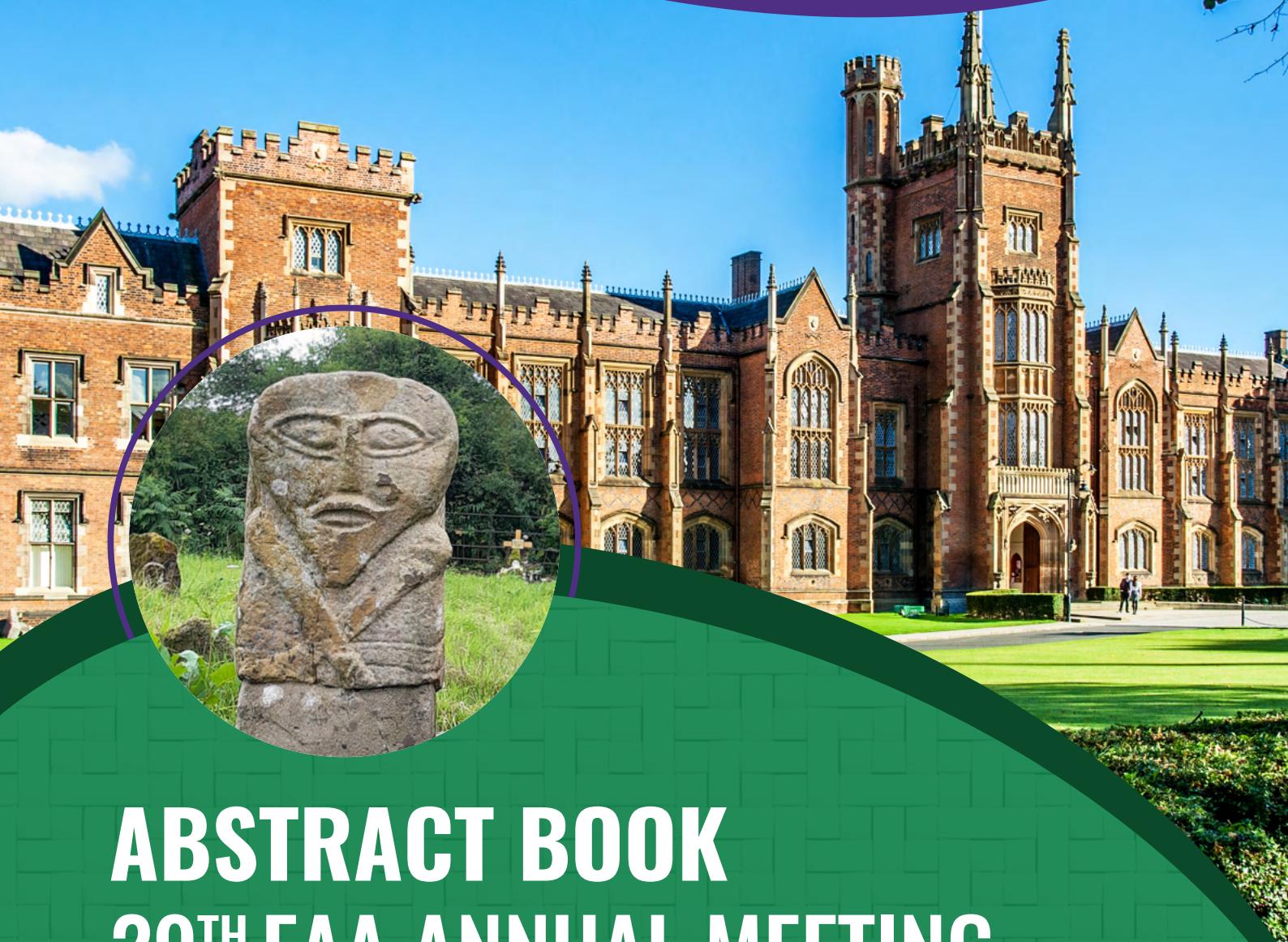


# EAA 2023

BELFAST

30<sup>TH</sup> AUG - 2<sup>ND</sup> SEPT 2023

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## 29<sup>TH</sup> EAA ANNUAL MEETING

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aging and analyzed with GC-HRMS before and after aging. In addition, some sherd samples from Bisenzio (Capodimonte, VT - Italy), a settlement that flourished between the 9th and 5th centuries BC, were subjected to total lipid extraction. All resins analyzed showed a different profile between fresh and aged samples. Some results are reported as an example: the resins of conifers show the same stable biomarker, dehydroabietic acid, which increases with aging together with 7-oxo-dehydroabietic acid, abiet-8,11,13-triene, and abiet-8,11,13-trien-3-one. Thank to HR-MS it was possible to detect and identify different degradation products. Conversely, abietic acid is most abundant in fresh colophony resin and tends to disappear with aging. Six compounds with labdane and pimarane skeletons were identified in sandarac resin. Diterpenoids with conjugated double bonds in the side chain, such as comminic acid, are known to polymerize to a cross-linked structure, so their decrease with aging and more with artificial aging than natural has been observed. The samples from the archaeological site of Bisenzio show di- and mono-acylglycerols, fatty acids, cholesterol, and its degradation products. Moreover, dehydroabietic acid, isopimaric acid, pimaric acid, sandaracopimaric acid, and comminic acid, and their relative degradation compounds suggest the presence of Pinus and Cupressaceae resins.

## 2

### INSIGHTS INTO CERAMIC USE IN PROTOHISTORIC NORTHEAST BELGIUM OBTAINED FROM RESIDUE ANALYSIS OF THE CERAMIC MATRIX

**Abstract author(s):** Heller, Frederic (AWaP) - Garnier, Nicolas (Laboratoire Nicolas Garnier)

**Abstract format:** Oral

Interest in paleo-diets has grown in parallel with the development of technologies and analytical tools that have now made it possible to identify organic residues more precisely.

In this paper, we present the first analytical results of a first batch of eight potsherds recovered from the Late Bronze/Early Iron Age site (Hallstatt B-C-D) of Linsmeau in Belgium. The study of pottery for this period has traditionally served to define cultural groups and to provide dates, the function of pots was deduced from their shape and sometimes from cooking caramels preserved inside.

New methods such as lipidomics and metabolomics are now available to extract a wider range of information from these same vases without having to rely on visual clues, but they also have to be planned for upstream. These new methods and instruments were used in our case. After a thorough dry cleaning, twin samples of powdered pottery wall were taken from each fragment using a clean dentist drill and sealed in aluminum foil. In the laboratory a first extraction and analysis of the extract by gas chromatography coupled with high resolution mass spectrometry (GC-HRMS) was performed, thus allowing the identification of soluble markers, then a second acid-catalyzed extraction of the residue already extracted was done, the analysis of this extract by GC-HRMS gave access to the insoluble and/or polymerized markers.

The analyses of organic residues from Linsmeau's 'La Closiere' abundant pottery will provide insight into food, culinary and funerary practices encompassing a period between the Late Bronze Age and the end of the Early Iron Age. Sadly, this method of research remains rarely explored, a gap that this study attempts to begin to address.

## 3

### CHEMICAL MARKERS AND THE FUNCTION OF DOLIA IN THE ROMAN FOUNDRY OF VALDERREPISA (CIUDAD REAL, SPAIN)

**Abstract author(s):** Pina Buron, Maria Rosa - Zarzalejos Prieto, Mar (Universidad Nacional de Educacion a Distancia) - Oliveira, César (Universidade de Evora)

**Abstract format:** Oral

The aim of this work is to discuss the results of chemical analysis of residues conducted by means of Gas chromatography-mass spectrometry (GC-MS) in an assemblage of roman dolia coming from the site of Valderrepisa (Ciudad Real, Spain). The site, excavated between 1990 and 1991, holds an ancient foundry dating back to the Late Republican period (II-I centuries B.C.) and related to the mining exploitation of silver and plumb of Sierra Morena at its time of highest activity. The interest of this case study is that the pottery containers were found in their primary context of use inside a storage room, thus providing major evidence about diet and subsistence practices of the foundry workers, who might have been of Italian origin, at least in part. A variety of chemical markers retrieved from the pottery samples analysed points out to vegetable oil as the only content of the whole assemblage. A dataset we will confront with literary sources to ascertain the function of these vessels in the site.