Session 4
PLANTS AND SOCIETY

Posters

GARDENS AND ORCHARDS IN NORTHERN ITALY DURING THE MIDDLE AGES

Giovanna Bosi[1], Marta Mazzanti[1], Luisa Forlani[1], Paola Torri[1], Elisabetta Castiglioni[2], Mauro Rottoli[2]

1. Laboratorio di Palinologia e Paleobotanica, Università di Modena e Reggio Emilia, Italy.
2. Laboratorio ARCO, Como, Italy.

The contexts of gardens (of various kinds) are rare and problematic in archaeology. Often the faint traces of these structures are misunderstood and, consequently, many findings are lost. From the archaeobotanical point of view, an exemplary case for the Middle Ages of Northern Italy is the Duchess Garden in Ferrara (15th c.): thanks to an accurate excavation, it returned valuable data for the reconstruction of a fine "green corner" of the Este family. In Modena, a small space of the Bishop's Palace (12th-13th c.) has unveiled fruit trees and herbs available to the curia of the city. In the rural village of Nogara (9th-11th c.) archaeobotanical analysis provided elements to describe small kitchen gardens. In Ferrara, a study on peri-urban vegetable gardens and orchards (11th c.) is in progress: in a systematic manner, numerous samples of pollen, seeds/fruits and woods were taken. Preliminary data are meaningfull and provide an interesting list of cultivable taxa. Among the fruit trees: *Cydonia oblonga, Morus nigra, Prunus avium, Pyrus communis, Vitis vinifera*,…. Among the vegetables/aromatics: *Anethum graveolens, Antrhriscus cerefolium, Beta vulgaris, Cannabis sativa, Capparis spinosa, Crocus sativus, Cucumis melo, Cynara cardunculus, Linum usitatissimum, Papaver somniferum, Pastinaca sativa, Pimpinella anisum, Vicia faba*,…. Ornamental plants like columbines, iris, roses, violets and vervain are also found. The finds of woods reveal that the fences were built especially with oak and ash.

Key-words: Gardens reconstruction, Medieval Period, N Italy, ethnobotany

***

TASTES OF HOME AND TASTES OF POWER: AN EXPLORATION OF FOOD PLANT CONSUMPTION IN COLONIAL SETTINGS

Julie-Anne Bouchard-Perron, Alexandra Livarda

University of Nottingham, UK.

Food consumption is grounding and situating people into social landscapes while constituting a means of appropriation of these landscapes through the physical incorporation of some of their

components. Taste, thus, constitutes a disputed arena of individual and collective power that interferes and contributes in the building of both identities and social organisations like empires. In colonial contexts, where the notion of 'home' is challenged, displaced and redefined, taste is an especially important medium that helps understand how colonial communities perceived themselves, others and their place within an empire. This paper explores the mechanisms behind the development of 'colonial tastes', using case studies from the Roman provinces and post-medieval French and English Canada.

***

IT IS USELESS TO SWEEP IT UNDER THE CARPET: SOONER OR LATER SOMEBODY WILL FIND IT! UNCOVERING DOMESTIC CLEANING PRACTICES FROM A LATE MEDIEVAL WOODEN FLOOR IN SOUTHERN LOW COUNTRIES

Alexandre Chevalier[1], Christian Frebutte[2], Carole Hardy [2]

1. Royal Belgian Institute of Natural Sciences, Brussels, Belgium.
2. Agence Wallonne du Patrimoine, Direction extérieure de Namur, Belgium.

Revogne is a city created in the thirteenth century and destroyed in August 1466 by the troops of the Duke of Burgundy, Philip the Good; it belonged to the Principality of Liège and controlled the Wimbe Valley. Thanks to a well-preserved stratigraphy the remains discovered allow to reconstruct the evolution of a neighborhood built against the rampart. One context from house dated from the 15th century is of specific interest. A burned wooden floor uncovered numerous plant remains trapped between its planks representing both discarded foodplants and incidental wild plants brought from outside, but we think also plants used to sweep and clean the floor. We will compare our results with other 15th century plant assemblages from Middle Belgium in order to highlight our finds and back our interpretations.

Key-words: Belgium, Middle Age, seed, wild plant, domestic activity

***

POLLEN AND MACROREMAINS FROM THE SITE "VASCA DI NOCETO": AN ARTIFICIAL BASIN FOR VOTIVE PRACTICES DURING THE BRONZE AGE IN NORTHERN ITALY

Eleonora Clò[1], Marta Mazzanti[1], Paola Torri[1], Rossella Rinaldi[1], Barbara Proserpio[1-2], Maria Chiara Montecchi[1], Giovanna Bosi[1], Andrea Zerboni[3], Anna Maria Mercuri[1], Mauro Cremaschi[3]

1. Laboratorio di Palinologia e Paleobotanica, Dipartimento di Scienze della Vita, Università degli Studi di Modena e Reggio Emilia, Italy.
2. AR. CO. Como, Italy.
3. Dipartimento di Scienze della Terra "A. Desio", Università degli Studi di Milano, Milan, Italy.

This research is part of the national-funded interdisciplinary SUCCESSO-TERRA Project (Human societies, climate-environment changes and resource exploitation/sustainability in the Po Plain in the mid-Holocene: the Terramare culture; PRIN-20158KBLNB) and discusses biological information of the archaeological site "Vasca di Noceto", an artificial wooden basin dating to the Bronze Age and discovered in 2004 in the central Po Plain, near Parma.

Geoarchaeological, geochronological and dendrochronological data suggest that the basin was used for ritual practices for about one hundred years (ca. 1420–1320 BC) from the inhabitants of the nearby Terramara village, which was completely removed in the nineteenth century because of quarry activities. The waterlogged anoxic clay-bearing infilling of the basin preserved the wooden architectonic structure and many biological findings submerged until their recovery.
The abundance of botanical records (pollen, seeds and fruit remains) in an extraordinary state of preservation permits to investigate the use of plants in ritual contexts and to reconstruct the local plant cover influenced by the interaction with human activities near the site. Cereals and fruits were possibly used as votive offerings during ritual activities together with flowers and inflorescences, probably deposited into the water according to the observation of the preservation state of pollen from several entomophilous species.

Key-words: pollen, macroremains, archaeobotany, Bronze Age, Po Plain

***

"DI QUELLA PIRA…" ("OF THAT DARK SCAFFOLD" G. VERDI, *IL TROVATORE*): PLANT REMAINS OF FUNERAL PYRE FROM NECROPOLIS OF VIA TIEPOLO, PADOVA (ITALY): TOMB 62 C

Alessandra Forti[1], Fiorenza Bortolami[1], Mariolina Gamba[2], Giovanna Gambacurta[1], Angela Ruta Serafini[2]

1. Dipartimento di Studi Umanistici, Università Ca' Foscari, Venezia, Italy.
2. Soprintendenza per i beni archeologici del Veneto, Padova, Italy.

The Necropolis of Via Tiepolo (Padua, north-east Italy) is a huge sepulchral area (4100 mq) in use since the IX cent. BC. to the I-II cent. A.D. It was excavated in 1990-91 and due to building needs large wooden crates were collected for a detailed archaeological indoor excavation: 40% of 302 tombs were taken with their stratigraphic context (Gambacurta et al. 1998a, 1998b).
The necropolis presents mound structures, mostly earthly filled, surrounded by wooden fences.
Cremation burials are the most occurring tomb structure in the area though burials are also present (Gambacurta, 2014). Distinctive characteristic of the funerary ritual is the reopening of burials in order to reunite the cremation remains of two or more individuals (probably relatives). Here we present preliminary analysis on charred remains collected on pyre debris from tomb n.62C. This tomb, excavated in 2017 and currently being studied, is preliminarily dated at the beginning of VIII cent. BC.
The stratigraphy shows two distinctive reopenings and a complex sequence of rituals performed during funerals.
G. Gambacurta, A. Ruta Serafini, 1998a, *Il rituale funerario: nuovi spunti metodologici*, in *..."Presso l'Adige ridente"...Recenti rinvenimenti archeologici da Este a Montagnana*, a cura di E. Bianchin Citton, G. Gambacurta, A. Ruta Serafini, Catalogo della mostra, Padova, pp. 75-99.
G. Gambacurta, A. Ruta Serafini, 1998b, *Être reliés dans la mort: deux exemples du rituel funéraire de l'Âge du Fer de Padoue et d'Este*, in *"European Journal of Archaeology"* I,1 pp. 91-115.
Gambacurta G:, Ruta Serafini A., 2014, *La necropoli orientale tra Via Tiepolo e Via San Massimo*, in Gamba M., Gambacurta G., Ruta Serafini A., (a cura di), *La prima Padova. Le necropoli di Palazzo Emo Capodilista-Tabacchi e di via Tiepolo-Via San Massimo tra il Ix e l'VIII secolo a.C.*, Archeologia Veneto 3, La Tipografica srl., 121-128.

Key-words: charred remains, pyre debris, Iron Age, north-East Italy, rituals

***

FOOD, DRINK AND DRUGS IN AN ELITE SETTLEMENT IN EASTERN MIDDLE SWEDEN DURING 5TH-10TH CENTURY

Stefan Gustafsson, Björn Hjulström

Arkeologikonsult

Elite settlements have with one exception been exacavated in nearly every province of political importance in Sweden during the early medieval period 5th-10th century. The province of Östergötland was the sole exception up until our recent exacavations in Ströja. The result from the excavations show that Ströja was a central place in this region. We suggest that the extravagant feasting and ritual activities at the site were important tools to define the residence as a regional elite settlement and that the founders used new ideas about how the elite should behave and look. In this process the food culture and the use of different plants were important instrument. What you eat depends largely on who you are and which social group you belong to in the society. It is the type and rank of the social community that determines what ends up on the dinner table. Food culture is always about identification and different social groups have consciously made an effort to eat in a way that's similar to others in same position.

The cereal cultivation was based on hulled barley for larger scale beer brewing and wheat and rye for fermented bread. The use of hops *Humulus lupulus* as herbal beer additives in Ströja is one of the oldest finds in Sweden. It is possible that it was local hops that was used.

There are several traces of ritual use of plants in Ströja such as baked flax seed cakes and seeds from henbane *Hyoscyamus niger* was used as a drug.

Key-words: food culture, beer, drugs, herbs

***

A RARE FIND: ONION IN IRON AGE DENMARK

Mette Marie Hald, Peter Steen Henriksen

National Museum of Denmark, Copenaghen, Denmark.

During excavations at the Iron Age site of Nørre Sandegaard in Denmark, a copper-alloy box containing an onion clove and a ball of string was found in a woman's grave dated to c. 650 A.D. Onions are very rarely encountered in archaeological contexts in northern Europe due to their high moisture content, and this is the earliest find of onion in Denmark. We discuss the unusual and distinctly non-culinary context of the onion, which ties in with the use and significance of this plant – practical as well as ritual – in Iron Age Denmark. Onion features in several of the Norse sagas, where it plays a role in the treatment of wounded soldiers, in neutralizing poisons, and in fertility rituals. The find of onion in the role of an amulet serves as a reminder that not all food products had a strictly dietary value.

Key-words: Onion, Iron Age Denmark, non-culinary plant use, Norse sagas

***

RICH REFUGEES? THE ECONOMIC STATUS OF THE BAR KOKHBA REBELS (135 AD) IN THE JUDEAN DESERT

Anat Hartmann-Shenkman, Ehud Weiss

Archaeobotany lab, The Martin (Szusz) Department of Land of Israel Studies and Archaeology, Bar-Ilan University, Ramat-Gan, Israel.

The Bar Kokhba revolt against the Roman Empire took part in the Land of Israel during the years 132-135 AD. The Roman Army suffered severely in this rebellion and fought back harshly against the rebels. As a result, many fled from their homes to find refuge in remote and desolated caves of the Judean Desert. The rebels' diet, in light of their refugee condition, is the focus of our research. We gathered the available archaeobotanical assemblages of several Judean Desert caves occupied by these rebels, in order to assess their diet and interaction with local desert environment. Surprisingly, we found luxury food items in some of the caves, in addition to staple foods, weeds, and local wild edible plants. These finds raise questions regarding the Judean cave-dwelling refugees. Where did these food items come from, and is the presence of luxury food suggestive of the rebels' socioeconomic status? In this lecture, we will refer to these questions and will try to differentiate between various patterns in cave use.

Key-words: Bar Kokhba revolt, caves, Judean Desert, luxury food

***

"OUTSTANDING PLANTS?": AN EXAMPLE OF HENBANE AND VERVAIN IN CHÂTEAUBLEAU IN THE 4TH CENTURY AD (SEINE-ET-MARNE, FRANCE)

Florian Jedrusiak[1], Philippe Marinval[2]

1. Archéologie de la Gaule et du monde antique (GAMA), Université de Paris-Nanterre, France.
2. CNRS, Archéologie des Sociétés Méditerranéennes, Montpellier, France.

In this poster, we propose the study of unusual plants (henbane and vervain), some of which have a real toxicological-pharmacological impact while others do not have the properties that antiquity lends them. This contrasted with most common plants those two species have toxicological and pharmacological properties.
Indeed, ancient medicine mostly caracterized by practices to popular belief which occupy a central place in the societies of this period. It takes the form of remedies derived from plants that ancient authors consider like medicinal. It is clear that plant medicinal knewledge is recognized.
Beyond their real efficiency, the study of these plants opens a door on the behavior of ancient societies, marked by a phenomenon of ritualization in which these same plants can play an important role.
Finally, the question is whether these plants usually classified as weeds may have been used in antiquity.

Key-words: Henbane, Vervain, Chateaubleau, Seine-et-Marne

***

PALAEOETHNOBOTANICAL ANALYSIS OF THE PLANT REMAINS DISCOVERED IN THE HAIHUN MARQUI'S GRAVEYARD, NANCHANG, CHINA

Hongen Jiang

Department of Archaeology and Anthropology, University of Chinese Academy of Sciences, Beijing, China.

Analysis of 26 plant remains samples obtained in Guodun cemetery (around 59 BC) at Nanchang, China, is presented. Detailed composition of the samples suggests that the fundamental landscape of the graveyard was made up of *Platycladus orientalis, Sapium sebiferum, Castanopsis sclerophylla* and *Lauraceae,* etc. In addition, weed of Gramineae, Santalaceae, Cyperaceae, and *Broussonetia* sp., etc., accounts for a considerable share. Fruits of *Amygdalus persica, Cucumis melo* and *Cerasus* may have been used for food. Stones of *Amygdalus persica* and plants of *Evodia* sp., *Zanthoxylum* sp., *Clematis chinensis*, etc., may suggest their medicine use. The analysis demonstrates the diversified plant use in the Western Han dynasty.

Key-words: Guodun cemetery, Landscape, plant utilization, Han dynasty, China

***

ROPES AND BASKETS MADE OF BANANA FIBERS: CASE STUDIES FROM TAIWAN AND THE PHILIPPINES

Céline Emmanuelle Kerfant[1-2], Ethel Allué[1-2], Victor Paz[3]

1. Àrea de Prehistòria, Universitat Rovira i Virgili (URV), Tarragona, Spain.
2. IPHES, Institut Català de Paleoecologia Humana i Evolució Social, Tarragona, Spain.
3. Archaeological Studies Program, University of the Philippines, Diliman, Quezon City, Philippines.

Plant materials are central to many human activities from those of daily life to the exceptional events. The Philippines, with more than 7000 islands, has numerous plant species, many of them endemic. Taiwan has both tropical and subtropical areas and its plant diversity includes a great variety of fibre-producing species. These islands are isolated by deep sea, which implies a high degree of endemism of plant taxa. Selection made upon textile plants by Ivatan (Batanes) and Yami-Tao (Lanyu) people, especially of those which cannot cross water, could be highly indicative of human-plant relationship through times.This ethnobotanical study aims to provide a better knowledge of basketry traditions and the plant-based raw materials that were used for this craft in the islands either side of the Bashi Channel between the northernmost islands of the Philippines, the Batanes Islands, and the southernmost of Taiwan, Lanyu Island.
This study is based upon plant natural aspects such as its properties or its natural dispersal and cultural facts, such as plant naming or manufacturing process. Both could lead to a deeper understanding of plant and human propagation. The results of this research show that some of the Ivatan and Yami-Tao people's handicraft are made out of Banana or Palm tree fibres possessing qualities such as flexibility, strength, and durability, among others. Ivatan and Yami-Tao people create protective baskets made of Banana fibers, with a unique knowledge: the knotting-tying technique. All banana trees contain useful fibers but only *Musa textilis* (or *Abaca*) gets the longest and strongest fiber without lignification. It is the most resistant fiber for cordage purpose. *Abaca* is native to Mindanao, the southernmost island of the Philippines. The naturalized varieties of *Abaca* found in Batanes and Lanyu islands could be interpreted as evidences of seafaring activities in the past.

THE WIND THAT SHAKES THE BARLEY: CONSEQUENCES OF THE FOOD GLOBALIZATION IN PREHISTORY

Xinyi Liu

Washington University in St. Louis, USA.

In the context of recent conversations on food globalisation in prehistory, there has been growing scholarly interests in process of the eastern expansion of the 'Neolithic founder crops' from southwest Asia to East Asia. By c. 1500 BC, the geographical distribution of the Fertile Crescent crops, free-threshing wheat (*Triticum aestivum*) and naked barley (*Hordeum vulgare* ssp. *vulgare*), stretched from the Atlantic to the Pacific, north to Scandinavia, and south to the Indian Ocean. In this paper, I shift the focus from the chronology and routes of the eastern journeys to consider the context in which wheat and barley cultivations were adapted to the existing agrarian system established since the Neolithic time in China. We shall consider the environmental, seasonal and culinary drivers of the trans-Eurasian exchange of cereal crops between 5000 and 1500 BC, and emphasize the role played by the primary agents of agricultural production, the ordinary farming communities, whose cultural and culinary choices facilitate not only the adoption of some crops but also the rejection of others.

***

HOW MANY OLIVE VARIETIES (*OLEA EUROPAEA* L. OLEACEAE) EXISTED DURING THE ROMAN PERIOD IN ANDALUCIA, SPAIN. FIRST APPROACH TO OLIVE VARIETIES ON THE BASE OF CHARRED MACROREMAINS FROM ERMITA SANTA POTENCIANA SITE (VILLANUEVA DE LA REINA, JAÉN).

Maria Laura Lopez[1], Vanina G. Castillòn[1], Juan Nicas Perales[2]

1. CONICET, Arqueología, Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata. Argentina.
2. Ayuntamiento de Villanueva de la Reyna, Jaén, España.

The large quantities of charred olive stones recovered in several archaeological sites from countries that circumscribe the Mediterranean Sea has proven its wide usefull by the ancient societies that produced them. However, not all olives had (and have) same quality to obtain a good oil or eat "in table". Some fruits are oilier or fleshier than others. That is why the determination of the olive varieties becomes a tool that can allow closer to a greater knowledge on what olive was preferred to produce oil or consumed as a fruit. Due to endocarps have highly conserved morphological characters, and carbonization does not produce a significant alteration of them, several papers based on geometric morphometric analysis of olive stones have distinguished distinct morphotypes that seem to reflect the use of different varieties of olive in the past. The present proposal is to approach this issue take into account the methodology proposed by the International Oleic Council (IOC) for the identification of varietals through morphological markers. Charred entire endocarps recovered at Santa Potenciana archaeological site (Jaen, Spain), dated on Roman Period, were evaluated through six endocarp descriptors. IOC methodology allowed discriminate 12 morphological groups among archaeological endocarps. Some are similar to several modern

olives stones while others can not be included into a current Spanish varietal. IOC method will be evaluated in pros and cons to archaeobotanical analysis.

Key-words: Olive endocarps, Varietal characterization, Roman period, Andalucia, Spain

***

CONNECTING PEOPLE, CONNECTING DIVINITIES. THE SYMBOLISM BEYOND THE PLANT REMAINS

Sonia Machause Lòpez

Departament de Prehistòria, Arqueologia i Història Antiga, Universitat de València, Spain.

Plant remains might play an important role to fully understand ritual processes in ancient societies. Despite of their recovery was neglected in old excavations, some of the plant remains and iconographic information collected can shed light on the role played by plants in Iron Age ritual activities. The characteristics of the plants, their color, taste, smell, blooming season and other special features, might have played a decisive role in forming notions about the plants and their role in rituals. Their use in these ceremonies could have made stronger the connection among performers, as well as the connection between the performers and their deads, ancestors and divinities, and their landscape.
Here we report on the study of ritual contexts located on the Mediterranean coast of Spain dating from the 6th to the 1st centuries BC. Many botanical remains and iconographic evidence have been documented in necropolis and other urban and rural sacred spaces, where mainly fruits, but also cereals and wild plants have been recorded. The work presented here is part of the interdisciplinary project *From the real to the imagery: Approaching the Iberian Iron Age Flora* (HUM2004-04939), which has a large record of plant evidence in Iberian Iron Age sites. Combining a multi-proxy paleobotanical approach, based on anthracology, palynology and carpology, as well as iconography, we aim at reconstructing the use of plants and their symbolism in the Iberian societies to further understand their natural and sensorial history.

Key-words: Rituals, Iron Age, Plant remains, Symbolism, Archaeology of the Senses

***

SACRED TREES: RITUAL AND PROFANE RELATIONS BETWEEN TREE AND VILLAGE IN NATIONAL PARK NIKOLO-KOBA, SENEGAL

Tereza Majerovičová[1-2], Jaromír Beneš[1-2], Jan Novák[1], Jiří Bumerl[1-2], Idrissa Manka[3], Alioune Deme[3]

1. Laboratory of Archaeobotany and Palaeoecology, Faculty of Science, University of South Bohemia, České Budějovice, Czech Republic.
2. Institute of Archaeology, Faculty of Philosophy, University of South Bohemia, České Budějovice, Czech Republic.
3. Dépt.'Histoire, Faculté des Lettres et Sciences Humaines, Université Cheikh Anta Diop de Dakar, Senegal.

In 1954 was established National Park Niokolo-Koba. After gaining independence and emerging from the state of Senegal the National Park was extended due to the biodiversity and wildlife protection. From this reason, in 1969 local villages had been relocated beyond area of the extended

park. Villages have been linked to ecosystem of the tree savanna for centuries and they have been constituted as living functional unit. Trees in villages are not only the source of the necessary raw materials for local residents. They provide important role for their livelihoods and appropriate shelter from the sun. But their importance is also deeply connected with the healing and animistic tradition. In this beginning project, we study the relations between trees and villages with long-term continuity of settlement, but also with the newly relocated villages after constitution of the park. We identify which tree species are most common in abandoned villages and which can be an identifier of an abandoned settlement. Another goal is to map the use of these trees and find out which trees are sacred to the local people. Another question is, how the environment and structure of newly founded villages are reflected on the composition and the quantity of trees in the immediate vicinity of these villages, which are concentrated along the infrastructure? The research comprises ethnoarchaeology, dendrology, dendrochronology, vegetation ecology and ethnobotany.

Key-words: trees, villages, Niokolo-Koba National Park, ritual, profane

***

CHARRED PLANT REMAINS FROM THE NEOLITHIC LAKESIDE SETTLEMENTS OF AMYNTAIO BASIN, NORTHWESTERN GREECE.

Stavroula Michou[1], Soultana Maria Valamoti[1-2], Panicos Chrysostomou[3]

1. LIRA Lab., Department of Archaeology, School of History and Archaeology, University of Thessaloniki, Greece.
2. Center for Interdisciplinary Research and Innovation (CIRI-AUTH), Balkan Center, Thessaloniki, Greece.
3. Ephorate of Antiquities Florina, Greek Ministry of Culture and Sports, Greece

Although much is known about plant use in prehistoric northern Greece, most of the archaeobotanical material derives from tells or extended dry sites. In the Amyntaio basin, rescue archaeological work has brought to light a unique -for Greek standards- case of several neolithic lakeside settlements concentrated along the northern shore of Lake Cheimaditis. Well preserved burnt layers of pile dwellings have been excavated in three of them, yielding rich carbonized archaeobotanical assemblages. The exploited species and their spatial distribution in each house, allowed us to explore plant use and diversity on an intra-household level as well as inter-household variation.

Key-words: Neolithic, Greece, lakeside settlements, charred plant remains

***

FRUITS, WINE AND SOCIAL COMPLEXITY IN IBERIAN PENINSULA IN THE FIRST MILLENNIUM BC

Guillem Pérez-Jordà, Leonor Peña-Chocarro

Instituto de Historia, Spanish National Research Council (CSIC), Spain.

The introduction of fruit cultivation in the Western Mediterranean took place at the end of the 2nd millennium BC., while in the Iberian Peninsula the evidence of goes back to the beginning of the first millennium BC, after the establishment of the first Phoenician colonial settlements in the southern part of this territory.

The introduction of these new crops transformed the agricultural system that had developed in this territory for more than 4000 years that was based on cereal and legume cultivation. The expansion of fruit trees was quite rapid in the Southern and Eastern parts of Iberia which became soon part of the Mediterranean economic system. Their development was linked to processes of social complexity leading to the development of urban communities while in some other cases the rural structures were maintained but these were now characterized by a clear social hierarchy.
Some of the fruits involved, and especially particular products such as wine, began to play a fundamental role in the redefinition of the social relations that accompanied these transformations and, at the same time, the new products led to the development of a significant commercial activity.

Key-words: Fruit cultivation, social complexity, commercial activity, Iberian Peninsula, Iron Age

***

A BRONZE AGE BREWERY AT ARCHONDIKO? RECENT ARCHAEOBOTANICAL AND EXPERIMENTAL EVIDENCE

Chryssi Petridou[1-2], Soultana Maria Valamoti[1-2], Marian Berihuete[3], Lambrini Papadopoulou[4], Hans-Peter Stika[3]

1. LIRA Laboratory, Dept. of Archaeology Aristotle University of Thessaloniki, Greece.
2. Center for Interdisciplinary Research and Innovation (CIRI-AUTH), Balkan Center, Thessaloniki, Greece.
3. Institute for Botany, University of Hohenheim, Stuttgart, Germany.
4. Dept. of Geology, Aristotle University of Thessaloniki, Greece.

The area of the Aegean has been closely linked with the consumption of wine since the Neolithic and the Bronze Age, based on archaeobotanical and other archaeological as well as textual evidence. The consumption of alcohol by the prehistoric communities of the Aegean and mainland Northern Greece, and its role in forming social relations or its connection with the emergence of local elites have been quite extensively discussed. However, evidence for the presence of other alcoholic beverages, like beer, have so far been scarce and equivocal. This paper discusses the possibility that the inhabitants of Northern Greece prepared and consumed a beverage similar to beer, a suggestion recently put forward by S.M. Valamoti, based on the examination of charred archaeobotanical remains originating from the Early Bronze Age tell site of Archondiko, in the region of western Macedonia, Northern Greece. Archaeobotanical finds of sprouted cereal grains and fragments of ground cereal grains constitute strong evidence for the preparation of a cereal-based alcoholic beverage and are examined in conjunction with experimental data, with the aid of scanning electron microscopy, in order to investigate the possible steps involved in their processing.

Key-words: Archondiko, Prehistoric beer, sprouted cereal grain, scanning electron microscopy

***

IMAGING PLANTS IN THE IBERIAN WORLD. VEGETABLE ICONOGRAPHY DURING THE IRON AGE IN EASTERN IBERIA.

David Quixal Santos

Universitat de València, Spain.

This study focuses on the Iron Age of the Iberian Peninsula, concretely on the Eastern Iberia between the 6th and 1st centuries BC. In this poster we summarize our *Flora Project* (http://www.florayfaunaiberica.org/), in which we related archaeological remains (carpological, anthracological and palynological analysis) to the symbolic perspective and the presence in the Iberian art (pottery, metal, bone, numismatic…). Its *real* location in the archaeological sites allows us to know the ancient flora at two levels: firstly, at a domestic level (cultivated plants, generally for food). Secondly, also at a wild level, with the species that lived in the same ecosystem as the Iberian societies and their possible uses (food, fuel, basketry, cordage, medicine, etc.). However, thanks to Archaeology we can also approach the sphere of the *imaginary*: What view did the Iberians have from the surrounding plants? Did they have a particular symbolism, magical conception or sacred character? Taking into account the impossibility of translating the few Iberian texts, the only way to answer these questions is through iconography.

***

ARCHAEOBOTANICAL EVIDENCE OF FUNERARY RITUALS IN ROMAN NECROPOLIS OF *MUTINA* (NORTHERN ITALY): A MULTIDISCIPLINARY APPROACH.

Federica Maria Riso[1], Silvia Pellegrini[2], Pietro Baraldi[3], Giovanna Bosi[1]

1. LPP, Dipartimento di Scienze della Vita, Università di Modena e Reggio Emilia, Italy.
2. Musei Civici di Modena, Italy.
3. Dipartimento di Scienze Chimiche e Geologiche, Università di Modena e Reggio Emilia, Italy.

An interdisciplinary method involving different disciplines of archeology was carried out on the necropolis of Mutina, in order to have a complete view of the funerary rituals.
Cremation graves coming from Mutina necropolis have been analysed (1st – 2th century AD). In addition to traditional methods, new technologies helped to study offerings presence. For what concerns Via Cesana necropolis, a computed tomography has been performed on 8 urns thanks to TEC-EUROLAB (Modena), in order to carry out a systematic microexcavation. Then soil has been sieved and then archaeobotanical (seeds/fruit) and archaeological findings were collected. Seeds/fruits found mostly belong to cultivated plants or, anyway, plants that can be used as food, as Cereals, Pulses and Fruit plants, even if the analysis are still an ongoing research. These remains of meals left on the graves and of the objects involved in the ceremonies, are evidence resulting from the attendance of the funeral space.
It has been also decided to analyse the dust inside the *balsamari* found among the grave goods of the urns. Raman and XRF analysis have been carried out in order to verify the presence of cosmetic dusts: hematite, cinnambar, malachite marks have been found.
In tomb 15 a grape flower has been found and it could be a residue of the preparation of *oenanthe* or it could also be the evidence of *omphacio*, prepared with unripe grapes.

Key-words: tomography, rituals, necropolis, raman, seeds/fruits

***

WATERLOGGED AND CHARRED MACROREMAINS FROM HITTITE OYMAAĞAÇ HÖYÜK, NORTHERN ANATOLIA

Corinna Rössner et al.

Institute for archaeological sciences - archaeobotany of the University of Tübingen, Germany.

The site Oymaağaç Höyük (probably Hittite Nerik) provides an important key place in the middle Black Sea coast area. According to today's research, the site is located on the edge of the Hittite core area in a landscape already inhabited since the early Chalcolithic period.
Agriculture is the basis for the development and prosperity of the Hittites. Through the archaeobotanical sampling of the entire settlement period, an insight into Hittite agriculture from the early Bronze Age to the middle Iron Age is given. From the excavation campaigns 2007-2017, 550 samples are available of which 22 samples can be dated to the Chalcolithic, 232 samples to the Late Bronze Age, 276 samples to the Iron Age and 20 samples to the Roman or Byzantine period. A total of 203 taxa and 122.188 botanical remains could be determined.
Einkorn (*Triticum monococcum*) and Emmer (*Triticum dicoccum*) played an important role in the diet of the early Bronze Age and were replaced by barley (*Hordeum vulgare*) and naked wheat (*Triticum aestivum*) in the late Bronze Age and the Iron Age.
In 2017, an underground water reservoir was examined and hundreds of wooden pieces and tools were rescued. Also a very special sample from the underground tunnel was analyzed. This shows unique preservation conditions and an insight into the whole plant spectrum of the Iron Age apart from the charred remains of the other samples.

Key-words: Hittite, Nerik, macroremains, waterlogged, charred

***

'THE FIELDS OF ASPHODEL', OR RATHER 'THE FIELDS OF OTHER TUBIFEROUS PLANTS'

Wouter van der Meer

BIAX Consult, The Netherlands.

The contents of about ninety fully sampled prehistoric secondary deposit graves, roughly a cubic metre of sieve residue in total, were assessed to determine the presence of botanical macro remains. The graves are part of a cemetary in use from the Bronze Age to the Roman Iron Age, situated close to the town of Dieren just north of the river Rhine in the central Netherlands. While only a handful of cereal grains, fruit stones and wild nuts are present, more than one third of these samples contain charred archaeological parenchyma, more specifically the remains of roots or tubers. The majority of these seem to fall in three morphological types. These types include the corms of onion couch (*Arrhenatherum elatius*), branching elongated thickened roots, possibly of tormentil or silverweed (*Potentilla erecta/anserina*), and an as of yet unidentified small spherical type of root. The follow up will consist of identification of the parenchyma using a Scanning Electron Microscope. Identification on a high taxonomic level will shed more light on funerary practices in prehistoric northwestern Europe. For now, the preliminary results point to the exploitation of alluvial grassy meadows, either for gathering root foods with possible ritual significance, or simply as a place for cremation.

Key-words: Parenchyma, Ritual, Cremation, Prehistory, Netherlands

***

THE DEVELOPMENT OF EARLY MEDIEVAL FIELD AND HORTICULTURE IN THE LIGHT OF ARCHAEOBOTANICAL FINDS OF THE CAROLINGIAN ABBEY OF WERDEN (GERMANY)

Tanja Zerl[1], Jutta Meurers-Balke[1], Arie J. Kalis[1], Renate Gerlach[2]

1. Institute of Prehistoric Archaeology, University of Cologne, Germany.
2. LVR-State Service for Archaeological Heritage in the Rhineland, Bonn, Germany.

During excavations in the Carolingian Abbey of Werden near Essen (North Rhine-Westphalia, Germany), the associated pond was examined. This pond – probably constructed in connection with a mill – was created immediately after the founding of the abbey (799 AD). After only a few decades of use, it was abandoned in the first half of the 9th century.
For a reconstruction of the immediate environment of the abbey and its wider surroundings, archaeobotanical samples were recovered from the pond sediments. The analyses of both pollen and macro-remains indicate different pathways into the pond.
On the one hand, sediments were deposited by the incoming stream feeding the pond. Due to its considerable gradient, the stream carried both mineral and organic components. The plant remains in the pond layers therefore mainly represent the slope vegetation. On the other hand, waste (including faecal remains) from the abbey itself was also deposited. This spectrum of plants provides evidence of garden plants and fruit trees available in Carolingian abbeys. Moreover, it can be compared with contemporary written sources, notably the *"Capitulare de villis de curtis imperii"*, a land estate ordinance attributed to Charlemagne. In this context, the question arises whether there has been a continuity of Roman horticulture or the reintroduction of antique traditions, in which the early medieval abbeys played an important role.

Key-words: macro remains, pollen, pond, Carolingian abbey

***

FROM THE GARBAGE TO THE RITUAL: USE OF THE GENUS *CASPICUM* spp. IN THE HUACA PUCLLANA (550-650 AD)

Luisa Hinostroza Garcia

Dept. of Ethnobotany and Economic Botany, Museum of Natural History, University of San Marcos, Lima, Peru.

The "ají" (*Capsicum* spp) native species, has been present in the life of the Peruvian Andean settlers since ancient times, approximately 10,000 years BC .
The genus *Capsicum* spp. (chili pepper) is an endemic group of plants of the New World, This genus has an economic importance for the man that goes back to the pre-Columbian periods. Of the 33 Capsicum species identified, five have been domesticated: *C. anuum* L., *C. baccatum* L., *C.chinense* Jacq., *C. frutescens* and *C. pubescens* Ruiz & Pav. and integrated into the diet and cultural uses of the Andean-Amazonian man. In the archaeological record of the Andean Area there is evidence of the first domestication practices of this genus dating back to 9000-8500 BC. The place of study corresponds to the Huaca Pucllana archaeological site, it is located in the lower

valley of the Rimac, currently belonging to the district of Miraflores (Lima-Peru). Three periods of archaeological occupation have been recorded: Lima (200-650 a.C), Wari (700-100 a.C) and Ychsma (1000-1470 a.D.C.). The archaeological period that concerns the present study is the Lima Culture (200, -650 d.C), time in which the Huaca Pucllana was erected and was in operation. During this period the site functioned as a ceremonial and administrative center, where different consumption activities were carried out, as well as ritual offerings at the time of remodeling or other celebrations. In the archaeological excavations have recovered rest of diverse cultivations, emphasizes among them Lucuma (*Pouteria lucuma*), the chilli pepper (*Capsicum* sp), the pacae (*Inga feullei*), the zapallo (*Cucurbita* sp), between the most important.
The objective of the research is to identify the uses assigned to the genus *Capsicum* spp (chili pepper) from the comparison of two archaeological contexts; a landfill located in the Northeast complex of the III construction phase (550 AD approx.) and a ritual closing event of the IV construction phase located in the monumental area (650 AD approx.). Taking into account the above, a morphometric/morphological analysis of the seeds and fruits was carried out for the identification of the species, in addition, the data obtained were worked on in two statistical programs; SPSS22 and PAST, these provided greater reliability of the results.
The results show an exclusive use of the species *Capsicum baccatum* (yellow pepper) for the realization of the ritual closure event, while in the northeastern landfill there is a diversified use, this repertoire consists of *Capsicum frutescens* (monkey pipi), *Capsicum chinense* (chilli pepper limo/panca) and *Capsicum baccatum*. Then, we can talk about a selection of foods and the status of these are immersed in the system of social organization of the Huaca Pucllana, the valuation of the chili pepper changes from the III to the IV constructive phase, and becomes a member of the offerings that could be interpreted as an indicator of response to the social transformations that the inhabitants of the Huaca Pucllana are going through at the time.

Key words: Capsicum spp, chilli pepper, Lima Culture, Huaca Pucllana

***