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## Preface

Darío Bernal-Casasola, Michel Bonifay, Alessandra Pecci, Victoria Leitch

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# ROMAN AMPHORA CONTENTS REFLECTING ON THE MARITIME TRADE OF FOODSTUFFS IN ANTIQUITY

IN HONOUR OF MIGUEL BELTRÁN LLORIS

PROCEEDINGS OF THE ROMAN AMPHORA CONTENTS INTERNATIONAL  
INTERACTIVE CONFERENCE (RACIIC) (CADIZ, 5-7 OCTOBER 2015)

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Back cover: Bou Ferrer wreck amphorae (Left, J. A. Moya);  
Graeco-Italic amphora, Museo de Zaragoza (Right, J. Garrido Lapeña)

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## Preface

It is not possible, from a heuristic perspective, to study Roman amphorae without paying attention to their paleocontents. This is a common metonymic association in archaeology: what archaeologists find is partially the result of time, not the direct trace of what past societies left.

Amphoric studies are a mature discipline today, long after Heinrich Dressel reported his exceptional discoveries in Castro Pretorio in the 19th century. Beginning in the 1970s, periodical meetings, conferences and seminars have been held, especially in Europe, to update our knowledge about this primary indicator of the economy and maritime trade in Antiquity. To mention but one classical example, in the introduction of the famous meeting at Siena in 1986 (*Amphores romaines et histoire économique. Dix ans de recherche, Collection de l'École française de Rome*, 114), the proceedings of which were published three years later, Maurice Lenoir, Daniele Manacorda and Clementina Panella wrote about the importance of 'considérer l'étude des amphores comme source pour l'histoire économique du monde romain, aussi bien sur le plan de la production que sur celui de la commercialisation. Le renouvellement de nos connaissances permettait, semblait-il, de mettre en parallèle, d'une façon elle aussi renouvelée, documentation archéologique et histoire, économie et société'.

Thirty years later, the organisers of the event that led to this publication followed very similar premises to the study of amphorae contents (*nihil novum sub sole...*). The 'call for papers', published in early 2015, mentioned that no consensus existed concerning paleocontents with regard to various production areas and typological families, resulting in erroneous characterisations and hampering interpretation. In addition, it was stressed, the two preceding decades had been rich in methodological advances in the field of archaeometry, which can contribute to the identification of organic residues, and many analysis have in fact been carried out on Atlantic and Mediterranean sites, but the coverage afforded by these techniques is still far from systematic. Despite significant advances, information remains dispersed and in need of a holistic perspective. With this in mind, we decided to organise an international conference in Cádiz with the support of the Campus de Excelencia Internacional del Mar – CEIMAR (<https://campusdelmar.com>). The conference's main target was threefold:

- To reflect on the inherent methodological challenges posed by the products traded in amphorae in Antiquity, and on their identification by historical, archaeological and archaeometric means.
- To update and compile existing knowledge about paleocontents in Roman amphorae in different regions and provinces.

- To generate synergies for the creation of an international and interdisciplinary group for the submission of a research project within the framework of the European Union's research strategy, following the model of the previous work group CORONAM.

Three institutions with a long tradition in these subjects (Centre Camille Jullian/CNRS and Aix-Marseille Université, ERAAUB – Universitat de Barcelona and Universidad de Cádiz) took the lead organising the RACIIC (*Roman Amphora Contents International Interactive Conference. Reflecting on Maritime Trade of food stuffs in Antiquity*), held at the Facultad de Filosofía y Letras, University of Cádiz, 5-7 October 2015 (Figure 1).

The RACIIC adopted a singular format. Contributions were in English, to stress the markedly international nature of the meeting, and aspired to stimulate debate; hence the reference to 'interactivity' in its very title (Figure 2). There were a number of keynote lectures by several prestigious scholars, who presented state-of-the-art syntheses, which were followed by lengthy debates with the participation of researchers working in multiple Atlantic and Mediterranean regions. One of the conference's main targets was thus to encourage debate and seek points of contact, so the sessions were chaired by international specialists in various disciplines (archaeology, archaeometry, archaeozoology, historians, specialists in chemistry, etc.); methodological and historical issues concerning the content of amphorae were examined; protocols, methodological advances and past errors were discussed, and a programme of research for the future outlined. The agreements reached and the areas in which controversies remained were synthesized at the end of the event. As is customary in archaeological conferences, and in order to encourage participation and debate, poster presentations were scheduled and discussed in one session.

Many of the specialists that attended the RACIIC were interviewed, allowing those who could not come to 'put a face' to researchers from different countries: these 60 micro-interviews, as well as footage of the conference, what we called 'sea-pills', are available in CEIMAR's Youtube channel (<https://www.youtube.com/c/CampusdelmarEsceimar/videos>). Five years later, we have become used to these dynamic multimedia formats, especially as they have greatly contributed to minimise the effects of the COVID-19 pandemic. At the time, it was regarded as a novel and valuable format by the attendants and the scientific community at large.

For logistic reasons, attendance was limited to one hundred participants, from 12 countries and over 30 institutions and businesses (Figure 3): Germany





FIGURE 1. RACIIC CONFERENCE POSTER, WHICH ILLUSTRATES THE CONTENTS OF A LATE PUNIC AMPHORA FROM THE BOTTEGA DEL GARUM, POMPEII, DURING SAMPLING.



FIGURE 3.- PARTICIPANTS OF RACIIC, IN THE AULA MAGNA (A) AND COURTYARD (B) OF THE FACULTAD DE FILOSOFÍA Y LETRAS, UNIVERSITY OF CÁDIZ.



FIGURE 2. PRESENTATIONS BY OUR LATE COLLEAGUES TAMÁS BEZECZKY (†) AND JIHEN NACEF (†) DURING THE RACIIC SESSIONS.

(U. Ehmgig, University of Frankfurt am Main); Austria (T. Bezecksky, Austrian Academy); Belgium (J. Poblome, Katholieke Universiteit Leuven, P. Monsieur, Ghent University); Spain (P. Berni, R. Járrega, H. González-Cesteros, Institut Catalá d’Archeologia Classica; A. Ribera, Ayuntamiento de Valencia; M. Beltrán Lloris, Museo de Zaragoza; A. Pecci, University of Barcelona, M. A. Cau, P. Reynolds, University of Barcelona – ICREA; D. Bernal-Casasola, M. Luaces, V. Palacios, A. Rodríguez, A. M. Roldán, A. M. Sáez, J. Sánchez, University of Cádiz; E. García Vargas, University of Seville); USA (T. Peña, Berkeley University), France (E. Botte, M. Bonifay, M.-B. Carre, M. Sternberg, A. Tchernia, Centre Camille Jullian – Aix-Marseille Université/CNRS; D. Dixneuf, Laboratoire d’Archéologie Médiévale et Moderne en Méditerranée – Aix-Marseille Université/CNRS; J.-Y. Empereur, Centre d’Études Alexandrines/CNRS; F. Cibecchini, DRASSM; J.-L. Fournet, Collège de France – Paris; N. Garnier, Laboratoire Garnier; C. Hänni, École Normale Supérieure – Lyon; F. Laubenheimer, University of Paris – Nanterre; S. Lemaître, University of Poitiers); Greece (G. Koutsouflakis, Greek Maritime Euphoria); Italy (S. Menchelli, University of Pisa; G. Olcese, University of Padova); Portugal (I. Vaz Pinto, Troia Resort; C. Fabião, University of Lisbon; R. Morais, University of Oporto); United Kingdom (M. Woodworth, Oxford University); Tunisia (J. Nacef, University of Monastir); Turkey



(A. K. Senol, Egean University Izmir) and independent scholars (A. Opař, Canada). In the years since the celebration of the event, some of these researchers have changed institution and some, sadly, are no longer with us. We want to use this opportunity to remember Jihen Nacef and Tamas Bezczky with affection; you will never be forgotten. Some of the specialists who were invited could not attend, as they had previous commitments (J. P. Bernardes, J.-P. Brun, C. Carreras, S. Demeschika, C. Franco, M. Hansson, M. Kbir Alaoui, W. Van Neer, A. Wilson). Conversely, other colleagues could join us to the meeting and at the publication stage (S. Bakardzhiev, N. Boichot, S. Bombico, N. Borislavova, R. Bourgoing, R. Brulet, M. P. Buonincontri, J. Clarke, A. Contino, D. Cottica, G. M. Crisci, D. Djaoui, C. De Juan, G. Di Pasquale, H. Fujii, S. Gabriel, S. Grainger, B. Gruber, V. Hasenbach, J. D. Hernández García, V. Leitch, M. Lettieri, M. Loughton, S. Martin Kilcher, R. Marlasca, C. Mathe, D. Miriello, J. Miró, J. Muslin, A. A. Nagy, C. Nervi, F. Notarstefano, C. Oliveira, F. Olmer, G. Piques, S. Polla, A. Quevedo, J. Ream, C. G. Rodríguez Santana, N. Rovira, C. Sánchez, C. M. Sánchez Moral, I. Sanna, L. Soro, A. Springer, T. Theodoropoulou, M. Thomas, M. Tillier, P. Tušlová, I. Van der Graaff, C. Vieillescazes, B. Weisová). The RACIIC was, therefore, attended by a representative section of the field of ‘amphorology’, in both disciplinary and geographical terms.

The steering and scientific committees saw it fitting to dedicate the event to Dr Miguel Beltrán Lloris, Director of Museo de Zaragoza, who at the time reached the happy age of retirement and gave the ‘opening lecture’, the only one in this publication to be printed in Spanish, as a deference to him and to give the reader the opportunity to read about the problems related to the paleocontent of amphorae in his own words. He is, no doubt, one of the pioneers of this topic in Spain, with his well-known monograph *Las ánforas romanas en España* (Zaragoza, 1970), published 50 years ago almost to the day. Following an affectionate speech by Professor André Tchernia, who honoured us with his presence, Miguel Beltrán was given a Punic amphora as a token of our affection and as a reference to the *longue durée* that presides our subject of study (Figure 4). With his characteristic good humour, he said that all attendees should have been given a ‘full’ amphora, not an empty one, in direct reference to the central topic of the conference. It is worth stressing that Professor Beltrán is often made reference to in our fieldwork, when the excavation of early and mid-imperial Roman contexts yields a ‘Beltrán II A’, a ‘Beltrán II B’, or a ‘Beltrán 68’, a constant reminder of the importance and pioneering nature of his work.

The conference’s programme followed a lateral approach. For each topic, a ‘speaker’, generally acting on behalf of several authors, gave a lecture, which was then commented upon by one or several ‘discussants’. In six sessions, the RACIIC tried to synthesize the most pressing issues. Session 1 (‘Historical and archaeological



FIGURE 4.- PUBLIC TRIBUTE TO PROFESSOR MIGUEL BELTRÁN LLORIS, ATTENDED BY ACADEMIC AUTHORITIES FROM THE UNIVERSITY OF CÁDIZ AND CAMPUS DE EXCELENCIA GLOBAL CEIMAR, ALONGSIDE SOME OF THE ORGANISERS.



FIGURE 5.- OPENING LECTURE OF THE RACIIC CONFERENCE BY PROFESSOR ANDRÉ TCHERNIA, WITH THE INTERVENTION OF DR ENRIQUE GARCÍA VARGAS.

indicators’) addressed methodological issues, which were divided into four key aspects: ‘typology and content’, superbly presented by A. Tchernia, followed by E. García Vargas’s reply (Figure 5); ‘reutilisation of Roman amphorae’ (presented by T. Peña and M. A. Cau); ‘Amphorae contents and shipwrecks’ (F. Cibecchini and G. Koutsouflakis); and ‘amphora inscriptions and content’ (U. Ehmgig – J.-L. Fournet and P. Berni – E. Botte). Sessions 2 and 3 dealt with archaeometry: ‘amphorae and residue analysis’ (N. Garnier – A. Pecci and C. Oliveira – M. Woodworth); ‘DNA and amphorae’ (C. Hänni and N. Garnier); and ‘zooarchaeology and the analysis of amphora contents’ (M. Sternberg – D. Bernal-Casasola). The two following sessions aimed to update the available evidence for the main Atlantic and Mediterranean regions (‘Regional syntheses I – the West’; and ‘Regional syntheses II – Africa and the East’), which, for logistic reasons, consisted in a number of comprehensive lectures: ‘Hispanic and Mauretanian amphorae’ (presented by H. González Cesteros on behalf of D. Bernal-Casasola, M. Kbir Alaoui, R. Morais, R. Járrega, A. M. Sáez, I. Vaz Pinto; and discussed by C. Fabião, E. García Vargas and A. Ribera); ‘Gallic amphorae and imitations in Central Europe’ (F. Faubenheimer and P. Monsieur); and ‘Italian amphorae’,



FIGURE 6.- PARTICIPANTS DEBATE DURING THE CONFERENCE.

(S. Menchelli and M.-B. Carre - S. Pesavento). The second ‘geographical’ session examined ‘African amphorae’ (M. Bonifay and J. Nacef), ‘Egyptian amphorae’ (D. Dixneuf and J.-Y. Empereur), ‘Eastern amphorae’ (P. Reynolds and T. Bezeczký, S. Lemaître, A. K. Senol) and ‘Black sea amphorae’ (A. Opait and P. Reynolds). The event ended with a ‘conclusions and proposals’ session (Session 6), led by J. Poblome (‘Synthesis of proposals, agreements, disagreements and open topics’).

The conference prioritised debate, which was ample and illuminating, after both the lectures (Figure 6) and poster presentations. From typology to the semantics of reuse; from the sealing of amphorae to polyvalent shapes; these debates became veritable *think tank sessions* in which participants raised very important issues.

The programme included two complementary activities: a visit to the Phoenician-Punic and Roman collections of the Museo de Cádiz, led by its then director, Dr Juan Alonso de la Sierra Fernández, whom we want to thank for his generosity; and a presentation and tasting connected to the project for the experimental reconstruction of Pompeii *garum*, ‘Flor de Garum’, coordinated by professors V. Palacios and A. M. Roldán, of the Chemical Engineering and Food Technology Department, University of Cádiz.

The contents of the conference have been ‘reformatted’ for this publication, which includes 34 works with the main arguments presented to the RACIIC. The volume follows the same structure as the conference, but it adapts to the needs of the authors and topics, as explained in more detail in the conclusions. It is not always easy for authors to stick to the agreed topics, but virtually all participants of the conference finally feature in the volume, which is a matter of great satisfaction for the editors. We leave it to the reader to judge our results and to ponder about issues in which further work is needed, for instance about the creation of a working group for a European project dealing with amphoric contents, one of the conference’s targets. Unfortunately, to date this has not met with success, since the various ‘calls’ and ‘topics’ of Horizon 2020 did not include the topics at hand or those related to the protection of Historical Heritage, as is well known.

As editors, it is also important to apologise for the delay in bringing these proceedings out. Over five years have lapsed between the celebration of the conference in Cádiz and the publication of this monograph; too long a time, and we are aware of this: the frantic pace of institutional academia, constant fieldwork demands, and the effects of the COVID-19, which has sent the project back by one whole year, are the main reasons for this delay. Some of the authors submitted their contributions over three years ago. In other cases, text and bibliography have been updated. We decided not to submit the papers to peer review, since all contributions sprang from invited lectures that had already been evaluated by the scientific and steering committees. Naturally, all authors are responsible for their own texts. The reader is kindly asked to take into account that some of the papers are over three years old. This is especially significant concerning archaeometric results (organic residue analysis), which can age very quickly indeed as a result of the rapid advance of techniques, equipment and interpretation.

Finally, we would like to express our deepest gratitude to the institutions and individuals that made the RACIIC possible. First, the Campus de Excelencia Internacional del Mar CEIMAR, and especially its former General Coordinators Carmen Garrido and Fidel Echevarría, for taking this initiative under their wing and support it wholeheartedly. To Casimiro Mantell, Deputy Vice-Chancellor of Research and Javier Benavente, Director General of Research, University of Cádiz, for their support; and the technical staff at CEIMAR and UCC+i (UCA) for their help, especially in terms of outreach and transference. The members of the Steering Committee also want to thank Max Luaces, at the time a PhD candidate at the universities of Cádiz and Lyon, who was at the head of the conference’s secretary for several intense months, and to several members of research group HUM-440 (Alejandro González Blas, Rosa Arniz Mateos and Lorena Hoyo Gómez) for their logistic support during the event.

We also want to thank the members of the Scientific Committee, especially those who could not participate in the conference (A. Arévalo, L. C. Juan Tovar, M. Kbiri Alaoui, J. L. López Castro, B. Raissouni and A. Wilson).

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FIGURE 7.- WHOLE AMPHORA, WITH *OPERCULUM*, *TITULUS PICTUS* AND POSSIBLE REMAINS OF PALEOCONTENTS (BASED ON WEIGHT) FROM THE LATE ROMAN SHIPWRECK OF SES FONTANELLES, PALMA DE MALLORCA (© CONSELL DE MALLORCA – UNIVERSITAT DE BARCELONA - UNIVERSIDAD DE CÁDIZ – UNIVERSITAT DE LES ILLES BALEARS, 2019).

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The future will tell what is the real scope of our results. The conference was, at least, valuable in raising awareness among archaeologists about the need to handle amphorae in which remains of paleocontents have survived with care; these are exceptional finds, which must not be just ‘emptied’, but subject to careful protocols of analysis that include sieving, floating, triage, and as many archaeometric techniques as possible, from organic residue analysis to biomolecular analysis. Mentioning *garum*, with all its types and varieties, and the absence of scientific consensus, largely the result of the paucity of the available evidence, should suffice to stress the complexity of the matter. The

number of amphorae whose paleocontents are well known is under one hundred, and those in which physical residues and *tituli picti* are found together are even fewer (Figure 7), veritable ‘treasures’ that need investigating properly. We hope that technical advances will make these protocols part of the standard toolkit of archaeology in the next few decades.

We want to stress that the reader will not find answers to all their questions in these pages. The paleocontents of Roman amphorae is a complex and unresolved issue. Yet, we aim to present an up-to-date picture, organised by topic and geographical region, with the aid of the top specialists in this fascinating aspect of the Roman economy.

Cádiz – Aix – Barcelona – Toulon, December 2020  
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