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GREEK AMPHORIC EPIGRAPHY IN ROMAN OPEN DATA

Abstract: The article presents a methodology to analyze the Greek amphora epigraphy produced during the Roman Empire in its eastern part. The detailed information that appears as an abbreviated form in thousands of inscriptions distributed throughout the Roman territory is an essential element to understand the imperial socio-economic dynamics. Here we present a guide to using the Roman Open Data exploratory interface in its Greek text search section, and how, based on cases, we can determine for the first time the possible existence of a complex system of productions whose contracts would even be monthly. The relational search system makes this interface the only one that allows the user to singularize their searches, granulating them based on their experience.

Keywords: Greek epigraphy, Digital Humanities, Open Access, Amphora, Roman Empire.

I. INTRODUCTION

In recent decades we have seen a flourishing of studies on amphoric epigraphy, where there is more and more academic interest. An example of the popularity of this genre can be seen in the more than 3,100 users linked to the topic “Stamped amphora handles” published by the bibliographic repository Academia.edu. The fact that they are one of the most common inscriptions in archaeological excavations means there is a greater knowledgebase of their texts, images, and possible meanings. Here we present the results of the design of the online records of the Greek amphora epigraphy corpus\(^1\), hosted in the free to access database in Roman Open Data\(^2\), for future reference by those studying history and archeology. The method makes use of the prior innovation scripted within the framework of the teaching practices of the members of the CEIPAC research group\(^3\), but considering the phase of design, exploration and promotion of the digital corpus among the scientific community that has already been advanced\(^4\), our objective is to present its use among those who are new to the database, in addition to cases that showcase results that have already been evaluated. In the current proposal, we offer an example of its operation and benefits based on the supposed discovery of several inscriptions. Thus, to the nearly two thousand records already searchable on Greek stamps, we must add the nearly five thousand painted marks (known as \textit{tituli picti}) that preserve Greek and Latin text on amphoras from the excavations of Pompeii\(^5\). The plan is to provide students

\(^{1}\) REMESAL et alii 2013.
\(^{2}\) REMESAL/RULL 2021.
\(^{3}\) REMESAL et alii 2008; REMESAL et alii 2015a; et alii 2015b; REMESAL/PÉREZ 2021.
\(^{4}\) BERMUÉDEZ 2021.
\(^{5}\) MARTÍN-ARROYO/REMESAL 2017.
of Archeology at the University of Barcelona, as well as those of History, in the Ancient History classes – comprising about eighty students a year – with a basic tool to control a more complex epigraphy, whose message is not hidden behind a necessary textual constraint, offering other possibilities of study, aside from its Latin counterpart.

II. GOALS

General: The steps to access the Greek amphoramic epigraphy records in the digital catalog hosted in Roman Open Data (https://romanopendata.eu/greek) are disclosed, allowing the students at the University of Barcelona and Girona to become familiar with this type of epigraphy, to know its peculiarities and to infer chronologies, origins, contents, etc. from a hypothetical discovery of future texts (Fig. 5).

Specific:
- Establish selection criteria to define the fields of greatest or least interest in the epigraphic searches. This will highlight possible improvements in the structure of the database files.
- Promote among interested students the sum of published and unpublished entries in the Greek database through the Data Emptying page (https://romanopendata.eu/greek/dataentry), which will require approval of the information incorporated by a validating figure for its final upload. This phase of interaction will help to improve aspects that have not been attended to in the database, or to include new ones of interest to users. The proposal for an online catalogue of Greek texts adapts to the new methodological realities of the current – and future – generations of undergraduate and graduate university students, who are increasingly accustomed to accessing historical Humanities content and sources in a fully digital context.6

- Identify future undergraduate or postgraduate academic programs interested in establishing the activity within their teaching programs. One example is its successful implementation within the Máster de Recerca Històrica of the University of Girona for the 2021/2022 and 2022/2023 courses ().

III. METHOD

Information sources
As Y. Garlan already stated (2004), the systematization and study of Greek epigraphy on amphorae is a daunting task, especially when we consider that today there are more than 300,000 known inscriptions on these ceramic vessels, a figure that increases every day.7 There are currently more than 50 known production centres that span four centuries (I–IV AD), with two thirds originating from Rhodes, to which we can add other centres from Thasos, Sinop, Knidos, etc.

There are more and more specialists in epigraphy on the instrumentum domesticum, and the points of free access to these inscriptions are also increasing. Originally, the management of the various corpora was done on paper, but the dissemination of new technologies in the Humanities has promoted the creation of digital catalogues.8

In 1993, Garlan proposed the creation of the Corpus International des timbres amphoriques sponsored by the Union Académique International (UAI), which was joined in 1997 by the Real Academia de la Historia (Madrid), under the patronage of the CEIPAC group; the Academies of Austria, Portugal, Romania and Tunisia joined later. In 2022, volume 30 of its fascicles was published. For CEIPAC’s Latin amphora epigraphy database, active since 1995 (http://ceipac.ub.edu), with nearly 52,000 files introduced since March 2011, the objective was to create an electronic corpus of all Greek amphora inscriptions of the ancient world. The development of the epigraphic records search and visualization tool seeks to analyze the data in a relational system of questions that permits access to complex answers at a statistical, typological, prosopographic, or chronological level. Its study allows us to know, in detail, the productive organization chart of the workshops and the distribution of food in the Roman Empire. The analysis of this in Big Data will allow for the recognition of patterns and singularities of the organization; Fanagou’s work is an interesting example of the potential of the study, as he applies techniques derived from network science to his own data (2015). The development of this online catalogue, with nearly 2,000 published records, allows us to search or select one or more records, allowing us to expand or filter the results based on our interests, unlike other similar databases that show their information as a transcripts, screenshots, or scans of the published information. It is worth mentioning the database developed by The Alexandrian Center for Amphora Studies or CEAE (http://www.amphoralex.org/presentation.php), focused on the Greek amphora epigraphy of the city of Alexandria, whose Graeco-Roman Museum of Alexandria houses 160,000 items. Other essentials are the Amphora Stamps of the Northern Black Sea (https://stampsofsofosphorus.ru/en), focused on the amphorae found in the settlements of the North Pontic region, and The Amphoras Project of the University of Toronto (https://amphoras.artsci.utoronto.ca/project.html), which focuses on materials from the excavations of the Agora of Athens.

The methodology used is based on the practical proposals made concerning its Latin counterpart; the Latin amphora epigraphy database of the CEIPAC (viewable at http://ceipac.ub.edu or https://romanopendata.eu/latin/search). A script on its use and results among university students can be followed in various publications.

Search forms
1. Search and representation of the stamps within the Greek epigraphy database (https://romanopendata.eu/greek).

1.1. The search form is mainly divided into three sections: amphora typologies; that which relates to the inscriptions printed therein; and that which relates to the discovery of the texts.

6 REMESAI 2012; REMESAI 2023.
7 PÉREZ et allí 2023.
8 PORCHEDDU 2012.
1.2. There are several subsections of the epigraphic search field. First and foremost is the search field for the text of the stamp, in Greek (via a Greek keyboard) or its Latin transcription. This is followed by two sections on the name of the variant and the name of the person who appears on the stamp, in Latin or its transcription in Greek. Finally, the user can make a chronological search of the inscriptions, either through one of the months that appears in the text of the stamp variant, or through a relative chronology that is offered through a drop-down menu with eighty periods, as well as selectable subperiods.

1.3. The search results can be displayed in an abbreviated list, either through a general Stamps section, or within two other sections that allow users to filter the result by Variants and Persons Cited.

1.4. Once the file is selected, it opens with the epigraphic information, revealing the conservation of the text, its position, the shape of the cartouche, its reading direction, whether it features relief, whether a symbol appears next to the text, and its position on the stamp. This is followed by information about the object on which the inscription appears and the bibliography associated with it, before closing with a detailed analysis of the reading, the names of the people who appear on the stamp, the type of matrix, and the month.

Below, we show several screenshots of the search process for the eponym or magistrate known as Aristómachos (Fig. 1-4). In the 'Text' search field, we include the complete development in Greek of the person mentioned in the epigraphic texts, for example, ΑΡΙΣΤΟΜΑΧΟΥ, offering the user 61 complete result records with a number of variants. The eponym appears on the stamps accompanied by a potter, or linked to a specific part of the year, or by itself. In addition to being a consultation tool with great potential, relational search also allows us to observe individual results, as well as other types of similar productions. For example, the Roman province of Baetica (of the Dressel 20 type, occasionally serialised with stamps of the same reading through various variants and/or matrices), then the CIA LB stamp serves as an example\(^\text{10}\). We can thus interpret that the new orders for these amphorae indirectly represent the creation of a new matrix, through which we can differentiate productions within the complex organisational system. Thanks to continuous reviews of its typological evolution\(^\text{11}\) and the dating obtained through its discovery in well-defined contexts such as shipwrecks or at Monte Testaccio\(^\text{12}\), we can propose and verify the dating of many of the known stamps (Dendrograms), providing they are associated with specific dynastic periods. At this point, knowing whether the matrices worked during certain days, weeks or months becomes a complicated task using the current information. However, the analysis of Greek epigraphy, which is more detailed than the constrained or abbreviated Latin, allows us to hypothesise that the same matrix (-matrices) could have been produced, used and eliminated throughout the monthly period, at the pace of the contracts and productions associated with them. Aristómachos, like many other eponyms, is a good example of this. If we select the character series emptied into the base and associated with the month Πάναμος (July-August), we see up to five different cases with the same text but different matrices. The visualisations of the matrices through their drawings, tracings or photographs often allows us to quickly differentiate the variants; however, when this method fails, a transcription of the copies allows us to confirm the variety of cases through line breaks: Ἐπὶ Αρισ/τομάχου / Πανάμου (CEIPAC 47884 (Stamp 52035)); Ἐπὶ Ἀριστομάχου (CEIPAC 47883 (Stamp 52034)); Ἐπὶ Ἀριστομάχου / Πανάμου (CEIPAC 47882 (Stamp 52033)); Ἐπὶ Ἀριστομάχου / Πανάμου (CEIPAC 47881 (Stamp 52032)) and Ἐπὶ Ἀριστομάχου / Πανάμου (CEIPAC 47880 (Stamp 52031)) (collected in Cankardeş-Şenol 2015). The case presented here has many other parallels that have already been...

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\(^{10}\) REMESAL/MOROS 2019.

\(^{11}\) BERNI 2017; GONZÁLEZ 2023.

\(^{12}\) REMESAL 2022.

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![Fig. 1. Search in the Greek Roman Open Database of the text Aristómachos (ΑΡΙΣΤΟΜΑΧΟΥ), alongside the drop-down Greek alphabet. Search carried out on 01/29/2024.](image-url)
Fig. 2. Screenshot of the results obtained from the Greek Roman Open Database for the text Aristómachos (ΑΡΙΣΤΟΜΑΧΟΥ). Search carried out on 01/29/2024.

Fig. 3. Screenshot of the results obtained from the Greek Roman Open Database for the text Aristómachos (ΑΡΙΣΤΟΜΑΧΟΥ) and the Month Πάναμος. Search carried out on 01/29/2024.

Fig. 4. Screenshot of the file CEIPAC Number 47884 (Stamp 52035) of the Greek epigraphy database, searchable in Roman Open Data. Search carried out on 01/29/2024.
added to the base, which serve as a clear example of its potential use.


2.1. The categorisation of the tituli picti (mostly in Greek) carried out by Martín-Arroyo for his digital casting,3 of more than 3000 amphorae exclusively from the Vesuvian region, in particular from Pompeii and Herculeanum, added more than 5,800 Greek and Latin inscriptions – at times on the same ceramic container – to the Ceipac bases, which are freely accessible through Roman Open Data. The search form is divided into several sections: amphora typologies; that which relates to the inscriptions printed therein; the position of the texts; their chronology; that which relates to the discovery of these texts or their production; and the bibliography of the inscription.

2.2. Focusing a search on Greek inscriptions is done by using the text search field of the titulus pictus, by using the Greek keyboard or, failing that, the pre-established search in Latin. It is important to select the ‘Tituli’ field in the search results displayed at the bottom of the catalogue.

2.4. Once the list of results obtained has been selected, it opens with the following specific epigraphic information: the amphora type where the text or texts appear; its place of discovery and conservation; its dating; and its bibliography. A subsection is included with the development of textual conservation, as well as the class and ink of the titulus picti that appear on the amphora.

IV. RESULTS

In the hypothetical case that we give students the text of a Greek titulus pictus with the remains of the text Κλαυ... on an amphora found in Pompeii and an incomplete seal Αριστ... made on a Rhodian oriental amphora, are there parallels in the CEIPAC databases? The answer is yes – there are more than fifty developed records of tituli picti Claudiorum, Τι. Κλαυ(ίου), etc., and more than four hundred stamps with the names Αριστόμαχος, Αριστοκλῆς, Αριστείδας, etc. In this way, students would be able to find an answer to these texts.

We will now demonstrate the basic questions needed for the elaboration of a work on amphora epigraphy. First, we describe the shape of the inscriptions: does it have a cartouche? Are there reverse letters or interpunctures? etc. Second, we determine from the information in the database the conservation, proposed developed reading, place of production, distribution throughout the Roman territory (which can be found at https://romanopendata.eu), dating, amphora type, types of content, etc. What historical data can we extract from this text? If we find it in an excavation, would it be useful to us? To all this, we must add a brief bibliography, adjusting it to the length of the work and the norms of bibliographic citation. More information on the use of Ceipac databases can be found in these two video tutorials (https://www.youtube.com/watch?v=Cwt3XIO02rI&feature=emb_logoandhttps://www.youtube.com/watch?v=Xpo612g2ISA&feature=emb_logo).

The assumptions made in these search criteria and the preparation of the work are reflected by a success rate of greater than 90% for the works carried out each year at the University of Barcelona (about 40–50 students) and the University of Girona (with a total of 4 students from the 2021/22 and 2022/23 courses).

1. AENEAS

Forma del segell: Segell en línia exangulat, situat dins una cajeta la rectangular i de lletra directa. La línia N i la S apareixen a la super. No s’observen interpuncions.

Lectura del segell: AENEAS. Conservació: [AENAEAS]

MANACORDA & PALLECCCIO 2012 (INV 005009)

Lectura desenvolupada proposada: Mostra de la cajeta la: 57x11.5 mm. Mida de les lletres (mm): A10x12; E: 6x9; N:7x10; E: 6x8; Α: 2.9x7; Ν: 4x4. Direcció de la lectura en sentit descendent (Manacorda&Palleccio. (2012).

Lloc de producció i de trobada: Brandis (Giancola, Itàlia). Alt.: 28. US 25

Datació: Per ID. 100–75 aC. (contextual).


Segons això, les dades històriques ens permeten determinar que la producció d’aquesta tipologia d’anomàs i de segell és propi de la regió sud de la península italica i que la seva zona d’acció és la mar Mediterrània.

Per tant, en el cas de trobar aquest segell en una excavació arqueològica, seria important si la localització fos alguna de la voinca occidental del Mediterrani, ja que en aquesta zona es coneixen menys exemples i això permetria establir possible noves rutes de comerç a ares comercials de nova distribució.

Fig. 5. Capture of the anonymous response of a work on the AENEAS stamp proposed in the Master en Recerca en Humanitats of the University of Girona for the 2022/23 course.

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V. CONCLUSIONS

Spain has one of highest concentrations of studies on amphorae epigraphy, and its academic-social diffusion is evident in the varied and continuous publications on the subject. The sum of the epigraphic search processes in digital catalogs is one of the most recognized teaching practices in Epigraphy classes at the University of Barcelona and, by extension, at the University of Girona. The development of the Greek epigraphy databases within the framework of the CEIPAC projects seeks to offer the user new search experiences that are not found in other online catalogs, as well as to partner with institutions that provide data, resources and specialists on this epigraphy. Along these lines, CEIPAC has recently signed an agreement that links it to the Institute of Historical Research/National Hellenic Research Foundation through the Roman Attica Project.

It is thus important to generate new evaluable practical exercises from the databases developed following previous experiences in order to improve them and help validate their data. In parallel, several papers have already been published that analyze either the distinctiveness of various productions or marketed products, or the supply dynamics in a Big Data context, thus overcoming the merely cumulative or academic dissemination phase of the software developed.14

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