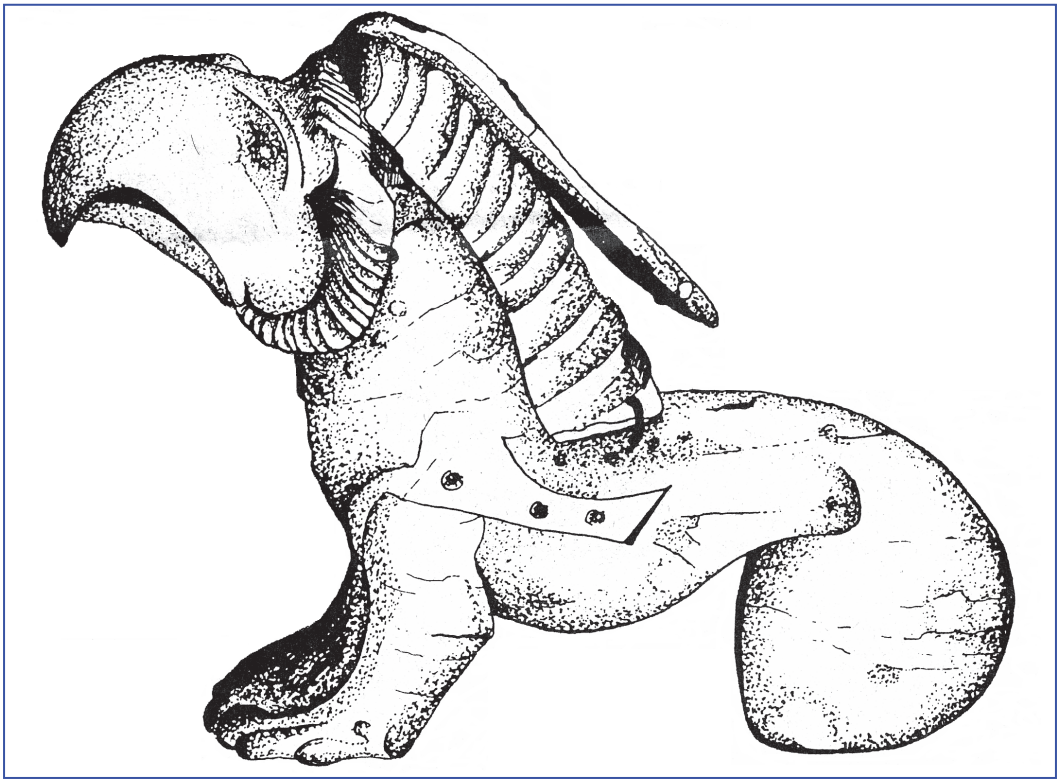

Mythical gryphon-like creature from the culture Pazyryk (Altai, VI-I century B.C.), corresponding to the dog Khubai-Khus from modern Turkic folklore [from: Aimi, Antonio. Caccia al tesoro dei grifoni, in Il sole-24 ore. 1999. N 71 (14 marzo), p. 38].

Following from the first publication about dogs in Eurasian mythology (Miller 1876) numerous folkloristic and ethnographic works were published. The important role of the dog reveals itself in protective and funeral rites, in mythology and folklore as well as in everyday practical life. Some comparative studies revealed ancient connections between Indo-Iranic and Turkic-Mongol cultures, as well as Semitic and Chinese cultures.

Nevertheless, there have not been sufficiently studied to date. The origin of the domestic dog being one such aspect, its appearance in human life could become one of the potential approaches for addressing this problem.

Such ideas are represented in many folklore texts. This paper will focus on one group of texts which are called "non-tale prose" – narratives regarded as "true" texts, rather than imaginary ones. Turkic peoples were chosen because of the author's intention in the future to explore correlations with data obtained in the project being conducted in Siberia under the guidance of F. Lugli (see Lugli, Sychenko in the current volume).

Main sources for this study are volumes published in the series "Monuments of Folklore of the Peoples of Siberia and Far East" ("Legends and Myths of the Sakha (Yakuts)", vol. 9, 1995; "Myths and Legends of the Tuvans", vol. 28, 2010; "Folklore of the Shors", vol. 29, 2010; "Non-Folktale Prose of the Altais", vol. 30, 2011; "Non-Folktale Prose of the Khakasses", vol. 34, 2016).

One of the most significant outcomes of this research is the finding that dogs and wolves are not equally presented in the myths and legends. Contrary to the common view about the totemic significance of the wolf for

many Turkic peoples, only one text was found in Altai folklore about she-wolf as totem. This totem relates to the ethnic groups of Kypchak circle. In Yakut folklore there is a motive of honoring a wolf as a god, after people were saved from hunger. Similar motif connected with a dog exists in Altai and Khakass' cultures. But the dog's behavior is much more altruistic.

In many texts dog is regarded as a valuable object (both for people and spirits); as inseparable companion of a man; as someone whose only task and intention is to serve for a man; as a creature sensitive to a spiritual world. Magic contexts in which dogs are appearing are numerous and diverse.

One of the most important contexts of where dogs are present is that of creation myths. Two motives have extreme significance: creation of a man and appearance of constellation Orion, or the Hunter. Both motives are connected with a dog. In the first case the dog, put by the Creator to guard a newly created but not yet animated man (/men), fails with this task, seduced by the harm deity. As a result the dog receives its fur, the man becomes imperfect, and both, a man and a dog, become inseparable. An important detail is the existence of a dog before humans' creation. Probably, it reflects an idea but also an historical fact about primordial connection of a human and a dog. In the second myth, widely distributed in Eurasia, dogs accompany the great hunter who, running for three stags (deers) finally go to sky. In Khakass version there is a particular kind of dog, Khubai-Khus, who is born from an egg of duck-like turpan, whose connection with the Creation is rather well known.

On the basis of this obtained information we may conclude with such a logical consequence: in the time of Creation a Dog, magically born, participates in the creation of a man and becomes his eternal and inseparable servant and companion, connected with spiritual world.

Keywords: Folklore, Creation myths, Dog, Wolf, Siberia, Turkic peoples.

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A molecular view on the domestication of dogs

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During the last two decades we have entered a genomics revolution. Advances in sequencing and DNA analysis technologies have resulted in a dramatic drop in the costs of DNA sequencing. At the same time the dog has advanced as a model organism in biomedicine. The cost of sequencing a complete genome is more than a million times cheaper now than at the beginning of this century, and massive resources are available to understand the origin and evolution of dogs. This new generation of genomic approaches has allowed studies on many aspects related to the domestication of dogs. Studies have addressed the ancestry of the dog, the place and time of domestication, how the domestication took place, the origin of dog breeds, the consequences of life with humans for dogs, genes that are important for the differentiation of dogs and wolves, etc.

Nevertheless, while these studies are contributing to a better understanding of the evolutionary history of dogs, the analysis of the massive amounts of data that are now available is not providing unique answers to these questions. Since just a few individuals are chosen for most of the analyses, it is necessary to be very aware of how samples are selected and what are the assumptions of the models used. Biases in the study design can result in somewhat contradictory results. Robust inferences need to be based in study designs that take into account multiple facts. For example, it is more and more clear that purebred dogs do not represent the diversity of dogs; modern samples may not be representative of the dogs that existed in a given area in the past; dogs may not derive from a single domestication event, but may have involved multiple wolf populations; admixture between dogs and wolves may have taken place frequently in the later millenia and in many areas around the world; current wolf populations are not representative of the diversity at the time of the domestication due to the massive population extinctions during the last two or three centuries, which may have led to the decline of more than 90% of the wolf worldwide population. This situation demands an explicit statement of the assumptions and limitations in each study as well as a critical interpretation of the results.

Despite these limitations the large number of genetic and genomic studies published so far suggest that wolves may have domesticated in the Late Paleolithic, probably more than 20,000 years ago and well before any

other plant or animal (Lindblad-Toh *et al.* 2005, Skoglund *et al.* 2015, Thalmann *et al.* 2013). Dogs do not seem to derive from one single wolf population extant today; multiple populations of wolves may have contributed to the diversity in modern dogs (vonHoldt *et al.* 2010), with frequent interbreeding between dogs and wolves (Freedman *et al.* 2014). Nevertheless, the observation of discrepancies in the lineages observed in modern dogs and wolves has led to the suggestion that the domestication process could have been originated in a wolf population that has gone extinct (Freeman et al. 2014; Skoglund *et al.* 2015, Thalmann *et al.* 2013).

Despite the diverse origin of modern dogs, it is clear that this took place in Eurasia; thus native American dogs derived from Eurasian dogs that arrived to the American continent with humans before the closure of the Bering Land Bridge at the end of the last glaciation (Leonard *et al.* 2002). Those pre-contact American dogs diversified into diverse lineages that may have disappeared from modern dogs either mongrel (Castroviejo-Fisher *et al.* 2011) or purebred (Leonard *et al.* 2002). The mechanism that led to the disappearance of Native American dog lineages is not known but could be related to the arrival of diseases with European dogs. In any case, this implies that modern dog populations may not be representative of past populations and it is necessary to promote genomic studies based on historic and archaeological samples, which could allow understanding changes through time.

Not a single gene or set of genes seems responsible for the divergence between dogs and wolves, but a higher ability to digest starch seems commonplace across many dog breeds and may have facilitated the expansion of dogs by making them able to exploit human resources (Axelsson *et al.* 2013) although other genes, including other related to brain function, may have also been important (Freedman et al. 2016).

Purebred dogs represent highly inbred lineages resulting from the selection of a small founder population and promoting popular sires (Sundqvist *et al.* 2006). This has resulted in a large number of diseases prevalent in many breeds (Ostrander and Kruglyak, 2000). However, purebred dogs do not represent the majority of dogs in the world an an important diversity persists in mogrels, stray dogs and village dogs (Boyko *et al.* 2009). This implies that these individuals should not be ignored when trying to understand the origin and evolution of dogs.

Keywords: Genetics, Genomics, Ancient DNA, Dog domestication.

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Do all dogs go to heaven? The archaeology of post-medieval dog burials and their role in understanding the origins of the modern animal welfare movement

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Through the investigation of archaeological, zooarchaeological and historical data, this paper describes an ongoing project investigating changing attitudes towards dogs in post-medieval Britain. The Victorian era is generally considered a watershed in British society's relationship with companion animals (especially dogs), marked by the appearance of animal welfare societies (i.e., the RSPCA), animal shelters and various new laws dedicated to the protection of animals. However, some historians argue these institutions better protected the wealthy pet owners who created them as opposed to the animals themselves. Some further argue these institutions advocated for the destruction of animals. Unfortunately, studying concepts like "wellbeing" and "care" using historical documents alone is difficult as these terms are relative and historically specific. Archaeology is well-suited to bypass this issue by looking at the animal bodies themselves to identify changing ways people related to dogs. An interdisciplinary approach to understanding the dog body is used to investigate changes in people's relationships with the animal.

Post-medieval dog skeletons are often recovered by commercial archaeology units working in Britain. These dog remains represent individual burials, the disposal of carcasses within rubbish heaps or disarticulated remains mixed in with other deposits. They are usually identified, collected, and recorded by archaeologists without any further consideration. Taking advantage of this resource, this project seeks to identify if the Victorian era truly represents a moment of change in society's attitudes towards dogs by investigating the treatment of the dog body. It does so through the interdisciplinary analysis of skeletal evidence and burial practices. Zooarchaeological and paleopathological analyses are working to identify the incidence of trauma and disease in dog skeletons over time in order to determine if dogs were living under continuously improved physical conditions. Stable isotope analyses and the examination of oral diseases help paint a picture of changing nutrition patterns. Dog burial practices also changed significantly in the post-medieval period: individual burials with commemorative headstones began to appear within the gardens of stately homes in the 17th and 18th centuries while the first public pet cemeteries appeared later in the Victorian period. The associated headstones and memorials often include inscriptions which inform on people's perceptions of dogs and the roles they take on in people's lives and afterlives. Some inscriptions suggest the dog was considered a member of the family while others tell of meeting again in heaven. An archaeological survey of 18th to 20th century dog memorials tracks changing patterns of memorialisation and changing attitudes across social and physical space. Only a select few post-medieval dogs were afforded individual burials; many dog bodies were sold for skins and processed for meat while others were preserved through taxidermy. Some of the latter survive and provide us with yet another opportunity to investigate changing human perceptions towards animal bodies. Individuals having undergone taxidermy were altered and manipulated into specific positions and adorned with material culture in order to fit someone's ideal way of remembering an individual and their study further informs on the complexity of human-dog relationships in life and the afterlife. A stronger understanding of the complexity of this past relationship can help better understand the origins and development of modern society's attitudes towards dogs.

Keywords: Archaeozoology, Palepathology, Archaeology, Animal Welfare, Death and Commemoration.

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Demonic dogs of Mongolian stag stones and their Chinese counterparts

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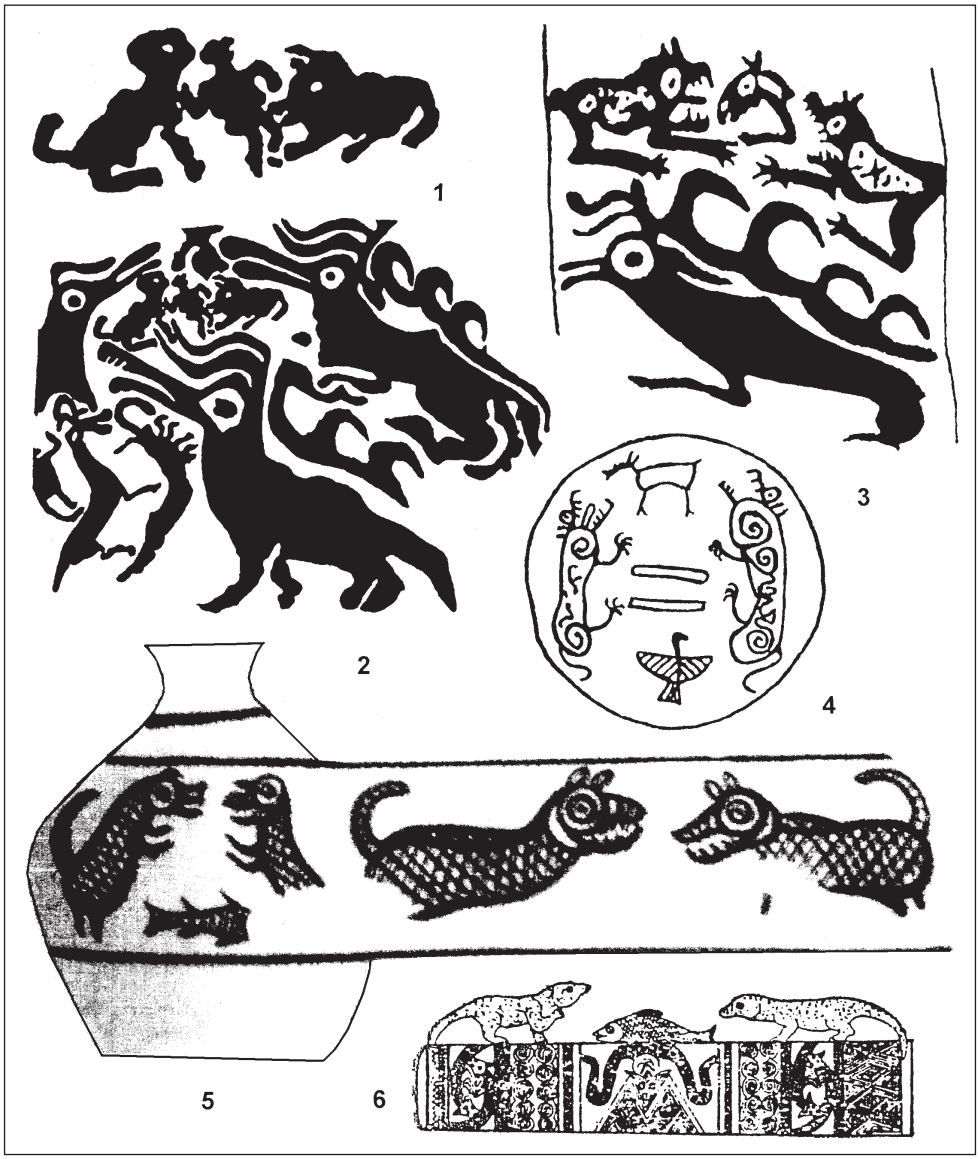

Mongolian stag stones.

The paper is prepared with the support of Russian Foundation for Basic Research (RFBR), project 18-09-00557.

Stag stones (or deer stones) are vertical steles, representing highly stylized sculptures of warriors. Many steles are completely covered with deer images thanks to which they gained their name. Stag stones are found mainly in Central and Western Mongolia and in adjacent regions of Russia and China in the first half of the I millennium B.C.

One of the best known sites with stag-stones is Uushkijn-Uver in Khövsgöl Aimag (province) near Mörön city in Northern Mongolia. Fifteen beautiful stag-stones were found there in 1970 by V. Volkov and E. Novgorodova. On the upper part of stone Nor 15, a scene depicting two predators devouring a horse is engraved (Fig. 3). V. Volkov and E. Novgorodova described them as feline predators, probably as a result of the spots, decorating

their skins. But on another stag-stone, No 4 from the same site, one can see a pack of five such beasts chasing a horse. The archaeologists called them “spotty predators, most likely snow leopards”. They wrote: “Obviously, it is a pack of snow leopards, represented in the moment of hunting a horse, running before them”. But feline predators do not chase their prey (except for cheetahs) or hunt in groups (except for lions). Felids are primarily ambush-hunters.The chasing of prey animals by packs of predators is specific to canids.

Compositionally, the scene on stag-stone No 15 from Uushkijn-Uver is also found in the in Suyukou gorge the Helan Mountains in the Ningxia-Hui Autonomous Region of the PRC. It shows a human figure, being torn apart (?) by two dog-like beasts (Fig. 1). The species of beasts is not very clear, but the whole scene is surrounded, just as the one in Uushkijn-Uver, with figures of deer with beak-shaped muzzles (Fig. 2). Compositionally much the same scene is also cast on the back surface of a bronze mirror, found in tomb M1612 at the Shangcunling cemetery in Henan province of China (Fig. 4). It depicts two beasts, looking more like tigers, than dogs, ready to devour (or fight for) a deer (?). The mirror from Shangcunling gives a more exact date to Uushkijn-Uver and Suyukou compositions. Shangcunling was the cemetery of the Guo state, which in 655 B.C. was annexed by another state Jin. So not a single grave from Shangcunling could be later, than the mid of the VII century B.C. The majority of its graves belong to the same period - from the second half of the IX century to the first half of the VIII century B.C.

But the roots of the tradition to of depicting two dog-like beasts, poised to tear apart their prey lie deeper in China. An image on a Neolithic painted pottery jar, found at Dadiwan site in Gansu province shows two dogs, ready to start a fight over a fish lying between them (Fig. 5). It is generally accepted that ornamental belts found on Neolithic Chinese pottery represented different levels of the Universe. The belt with dogs and fish on the jar from Dadiwan bordered by two straight lines at the top, so it may represent the Underworld. According to V. Evsukov, who studied ancient Chinese as represented on Neolithic painted pottery, the image of a fish symbolized the human soul. So the scene on the Dadiwan jar depicted the trials of the human soul in the Underworld. Rock carvings in Suyukou and Uushkijn-Uver, as well as the Shangcunling mirror, could have the similar meanings. This iconographical tradition survived until the IV-III centuries B.C. and a fish between two pangolins is seen on the heel of a tubular battle axe socket of the Dian culture from grave 12 at the Shizhaishan cemetery (Fig. 6).

Keywords: Dogs, Semantics, Underworld, Trials of a Soul.

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The role and significance of dog in the Roman Iron Age in the Kujavian region

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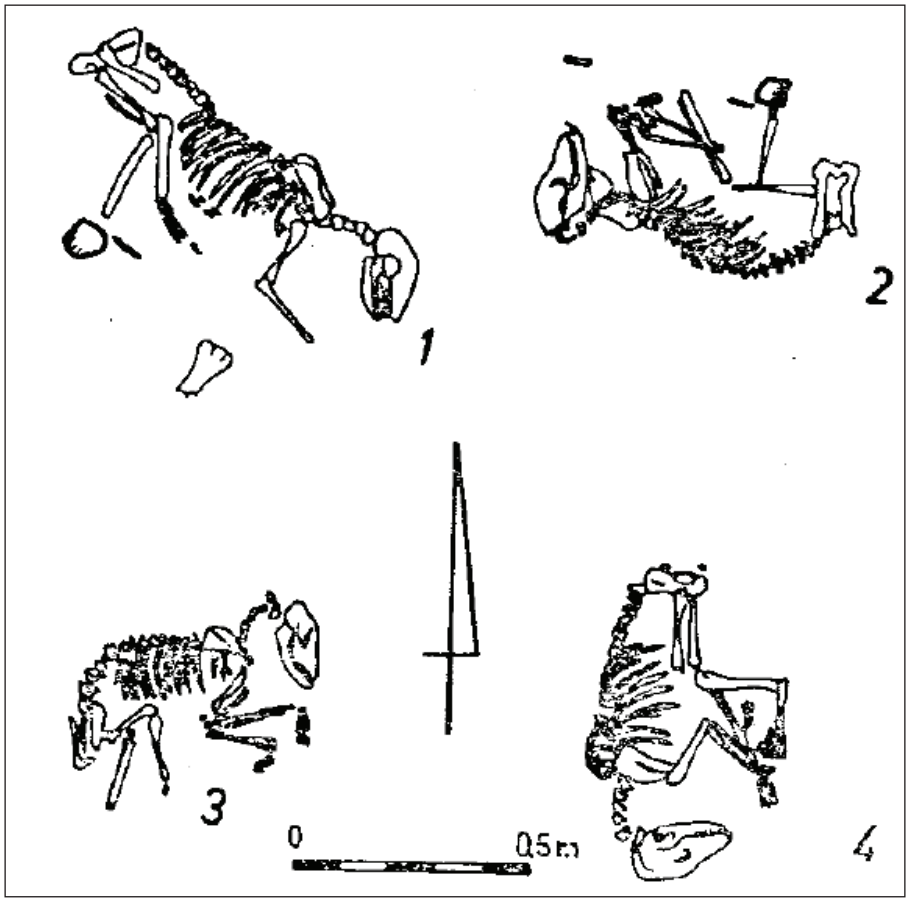

The role and significance of dogs for the groups of the Przeworsk culture of the Roman Iron Age in the Kujavian region have been discussed since the end of the 1960s (Gabałówna 1956). Numerous works referred to the results of the excavation campaigns carried out in Kujavia until the end of the 1990s (Makiewicz 1987; Makiewicz 1994; Andrajłoć 1993). They resulted in the discovery of numerous dog burials and dog deposits in different funerary contexts. However, more recent intensive rescue excavations, carried out over the past two decades in relation to major infrastructural investments, have unearthed many new materials that have not been studied to date.

This paper aims to present the results of a comprehensive analysis of the role and significance of dogs in the Przeworsk culture in the period between the 2nd century BC and the 5th century AD. Various aspects of the dogs' existence in the local communities through time will be scrutinized. These include dog as a companion, dog as a victim and dog as a source of food. The paper is based on a comprehensive re-analysis of available datasets from the previous work supplemented by all new data from the rescue campaigns. The latter were collected in the archives of the National Heritage Institute and the office of the Kujawsko-Pomorskie Provincial Conservator. In total, the analysis is based upon 229 dog skeletons from 40 sites. These comprise both burials and post-

consumption remains. State-of-the-art zooarcheological and archaeological methods were applied in the analysis of these materials.

Keywords: Role of Dog, Przeworsk Culture, Roman Iron Age.

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Did dogs help humans negate the effects of environmental change in the Early Holocene of eastern Jordan

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Bones of the dog's foreleg and fragments of bones of ungulates with traces of digestion corrosion.

There is substantial evidence for the presence of domesticated dogs in the Natufian culture of the southern Levant. The sites providing this evidence include El Wad, Shukhba, Hayonim and Mallaha which are al located in the Mediterranean zone. Further east, in an area often considered as more environmentally marginal, recent excavations at Shubayqa in the Harra basalt desert have been investigating the Late Epipalaeolithic and Early Neolithic occupation sequence around a once verdant wetland. In the Natufian culture, for the time period corresponding to optimal climatic conditions, there is minimal evidence of dogs. However, by the Pre-Pottery Neolithic A (PPNA) period, humans and dogs had developed a very close relationship. The bones of canids were present in moderate frequency in the middens of the PPNA settlement. Furthermore, a significant number of dogs were living with the humans and this is clear from the very high proportion of bones from hunted animals discarded in the midden that had been digested by carnivores. These bones must have been the scraps of food fed to the dogs or scavenged by these animals that were living in and around the human settlement. Environmental conditions deteriorated towards the end of the Natufian period in the Younger Dryas and, in combination with changes to the local hydrological system which drained rainfall from the Jebel Druze into the wetland at Shubayqa, the local environment had altered notably by the Early Holocene. This is reflected by several changes to the composition of the faunal remains from the PPNA settlement, suggesting that the availability of resources in the Early Holocene had altered. As the evidence for shifting resource availability and the presence of dogs in substantial numbers coincides, it is possible that the close bond that clearly developed between the humans and canids was a response to environmental change, whereby human improved their hunting ability with the use of dogs as an aid.

Keywords: Hunting, Early Domestic Dog, Environmental Change, PPNA.

POSTERS

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Dogs - Poster session discussion

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1. Topics

The range of posters presented can give us an idea of the topics under main scrutiny, in the mixed parterre of this conference: in fact, both archaeozoologists, archaeologists, anthropologists and biologists have contributed to the discussion. I found it fruitful to classify the papers in terms of what appeared to me as the main topic, in order to draw some conclusions about the ongoing perceived debates.

16 posters of the Poster Session of the Conference have been reviewed, which I divided under the following main keywords:

- wild and domestic canid identification (1 poster): Blazquez Orta *et al.*;
- domestication (and symbolism and iconography) (3 posters): Bea *et al.*; Chilardi *et al.*; Di Maida *et al.*;
- symbolic behavior (funerary and underworld rituals) (2 posters and partially one with a wide perspective): Di Matteo *et al.*; Giardino & Zappatore; partially Alhaique *et al.*;
- symbolic behavior (not clearly funerary, maybe sacrificial) (3 posters and partially one with a wide perspective): Alhaique alone; Bauer *et al.*; Bertolini & Thun; partially Alhaique *et al.*;
- human-dog association and social roles (together with breeds, iconography and symbolism) (2 posters): Andreeva & Eliseeva; Tanganelli & Masseti;
- dogs' breeds (4 posters): Brassard *et al.*; Gil *et al.*; Nutini & Marini; Janulardo (alone).

It is clear that the great majority of the posters focus upon, or at least include a discussion of the symbolic aspects possibly associated with dogs, both in their domestication process, in their relation with humans, and in their relevance as part of domestic or funerary rituals. Indeed, it is expected to be so in a conference with a strong archaeological focus. In fact, "The early domestication of dog and the special relationship between dogs and humans, reflected in various kinds of archaeological sites from different time periods, make the dog a unique animal species in human cultural history." (Mannermaa, Ukkonen & Viranta 2014, p. 25), and as such it is perceived by archaeologists.

2. Methods

The posters make use of different methods and tools, often in combination, providing interpretive perspectives based on their integration.

Direct analysis of animal bones is obviously the basic issue. In fact, 7 papers have a central focus on palaeontological/archaeozoological analysis: Alhaique (alone); Alhaique *et al.*; Bertolini & Thun; Blazquez Orta *et al.*; Brassard *et al.*; Di Matteo *et al*.; *Gil et al.* 2 further posters include a discussion of archaeozoological data, as a relevant part of their issue: Bauer *et al.*; Chilardi *et al.*

The other main method applied is iconography of canids'/dogs' representations. 4 papers have their central focus on it: Bea *et al.*; Di Maida *et al.*; Tanganelli & Masseti; and Nutini & Marini. 4 other papers made some use of it, in combination with other methods: Andreeva & Eliseeva; Alhaique *et al.*; Chilardi *et al.*; Giardino & Zappatore.

3 posters, studying later periods, make use of historical sources, either epigraphic or textual/literature ones: first of all Andreeva & Eliseeva; and somehow Alhaique *et al.* and Giardino & Zappatore.

Ethnoarchaeological, ethnographical or anthropological perspectives are used by 3 posters: Janulardo (alone) is mainly focused on them, while Chilardi *et al.* and Giardino & Zappatore make a rather sketchy use of these perspectives as longue durée factors.

Contextual analysis is also important for a number of papers, maybe less than one would expect, given the high relevance generally attributed to the context in recent archaeological research, as a key to specific behaviors and meanings. Alhaique (alone) and Alhaique *et al.* both frame interpretation in the wider general contextual analysis of the excavated site; Chilardi *et al.* and Di Matteo *et al.* refer to the associations in a constricted deposit (resp. a cave and an underground artificial chamber).

Another peculiar analysis, targeting a micro-context is in Bauer *et al.*, where CT-scan was used for an analysis of the position of bone and ivory fragments inside the skull of a dog or wolf in the Upper Palaeolithic context of Předmostí. The interesting analysis doesn't anyway seem to have solved all the problems of contextual formation processes, and the interpretiation of the micro-context is left widely open.

3. Conclusions

As a matter of fact, like in this last discussed paper, in many cases the final remarks are left rather open-ended as well. The discussion of symbolic aspects, so relevant as we undelined above, and the remarks of special relations between humans and dogs are rarely defined in a more precise way. This is probably a consequence also of the present day perspective of archaeological research, where, after the post-processual wave, multi-faceted and non-unilinear and "non-dominant" interpretations are preferred, as we appreciate the complexity of human societies. Anyway, this leaves sometimes a reader uncertain whether he is simply facing a rhetorical understatement/suspension of judgement or an effective convincement of the author(s).

In the end, it is clear that after this poster session we get a view of human-dog relations as deep and relevant, and also symbolically constructed, but more thorough contextual analysis and structured reasoning could maybe bring to more clear and insighting interpretations of the different cases.

4. Addendum: dogs, humans and the species concept(s)

The incredibly profound and long-lasting relation of humans and canids/dogs has been highlighted recently, as scholars started speaking of co-evolution of humans and dogs (e.g. Schleidt & Shalter 2003; Shipman 2010; Wang *et al.* 2013; Nagasawa *et al.* 2015). But there is also another impressive aspect of dogs and canids, that has

not been discussed in the present poster session, and probably in the conference: the relevance of canids for a discussion of the species concept, which is interesting also for recent debates on human evolution.

The point is not in the diversity of dogs'breeds, which have nothing relevant to do with human diversity, but for the fact that an impressive variety of dogs (from Great Dane to tiny Chihuaua) do effectively stay under the same species concept; the point is the impressive interbreeding capacity of different canid species. This fact compels us to reflect about the way(s) we use the concept of species, particularly for humans. It is here argued that humans would likely require a more nuanced approach to the concept of species, than simply employing it as a categorically dualistic concept: transitions, transformations and hybridizations are not to be easily understood if the concept is rigidly applied.

I would first report three quotations from Charles Darwin, because I guess that his statement still keeps its actuality.

"Nor shall I here discuss the various definitions which have been given of the term species. No one definition has as yet satisfied all naturalists; yet every naturalist knows vaguely what he means when he speaks of a species. Generally the term includes the unknown element of a distinct act of creation. The term 'variety' is almost equally difficult to define; but here community of descent is almost universally implied, though it can rarely be proved." (Darwin 1859: 44).

"Many years ago, when comparing, and seeing others compare, the birds from the separate islands of the Galapagos Archipelago, both one with another, and with those from the American mainland, I was much struck how entirely vague and arbitrary is the distinction between species and varieties." (Darwin 1859: 49).

"No clear distinction has been, or can be, drawn between species and well-marked varieties. It cannot be maintained that species when intercrossed are invariably sterile, and varieties invariably fertile." (Darwin 1859: 481).

Every trained scholar knows that the division of species in a phylogenetic sense applies when, as just stated in Darwin's quotation, interbreeding results in fertile offsprings: in the case of -say- felids, lion (*Panthera leo*) and tiger (*Panthera tigris*) can have sterile offsprings (either tigons or ligers), while canids of genus *Canis* but different species can instead generally have fertile hybrid offsprings. This peculiar character of canids is a well-known fact (e.g. Mengel 1971, Wayne *et al.* 1997), recently also analyzed from a genetic point of view, like in the case of coyote (*Canis latrans*) and wolf (*Canis lupus*) or of golden jackal (*Canis aureus*) and domestic dog (*Canis familiaris*) (Lehman *et al.* 1991; Galov *et al.* 2015).

In fact, as Pigliucci debated in 2003, by analyzing different "species" concepts used in research: " Commonalities among species concepts are actually not difficult to find [...] there are broadly speaking only three factors entering into the equation [for the deifinition of species]: phylogenetic relationships, genetic continuity (sometimes specifically concerned with reproductive traits, sometimes more broadly defined) or similarity, and ecological similarities, broadly construed. [...] There are, it seems, more commonalities among the various species concepts than one might at first suspect." (Pigliucci 2003: 597-598).

In the case of humans, the interpretation of genetic results recently changed drastically in perspective, widening our views, but with a background noise of thought still centered on the peculiarity/superiority of Anatomically Modern Humans (AMH), independently of their hybridization processes with other humans.

Analyses based on mtDNA had been forced to assume that AMH were drastically separated from Neanderthals (Krings *et al.* 1997) – and by extension the same should have applied to all other humans roaming around the world in the last 200 ky. Instead, since 2010 genetic data, based on the whole genome, recognized the effective repeated interbreeding episodes that took place between different purported human species (Green *et al.* 2010; Reich *et al.* 2010; Yotova *et al.* 2011). Recent research has furthermore brought on the humans' scene a much wider variability (Denisovans, Flores and Luzon humans, other more?). Even if this wider familiarity of

humans has been now acquired, the popular interpretation of the evolutionary success of AMH results in a behavioral or biological superiority, even beyond the data themselves.

The general problem is that any concept we use, we generally adopt a much too essentialist position, where we are generally brought to assume a rather drastic mechanism of mutation as a trigger to speciation. This may have something to do with an unnecessary search for unicity of humanity, an attitude that can easily slip into racist attitudes concerning AMH and other humans. Instead, it is my opinion that the dogs' case helps us thinking that we should approach the human species (and more generally the species) problem with a different, population approach, in which all humans (probably since the spread of *H. ergaster/erectus*, but almost certainly of *H. heidelbergensis*) can be considered as basically a single pool of genetic and behavioral traits. Therefore, differentiations in single species (or sub-species), whether having significance in terms of morphological, genetic or ecological variabilty, should not be aprioristically assumed as drastic divides (Gibbons 2011). This seems to me another intellectual gain helped by our pleasant pard the dog/wolf/canid.

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Four dogs in a road (to say nothing of the fox)

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Area F, excavation of one of the four dogs from the fill of the street (photo Gabii Project).

The ancient town of Gabii is located about 18 km east of Rome along the via Prenestina, on the slopes of a former volcanic lake, Lacus Gabinus, later known as Lago di Castiglione. The site was occupied since at least the 10th cent. BCE until its decline in the 2nd and 3rd cent. CE.

Archaeological investigations in this settlement have been carried out since 2007 under the direction of Prof. Terrenato, University of Michigan (Becker *et al.* 2009; Mogetta, Becker 2014 and references therein). The excavations yielded a very large faunal assemblage; the proportions among species are variable within the settlement according to time period and area (for data on Area B see Alhaique 2016). In general, the economy was based on the three main domestic taxa (pigs, ovicaprines, and cattle), the latter two used not only as a source of meat, but also for secondary products and as animal of power. Equids, both horse and donkey, although rare, have been identified. Dogs were also recovered in almost every context or, when actual dog bones were not found, their presence could be indirectly inferred from the presence of gnaw marks. Birds, especially chicken that was probably reared locally, were a supplement to the diet, while aquatic, mainly marine, resources (mollusks, fish) and wild mammals were only occasionally exploited.

During the 2012 excavations, the partially articulated skeletons of four dogs were recovered within the fill, referable to the Imperial period, of a road of Republican age running along the NE wall of a large monumental building in area F (Johnston *et al.* 2018). These individuals were concentrated within a relatively small area and were associated with other faunal remains. Archaeozoological analyses evidenced that the animals were of different age and size. These four dogs did not display evidence of human modifications, but in other parts of the site a few specimens with cut-marks and some dog canine pendants were recovered. These findings may provide

evidence of a special relationship, and possibly not just a utilitarian one, between this species and the inhabitants of Gabii.

Keywords: Roman Period, Dog Interments, Human Modifications, Central Italy.

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Urgir and the other dogs from Abu Tberah (Southern Iraq): considerations on the role of dogs in Sumer during the 3rd millennium BCE

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The dog burial in Room 22 of building A, Area 1.

The site of Abu Tbeirah is located about 15 Km NE of Ur (Nasiriya, Dhi Qar province, Southern Iraq) and covers a surface of about 42 ha. The settlement has been excavated since 2012 by an Iraqi-Italian archaeological mission. Investigations in different areas of the site have thus far unearthed some buildings, several burials and a harbor dated to the second half of the 3rd millennium, between the end of the Early Dynastic and the beginning of the Akkadian period (D'Agostino, Romano, in press; D'Agostino *et al*. 2015; D'Agostino *et al*. in press).

A large faunal assemblage has been collected during the last seven field seasons; archaeozoological analysis identified mainly domestic animals associated with many fish and mollusk remains that, together with other archeological and geological evidences, show that the marine coast was much closer, just few kilometers away, and therefore the environment in the surroundings of the site was very different from the present-day one, more similar to the current situation in the Iraqi Marshes. The animal remains were collected both in residential contexts and in association with human burials as food offerings or leftovers of funerary banquets (Alhaique *et al*. in press; Alhaique, Tafuri *et al*. in press).

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.

The dog findings from Abu Tbeirah will be described from an archaeozoological point of view, but will be also considered within the framework of the beliefs regarding the animal world in Sumerian culture as we know it from literary sources and iconographic evidences.

Keywords: Sumerian Period, Dog Burials, Southern Iraq.

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"Do not laugh, I beg of you, for this is a dog's grave": The Human-Canine Bond in the Ancient Greek World

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Istanbul,Archaeological Museum: relief with inscription of Paryen Òph (Pfuhl-Moebius, II, Taf. 313 nr. 2196).

Our paper is devoted to the relationships between domesticated dogs and humans in the ancient Greek world. Anyone who has ever experienced any in Classical culture, knows that the ancient Greeks as well as Romans were quite capable of emotional attitudes towards domesticated animals (Odysseus' dog Argos, Alexander's horse Bucephalus and Lesbia's pet sparrow are just few of the most commonly-known literary examples). Even though the phenomenon of pet-keeping obviously existed in ancient times, it is common perception that the special emotional bond between humans and dogs as their companions without any relation to the practical usefulness of the latter grew strong only in modern period. The main aim of our paper is to try and demonstrate the evidence of such unconditional affection towards dogs among the ancient Greeks. To that end we are going to analyse a range of literary and epigraphic sources (i.e. the writings of ancient authors and the data provided by ancient inscriptions). In the most general terms it can be said that the attitudes towards dogs in the ancient Greek culture were ambiguous. On the one hand, dogs were viewed as "impure" creatures strongly associated with the chthonic world and as such – appropriate sacrificial offerings to the underworld gods (attitudes characteristic of many ancient and modern cultures); on the other hand, dogs were perceived as valuable performers of certain practical tasks. Different breeds of dogs bred for different purposes already existed and some breeds were extremely costly, even luxurious. For example, Plutarchus reports that the eccentric Athenian aristocrat Alcibiades paid an obscenely enormous amount of money for a pedigree dog. However, there seems to be yet another aspect of ancient attitudes towards dogs, an aspect illustrated mainly (but not exclusively) by epigraphic material: a relatively high number of epitaphs erected for deceased pet dogs seems to show us first hand the emotional connection and even friendship between dogs and their owners. Some of these texts are formulated exactly as an epitaph for a family member would have been, demonstrating the same care, affection, and grief, but at the same time – the awareness of the fundamental difference between the necessary act of granting burial to a human being

and the optional choice of honoring a pet with a tombstone (as seen in the Greek inscription from Italy cited in the title of our paper). In most regions of the ancient world the task of erecting an inscribed stone monument was a costly undertaking, so the very fact of making an epitaph for a pet seems to show a high degree of emotional commitment. Comparing epigraphic material of epitaphs and epigrams inscribed in the memory of both humans and dogs and associated evidences of ancient authors we are going to demonstrate this emotional dimension of human-canine relationships in the ancient Greek world.

Keywords: Ancient Greece, Dog Burials, Epitaphs, Inscriptions, Human-Canine Bond.

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Special treatment of large canids in the Gravettian? Bone and ivory objects in the mouth of the Předmostí (-) canid skull specimen, revealed for the first time using a CT scan

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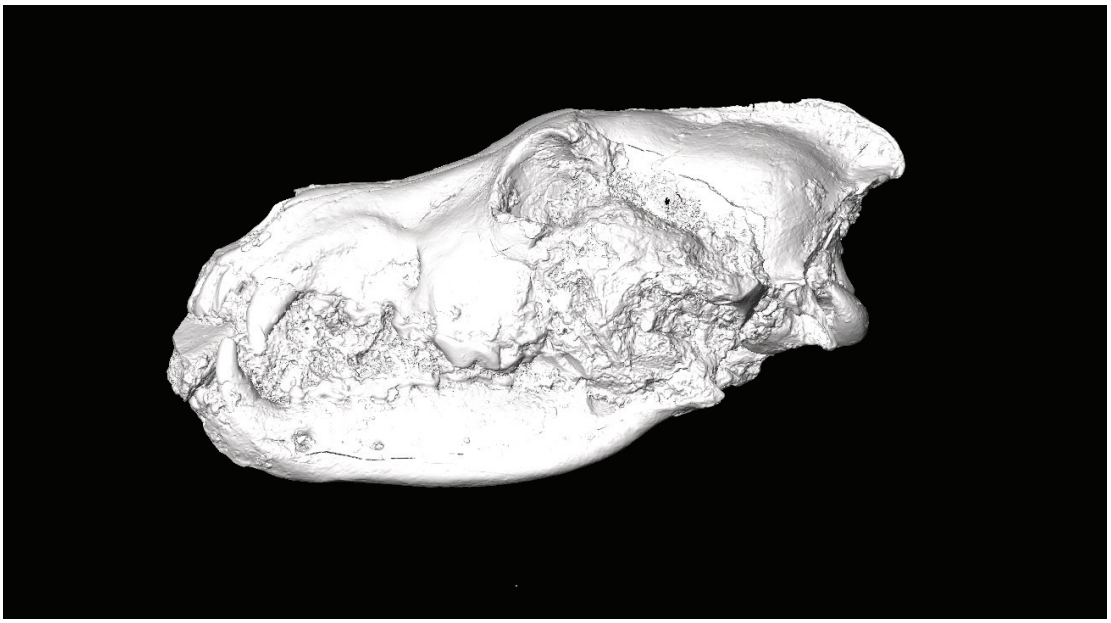

The Předmostí (-) canid skull, CT scan.

The well-known Gravettian open-air site of Předmostí I in the Czech Republic has yielded large amounts of archaeological and anthropological material, such as modern human remains, portable art and industry and a huge number of mammoth specimens. Large canid specimens of either wolves or possible early dogs form the second most abundant animal species. One of the latter specimens was found within the human burial zone of the site, thus potentially indicating a close relationship between the possible early dogs and the humans inhabiting the site. Among these possible early dog specimens, the Předmostí (-) cranium is of particular interest. It was found in articulation with the mandible, held together by sedimentary breccia. The cranium has a conspicuous fragment of a bone (probably a piece of mammoth rib) that protrudes from between the front teeth of the specimen, clearly extending further into the mouth. The unusual position suggests that it has been inserted intentionally. However, the sediment-encrustation had thus far inhibited further investigation of this bone and further contents of the mouth. We therefore segmented and analysed a CT-scan of the specimen. We could thus determine the full shape of the protruding bone fragment, but also additional objects within the oral cavity. Another three objects could be discerned inside the mouth: two complete bones (probably a bone belonging to the autopodium and one from the upper thoracic area of a yet undetermined animal species), as well as a worked piece of ivory. All four elements are perfectly aligned, roughly at the level of the tongue between the maxilla and the mandible. This suggests that the objects were placed into the mouth of the specimen either peri- or shortly post-mortem when all the soft tissue was still present and the head was then deposited. The incomplete infill with sediment of the oral cavity indicates only partial burial. Furthermore, the position and orientation of the objects may indicate their intentional placement: the first object between the teeth is oriented lengthwise, followed by the second object

widthwise, the third object then again lengthwise and finally the last one widthwise again. The partial infilling with sediment furthermore suggests a shallow burial of the specimen. These findings and observations may provide the earliest indications of a special relationship between modern humans and canids or even domesticated dogs. The possible early dog specimen Předmostí (-) can thus potentially shed new light on the earliest steps of the domestication process of the wolf, which would then have already taken place during the Upper Palaeolithic, and well before the Last Glacial Maximum.

Keywords: Gravettian, Předmostí, Dog (*Canis familiaris)*, Wolf (*Canis lupus*), Domestication.

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Canidae motifs in Levantine rock art

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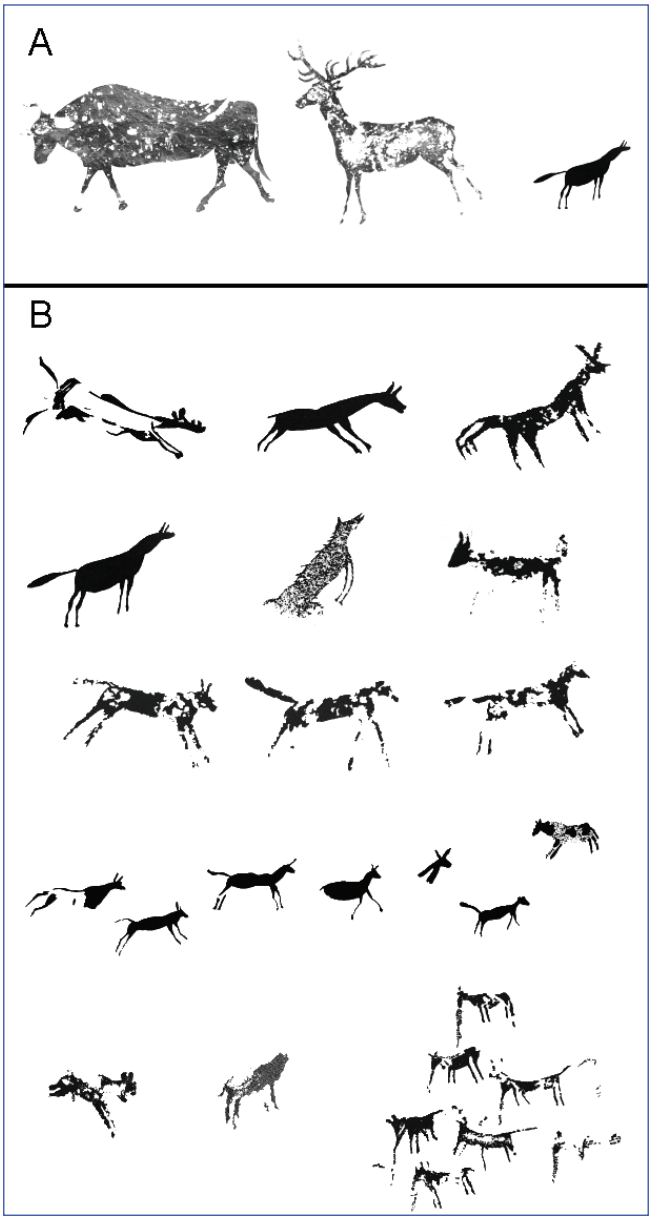

Levantine rock art.

Although Levantine rock art has been well studied for more than 100 years, it remains one of the least known collections of postpalaeolithic rock art in Europe. That is because there are lacks of common terminology among scholars together with the difficulty on establish a categorical evolution of phases and, above all, the lack of a clear chrono-cultural adscription for it. The complexity of that problem is even more evident in relation to the identification of some of the less important animal species depicted as canids.

It is important to highlight that main animal species represented in Levantine rock art (bovines, deer, goats) were always depicted in a very naturalistic way. Nevertheless, those minor species were depicted in a less realistic style, smaller and with fewer anatomic details. So, in almost all cases, is impossible to determine the canid specie was being represented.

In any case, canid are the only predatory animals represented in Levantine rock art, together with humans. The lack of details and the scarce number of representations, make it almost impossible to distinguish between wolf, foxes, or dogs, based on their morphology. Thus why we have to point out some secondary characteristics, such as the activity being depicted, and association with other motifs (both animal and human) and their stylistic phases.

Previous approaches to this topic will be considered in this study (Beltrán 1968; Dams 1984; Rubio 1995; Jiménez, Ayala 2006), together with an exhaustive re-examination and evaluation of those cases already known and updated insights into these motifs found in newly.

A global view allowed us to identify different stylistic and composition patterns in the Levantine examples when compared with canid motifs from Palaeolithic art. In post-Palaeolithic sites, canid (wolves or dogs) do not seem to be represented as a single animal. It is possible to identify canids making up a scene, or at least sharing the same space, with other canids or animals of different species. The hypothetical domestication of canids (and their use in hunting tactics) or packs of wild animals hunting will be addressed as different proposed interpretations according to depicted record.

There some aspects to highlight in the comparison of Palaeolithic and Levantine canid representations. As coincidental elements we can point to their small dimensions and the scarcity of representations in both artistic cycles. On the other hand, there are also some differences, e.g. in Palaeolithic art motifs are depicted on rock and mobile supports, while Levantine examples were all depicted on the walls. Technique constitutes another interesting difference, as Palaeolithic rock art engraved and painted, while Levantine examples consist only of painted rock art.

But there are also an important difference on to chosen attitude to represent canid. Palaeolithic wolves were represented passive and solitaries, while Levantine canids can be represented in groups, sometimes associated with humans and in highly active attitudes (participating in hunting scenes).

How can we interpret those interactions? Could they be interpreted as differences motivated by domestication? Do wolves take on a greater in a Holocene environment, because of the absence of any other large predators?

Keywords: Palaeolithic art, Canidae, Wolves, Engraving.

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A dog head in a house pit at the Iron Age site of Verucchio. Butchery waste or ritual sacrifice?

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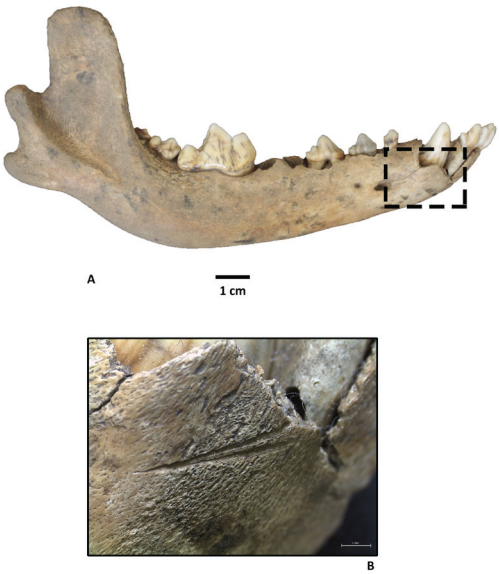

Verucchio: right jaw of the young dog (A) with cut-marks below the canine (B). The position of the marks corresponds to skinning.

The settlement of Verucchio stands on an cliff in the Apennines not far from the Marecchia river. The site was investigated at the beginning of the 1900s and during the 1970s. Excavations were carried out by the University of Pavia in 2011 awhich permitted the investigation of three chronological phases of the inhabited area. The archaeozoological analysis, still underway, involved a total amount of about 2700 remains. The most numerous and significant assemblage comes from the oldest phase (D) of the site dated between IX-VIII century BC with over 75% of the remains, while the most recent phases C (VII-V century BC) and B (IV-III centuries BC) are numerically not representative. 137 faunal remains came from phase B and mainly consist of domestic animals.

An interesting aspect of this phase is the presence of a skull from a young dog with deciduous dentition within the building. Of certain interest is the fact that the dog's skull and jaws were recovered in full articulation, suggesting that it was thrown into the pit with the soft tissues still attached. The analysis of the dog's remains at the stereomicroscope allowed us to identify traces of slaughtering both on the skull and the hemimandibles.

Cut-marks on the skull are located on the lower part of the occipital region. It is possible to observe a single cut that has affected both the condyles. It is referable to the sliding of a metal blade in order to disarticulate the skull from the rest of the trunk. The occipital edges have been clearly fractured in order to bend the skull by wrenching the muscle bundles. On the right hemimandible there are two series of deep cut-marks related to skinning. It is therefore conceivable that the dog was skinned and subsequently slaughtered for ritual sacrifice.

Keywords: Dog, Cut-marks, Archeozoology, Early Iron Age, Romagna, Northern Italy.

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Cranial and mandibular morphometric analysis of *Canis lupus* Linnaeus, 1758

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Wolf and dog skulls.

Wolves and humans interacted throughout the Pleistocene, but how and when domestication occurred is still part of an open discussion.The *Canis* domestication process is riddled with controversy (Müller, 2002) and the classification of wolf-like canids remains uncertain (Boudadi-Maligne and Escarguel, 2014). Considering the extent of real-world issues related to dogs and wolves, the topic is an important going concern. The aim of this research is to analyze craniomandibular features in wolves and dogs in order to study evolutionary changes related to domestication. The fossil record is scanty and fragmentary, and each identifiable fossil, however fragmentary, should be analyzed closely with all data extracted. In this study, after an initial overall morphological study of complete specimens, we will also focus on those incomplete remains which would normally be discarded.

Skulls and jaws are complex biological forms with diet-related adaptations that respond quickly to selective pressures. One way to compare the morphologies of dogs, wolves, and their kin is through different morphometric techniques: traditional and geometric. Using both together produces not only a more complete morphometric analysis but also a comparison between techniques and their effectiveness in extracting morphological information in the study of the bone. Traditional morphometry basically describes simple changes in size and shape as mathematic regressions (allometries), then focuses on specific areas of variability. As our ability to process multivariate data improved through the late 20th Century and up to the present, measured variables have been subjected to increasingly powerful factorial analysis. With current geometric morphometry (2D) it is possible to

observe more complex changes of shape, by building visual representations of morphological variation (Zelditch e*t al*. 2004). For this, anatomically homologous landmarks are located in 2D space for all analyzed specimens. Multivariate techniques like Principal Components Analysis (PCA) can be performed, and variability between specimens can be represented numerically and with transformation grids.

In this research, skulls and jaws of current specimens of Canis lupus signatus and Canis lupus familiaris are studied and the techniques described above are applied to Paleolithic dogs and Pleistocene wolves from the Mediterranean region.

Skulls and jaws are often incomplete. Accordingly, we focus the measured variables and landmarks on specific areas like the dental series (especially the carnassials and canines), in different measurements of the jaw (such as length, height of the body and height of the vertical ramus). Measurements are obtained for different cranio-facial lengths and widths (frontal bone, "snout") and in the cranium. Our results suggest that wolves are characterized by a greater size of the jaw and a greater length of the dental series (specially by the carnassials). However, they present less elongation of the "snout". They have a greater cranial length and a greater width of the cranium, while frontal bone and "snout" are narrower and the facies show a lower height.

In conclusion, this work aims to elucidate the mandibular and cranial morphological features most useful in differentiating wolf-like canids and characterize them in descriptive visual and numerical terms.

Keywords: Domestication, Wolf, Pleistocene, Paleolithic, Morphometric.

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Commensalism and "domesticity" in canids from the Old World from the Late-Glacial to the Holocene: a diachronic comparative study on the morphological evolution and function of the mandible in red fox and dog

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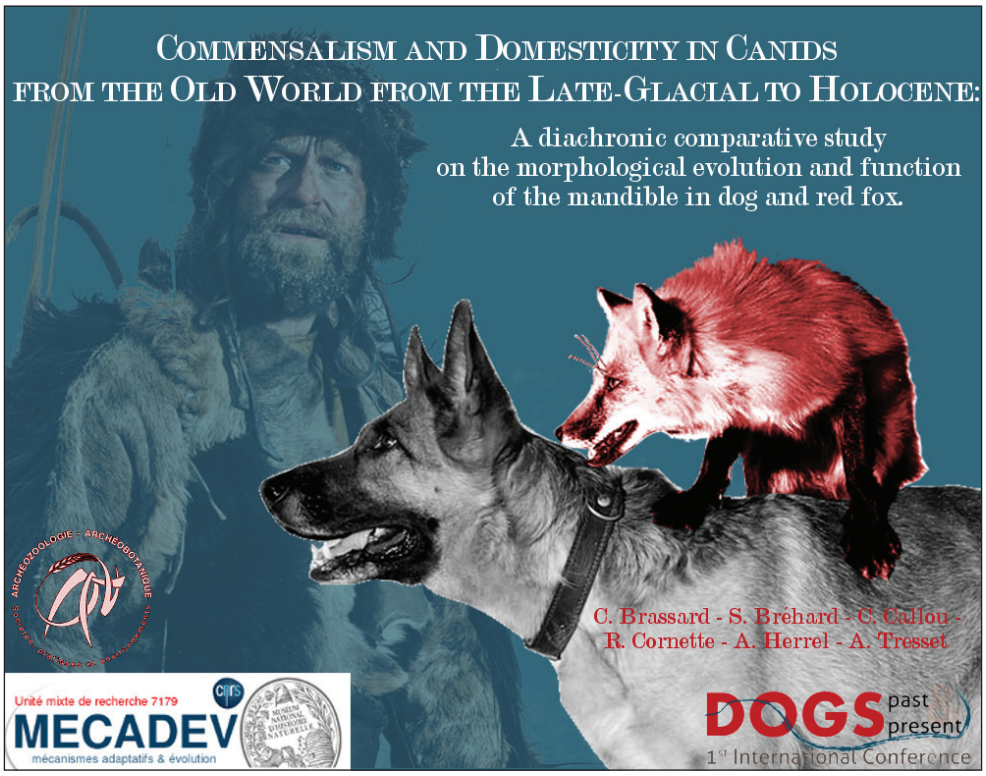

Numerous genetic studies have intimated similar plasticity in *Canis familiaris* and *Vulpes vulpes* despite their long genetic separation. As suggested by the farm-fox experiment, selection based on behavioural traits may be responsible for non-selected changes in physiology and morphology. A good indicator of this evolution - both morphological and functional - is the mandible, a particularly robust and resistant bone, often recovered in archaeological contexts. This project intends to trace the morphological and functional evolution of the dog mandible in Western Europe from the Mesolithic to the Bronze Age and to compare it with that of the red fox which remains poorly known. Comparing the evolutionary trajectories of a domestic species with a commensal one will allow us to document the impact of the relationships between humans and animals and the adaptations of canids throughout the Holocene. The project will review the occurrence of dogs and red foxes in the time span

under study to better understand the evolution of their status. The context of the archaeological remains around the Neolithic transition will allow us to evaluate the impact of techno-economic changes and human and animal population movements. Moreover, we will test whether morphological or functional changes in the masticatory apparatus followed the acquisition of the capacity to digest starch. Photogrammetry will be used to obtain 3D reconstructions of mandibles, which will be analysed using geometric morphometrics. Moreover, extant dogs and red foxes will be dissected to establish a biomechanical model allowing us to reconstruct bite force of archaeological remains based on the mandible only. The model will be validated using in vivo measurements and applied to dogs and red fox from the past. This will ultimately enable us to study the evolution of covariation between the form and function of the mandible in the two canids under natural and anthropic constraints.

Keywords: Mandible, Red Fox, Geometric Morphometrics, Neolithic, Functional Anatomy.

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'The Dingo and the Moon' Aboriginal stories and ceremony: The depiction of Native Dogs in South east Australian rock art

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Yoo-long Erah-ba-diang Initiation ceremony in Farm Cove Sydney 'The operators imitating the dogs of the country' 1795. Attributed to artist T. Watling and engraver J. Neagle.
Published in Collins, D. 1798 [1975] *An account of the English Colony in New South Wales*. Volume 1. Fletcher BH (ed) T.Caddell Jun. and W.Davies. London. [Republished by AW Reed and the Royal Historical Society Sydney] Reproduced as a photograph of etching in Attenbrow, V. 2010 *Sydney's Aboriginal Past: Investigating the archaeological and historical records* 2nd edition. Sydney UNSW Press.

The native dog (*Canis familiaris dingo*) has been in Australia for possibly five to six thousand years, since the mid Holocene until the present day. They arrived on boats with Asian sea-faring people, possibly from Timor and/or Sulawesi.

The word 'Dingo' comes from the Dharawal language that is spoken in Sydney's coastal area. There are many different Aboriginal names traditionally used across Australia, and some language groups have separate words for 'wild dingoes' and the 'dingoes that live together with people'.

What is the role of the dingo? Introduction of dingoes into mainland Australia has had an influence in ceremony, economic and social life; and the lore/law of Aboriginal people. The fact that they are represented in Aboriginal rock art (engravings, drawings and paintings) throughout Australia, means that they have an important role in ceremonial life, and connection to country (landscape).

The archaeological record has been influenced by dingoes. Some deposits in rock shelters have been altered or compromised through dingoes digging and scavenging ('Ruff Archaeology'?).

Dingoes offer companionship, assistance in hunting, and in some cases – during food shortages – a meal (they were eaten). The Dingo was placed into the totemic systems of Aboriginal Australia around the mid Holocene when it arrived.

An etching from 1795 depicts the native dog ceremony (note the raised earth mound of the ceremonial area). This ceremony survived until at least the early colonisation of Australia in the late 18th century. The participants 'become the dog'. They know the behaviour, psychology and ecology of this animal, and represent it in ceremony.

What is the nature of the relationship between the dingo and Aboriginal people, and the dingo and the landscape? In studying the rock art and contemporary Aboriginal viewpoints, it is hoped that a greater understanding of the role of the dingo in art and ceremony is achieved.

An analysis of where the dingo is represented in the rock art, the technique used and the motifs that they appear with, at those sites will help to understand regional differences. The focus of this study is on the Sydney area and the Blue Mountain. It offers a comparison with other regions in western Arnhem Land; the Wollemi National Park in New South Wales, and the Kimberly region in western Australia. Traditional Aboriginal stories about the dingo are still shared today.

Keywords: Aboriginal names, Dingo, Rock shelters, Rock art, Ceremony.

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Evidence of Wild Canidae from Prehistoric Layers at Grotta Giovanna: Reflecting Patterns of Past Human Behaviour and Symbolic Tradition (?)

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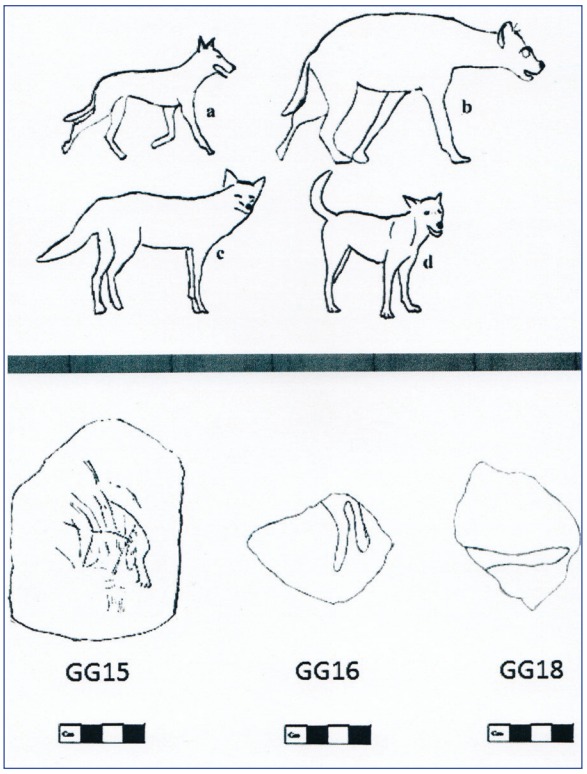

Canidae silhouette linear drawings: a) *Canis lupus arabs*; b) *Crocuta crocuta*; c) *Vulpes vulpes*; d) *Canis familiaris*; GG15, GG16, GG18: sketches of engraved stones with animal silhouettes from Grotta Giovanna (Naldini Segre 1992:351).
Metric scale is only referred to the sketches from Giovanna Cave.

All modern dogs are descended from wolves, which were tamed by prehistoric groups of human hunters (Clutton-Brock1981, cited in M. Masseti 2008). Since Darwin, domestication is a process that is understood involve selection within a human controlled environment. The oldest domestication of the wolf, well documented by morphological-skeletal changes between 12,000 and 10,000 years ago, is attested in South-West Asia (Clutton-Brock, 1981 cited in M. Masseti, 2008). The study on the mitochondrial DNA of 67 breeds of dogs and on 27 different populations of wolves, underlined the beginning of the domestication and the relative diversification of the dog from the grey-wolf that is thus supposed as the only wild progenitor already around 135,000 years ago (Vila *et al*. 1997, cited in M. Masseti 2008). Many details about this process and about the areas where it took place are still unclear (Perri 2014). New research (Ovodov *et al.* 2011) has postulated the earliest evidence of incipient domestication to be at Razboinichya, in the Altai mountains, AMS dated at a calendar age of 33,000-33,500 cal BP (at +2 sigma).

From several Upper Paleolithic layers at Grotta Giovanna (Siracusa, Sicily) wolf- *Canis Lupus* L. and fox- *Vulpes Vulpes* bones have been identified by L. Cardini and P.F. Cassoli during the first analysis of this deposit (Pianese 1968, Cardini 1971). These remains, together with the other fauna and microfauna, engraved stones

and lithic industries, are uunder re-examination from a holistic interdisciplinary approach focused on ecological, cultural and post-depositional processes which occurred occurred at the site, as it is located in the eastern Sicilian carbonatic Hyblean plateau, in one area still interested by karst phenomenon.Two different types of fox are reported from the Sicilian final Upper Paleolithic layers: a) *Vulpes vulgaris* L. and b) a fox of smaller size, like the one found at Grotta Corruggi (Pachino, Siracusa), at S. Teodoro (Messina) and at Grotta Mangiapane (Palermo).

Wolf, *Canis lupus* L., remains are also present at Grotta Giovanna although less commonly found than fox remains (Pianese 1968). There are shreds of evidence of intentional fauna exploitation by past human activities that took place at these occupation layers at Grotta Giovanna. Previous analysis (Pianese 1968, 1969; Segre Naldini 1992) on stone fragments, engraved with a naturalistic figurative style, which provenience is supposed mainly from trench layers A and C, interpreted some of these engravings as potential fox representation (fig., GG16, GG18) while another engraved limestone fragment shows, among other signs, a zoomorphic image (fig., GG15) that has been interpreted as a representation of a hyena (Segre Naldini 1992). Later investigation at nearby Grotta Spinagallo, still unpublished, attested wolf remains associated with *Bos primigenius* and *Cervus elaphus* (Villari 1995). These remains were found in a supposed Upper Paleolithic layer located at the exterior cave talus, close to a layer with Epigravettian lithic industry.

A complete synthesis and a reflection on the above mentioned archaeological data will be presented here. The resulting scenario will be discussed with some integrative data derived from folkloristic tradition from the Hyblean areas and from the contemporary hunters-gatherers from Africa. This study aims to contribute to unveiling the potential meaning(s) of wolf and fox remains at Grotta Giovanna and to better explain the nature of their relationship with the hunters that were active in the cave and surrounding territory.

Keywords: Sicily, Grotta Giovanna, Upper Paleolithic, Canidae, Holistic, Symbolic, Behavior.

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"*Lupus in fabula*" the Representation of wolf (*Canis lupus*) in the European Palaeolithic art

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The engraved pebble of Grotta Polesini (Museo Civiltà, Roma).

It is well known that carnivores (and other potentially aggressive large species) are poorly represented in Palaeolithic art. This is also the case for genus *Ursus* and genus *Panthera*, each of them recorded by 100-200 representations dating from 40,000 to 10,000 cal BP, compared to several thousand herbivores (Fritz *et al.* 2011). The genus *Canis* which was established in Europe before the Pleistocene is markedly even rarer. In the late Middle Pleistocene, *C. lupus* dispersed into Europe and wolf remains are commonly found in Late Pleistocene cave deposits. In this poster, we will review the extant evidence of wolf representations in Palaeolithic art, separating them from those of other canids (i.e. fox, *Vulpes vulpes*), as well as from the wolverine (*Gulo gulo*), which also has a resembling overall shape, despite being part of the Mustelidae family. In most cases, when the picture is complete (or almost complete), the ear and muzzle, together with the overall body proportions, permit distinctions among the different species represented. In the end, we conclude that only 9 depictions can be safely retained as representing a wolf. There are 5 more which might be listed as probable wolves, and 6 that remain frankly dubious. Interestingly, the wolf, which is a gregarious species, is almost always depicted as a single animal. It is represented at a small scale, mostly rendered by engraving, and it is noteworthy that there is at least one specimen in Germany, and one in Italy, which are countries with an overall limited artistic record when compared to France and Spain. All date back to the Lateglacial and are associated with Magdalenian or Late

Epigravettian lithic industries. At the end of the Pleistocene, the cave bear became extinct (Terlato *et al*. 2018), and then the spotted hyena (Varela *et al*. 2010) and the lion gradually disappeared from Europe (Stuart and Lister 2010). Since then, the wolf has remained the only large European carnivore up to present times. The exiguous number of wolves which enter the Palaeolithic art record at that time possibly reflects the changes happening in the European megafauna.

Keywords: Rock Art, Upper Palaeolithic, Canids.

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The dogs from the cult layers of the Ipogeo del Guardiano (Trinitapoli, Barletta-Andria-Trani, Italy)

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Ipogeo del Guardiano during the excavations.

The resumption, since 2016, of excavations within the Archaeological Park of the Hypogea of Trinitapoli (Madonna di Loreto locality) carried out by the Soprintendenza per i Beni archeologici della Puglia in cooperation with Sapienza University of Rome, allowed to complete the investigations in the Bronze Age underground structure called "Ipogeo del Guardiano".

The function of the above mentioned Ipogeo, in contrast to the other hypogea of the Park, did not change though time, maintaining its ritual use until the last phases of utilization, not beyond the Proto-appennine period.

The distribution of faunal remains along the stratigraphic sequence is uneven and most of the specimens were recovered in the so-called "phase 2". The preliminary archaeozoological analysis evidenced a high degree of fragmentation and the presence of many different species. In general, the identifiable assemblage is characterized by the marked prevalence of domestic animals over wild ones. Among the domestic *taxa*, the dog is the most frequent one, although its remains are referable to relatively few individuals; this species is followed by ovicaprines, cattle and pig. Among the wild taxa, red deer is the most abundant followed by roe deer, fox and hare; however, the latter two species may probably be considered as intrusive, not intentionally introduced by humans in the archeological deposit. Furthermore, there are also some fish remains (gilthead bream and flathead grey mullet), tortoise elements, and bird bone fragments.

It is important to emphasize that the entire dog assemblage comes from "phase 2" and is associated with human remains, mainly skulls or parts of them, that are entirely absent from the other two phases identified in

this underground structure. Red deer, represented mainly by shed antlers, is instead the main species in phase 1, although, given the small size of the sample of this phase, such information should be taken with caution.

The malacological assemblage includes several marine species, both gastropods and bivalves, typical of the Mediterranean, such as the murex, the Mediterranean cone, and the common cockle.

The focus of the present research will be on the dog sample from "phase 2": the materials will be investigated and described from an archaeozoological and taphonomic point of view and the role of this species within the funerary rituals will be considered.

The careful and interdisciplinary study of the different aspects of the material culture will help to outline the dynamics of the rituals performed inside the hypogeum and to clarify their evolution through time.

Keywords: Bronze Age, Hypogeum, Funerary Rituals, Southern Italy.

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The dog and the afterlife in Southern Italy: between ethnology and archaeology

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Cerberus by Gustav Dorulturvina Commedia (1861).

Combining the data of contemporary immaterial culture – typically the oral traditions such as proverbs and folk tales - with the information deriving from archaeology and ancient literature is generally a difficult and risky exercise.

Yet, in many European regions some popular traditions have their roots in an ancient past that is centuries- and sometimes even millennia-old.

Southern Italy is a significant example of this "cultural conservatism" that has transmitted ancient beliefs and customs as social identities. Here, some folk traditions have a substratum dating back to classical antiquity, and sometimes to pre-classical periods, despite Christianity and the succession and overlapping of foreign dominations since the Middle Ages (Lelli 2016: 363- 378).

The dog is a subject of particular interest in exploring this issue. In fact, contrasting aspects are at the basis of the iconic image of this animal, most likely as the result of the overlap of different and sometimes antithetical perceptions. The most obvious aspect underlines the faithfulness of the dog to man; but Southern Italian lore adds more obscure characters too, that tie it firmly to the World of Death.

It is well known that dogs are frequently related to the afterlife in many cultures.

In some of the major Southern Italian regions (Campania, Basilicata, Calabria, Apulia) connections between dogs and the World of Death can be found in both archaeological evidence and modern popular traditions (Lelli 2012: 169- 170).

This connection appeared in Southern Italy as early as the Neolithic. This is confirmed by findings of dog bones in some graves in Ripoli (Teramo, Abruzzo) (Cremonesi 1965: 125) and in Cala Colombo (Bari, Apulia) (Geniola 1977: 65- 66, fig. 20a). The custom of burying dogs together with humans is also attested to in later periods, from the Copper and Bronze Ages, right up until the Roman period (De Grossi, Minniti 2000: 392- 394). Thus, according to some scholars, the presence of dogs seems to be extremely important in man's relationship

with death, as it appears at some crucial moments of human existence, in particular when man passes away and when he is transformed into a spirit.

In the classical world, many myths connect the dog to underworld deities, e.g. Cerberus, who guards the entrance to Hades. Moreover, the goddess Hecate is strongly connected with death, and she was considered the patron of dogs. Indeed, according to ancient Greek beliefs, dogs announced Hecate's coming (Mainoldi 1981). The connection between dogs and death can still be seen in present times, such as in Southern Italian proverbs, according to which a crying dog announces a death (De Donno 2005: 51, n. 1919). In these regions ethno-archaeological research has identified evidence of the possible survival of ancient cultural ideologies in modern folk beliefs.

Keywords: Popular traditions, World of Death, Graves, Cerberus, Proverbs.

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Foramen magnum with a dorsal notch in a dog from 4,000 years ago

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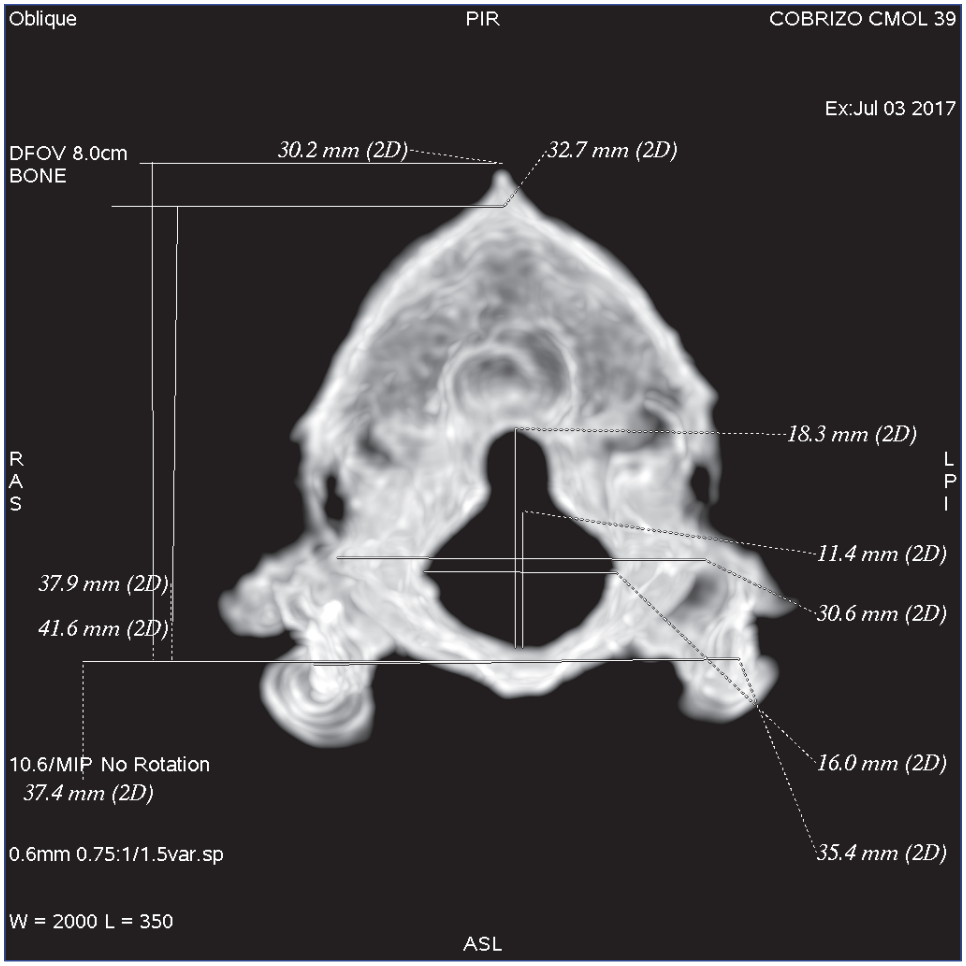

CT transverse image (MIP) of the canine occipital area showing of the craniometric measurements.

We present the results of an investigation carried out on a skull from a dog the Chalcolithic site of Camino del Molino (Caravaca de la Cruz, Murcia), dated to the second half of the III millennium BC (2350-1830 cal BC; Lomba *et al.* 2009). Preliminary studies (Catagnano, 2016) indicated that this dog was 2 years old and was 41.1 cm tall at the withers (a medium-sized dog). A Computed Tomography (CT) scan was performed and craniometric measurements of the occipital area were taken according to Janeczer *et al*. (2008). The skull's foramen magnum presented with a dorsal notch which is probably the consequence of an incomplete ossification of the supraoccipital bone, resulting in the dorsal widening of the foramen magnum. This abnormality of the development of the canine occipital bone is currently known as occipital dysplasia. Other bones of the skull were normal. Results of the craniometric measurements are shown in figure 1. The occipital dysplasia index was calculated as

described by Janeczer *et al*. in 2011 obtaining a value of 60.52. The investigations of the bone remains proved that this dog died after after reaching maturity. This fact suggests that the dorsal notch had no influence on the animal's demise. Studies of the foramen magnum in brachycephalic dogs (Simoens *et al*. 1994) have indicated that the dorsal notch is a normal morphological variation, rather than a pathological condition. Although occipital dysplasia occasionally occurs in many modern dog breeds, small and toy breeds show a higher incidence of the defect; thus, the dorsal notch may be a breed-specific characteristic resulting from domestication. For this reason, it has been suggested that the occurrence of a dorsal notch is probably related to intentional dog breeding. To the best of the authors' knowledge this is the first case of a dorsal notch described in dogs from Chalcolithic period.

Keywords: Dog, Occipital Displasia, Chalcolithic.

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Chiens et bergers dans la terre orobique

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Le chien-berger de Bergame.

De même que tous les chiens de berger modernes, le chien "bergamasque" aussi est issu des "*Canis familiaris matris optimae*", datant du 4ème / 3ème millénaire avant J.C. Parmi les gravures rupestres de Capo di Ponte, dans la vallée Camonica, on peut reconnaître des images stylisées de chiens: s'agit-il des ancêtres des animaux d'aujourd'hui qui collaborent avec l'homme dans ces mêmes vallées alpines? Cela se peut, mais sur l'origine de cette race les avis sont en désaccord: quelqu'un en identifie l'ancêtre dans des exemplaires provenant d'Asie; d'autres, dans le chien-berger autochtone des Alpes, réparti sur tout l'Arc alpin déjà à l'époque pré-romaine; il a ensuite continué à se reproduire presque exclusivement dans l'isolement de certaines vallées.

Le chien-berger de Bergame fait partie d'une ancienne culture transhumante, vouée aux montagnes en été et à la vallée du Pô en hiver. C'est une typologie de transhumance différente par rapport à celle de l'Italie centrale et insulaire, qui prévoit par contre des écuries hivernales dans les plaines. Le mot qui identifie le mieux ce type de transhumance est l'expression vénitienne «a remengo», qui indique "au hazard", "décousu": les bergers, le bétail et les chiens vivent l'été et l'hiver en plein air, n'utilisant pour le bétail qu'un abri dans les «Barech», des clôtures faites de murs en pierres sèches ou de troncs d'arbres entrelacés. Pendant les périodes de transhumance

ce chien peut parcourir environ 200 km par jour sur le trot, tout en gardant son troupeau et en faisant face aux loups ou aux voleurs. Cela explique sa démarche caractéristique, au trot ou galopante.

Le chien-berger de Bergame, attentif et déterminé, vit en symbiose avec le "bergamino", dont il est un ami et un collaborateur. Les "bergamini" sont des propriétaires de bovins qui louent les pâturages de la montagne ou de la plaine pendant un certain temps. Aux habitudes très conservatrices, ils ont tendance à s'isoler et à perpétuer un style de vie archaïque; ils ont adopté jusqu'à il y a peu leur propre système de mesure, en utilisant en plus un jargon particulier, appelé "Gaì". Encore parlé aujourd'hui dans la zone de Valsaviore, ce jargon a fait l'objet de recherches historico-linguistiques depuis le XIX^{e} siècle. Par le biais du "Gaì", on a pu transmettre un système de légendes et d'histoires qui mêlent des éléments païens et chrétiens: des feux allumés à l'occasion des fêtes religieuses, des histoires de défunts errants dans la nuit, l'attribution aux influences lunaires ("mal de la lune") des maladies du bétail.

Le "Centro Studi Valle Imagna" s'occupe aujourd'hui de recueillir et de reconnaître l'héritage de cette culture pastorale précieuse et peu connue. La SAB, Société d'amateurs du chien-berger de Bergame, s'est engagée dans la sélection rationnelle d'une race canine, soigneusement sélectionnée au cours des siècles, qui fait partie intégrante de cette ancienne culture qui est un exemple extraordinaire d'interaction entre les hommes et leurs précieux chiens.

Keywords: Chien bergamasque, transhumance, Barech, Gaì.

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"Cobalt Greyhounds". An artistic proof in ceramics

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Jar with the decoration of two canids.

This study is dedicated to an analysis of the artistic technique and iconography of a jar with two handles dating back to the first half of the 15th century. The jar was donated by Luigi Pisa in 1933 and is now exhibited of the maiolica room in the Museo Nazionale del Bargello, in Florence..

The object is characterized by a typical oriental decoration, the so-called "zaffera a rilievo", in cobalt blue. This technique hwas widely diffused throughout central and northern central Italy, from North of Lazio and Emilia Romagna, from 1397 to the middle of the 15th century.

This type of decoration is considered an assimilation of decorative methods used for centuries in the ceramic production traditions of diverse Islamic contexts. However, it is not derived from Hispanic or Hispanic- Moorish tradition, but from the manufactured goods coming from Oriental Islamic areas. Objects with this type of decoration began to be produced during the 10th century in the region between Iran (Nishapur) and Iraq (Samarra) and continued to be seen in the Abbasid lusters.

These beautiful lusters seemed to have preserved this method, which can also be insimilar goods produced in Fatimid Egypt between 10th and 11th century. During the time of Rum sultanate this decorative syntax was applied to fine ceramics produced in Syria and Anatolia during the first half of the 13th century.

Important proof of these observations seems to be the main subjects represented in the decoration. On both the front and the back of the jar are two canids, similar to “Greyhounds” (name generally believed to come from the Old English “grighund” where “hund” is the antecedent of the modern “hound”, but the meaning of “grig” is undetermined, perhaps in reference to “dogs” in Old English), which highlight the decisive influence of oriental traditions on the technique and nature of the decorations.

The origin of Greyhounds has in popular literature often been romantically connected to Ancient Egypt, with the belief “that the breed dates back about 4,000 years”, for which there is no scientific evidence. While similar in appearance to Saluki (Persian Greyhounds) or Sloughi (from tombs at Beni Hassan c. 2000 BC), DNA analyses reported in 2004 suggest that the Greyhound may not be closely related to these breeds, but is a close relative of herding dogs.

However, Greyhounds, just like primitive Mediterranean dogs found at archaeological sites or in artistic expressions that delineate a monophyletic line, originated in the East.

Only later,during the Renaissance (XIV-XVI century) period which was characterized by the extraordinary flourishing of arts in Italy, were these dogs imported into Europe. During this period, Greyhounds became protagonists of figurative arts because of their particularity and elegant lines that have always represented a model for painters and sculptors. Therefore, it was natural for these dogs to become real protagonists of the figurative arts and this study shows how their representation became one of the most important decorations used in maiolica in that period.

Keywords: Zaffera a Rilievo, Islamic Context, Greyhounds, Renaissance, Figurative Arts.

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Representations of dogs in attic funerary monuments: a question of symbolism?

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Funerary statue in the shape of a Molossian dog, 4th century B.C. From the Piraeus' necropolis, Greek marble. Athens, National Museum (3574).

The classical iconographic tradition of Attic funerary monuments is rich in representations of animals: among these, dogs undoubtedly represent one of the most interesting subjects. Through the analysis of ancient literary and epigraphic sources, we learn that classical society knew almost fifty breeds of dogs, characterized by different names, mainly related to their provenance, attitude, pedigree or mythical owners. With a very few exceptions, however, it's quite difficult today to link all these names with particular images of dogs represented in ancient Greek art. For this reason, we propose to identify the artistic representations of dogs principally according to their phenotypes. It's interesting to notice that, in particular among funerary monuments of Athens (and even Attica in general), artists of the 5th- 4th century B.C., appeared to prefer only a very few types of dogs, perhaps due to their symbolic values. In fact, combining the data obtained from the analysis of funerary reliefs and statues, we can see that classical Attic funerary art includes only three typologies of domestic dogs. The first type is the so-called "Maltese dog", which is more similar to a modern Spitz: very likely, its name originated from a misleading interpretation of the ancient literary sources. In our research, this kind of dog is represented only in funerary reliefs, where this small-sized dog is associated in particular with children, boys and girls, and women. The second type is the hound, believed by some scholars to be the so-called "Laconian dog". This dog was particularly appreciated in hare and deer hunting, appearing to be very similar to the modern Canarian and Iberian *Podencos*. The *Cirneco dell'Etna* also belongs to this same dog typology, despite being of smaller size. In Attic art, this hunting dog is often represented in funerary reliefs, associated with boys, ephebes and men. In a handful of cases it can be identified as a funerary statue, being part of the decoration of great monuments or funerary enclosures (*periboloi*). The third type of dog is the ancient Molossian dog, which can be compared to

the modern-day Italian Catch-and-Hold dog, or *Corsican hound*. This last typology is very interesting, because of its absence among funerary reliefs. In fact, the only images of the Molossian dog in classical Attic funerary art is found in statuary, where this dog seems to placed in association with human graves. Its most famous use in antiquity was, in fact, as house guardian. In light of all this, trying to find a possible interpretation for the use of dog types in Attic funerary art, we can assume that these animals may have been chosen according to a specific logic, depending on their attitude and the categories of humans with which they were associated. Spitz dogs can be regarded as house pets, and probably for this reason they were put at the side of children, girls and women, all living mostly within the house (*oikos*). Hounds were used, instead, for hunting purposes: perhaps for this reason, they were more suitable for ephebes and men. Molossian dogs, ordinarily used as guardians of houses and estates, were instead represented alone, not associated to human beings, just as eternal defenders of rich tombs. Finally, teenage males represent a very unusual case, being neither children nor yet proper adults. are often represented with either Spitz dogs or hunting hounds, probably due to their peculiar gender and status.

Keywords: Funerary monuments, Attic art, Dog phenotypes, Classical Greece, Breed symbolism.

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Dogs - Past and Present. Concluding remarks

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The dog (*Canis familiaris*) is the earliest animal ever domesticated by people and has played a unique and essential role in human history. The conference "Dogs - Past and Present. An interdisciplinary perspective", which was held in Rome, 14th-17th November, 2018, has provided a wonderful opportunity to celebrate and investigate the historical relationship that we have established with this very special animal. Researchers from many different parts of the world gathered in Rome to share their viewpoints and very diverse expertise, thanks to the coor-

dinating effort of the two conference organisers – Ivana Fiore and Francesca Lugli. Case studies covered a very extensive geographic area, encompassing all continents, with Europe and Asia (mainly Central) being particularly strongly featured. A number of papers also dealt with the Americas, but Africa and Oceania were rather more neglected, though a paper on Egypt and a poster on Australian dingoes were noted. Several papers, however, broke geographic barriers, and other had a more methodological flavour, such as the establishment of criteria to distinguish wolf and dog, from their material remains. Delegates approached the subject in many different ways, according to their expertise and background, which was very interesting to see. During the numerous discussion sessions, it was particularly stimulating to witness dialogues between experts of, sometimes, very different disciplines. Occasionally this led to misunderstandings, but more often to a synergy of useful ideas. Archaeology had the lion's share of the contributions, but other disciplines, particularly ethnography and iconography, were also strongly featured. The range of approaches was, however, remarkable, and included history, history of art, linguistics, sociology, genetics, evolutionary biology, botany, ecology, population dynamics, breeding studies, philosophy, ethics, education, numismatics and, unquestionably, several others.

Very many different themes were explored, which makes it impossible, and probably pointless, to try summarising them fully here. Domestication, a key theme in archaeology and anthropology, was unsurprisingly covered by quite a few presentations. Those showed how much progress has been made in the last few years but, at the same time, how much uncertainly still exist regarding the timing, placing and mechanisms of the dog domestication process. Still, we should not forget that only a few decades ago we could not even be sure that the wolf (*Canis lupus*) was the sole ancestor of the domestic dog. I found it fascinating to hear not just about the earliest possible origins of the domestic dog, but also its geographic spread (e.g. in South America), as well as the limitations of its potential diffusion in areas such as Southern Africa.

Another subject that was covered by quite a few presenters was the contribution of dogs to a pastoral lifestyle - covering many different regions in the world. Sub-themes in this area included mobility, nomadism, transport and protection of the herds. What emerged most powerfully from some of these accounts was the absolute centrality of the dog to the organisation of some human societies. Simply put, a certain lifestyle would be *impossible* without dogs. We saw this most clearly in examples from Central Asia but, in fact, that applied to many other areas of the world and, arguably, to all pastoral economies.

Hunting with dogs was also discussed, in some cases with the aid of some remarkable iconographic evidence. Like for pastoralism, it is clear that certain hunting strategies are unfeasible without the help provided by dogs. This was clear from both archaeological and ethnographic examples.

An important subject that had, perhaps surprisingly, to wait for a couple of days before being discussed at the conference was the consumption of dog meat – cynophagy. Regarded as taboo by many modern-day societies, the practice was fairly widespread in the past, though the dog was never a primarily food-animal. In some cases, eating dogs could also assume a ritual significance, rather than just being practiced for protein sustenance. It was especially interesting to hear contemporary cases of some ethnic groups being unfairly accused of stealing and eating dogs, as a way to discriminate and marginalise them.

Finally, it is important to remember that the most widespread use of dogs nowadays in the world – their role as pets and companions – has a long history. In human history, dogs have had far more than just a practical use, however important that was. Dogs have played a central role in human religion, ritual, ideology and belief. They have interacted with people closely and shared with them feelings of love and affection, though, at times, also hatred and disdain. It was poignant to hear, in the final day, stories of pet cemeteries dedicated to dogs, as well as gravestones, monuments, poems and epitaphs. They are a good reminder of the powerful agency of dogs and how they have shaped our lives as much as we have shaped theirs.

This remarkably interesting conference was concluded with the aspiration to meet again and intensify further the collaborative efforts between different disciplines. The idea is to move further on in the trajectory from *multi*disciplinarity to *inter*disciplinarity. We owe this further effort to the dogs – companions of or lives.