

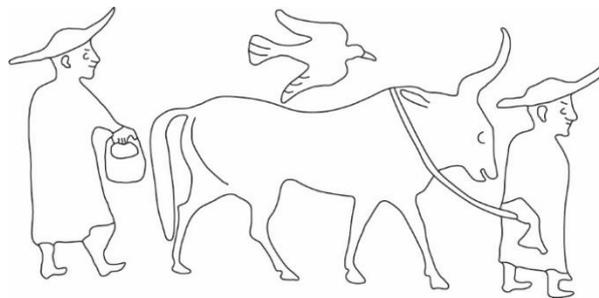
Cultural transfer, mobility and networks:

***Osteoarchaeological perspectives on
socioeconomic changes in European
Iron Age societies***

Workshop, 16th/17th November 2022

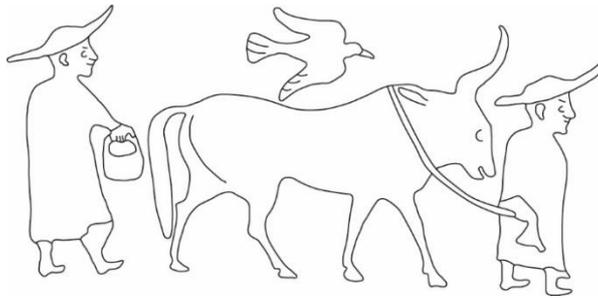
Constance

Archaeological State Museum



Abstracts and list of speakers/participants

Wednesday, 16th November



Baden-Württemberg
LANDESAMT FÜR DENKMALPFLEGE
IM REGIERUNGSPRÄSIDIUM STUTT GART

DFG Deutsche
Forschungsgemeinschaft

SIMON TRIXL and JANETTE HORVATH:

Animal husbandry, cultural transfer and networks: The example of late Iron Age societies north of the Alps

The aim of our case study being conducted on a Central European model region is to demonstrate the complexity of interactions between cultural/economic change and animal husbandry.

At the end of the 2nd century BCE, the emergence of the so-called Oppida civilisation resulted in a degree of urbanisation, hitherto unknown, in Central Europe. The eponymous proto-urban settlements (Latin *oppidum*: town, city) represented economic, political and maybe even religious centres, whose supply of animal products was based on a complex system combining local production, agriculture and animal husbandry from within the immediate surroundings as well as supra-regional trading networks. However, these highly-developed structures underwent a profound change during the first half of the 1st century BCE: In many regions, such as the Northern Alpine Foreland, numerous settlements were abandoned or decisively reduced, population density decreased and economic structures such as the extensive trading connections between Central Europe and the Mediterranean world disintegrated. The reasons discussed for this include, among others, overexploitation of natural resources and epidemics. Nevertheless, simultaneously, the area between the Danube region and the Alpine Arc became a part of new supra-regional networks. While the import of Mediterranean goods, and maybe also animals, played an important role in the Oppida economy, the final phase of the Iron Age was characterised by increasing cultural influence from the Central German Uplands (present-day Hesse, Northern Bavaria and Thuringia).

These processes of cultural and economic change at the end of the Iron Age also affected subsistence strategies, and animal husbandry in particular, as evidenced from current archaeozoological research on faunal assemblages from the Northern Alpine foreland. On the one hand, the disurbanisation associated with the end of the Oppida led to the emergence of a more self-sufficient economic model at a local scale. On the other hand, the strong connections to the Upland Zones triggered, at least locally, the emergence of new husbandry strategies, coexisting and interacting with traditional systems in the former Oppida region.

MATTEO BORMETTI and UMBERTO ALBARELLA:

Continuity and change in animal husbandry at the end of the British Pre-Roman Iron Age

This paper presents some preliminary results from the PhD project 'Animal husbandry in the British Later Iron Age: investigating economic and social change through zooarchaeology'. The project investigates changes in livestock type and management and their relationship with cultural, social, and economic transformations in Central-Eastern England during the Later Iron Age.

Britain was one of the last European regions to be conquered by the Romans. As such, the Pre-Roman Iron Age here is conventionally considered to last until the year of the invasion, 43 CE. The Romano-British period is characterised by the importation of livestock from the continent and the breeding of local stock to increase their size, the shift from prevalent mixed sheep husbandry to a form of cattle husbandry aimed at increasing arable production, and the appearance of a system of large-scale specialised butchery to satisfy the needs of the growing population and a number of new consumer sites (urban and military).

Much less understood is the previous period, the Later Iron Age, which broadly corresponds to the La Tène chronology of continental Europe. This was, nonetheless, a transformative period: material culture, settlement patterns, technology, trade networks, and the structures of power evolved, creating the conditions which ultimately triggered the Roman invasion.

Zooarchaeological techniques, with a focus on osteometry, are used to characterise human-animal relationships in the Later Iron Age. Aspects of change, or their absence, are critically linked to the adaptation of the local population to demographic pressure, climatic change, external influences, and internal societal restructuring.



SABINE DESCHLER-ERB, JOSÉ GRANADO and ANGELIKA SCHLUMBAUM:

Cattle Husbandry and Cultural Change in the Past - Insights from Archaeozoology and Genetics in Prehistoric and Roman Switzerland

Domestic cattle played the dominant role in most Bronze Age to Roman sites in present-day Switzerland. It was used multifunctionally, as work animal, milk producer and supplier of meat and raw materials. The use priorities seem to have changed over the course of time. Body size also increases significantly, especially from the late Iron Age to the Roman period. There are various hypotheses as to how this change in size came about. Genetic studies now indicate that socio-economical changes are accompanied by fluctuations in maternally inherited mitochondrial DNA lineage diversity. After a strong bottleneck in Iron Age, increasing diversity supports an impact of non-local animals on cattle populations with Roman time.



Baden-Württemberg
LANDESAMT FÜR DENKMALPFLEGE
IM REGIERUNGSPRÄSIDIUM STUTTGART

DFG Deutsche
Forschungsgemeinschaft

KONSTANTINA SALIARI, CHRISTINA AMORY, ERICH PUCHER and WALTHER PARSON:

Differentiation of Iron Age and Roman period cattle morphotypes based on morphometric and genetic analysis in present-day Austria

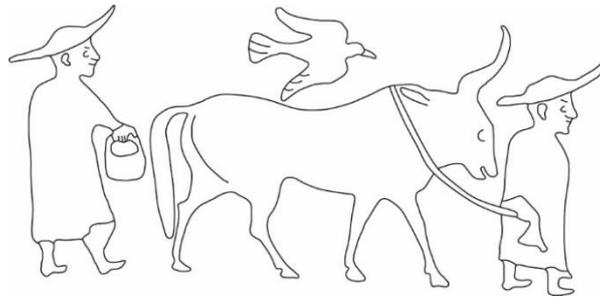
The main focus of this study is the separation of two cattle morphotypes based on morphological traits, osteometric data and genetic analyses: the small-sized cattle which appears in present-day Austria during the Late Bronze Age and is very common during the Iron Age and the large-sized cattle population, which has been systematically documented during the Roman period and thus it has been connected with the arrival of the Romans (around 15 BC). New archaeozoological finds however suggest that the large-sized cattle morphotype is already present in some Iron Age assemblages from present-day Austria, raising new insights and questions concerning Iron Age trading activities, networks and finally animal husbandry practices. Additionally, Roman period faunal remains clearly show that the small-sized cattle population co-existed with the new large-sized morphotype, indicating different traditions and utilisation of the two cattle populations. Molecular analyses have been carried out on Iron Age and Roman period cattle remains, to find genetic evidence concerning the two morphotypes and their possible origin.



Baden-Württemberg
LANDESAMT FÜR DENKMALPFLEGE
IM REGIERUNGSPRÄSIDIUM STUTT GART

DFG Deutsche
Forschungsgemeinschaft

Thursday, 17th November



Baden-Württemberg
LANDESAMT FÜR DENKMALPFLEGE
IM REGIERUNGSPRÄSIDIUM STUTTGART

DFG Deutsche
Forschungsgemeinschaft

JOSCHA GRETZINGER, ANGELA MÖTSCH, FELICITAS SCHMITT, MICHAEL FRANCKEN, GÜNTHER WIELAND, KATERINA HARVATI, WOLFRAM SCHIER, DIRK KRAUSSE, JOHANNES KRAUSE and STEPHAN SCHIFFELS:
Kinship and Social Hierarchy in early Celtic Communities

The European Iron Age is characterised by the two key archaeological cultures Hallstatt and La Tène in a large region to the north of the Alps, which are broadly associated with ‘Celts’. While this term does not serve as an accurate description or grouping of a homogenous people or ethnic group, it highlights the close connection between a specific archaeological horizon, hypothesised linguistic affiliations (Celtic languages), and historical sources. The pan-European patterns and linguistic evidence for cultural connections during this time are complex and encompass a huge region from the Iberian Peninsula throughout Central Europe and as far east as Anatolia (during the 3rd century BC).

However, during the earlier phase of the Iron Age (800 – 450 BC, Hallstatt C and D), a core region in Southwestern Germany and Eastern France, the ‘West-Hallstattkreis’, stands out in its archaeological importance, as highlighted by the emergence of rich and unprecedented ‘princely burials’. Up to the present-day, the identity of these buried elites and the system of rule they represented remain controversial. In particular, while for societies with writing systems hereditary leadership is documented as one of the hallmarks of early political complexity and governance, it is so far unknown whether hereditary succession played a role in the formation of the early Celtic society that lacked writing.

Here, we describe and analyse the first genome-wide data from Southwest Germany dating to the late Hallstatt period. The genetic profiles of more than 30 individuals from this early Celtic population in Germany reveal transregional familial relationships and mating patterns, allowing us to gain first insights into the nature and distribution of political power in Hallstatt period Europe.

**CARMEN ESPOSITO, MELANIA GIGANTE, PASQUALE MIRANDA, CLAUDIO CAVAZZUTI, FEDERICO LUGLI, ALESSANDRA SPERDUTI, MARCO PACCIARELLI, FRANCESCO LA PASTINA, ELENA SCARSELLA, SIMON STODDART, RICHARD MADGWICK, PAULA REIMER, CAROLINE MALONE, LUCA BONDIOLI, WOLFGANG MÜLLER, GIOVANNA BAGNASCO, LUCIE BIEHLER, DAN BRADLEY, EMILY BRESLIN, CRISTINA CATTANEO, MATILDE MARZULLO, ROWAN McLAUGHLIN, VALERIA MATTANGELI, ANGELA TRENTACOSTE, ALFREDO COPPA and LAURA MOTTA:
Exploring Mobility in early first millennium BC central Italy**

The early first millennium of central Italy was an important phase of political change, involving extensive nucleation of population, otherwise considered the birth of the city. These political changes involved the extensive movement of population that has traditionally been registered through cultural analysis. One important question is the degree to which this nucleation drew on local or more distant populations. Another important question is the composition of these new populations. Very recently, a series of projects has commenced to look at this transformation from a complementary biological perspective, in centres across the Peninsula. These results, many presented at the recent Budapest EAA conference, show that considerable percentages of the buried populations had non-local origin from a biological perspective, measured by multi proxy combinations of aDNA, oxygen and strontium isotopes. We are recovering a biological diversity that is complementary to the hybridity measured in cultural terms.

The cultural research on these centres has a long-standing history. The results of the biological studies are at different stages in terms of sample size, construction of base lines and comparison between different sources of information. We will outline the current state of knowledge principally from two case studies. The study of Fermo is at a relatively advanced stage with a reasonable sample size and the more recent study of Tarquinia which is at an earlier stage of development. We will compare these results with the current understanding of the construction of identity for these communities and situate them within a broader Mediterranean framework by modelling both the agency and processes involved in social as well as biological anthropological terms.

STEFANIA ZINGALE, ZITA LAFFRANCHI, SANDRA LÖSCH, LUCIANO SALZANI, IRENE DORI, FELIX MÜLLER, ALICE PALADIN, VALENTINA COIA, FRANK MAIXNER, MARCO MILELLA & ALBERT ZINK:

“Celts” Up & Down the Alps: Origin and Mobility Patterns on Both Sides of the Alps During the Late Iron Age (4th – 1st century BCE)

The genetic history and the degree of mobility characterizing the “Celtic” population during the Late Iron Age (4th -1st century BCE) have become central topics in archaeology and anthropology. However, despite the steady increase of archaeological, biomolecular and biogeochemical studies on central European and British contexts, few data are available for the Northern Italian and Swiss territories. During the Late Iron Age the geographic areas corresponding to modern Switzerland and Northern Italy played a crucial role in connecting Central and Southern Europe. This connection involved not only forms of cultural transmission (e.g. diffusion of the La Tène material culture), but also the actual movement of people through the Alpine range. During the Late Iron Age the European area was affected by migrations of different human groups, with southward migratory processes documented historically and by archaeological traces in both Northern and Central Italy. Little is known however about the similarities and differences in genetic variability, mobility patterns, and social organization between the Late Iron Age populations distributed on the two sides of the Alpine range. The present project aims to address this issue, by means of a multidisciplinary (genetic, and isotopic) analysis of a large skeletal sample representing Late Iron Age populations of modern Switzerland and Northern Italy (Cenomani of Verona) between the 4th -1st centuries BCE. In particular, the present project aims to: 1) reconstruct the genetic history and variation of the “Celtic” groups inhabiting the Swiss and Northern Italian areas by analysing the genetic relationship among groups and the genetic structure of groups; 2) estimate the degree of mobility characterizing these populations, and the differences and similarities in mobility (e.g. frequencies of nonlocals, sex and age patterns, long-versus short distance mobility) between them; 3) test for the presence of relationships between mobility, kinship patterns, and social organization in each area, and the possible similarities and differences in social organization between the Swiss and Northern Italian communities. Analytical methods will include the study of ancient DNA (aDNA) and of stable isotopes ($\delta^{15}\text{N}$, $\delta^{13}\text{C}$, $\delta^{34}\text{S}$, $\delta^{18}\text{O}$, $\delta^2\text{H}$), in conjunction with a quantitative analysis of the archaeological evidence.

This project will be the first to apply a multidisciplinary approach to the study of Late Iron Age populations from Continental Europe, and will generate new openly-accessible isotopic and genomic data for future studies on these populations from both sides of the Alps. The results will be disseminated across different target groups by means of: i) scientific papers, international conferences participation and open access data repository for scientists. ii) social networks and media platforms,



didactic activities in schools, public conferences and interview/articles in local newspapers for the non-scientist audience.

This research was supported by a Swiss National Science Foundation grant to Marco Milella and Albert Zink (grant number: 10531FL_197103 / 1).

WOLF-RÜDIGER TEEGEN: Transformation processes in the osteoarchaeological record between Iron Age and Roman times in the Civitas treverorum

The present paper will discuss transformations in human behavior between the Iron Age and Roman times in the tribal territory of the Treveri, the later civitas Treverorum between Rhine and Ardennes. This will be tackled from two directions: First from an anthropological point of view for the people once living there, and second from an archaeozoological perspective regarding the domestic animals.

Due to small sample sizes and/or difficult dating, both of humans and domestic animals, transformations in living conditions and animal keeping will mostly be outlined for LaTène and Roman times. Only the Celtic-Roman cemetery of Wederath-Belginum with continuing use from middle LaTène to late antiquity offers a more complex insight into human mortality and animal offerings. People lived longer in Roman times, but had more pathologies compared with the previous LaTène period. Sex differences in mortality persisted.

The faunal composition in the burials, settlements and sanctuaries is also changing. Since the middle LaTène period, chickens are present. The first oysters can be found in Augustean times, while exotic birds like crested fowl and peacock are present only in later Roman times. Progress in animal keeping is documented by an increasing LSI in cattle and ovicaprines. The multivariate methods applied give further insights and are helpful tools in osteo-archaeological data analysis.



SILVIA ECCHER: Trade, ideas, innovations in South Tyrol in the Iron Age through faunal remains: the case of the village of Stufles (South Tyrol, Italy)

The village of Stufles is located in Bressanone in South Tyrol (Italy), at the confluence of two rivers and well exposed to the sun. The particularly favourable geographic and climatic position has made the area frequented since the Mesolithic period. Geographically, the village is located at the centre of a crossroads of two important natural traffic arteries, the Brenner and the Puster Valley, with an easy connection to the south by river.

Traces of roads dating back to the Iron Age have been found within the village. In addition, the discovery a few years ago of the remains of wine storage barrels and wheels (Bressanone, locality Rosslauf) lay the groundwork for hypothesising trade and commerce with the Etruscan world that exported wine.

Recent studies of faunal material from some buildings dating from the 7th to 1st centuries B.C. in Stufles have identified important remains that support the importance of the village in relations and trade with the Etruscan area. Uncommon species in the Alpine area, such as the donkey, the mule and a shell of Mediterranean origin, reflect the exchange of goods between the Alpine and probably the Adriatic region. The size of some bones (e.g. horse) differing from the basin of measurements of the species may suggest imports of breeds or crosses, while the introduction of species, such as chicken and horse, at a time (6th century B.C.) when they were still rare in the Alpine area, again points to contacts with other populations.



MICHAËL SEIGLE: Transition between two worlds: changes in human-animal relationships in Rhône valley (800-50 BC)

The Rhone valley constitutes an important link between the Mediterranean region and Northern Europe. The situation was similar during Iron Ages. Indeed, it formed a junction between southern territories, where Etruscans and Greeks used to trade and create colonies, and northern Gaul, considered as rather included in Hallstatt culture, during first Iron Age. In this context of important circulation, trade and exchange, animal breeding and consumption offer an overview of cultural influences and social changes rhodanian populations lived through time. During Hallstatt period, rhodanian sites show a North/South division, according to animal remains, beef prevailing on northern ones whereas sheep and goats dominate southern consumption. Our study reveals a progressive change along second Iron Age, pig becoming prevalent in numerous sites just before Roman conquest. These changes express an evolution of agricultural practices probably due to climatic, demographic and social transformations in this transition region.



SILVIA VALENZUELA-LAMAS, ARIADNA NIETO, ANGELA TRENTACOSTE & SILVIA GUIMARÃES: Animal husbandry in NE Iberia from the Late Bronze Age to Late Antiquity: a complex picture from zooarchaeology and mobility isotopes

Europe experienced major economic and socio-political changes during the first millennium BCE and the first millennium CE, including NE Iberia. Animal husbandry practices changed through this time frame as well, from a focus on sheep and goats and small animals during the Iron Age to a higher presence of cattle and pigs –and bigger animals– during Roman times. Interestingly, animal husbandry practices during Late Antiquity were found to be similar to those from the Iron Age, which suggests a close relation between the size of the political entities and animal husbandry practices.

This work will present the main zooarchaeological (NISP frequency, animal size) and mobility isotopic results (strontium, oxygen) from NE Iberia obtained during the ERC-StG ZooMWest. The integration of different streams of evidence draws a complex and yet informative picture that can be useful for present-day animal husbandry practices in the current changing socio-political scenario.

