

Be-Archaeo First Summer School program

24 June

Museum of Oriental Art, MAO

Via San Domenico 11, Torino 10122

Chair: Eliano Diana

9.00 Opening

9.15 prof. **Gina L. Barnes**, University of London,
Protohistoric Archaeology in Japan: elite burials and relations with China & Korea

11.00 Coffee Break

11.30 prof. **Akira Seike**, University of Okayama,
The Changes of Chiefly Inheritance System in the Kofun Period

13.00 - 14.00 Lunch

Chair: Monica Gulmini

14.00 dr. **Beatrice Demarchi**, University of Torino,
Biomolecular Archaeology: the method, recent advances and practical applications

15.45 Coffee Break

16.15 prof. **Takehiko Matsugi**, National Museum of Japanese History,
Exploring the cultural dynamics of the past: Design and identity of iron weapons in the Kofun period Japan

25 June

Università di Torino

(room to be defined)

Chair: Diego Elia

9.00 prof. dr. **Thomas Knopf**, University of Tübingen,
Burial Mounds in Central Europe and in Japan: Features and Approaches



10.45 Coffee Break

11.15 dr. **Daniele Petrella**, I.R.I.A.E., Napoli,
Archaeological investigation: from the academy to the private activity

13.00 - 14.00 Lunch

Chair: Naoko Matsumoto

14.00 prof. **Minoru Yoneda**, University of Tokyo
Ancient life unveiled: the contribution of isotope analysis

15.45 Coffee Break

16.15 dr. **Cristiano Nicosia**, University of Padova,
Soil science and Archaeology

26 June

Università di Torino

(room to be defined)

Chair: Alessandro Lo Giudice

9.00 prof. **Francesco Grazi**, C.N.R. and University of Firenze,
The ancient arms and armour production technologies in Japan revealed through neutron imaging and neutron diffraction

10.45 Coffee Break

11.15 prof. **Vincenzo Lombardo**, University of Torino,
Digital archives in Archaeology: from tools to methodology

13.00 - 14.00 Lunch

14.00 Workshop

17.00 Concluding remarks.

Abstracts

Prof. Gina L. Barnes, University of London,
gb11@soas.ac.uk

Protohistoric Archaeology in Japan: elite burials and relations with China & Korea

The protohistoric period in Japan began with mention of Yayoi chiefdoms in the *Hanshu* dynastic records of Han Dynasty China (209 BC–AD 25) and ended with the compilation of the *Kojiki* (712 AD) and *Nihon Shoki* (720 AD) for the Nara Court in Japan. This period encompasses the emergence of chiefs and their burial in well-endowed tombs. Tracing these developments begins in Kyushu, with regional identities coalescing into a stratified elite in the Kofun period ruling from Nara. Interpretations of the socio-political standing of chieftains/kings, the locations of primary polities, and the timing and structure of state emergence have all changed since the initiation of mounded tomb studies in the late 19th century.

Prof. Akira Seike, University of Okayama,
aseike@okayama-u.ac.jp

The Changes of Chiefly Inheritance System in the Kofun Period

The transition in chiefly inheritance during the Kofun Period derives from military tensions throughout East Asia, in particular, China and the Korean Peninsula. Patrilineal inheritance was promoted by the elite chiefly class of the 5th century in response to strong outside factors. In addition, this transition was not a natural phenomenon that occurred spontaneously in each region, but rather a political strategy carried out by the central government of the Middle Kofun Period that was rapidly and widely enacted across the Japanese archipelago. Located on the edge of China's advanced sphere of influence, Japan's process of state formation was extremely sensitive to changes in the international environment.

Dr. Beatrice Demarchi, University of Torino,

Biomolecular Archaeology: Recent Advances and Practical Applications

Biomolecular archaeology has emerged as a whole new field of research, which can be split into different sub-disciplines (palaeogenomics, palaeoproteomics, palaeolipidomics, stable isotope geochemistry) intersecting evolutionary biology, anthropology, archaeology, cultural heritage and conservation sciences. These methodological advances have allowed us to reconstruct the evolution of organisms, migration of people and animals, subsistence practices, diet and cuisine, health and disease. In this lecture I will give a brief historical introduction to biomolecular archaeology and then focus more specifically on the study of ancient proteins using mass spectrometry ("palaeoproteomics"). I will explore the potential of palaeoproteomics by presenting a range of case studies, with a broad thematic focus on prehistory and on past human-environment interactions. A second theme will be the contribution of ancient protein studies towards reconstructing objects biographies, particularly with regard to human choices of raw materials for crafting personal ornaments.

Prof. Dr. Thomas Knopf, University of Tuebingen/Museum of the Celts, Hochdorf,
thomas.knopf@uni-tuebingen.de

Burial Mounds in Central Europe and in Japan: Features and Approaches

In both parts of the world, Central Europe and Japan, burial mounds form an essential part of the archaeological heritage. Although differing in form, size and chronology there are similarities regarding for example their function as monuments in the landscape. In my lecture I want to give an overview of burial mound building in Central Europe, especially in the Celtic Iron Age (800-400 BC) and point out some archaeological finds and features. A special emphasis is put on more recent approaches of landscape archaeology and burial mounds. I will then try to identify approaches to burial mounds in Japanese archaeology and describe in a comparative way differences, resemblances and potentials between Europe and Japan.



Dr. Daniele Petrella, International Research Institute for Archaeology and Ethnology (I.R.I.A.E.) Napoli, daniele.petrella@iriae.com

Archaeological investigation: from the academy to the private activity

Archaeologist work has never been easy. Like any science, archaeological research has always had a decisive framework in the academic field, but the difficulties inherent in this world, such as the difficulty of access or the scarce funds dedicated to it, makes it an increasingly rare activity and which, necessarily, excludes talented researchers and professionals.

For some time, to solve this problem, in Europe (as in other parts of the world) numerous private Archaeological Research Institutes have been springing up, often as Non Profit, which allow the realization of archaeological research also outside the academia, while maintaining its accuracy and scientific rigor.

Through the experience of IRIAE (the first example of its kind in Italy), we will try to understand how such a project can be realized.

Prof. Minoru Yoneda, University of Tokyo, myoneda@k.u-tokyo.ac.jp

Ancient Life Unveiled: the Contribution of Isotope Analysis

Isotope analyses are used for many kinds of purposes, such as diet, migration and age determination, in archaeology today. These can produce "scientific data" for archaeologists but the interpretation of data should be done in the light of history and environment. I will share my experience in some interdisciplinary projects.

Dr. Cristiano Nicosia, University of Padova, cristiano.nicosia@unipd.it

Soil Science and Archaeology

Soils form in conditions of prolonged stability of the surface, i.e. when sedimentation and erosion are inactive. They are the result of the post-depositional transformation of substrate, either rock or soft sediments, brought about by a series of "soil forming factors". These include: climate, topography, organisms (including humans), time (the duration of soil formation), and the parent

material. In an archaeological perspective, all these soil forming factors represent glimpses of the past environment that can therefore be exploited to reconstruct key aspects of the landscape, of the paleo-environment, and of past human practices. Moreover, specific soil forming processes such as bioturbation, oxido-reduction, decalcification, etc. have a prominent role in transforming archaeological deposits. An archaeopedological approach can decipher all these transformations, allowing us to extract from the deposits the traces of human activities that are concealed in them. Lastly, several soil science analytical techniques, such as for example soil micromorphology (the study of soils and sediments under the microscope in thin section), or standard soil analyses (granulometry, organic carbon, soil phosphorus) are now routinely employed in archaeological research.

Dr. Prof. Francesco Grazi, CNR-IFAC, Sesto Fiorentino (FI), Italy, INFN-CHNet, Sesto Fiorentino (FI), Italy

The ancient arms and armour production technologies in Japan revealed through neutron imaging and neutron diffraction

The history of metallurgy represented for several centuries the history of the main technological features reached by civilizations. Among metal objects production, arms and armour are some of the most interesting objects in archaeometallurgy and historical metallurgy because they were manufactured, over the ages, using the highest quality materials and the most advanced technology and skill. The compositional and microstructural characterization of these artifacts can hence allow us to learn about the technological skills reached by different civilizations. The use of non-invasive techniques allows for the study of museum objects in excellent conservation conditions, thus giving a clear view of their characteristics. Neutron imaging and neutron diffraction are, to the author's knowledge, among the best methods to quantify phase composition and microstructure, study morphology, identifying non-metallic inclusions, cracks and defects. Thanks to the use of advanced techniques such as energy selective imaging, the microstructural features and the distribution of the different phases in metal complex artifacts can be determined, so gaining important information about composition and manufacturing treatments (both thermal and



mechanical). Following this path, we have performed a number of experiments using neutron imaging and neutron diffraction to reveal the characteristics of many artifacts from different civilizations, of which the production procedures are not yet fully clear. Among them, a special place takes the analysis of Japanese steel artifacts, which were produced in a very peculiar way and exhibit interesting specific characteristics related to the skill of the craftsmen. The results obtained and presented in this work, allow us to identify unique features that can shed new light on the manufacturing methods, thus increasing the level of our knowledge about the technological skills of the historical Japanese metal technology.

prof. Vincenzo Lombardo, University of Torino, vincenzo.lombardo@unito.it

Digital archives in Archaeology: from tools to methodology

Nowadays, the documentation of an archaeological excavation, with its recordings of stratigraphic units and archaeological findings, is addressed through database and content management systems.

The design of the database depends on a machine-readable description of the knowledge underlying the archaeological and the archaeometrical methods; the content management systems implements a documentation workflow.

The digital archive, consisting of the records filled by the researchers after excavations and scientific analyses, becomes a living entity for the production of knowledge about the archaeological site.

The lecture introduces the basic methods as well as practical examples and exercises from the case study of the BeArchaeo project.