



Università
Ca' Foscari
Venezia

Master's degree programme
in Digital and Public Humanities

Final Thesis

**Digital Approaches to the Inscriptions of the Eastern
Necropolis of *Iulia Concordia*: from Autoptic Analysis
to TEI-based Edition**

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Academic Year

2024 / 2025

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ABSTRACT

In 1873 a wide necropolis was discovered half a kilometre east of the wall of the ancient roman colony of *Iulia Concordia*, today's Concordia Sagittaria in the Veneto region. The Eastern Necropolis, also known in Italian as “Sepolcreto dei Militi”, hosted almost 300 sarcophagi commissioned by a remarkable variety of people, differing by gender, provenance, social role, and job, who lived between the 3rd and early 5th Century AD. Although two thirds of the tombs are uninscribed, the inscriptions provide important data about common people and the social and linguistic evolution of the city over almost two centuries.

The aim of this thesis is to create XML files of these inscriptions according to the TEI/EpiDoc standard. Even though the EAGLE website already provides similar documents, this project proposes data enrichment, adding more information to show the complexity of the necropolis, focusing particularly on the people buried and connecting each file in an integrated system. Moreover, the EpiDoc encoded transcripts, and detailed descriptions are the base for proper digital and critical editions, based on the author's autopsy and enriched with a complex apparatus, making them suitable for both non-specialized and scholarly viewers.

In the written work, the history of epigraphy and its tools and methods will be presented. Then the history of the Necropolis will be provided to give the archaeological context. The last two paragraphs will show how the XML files are structured and which visualization method was chosen.

LIST OF ABBREVIATIONS

EPIGRAPHIC CORPORA

- CIL** *Corpus Inscriptionum Latinarum*, Berlin 1862-.
- IG** *Inscriptiones Graecae*, Berlin 1873-.
- ILCV** Diehl, E. (ed.), *Inscriptiones Latinae Christianae Veteres*, Berlin 1925 – 1931.
- ILS** Dessau, H. (ed.), *Inscriptiones Latinae Selectae*, Berlin 1892 – 1916.
- InscrIt** *Inscriptiones Italiae*, Roma 1931.
- SupplIt** *Supplementa Italica, nuova serie*, Roma 1981-.

PROSOPOGRAPHIC CORPORA

- PIR²** *Prosopographia Imperii Romani saec. I. II. III*, Leipzig - Berlin 1933-2015.
- PLRE** *The prosopography of the Later Roman Empire*, Cambridge 1971-.

DATABASES

- EAGLE** The Electronic Archive of Greek and Latin Epigraphy.
- EDB** Epigraphic Database Bari.
- EDH** Epigraphic Database Heidelberg.
- EDR** Epigraphic Database Roma.
- EH** Hispania Epigraphica.

INTRODUCTION

The Eastern Necropolis of *Iulia Concordia*, known in Italy as “Necropoli di Levante” or “Sepolcreto dei Militi” (graveyard of the soldiers), is one of the most significant late antique burial grounds in north-eastern Italy. Discovered in 1873 during the excavations directed by Dario Bertolini, it yielded a remarkable concentration of inscribed sarcophagi belonging to civilians, soldiers, workers of the imperial arrow factory (*fabricenses*), and their families. These inscriptions, dating roughly from the third to the early fifth century, constitute a body of evidence of considerable interest for the study of the late Roman military, for onomastics and prosopography, and for the linguistic landscape of the ancient region called *Venetia*. Yet, despite their scholarly relevance, these inscriptions have never been the subject of a comprehensive digital edition.

The aim of this thesis is to produce such an edition: a set of born-digital critical editions of the inscriptions from the Eastern Necropolis, encoded according to the TEI/EpiDoc standard, and published as an open-access website. The project pursues a twofold objective. On the one hand, it seeks to create source files that are rigorous, interoperable, and reusable, according to the FAIR principles, and that can be integrated into the broader ecosystem of digital epigraphy, addressing shortcomings observed in existing databases such as EDR and EAGLE. On the other hand, it aims to make these inscriptions accessible beyond the circle of specialists, offering tools such as a prosopographic catalogue, an interactive map, and a structured presentation of each inscription that allow a wider public to engage with the lives of the ordinary men and women buried at Concordia.

The work rests on three methodological pillars. The first is the autoptic analysis of the inscribed monuments, carried out by the author in 2024 at the *Museo Nazionale Concordiese di Portogruaro* and its storage facilities. Measurements, palaeographic observations, and the condition of each support were recorded directly and subsequently incorporated into the digital files. The second is the encoding of the inscriptions in

TEI/EpiDoc XML, a standard that allows the full complexity of the epigraphic document, from transcription and critical *apparatus* to prosopographic data, physical description, and bibliography, to be preserved in a structured, machine-readable format. The interpretive transcription was carried out with constant reference to the Krummrey–Panciera diacritical system (presented in **Table 3**), whose conventions were translated into their corresponding TEI/EpiDoc elements (**Table 4**); the same correspondence was then exploited in reverse by the XSLT stylesheet to render the transcription back into Krummrey–Panciera notation for the web interface. The third pillar is the transformation and publication pipeline: a set of XSLT stylesheets and Python scripts that convert the XML sources into a static website, hosted on GitHub and automatically regenerated at every update through a continuous integration workflow. The website is freely accessible [https://easternnecropolisofconcordia.github.io/EasternNecropolisofConcordia_EpiDoc_project/index.html], and the complete source files, transformation scripts, and stylesheets are available in the project's GitHub repository at [https://github.com/EasternNecropolisofConcordia/EasternNecropolisofConcordia_EpiDoc_project/tree/main].

STRUCTURE OF THE THESIS

The thesis is organised in four chapters, followed by a conclusion.

Chapter 1 introduces the discipline of epigraphy from its origins to its current digital form. It traces the history of Latin inscriptions in the Roman world, from their earliest attestations through their role as instruments of imperial propaganda and communication for ordinary citizens. It follows the evolution of epigraphic collections from the humanist manuscript tradition to the creation of the *Corpus Inscriptionum Latinarum* and later epigraphic *corpora*. The chapter then surveys the principal online epigraphic databases and concludes with a discussion of diacritical conventions, in particular the Krummrey–Panciera system (**Table 3**), which constitutes the notational standard adopted throughout this project.

Chapter 2 provides the historical and archaeological context. It presents the Roman colony of *Iulia Concordia* and the discovery of its Eastern Necropolis, discusses the individuals buried there and the criteria for dating the inscriptions, and examines the relationship between Bon's 1879 planimetry and Bertolini's archaeological evidence. Drawing on all of the above, a diachronic reconstruction of the necropolis is proposed.

Chapter 3 is devoted to the digital encoding of the inscriptions. After an introduction to the TEI/EpiDoc standard and an account of the autoptic analysis carried out by the author, it describes the structure of the XML files, covering metadata, facsimile, and text, and the elements used in the interpretive transcription, presented alongside their Krummrey–Panciera equivalents in **Table 4**. The chapter closes with a discussion of the advantages of these files in terms of the FAIR principles and their reusability compared with existing databases.

Chapter 4 addresses the transformation of the encoded data into a public website. It describes the structure of the GitHub repository, the XSLT stylesheet that converts the

EpiDoc elements back into Krummrey–Panciera diacritical marks, the Python–Saxon pipeline that automates the process, and the scripts that generate aggregate pages, namely the inscription index, the prosopographic catalogue, and the interactive map. It then discusses the deployment through GitHub Actions and the structure of the published website.

The Conclusion draws together the main contributions of the project, situating them within the broader landscape of digital epigraphy.

1. EPIGRAPHY: HISTORY AND PRACTICE

Epigraphy is the study of words that are written or cut on a hard material, such as stone, lead, or clay. It derives from the Greek word ἐπιγραφή, whereas the term inscription, used to indicate the words written or cut on a hard material, comes from the Latin noun “inscription”, from the verb *inscribere* (“write over”).¹ However, it should be reminded that in ancient times, Romans preferred the noun *titulus* (pl. *tituli*) to address to them, as it is reported by ancient authors and inscriptions.²

Since the support of inscriptions is constituted by hard materials, they represent noticeable witnesses, especially for ancient eras, such as Roman monarchic and early Republic period, from which the preservation of perishable materials is rare and found in dry environments; furthermore, book tradition was born quite recently in Rome, in the third century BC, leaving behind 500 years of history without any literature or historiography.

¹ Rogan 2006, 9.

² Inscriptions are referred to as *tituli* by Suetonius, who mentions them accompanying statues and images of Titus throughout the provinces of Germany and Britain (SVET. *Tit.* 4). Furthermore, many inscriptions use the noun *titulus* to refer to the engraved text itself. A noteworthy example is the inscription dedicated to *Marcus Detellius Trophimus*, his wife *Trebelliae*, and their freedmen (CIL IX 5868). In the last two lines, there is written: *nec heredem sequetur / praeter eos qui in titulo inscripti sunt*. Here, *titulus* clearly denotes the engraved text, whereas the participial form of *inscribere* indicates the act of being recorded on it.

1.1 Classical Antiquity

1.1.1 The Earliest Cases of Inscriptions in Latin

The oldest example of written Latin known is the inscription engraved on a clasp, the Praeneste *fibula*, found in the ancient city of *Praeneste*, near Rome, and dating back to around 670-650 BC.³ It was written in archaic Latin, as a kind of maker's mark *ante litteram*, stating that the craftsman *Manius* made the fibula for its recipient, *Numerius*. However, the alphabet used is the Etruscan one with a right-to-left orientation, typical of this writing system.



Fig. 1 - *Praeneste fibula*, Rome, Museo delle civiltà. Pax:Vobiscum, CC BY-SA 3.0 <<https://creativecommons.org/licenses/by-sa/3.0/>>, via Wikimedia Commons.

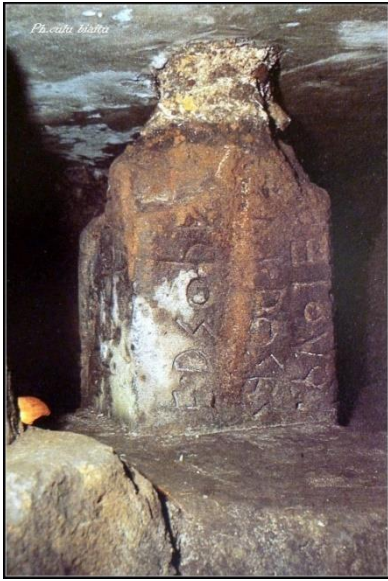
The first witnesses of a Latin alphabet can be found in the *Duenos* inscription, found in Rome and dated to the late seventh or early sixth century BC,⁴ in the *Lavinium* bronze plaque,⁵ dated at the end of the sixth century, and a stone block found beneath the *Lapis Niger*, a black marble flooring in the *forum* that covered a sacred area, dated to the same period of the *Lavinium* plaque.⁶ The first two inscriptions were written with a right-to-left orientation, just like the Etruscan script, whereas the last one was written in a boustrophedonic order, where alternate lines of writing are reversed, marking a transition towards the left-to-right direction typical of the Latin script. From this point onward, a process of normalisation of Latin epigraphy began, completed around the second and first century BC, where a canon was established, characterised by features more familiar to a modern reader: a rightward writing direction, a square letter module, with right angles

³ *CIL* I² 2.1, 3 = *CIL* XIV 4123,1; Petrucci 1992, 39. The authenticity of the *fibula prenestina* was called into question by several scholars, most notably the Italian epigraphist Margherita Guarducci (Guarducci 1980; Guarducci 1984), but the laboratory analysis carried out on 29 November 2010 by Daniela Ferro and Edilberto Formigli, whose results were presented on 6 June 2011, definitively confirmed the antiquity of both the object and its inscription (Maras 2012; Mangani 2014; Gippert 2020).

⁴ *CIL* I² 2.1, 4; Stefanelli 2012, 208.

⁵ *CIL* I² 2.4, 2833.

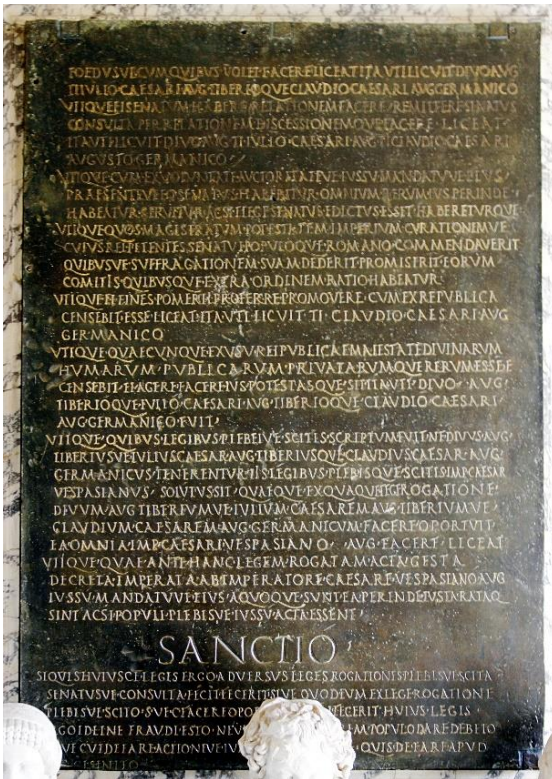
⁶ *CIL* I² 2.1, 1 = *CIL* VI 36840; *ILS* 4913; Petrucci 1992, 39.



and curved strokes closely approaching circular sections, and a clear chiaroscuro in the individual strokes.⁷

Fig. 2 - The stone block of the *Lapis Niger*, Rome, Forum Romanum. Giovanni Dore, CC BY 3.0 <<https://creativecommons.org/licenses/by/3.0/>>, via Wikimedia Commons.

1.1.2 Inscriptions as a Key Source of Information



Epigraphy represents an essential science for Roman studies also for the importance of the inscriptions in ancient Rome: many of them were exposed to be read by the public for several reasons. First of all, they were an effective means of communicating rules and laws or historical events. The stone block of the *Lapis Niger* probably served to convey a clear message: treading on the surrounding sacred area was not allowed.

Fig. 3 - *Lex de Imperi Vespasiani*, Rome, Capitoline Museum. © José Luiz Bernardes Ribeiro.

⁷ Petrucci 1992, 42-43.

The *annales* had an important public function, even if they were not strictly epigraphic material. They were wooden boards coated with a white surface, the so-called *tabulae dealbatae*, on which the most important events of the year were recorded and displayed to the public.⁸

A further exposition of information, once reserved for the ruling class, arose during the conflict between patricians and plebeians. The latter fought for over two centuries since the birth of the Roman Republic against privileges of the ruling class. Among these claims, there were the publications of laws and the calendar that stipulated which days it was lawful to conduct public business (*dies fasti*), such as holding assemblies or carrying out judicial proceedings, and days on which such activities were forbidden (*dies nefasti*), the kind of knowledge reserved only for patricians. Laws were exposed in the forum with twelve inscribed tablets starting from 451-450 BC, called *duodecim tabulae*.⁹ The publication of the *Fasti* took place one and a half century later, in 304 BC.¹⁰ Although both the original boards and the most ancient version of the *Fasti* are lost, the text of the *duodecim tabulae* is preserved partially thanks to the literary tradition, while several calendars inscribed on stones are still preserved.¹¹ Another relevant document is the only surviving bronze tablet of the law called by modern scholars *lex de imperio Vespasiani* made between 69 and 70 AD.¹² It is debated whereas this law just confirms the continuation of Augustan policies or represents a shift toward a more absolutist government where the emperor gains more powers; it is nevertheless clear that Vespasian wanted to legitimise its power, being the first emperor that was not a member of the Julio-Claudian dynasty.¹³

⁸ Rodríguez Mayorgas 2011, 239.

⁹ Steinberg 1982, 379-380; Watson 2004, 130.

¹⁰ Simpson 1993, 63.

¹¹ For the *Fasti*, cf. the relevant volume of the *CIL* (*CIL I² – Fasti consulares e fasti triumphales*).

¹² *CIL* VI 930 = 31207.

¹³ Malavolta 2008, 119-120.

1.1.3 Inscriptions as a Means of Imperial Propaganda

The *lex de imperio Vespasiani* also reveals another intent beyond the will to exhibit relevant information to the public: a propagandistic aim.

Since the Republic, prominent individuals recorded their sequence of public offices, known as *cursus honorum*, though such displays were commemorative rather than propagandistic in intent.

Thanks to the Pompei site, many graffiti are still preserved, some of them were part of actual election campaigns: this is the case of a supporter of *Quintus Caecilius*, who wrote in the middle of the first century BC: “*Quintum Caecilium q(uattuor)v(irim) benefic(um) o(ro) v(os) f(aciatis)* (“I ask you to elect *Quintus Caecilius*, a generous man, as *quattuorvir*”).¹⁴



Fig. 4 – *Res gestae divi Augusti*, Ankara, Turkey.
Berolini, Weidmann, Mommsen, Public domain, via Wikimedia Commons.

However, only Augustus established a truly centralised and systematic form of propaganda, pervasive in the major cities of the Empire. Literary works, sculptures, buildings, and inscriptions celebrated his rise to power and political career. The Forum of Augustus hosted a temple dedicated to *Mars Ultor* (“Mars the Avenger”), commemorating Augustus’ victory over the Caesaricides, as well as a series of statues depicting significant figures from Roman history, including members of Augustus’ family, the *gens Iulia*, and its mythological ancestors traced back to Aeneas, a lineage that Augustan ideology, most famously through Virgil’s *Aeneid*, traced back to Aeneas.¹⁵ The memorialisation of the princeps’ achievements also took the form of a text composed by

¹⁴ *CIL* IV 29.

¹⁵ Schlange-Schöningen 2012, 12.

Augustus himself, the *Res Gestae Divi Augusti*. This work would not have survived were it not preserved through multiple inscriptions across the Roman Empire. The principal witness is the inscription carved on the walls of the Temple of Rome and Augustus in the ancient city of *Ancyra*, modern Ankara.¹⁶

1.1.4 Inscriptions as a Means of Communication for Ordinary People

Besides the examples presented here, the commissioning of inscriptions in ancient Rome was not exclusively a prerogative of the ruling class. Especially from the late Republic, as literacy spread among the population, epigraphy became a means for ordinary people to achieve a tangible and perdurable form of representation, particularly in funerary contexts.¹⁷ Although the costs of such monuments required a certain level of wealth, inscriptions preserve the names of both local elites and minor tradesmen. One example is the inscription engraved on the so-called funerary altar of the *porcinarius*, recovered from the same necropolis that constitutes the subject of this thesis, where a woman named *Galla* dedicated the monument and tomb to members of her family. The altar is decorated with reliefs of objects associated with the family business, or at least with one of its members, including a ham, a two-pan balance, and three knives, suggesting the family's involvement in the pork trade.¹⁸

During Late Antiquity, a gradual deterioration of production standards can be observed, as evidenced by the inscriptions from the Eastern Necropolis of *Iulia Concordia*.¹⁹

¹⁶ AE 2007, 36 = AE 2007, 37 = AE 2009, 35.

¹⁷ Regarding the literacy in ancient Rome, *cf.* Rodríguez Mayorgas 2011, 240.

¹⁸ *CIL* V 8706; Lettich 1994, 228-229, n. 148.

¹⁹ *Cf. infra*, § 3.5.



Fig. 5 - Funerary altar commissioned by Galla for members of her family, bearing an inscription; the side view depicts a pork thigh and the tools of a butcher's trade – Portogruaro, Museo Concordiese Nazionale.

Photo: Ortolf Harl (Ubi Erat Lupa).

1.2 Humanism and the Early Modern Period

1.2.1 The earliest collections of inscriptions

Interest in inscriptions from an antiquarian perspective is attested in the Middle Ages. Alongside the tradition of descriptive works of a geographical and political nature, which had already emerged in the Constantinian period, among which the *Expositio totius mundi et gentium* may be mentioned,²⁰ medieval guides devoted to the city of Rome developed the practice of supplementing descriptions with the transcription of monumental inscriptions, as occurs in the *Mirabilia Urbis Romae*, a guide intended for pilgrims.²¹

The earliest collection of inscriptions known today is contained in the *Codex Einsidlensis*, although the manuscript is structured as an itinerary of the city of Rome intended to guide pilgrims. The *codex* is preserved in Switzerland, at the Benedictine monastery of Einsiedeln, and was compiled in Fulda, Germany, in the third quarter of the ninth century.²² Some scholars suggest that its oldest core may date back to the fifth century.²³ The collection comprises approximately eighty inscriptions, mostly Roman, with some originating from Pavia, transcribed in minuscule script and often with abbreviations expanded in an arbitrary manner, without faithfully preserving the original form of the inscriptions. No autoptic verification is attested: the inscriptions were not observed directly, but copied from other transcriptions, books, or notes. Nevertheless, comparison with the original inscriptions still preserved today reveals a satisfactory degree of reliability.²⁴

Another significant collection is the *Corpus Laureshamense*, compiled in the first half of the ninth century at Lorsch, in Germany, and now preserved in a manuscript of the

²⁰ Valentini, Zucchetti 1940, 163-258; Cioffi 2024, 270-271.

²¹ Valentini, Zucchetti 1946, 137-168.

²² Stiftsbibliothek, 326.

²³ Silvagni 1921, 203; Walser 1987.

²⁴ Calabi Limentani 1991.

Vatican Apostolic Library.²⁵ The manuscript draws upon epigraphic collections traceable back to the early seventh century.²⁶

As stated by Buonocore, these *codices* are fundamental for epigraphy and other related sciences, such as history, prosopography, and archaeology, since they represent the only witnesses for many inscriptions that are no longer extant.²⁷

1.2.2 The gothic parenthesis between the 11th and 13th centuries

Between the eleventh and the thirteenth centuries, a hiatus occurred, marked by a lack of interest in these collections. The reason lies in the diminishing comprehension of the ancient inscriptions by scholars.²⁸ *Magister Gregorius*, an English traveller who visited Rome in the late twelfth and early thirteenth century, wrote in the *De mirabilibus urbis Romae*: “*in hac tabula plurima legi ed pauca intellexi*” (“on this plaque I read many letters, but I could understand only few of them”).²⁹ A similar observation was made by a professor of the university of Bologna, Boncompagno da Signa, who stated in the *Rhetorica vetus* regarding the inscriptions he called “*litterae punctatae*”: “*olim fiebant sculpturae mirabiles in marmoribus electissimis cum litteris punctatis, quas hodie plenarie legere vel intelligere non valemus*” (“Once, marvellous sculptures were made in the finest marbles, with dotted lettering, which today we can neither fully read nor understand.”).³⁰

There is no single reason universally accepted to fully explain this phenomenon. However, the interesting contrast between “*legere*” (read) and “*intelligere*” (comprehend), made by both *Magister Gregorius* and Boncompagno da Signa, could represent a witness. In fact, Boncompagno considered both tasks challenging; his role as a university professor must be stressed, as in this field the Gothic script was predominant

²⁵ BAV, *Pal. lat.* 833, ff 26r–82r.

²⁶ Buonocore 2014, 24.

²⁷ *Ibidem*.

²⁸ Calabi Limentani 1991; Buonocore 2014, 24

²⁹ Valentini, Zucchetti 1953, 167.

³⁰ *ICUR*, pp. 300-301.

and, according to scholars such as Calabi Limentani, its spread hindered educated people of this period from understanding ancient inscriptions.³¹

De Rubeis, who shares this interpretation, provides a detailed explanation of the differences between these scripts and how this aspect impaired the comprehension of ancient inscriptions.³² The first and most obvious difference is the formal aspect of the letters: Gothic epigraphy was heavily influenced by the Gothic bookhand, itself shaped by the obliquely cut quill, which produces heavier, more forceful vertical strokes and finer horizontal ones, creating a sharper contrast between strokes and hairlines, also encouraging taller and more compressed letterforms, giving the script its characteristic narrow and upright modulation. This difference was further reinforced by the abandonment of the Square and Rustic Capitals, previously used alongside Caroline minuscule to indicate the hierarchy of titles and subtitles.

Secondly, these two scripts employed different brachygraphic systems: it was a difficult task for a medieval scholar to interpret abbreviations present in an ancient inscription.



Fig. 6 - Example of Gothic epigraphy: late thirteenth-century funerary monument dedicated to Jacopo and Lorenzo Tiepolo. Venice, Basilica of Saints John and Paul, façade.
Photo: De Rubeis 2008, p. 39, fig. 4.

³¹ Calabi Limentani 1991.

³² De Rubeis 2008, 33-34.

Finally, they also differed in text layout: in a medieval university manuscript, a commentary was provided through glosses, sometimes analysing each single word; thus, it became common to separate words with spaces, a practice that also influenced Gothic epigraphy, where each word was usually separated by space or punctuation marks. This differs from ancient inscriptions, where words were not divided and punctuation marks did not serve this function.

However, Buonocore does not agree with this interpretation and considers the physical degradation of the inscriptions, due to the state of neglect of the ancient monuments, the real reason behind this phenomenon.³³

1.2.3 Humanism and the renewed interest in pre-Gothic scripts

During the fourteenth century, an intellectual movement against Gothic script grew.³⁴ A detailed critique was written by the famous Italian writer, Francesco Petrarca, as following: “*qualis est scriptorum seu verius pictorum nostri temporis, longe oculos mulcens, prope autem afficiens ac fatigans, quasi ad alium quam ad legendum sit inventa*” (“[...] such as that of the scribes, or rather painters, of our own time, which greatly pleases the eye from afar but, when seen up close, strikes and wearies it, as though it had been devised for some purpose other than reading”).³⁵ On the other hand, the Italian poet demonstrated admiration for the older Caroline script, considering it more sober and clear.³⁶

This movement led to the creation of the humanist script, considered by Buonocore a palaeographic revolution, whose inventor is considered Poggio Bracciolini (1380-1459).³⁷ This innovation was heavily influenced by the renewed interest during Humanism for ancient inscriptions: whereas minuscule letters were inspired by the Caroline script, majuscules were modelled on Roman epigraphic capitals.³⁸

³³ Buonocore 2014, 24-25.

³⁴ Petrucci 1992, 162-166.

³⁵ *Fam.*, XXIII.

³⁶ *Fam.*, XVIII.

³⁷ Buonocore 2014, 26.

³⁸ Petrucci 1992, 171-173; Buonocore 2015, 26.

1.2.4 Manuscript Epigraphic Collections Since the Humanist Period

Beginning with Cola di Rienzo (1313-1354), ancient inscriptions became the object of study, and their first large collection was made by Niccolò Signorili, known as “Sylloge Signoriliana”.³⁹

Ciriaco dei Pizzicolti from Ancona (1391-1452), known as Ciriaco d’Ancona, is considered by Buonocore the father of a new genre: the epigraphic antiquarian manuscript.⁴⁰ He was in fact the first intellectual who put together an epigraphic collection of vast proportions. Since his principal occupation was that of a merchant, he visited several locations in all the Mediterranean coasts, copying the inscriptions he observed in person without any editorial interpretation, and his considerable skill as a draughtsman lent further accuracy to his work.⁴¹ His records, collected in the *Commentarii*, are lost, presumably because of the fire that burnt the Sforza library of Pesaro in 1514. However, the works of Ciriaco d’Ancona met with notable success, and later scholars preserved and transmitted in their own works material drawn from his collection that would otherwise have been lost..⁴²

After Ciriaco d’Ancona, many other antiquarians created their own epigraphic collection. Despite the invention of the printing press in the mid-fifteenth century, many intellectuals continued to prefer manuscripts, which were considered more prestigious and faithful as a medium for transmitting inscriptions; this tradition survived almost into the twentieth century.⁴³ Presenting each of them in detail would require a separate work. The following authors of handwritten epigraphic *corpora* will be briefly mentioned: Giovanni Marcanova (1418-1467), who created two collections;⁴⁴ Giovanni Giocondo of Verona (1435-1515), known as Fra Giocondo, who dedicated his *Collectio incriptionum Latinarum et Graecarum* to Lorenzo the Magnificent in 1489, in an attempt to preserve the texts of the inscriptions whose monuments lay abandoned;⁴⁵ Andrea

³⁹ BAV, *Barb. Lat.* 1952; Calabi Limentani 1991; Buonocore 2014, 26.

⁴⁰ Buonocore 2014, 29.

⁴¹ Calabi Limentani 1991; Rocchi, Robino 2008, 729-758; Buonocore 2014, 29.

⁴² BAV, *Vat. Lat.* 6857.

⁴³ Stenhouse 2010; Buonocore 2014, 36.

⁴⁴ Bern, Burgerbibliothek, *ms.* B.42; Modena, Biblioteca Estense, *ms. a. L.* 515 olim *lat.* 992.

⁴⁵ For the manuscripts that contain the work of Fra Giocondo, *cf.* Buonocore 2014, 31, table 2.1.

Alciato (1492-1550), the first author to include a comment with every transcription;⁴⁶ Pietro Bembo (1470-1547);⁴⁷ Konrad Peutinger (1465-1547), who published a small volume of Roman inscriptions of Augsburg entitled *Romanae vetustatis fragmenta in Augusta Vindelicorum et eius dioecesi*;⁴⁸ Jean Matal (1520-1597), known as *Metellus*;⁴⁹ Gaetano Marini (1742-1815), the author of the *Inscriptiones Christianae Latinae et Graecae aevi milliari*, a work spanning four manuscripts that are still consulted by scholars.⁵⁰ It is also worth mentioning the epigraphic-antiquarian work of Pirro Ligorio (c. 1512/1513 –1583), whose manuscript is unfortunately known for containing a wide number of fake inscriptions, which were copied in later collections.⁵¹

1.2.5 Printed Epigraphic Collections up to the Scaliger and Gruter *Corpus*

Among the printed epigraphic collections, the following authors or publishers are cited: Desiderio Spreti (1414-1474?), author of a sylloge containing inscriptions from Ravenna, which is considered the first printed work in the field of Roman epigraphy, entitled *De amplitudine, de vastatione et de instauratione Urbis Ravennae*;⁵² Giacomo Mazzocchi (fl. 1505–1524), who published the anonymous *Epigrammata antiquae Urbis*;⁵³ Peter Apian (1495-1552) and Bartholomew Amantius (1505-1576), also known under their Latin names Petrus Apianus and Bartholomaeus Amantius, created an epigraphic collection, with inscriptions from ancient Roman provinces, ordering them topographically to celebrate the vast Empire of Charles V, a topographical arrangement that was not resumed until the second half of the nineteenth century with Mommsen's *CIL*;⁵⁴ Martinus Smetius (ca. 1525–ca. 1578), whose *Inscriptionum antiquarum quae*

⁴⁶ Dresden, Sächsische Landesbibliothek – Staats- und Universitätsbibliothek, Mscr. Dresd. F. 82.b; Paris, Bibliothèque nationale de France, nouv. acq. lat. 1149; Buonocore 2014, 31.

⁴⁷ Beltramini, Gasparotto, Tura 2013.

⁴⁸ Ramminger 1992, 197.

⁴⁹ Città del Vaticano, BAV, *Vat. lat.* 6039.

⁵⁰ Città del Vaticano, BAV, *Vat. lat.* 9071-9074; Buonocore 2014, 36.

⁵¹ Calabi Limentani 1991, 47.

⁵² Buonocore 2014, 33.

⁵³ Bianca 2009.

⁵⁴ Calabi Limentani 1991, 49.

passim per Europam liber, published under the editorial guidance of Justus Lipsius, must be considered, according to Calabi Limentani, as the first epigraphic collection intended for scholarly consultation.⁵⁵

The greatest epigraphic *corpus* of the Early Modern period was the *Inscriptiones antiquae totius orbis Romani, in corpus absolutiss(imum) redactae. Cum indicib(us) XXV, ingenio ac cura Iani Gruteri: auspice Ios. Scaligeri ac M. Velseri. Accedunt notae Tyronis Ciceronis l. ac Senecae* completed in 1603. The initiative was due to Joseph Justus Scaliger, who had previously prepared an epigraphic collection of his own; the compilation and editing were subsequently carried out by Janus Gruterus. The work contains over twelve thousand inscriptions from all over the Roman Empire.⁵⁶ It has an index, inscriptions are divided by type and there is a section called *spuria et supposititia*, where fake and suspicious inscriptions are added, separated from the genuine ones, a practice subsequently adopted by the authors of the *Corpus Inscriptionum Latinarum (CIL)*.⁵⁷ The Gruter-Scaliger *corpus* became the standard point of reference for the consultation of inscriptions, supplemented by additional collections and never superseded until the publication of Mommsen's *CIL*.⁵⁸

1.3 The Creation of the *Corpus Inscriptionum Latinarum*

“Die Nothwendigkeit einer Sammlung aller lateinischen Inschriften braucht nicht erst bewiesen zu werden”⁵⁹ (“The necessity of compiling a collection of all Latin inscriptions does not need to be proven.”). With these words a young Theodor Mommsen (1817-1903) opened his 1847 contribution, published in the proceedings of the Berlin Academy, in which he proposed a new *corpus* for Latin inscriptions, to be classified and analysed according to a rigorous scientific method. “He stressed both the importance of manuscripts as witnesses and the necessity of autoptic verification whenever possible, proposed a cataloguing based on the found place of the inscriptions (*Fundort*), addressed

⁵⁵ Calabi Limentani 1991, 50.

⁵⁶ Buonocore 2014, 34.

⁵⁷ Calabi Limentani 1991, 52.

⁵⁸ Calabi Limentani 1991, 52-3.

⁵⁹ Mommsen 1847, 522.

the problem of fake inscriptions, dedicated an entire paragraph to the realisation of *indices* and explained the modality of this work.⁶⁰

Mommsen's project aimed to overcome the works of Scaligero and *Gruterus*, which by the mid-nineteenth century were deemed outdated. However, the creation of a modern *corpus*, though considered necessary, had not yet been realised. The death of the Danish philologist Olaus Christian Kellermann in 1837 put an end to his attempt to compile such a *corpus* and in 1844 the Parisian attempt to assemble a comprehensive collection of Latin inscriptions also proved unsuccessful.⁶¹

Besides the necessity of such a work, Mommsen's project was opposed by members of the academy, such as August Boeckh. The publication of the *Inscriptiones Regni Neapolitani Latinae (IRNL)* in 1852 represented essential achievements that led to the creation of the *CIL*. As it is stated in its name, it is a collection of Latin inscriptions located in the Reign of Naples, described by Mommsen's intellectual mentor as an “opera elaboratissima, che se fra le passate collezioni cede soltanto alla gruteriana e alla muratoriana nel numero dei monumenti, le vince però tutte di gran lunga in critica e diligenza” (“A highly elaborate work, which, among previous collections, is surpassed only by those of Gruter and Muratori in terms of the number of monuments, but far surpasses them all in critical rigor and diligence.”).⁶² This work was presented by Mommsen in the following year to the Academy of Berlin as a concrete demonstration of the methodology he intended to apply in the *CIL*., demonstrating its valid methodology and overcoming scholars' hesitation.

Mommsen worked on the *CIL* project until his death in 1903.⁶³ His most trustworthy collaborators were Friedrich Wilhelm Henzen (1816 – 1887) and Giovanni Battista de Rossi (1822 – 1894), with whom he formed what can be considered a *triumviratus*.⁶⁴

Following the plan outlined by Mommsen himself, the volumes of the *CIL* are organised according to a topographical criterion. The only exceptions are the last three

⁶⁰ *Ibidem*.

⁶¹ De Longis 2023, 61.

⁶² Autografi Ferrajoli – Raccolta Minervini ff. 3029r-3032v.

⁶³ De Longis 2023, 61.

⁶⁴ Buonocore 2003, 17.

volumes (XV, XVI, XVII), which contain inscriptions of a specific type that are grouped by categories. The volumes are further subdivided into *partes*.

Table 1. *CIL* Volumes.

N°	Name of the volume.	Content
I	Inscriptionum latinae antiquissimae ad C. Caesaris mortem.	The earliest Latin inscriptions, up to the death of Julius Caesar. This volume was replaced by <i>CIL</i> I ² (1893).
II	Inscriptiones Hispaniae Latinae.	Inscriptions from the Iberian Peninsula.
III	Inscriptiones Asiae, provinciarum Europae Graecarum, Illyrici Latinae.	Inscriptions from the eastern part of the Roman Empire, including the Balkans.
IV	Inscriptiones parietariae Pompeianae, Herculaneses, Stabianae.	Wall inscriptions from <i>Pompeii</i> , <i>Herculaneum</i> , and <i>Stabiae</i> .
V	Inscriptiones Galliae Cisalpinae Latinae.	Inscriptions from northern Italy.
VI	Inscriptiones urbis Romae Latinae.	Inscriptions from the city of Rome.
VII	Inscriptiones Britanniae Latinae.	Inscriptions from Roman Britain.
VIII	Inscriptiones Africae Latinae.	Inscriptions from north-western Africa.
IX	Inscriptiones Calabriae, Apuliae, Samnii, Sabinorum, Piceni Latinae.	Inscriptions from central–southern Italy along the Adriatic coast.
X	Inscriptiones Bruttiorum, Lucaniae, Campaniae, Siciliae, Sardiniae Latinae.	Inscriptions from western southern Italy, including Sicily and Sardinia.

XI	Inscriptiones Aemiliae, Etruriae, Umbriae Latinae.	Inscriptions from the central-northern regions of Italy.
XII	Inscriptiones Galliae Narbonensis Latinae.	Inscriptions from southern France.
XIII	Inscriptiones trium Galliarum et Germaniarum Latinae.	Inscriptions from central-northern France, Belgium, Luxembourg, and Germany.
XIV	Inscriptiones Latii veteris Latinae.	Inscriptions from <i>Latium Vetus</i> , a limited area within modern Lazio.
XV	Inscriptiones urbis Romae Latinae. Instrumentum domesticum	Latin inscriptions on everyday objects from ancient Rome.
XVI	Diplomata militaria.	Roman military diplomas engraved on bronze, certifying honorable discharge and Roman citizenship. Roman military diplomas engraved on bronze, certifying honorable discharge and Roman citizenship.
XVII	Miliaria imperii Romani	Inscriptions on Roman milestones placed along roads.

Each volume starts with an index (*operis conspectus*), includes sources, both from manuscripts and printed *syloges*, shows inscriptions that are fake (*falsae*) or come from another city (*alienae*), then illustrate the genuine inscriptions, ordered by their city of provenience.

Each inscription is presented in a separate entry, structured as follows:

- **Sequential number** of the inscription in Arabic numerals.
- **Lemma** describing the monument, shape of the letters, findspot and current location.
- **Transcription** with the main text in majuscule, integrations in minuscule and lost characters, witnessed by other authors, in italic majuscule, respecting the original layout.
- **Bibliography** which begins with one of the following editorial formulas:
 - **contuli:** the editor saw the original inscription already published.

- **contuli quae supersunt:** the editor compared the surviving portions of the inscription with those published in a more complete edition.
 - **recognovi:** the editor saw the original inscription and noticed minor mistakes in previous editions.
 - **recognovi et emendavi:** the editor saw the original inscription and corrected serious mistakes occurring in previous editions.
 - **recognovi, quantum potui emendavi:** the editor saw the original inscription and tried to correct serious mistakes of previous editions whenever it was possible; a complete correction was not achievable due to the poor condition of the text.
 - **frustra quaesivi:** the editor could not find the original of a published inscription.
 - **descripsi:** the editor saw and recorded an unpublished inscription.
 - **describere volui:** the editor saw an unpublished inscription and tried to record it despite being difficult to read or interpret.
- *Apparatus Criticus.*
 - **A commentary** if the inscriptions is particularly relevant.

8773 ad meridiem viae.

*in operculi
latere:*



ARCAM VASSIONI CAMPED
NUMERI BATAOR · SEN · QVEM SEPE
LIVIT CONIVX SVANDACCA Q · VIXIT CVM
O ANN XXII MILIT · ANN · XXXV FERET A
5 PVD SE ANN L^x SI QVIS EAM ARCAM VO
LVERIT MOVERE VIRIB FISCO DABIT SOL XXV

Recognovi. Bertolini n. 1 *bull. dell' inst.* 1873 p. 59 (cf. p. 96). 1874 p. 21, *Arch. Ven.* 6, 59; Mantovani *museo Opitergino* (1874) p. 68, cui misit Capagazzius faber. Haec arca prodiit omnium prima.

1 aut *arcam* pro *arca* scriptum est aut nomen defuncti fuit *Muassio*. — 3 et *coniux Vandacca* et *coniux Suandacca* legi potest. — 4 primae litterae E spatium vacuum remansit; haec igitur picta fuit tantummodo, non incisa.

Fig.7 - The inscription's record of the soldier *Vassio* (CIL V 8773).

8765

EGO GERONTIA ARCAM DE PROPRIO
COMparami *mih* si quis eam APERIRE
VOLVERIT DABIT FISCO ARG PONDO V

Bertolini n. 54 *bull. dell' inst.* 1875 p. 114, *Arch. Ven.* 10, 121.

Fig. 8 - The inscription's record of *Gerontia* (CIL V 8765). Missing letters are supplied in lowercase italics.

1.4 Modern Epigraphic *Corpora*

After the completion of the *CIL*, many other epigraphic *corpora* were published, aiming either to integrate and extend the *CIL*, or to collect a selection of inscriptions based on specific criteria or themes.

In this paragraph, some of the most important modern epigraphic collections relevant to the inscriptions from the Eastern Necropolis of *Iulia Concordia* will be briefly introduced.

1.4.1 *Inscriptiones Latinae Christianae Veteres (ILCV)*

Corpus compiled by Ernst Diehl in three volumes, published between 1925 and 1931. It comprises 5,000 selected inscriptions, considered relevant for the history of Christianity in the Roman Empire or in the early post-Roman kingdoms. The first and second volumes contain the inscription records, whereas the third one consists of analytical indices, including thematic, lexical, and chronological indexes covering the inscriptions of the previous volumes. The inscriptions in *ILCV* are not arranged according to a fixed criterion: in some cases, they follow the rank or status of the individuals mentioned, in others they are grouped by theme, and in yet others by formulaic patterns.

Inscription records in *ILCV* are similar to those in *ILS*: the inscription ID consists of a progressive Arabic number, followed by the text, written in Latin mixed-case and a brief *apparatus* at the bottom in italics, including the corresponding *CIL* edition number. Unlike *ILS*, in *ILCV* records abbreviations are extended.

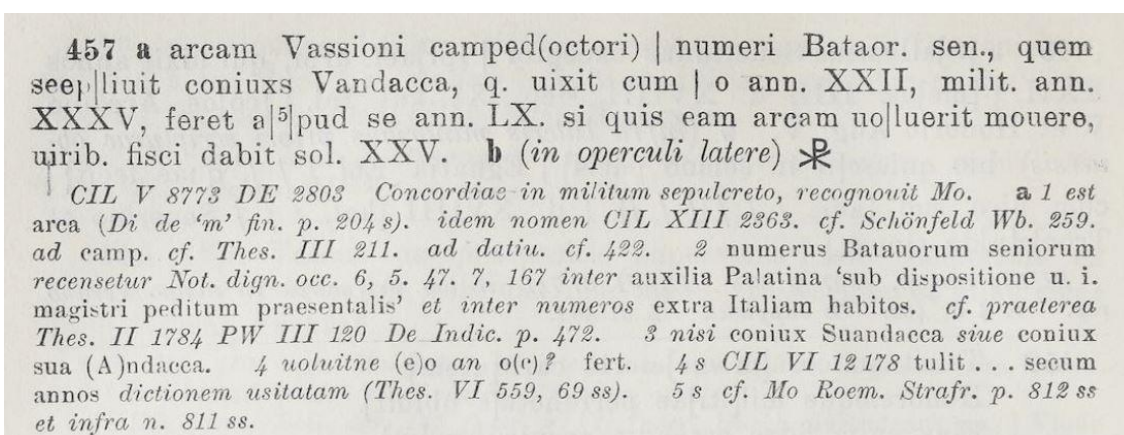


Fig. 9 - Record of the inscription of the soldier *Vassio* (*ILCV* 457).

1.4.2 *Inscriptiones Latinae Selectae (ILS)*

Corpus compiled by the German epigraphist Hermann Dessau in three volumes, published between 1892 and 1916. It contains over 10,000 inscriptions selected for their historical relevance and organised according to various criteria, such as the rank or profession of the individuals mentioned and the type of monument or inscription.

Each record consists of a progressive Arabic number followed by the transcription, written in Latin mixed-case and without extended abbreviations, though missing letters are supplied. Below each record or group of records, a text in italics indicates the type of monument and notes on the inscription(s) in Latin.

2799 in hanc arca iac[et] Ursacius bearcus¹ de numero Bataoru[m] seniorum², qui vixit | annos XXX; si si (*sic*) quis eam vo[luerit] aperire, det in fisco au[ri] [h]bras doas.

2800 Fl. Ampio semissalis³ de n. Mattia[corum] sen.⁴ de proprio suo arca sibi | posuit; si quis eam aperire voluerit, | davit fisci viribus argenti libras | decem.

2801 Flavius Hariso ma[gister] primus⁵ de nu[m]ero Erolorum seni[orum]⁶ arcam de proprio suo | comparavit; si quis eam aperi[re] voluerit, dabit in fisco auri p. duo.

2802 Flavio Launio n. . . s. semaforo¹⁰ | de numero Bataorum seni[orum]³ qui vixit annos X . . . ; | si quis voluerit oc est s . . . | luerit arcam aperire, p. II | auri fisco reddebit.

2803 arcam Vassioni camped.¹¹ | numeri Bataor. sen.³, quem sepe[livit] coniu[x] Suandacca¹², q. vixit cum | [e]o ann. XXII, milit. ann. XXXV, feret a[pu]d se ann. LX; si quis eam vo[luerit] movere, virib. fisci dabit sol. XXV. (*In latere operculi, monogramma Christi*).

Prope Concordiam Venetiae, sarcophagi permulti, reperti loco antiquo, plerique a. 1875 et insequentibus, nonnulli a. 1890 (Notizie degli scavi 1890 p. 170; C. V 8759, 8740, 8776, 8759, 8750, 8752, 8775 primus edidit Bertolini Concordiensis, non paucas vidit Mommsen). — 1) Significantur munera militaria tribunatu inferiora nota et ex aliis nonnullis inscriptionibus (cf. N. 2804) et ex memorabili hoc loco Hieronymi (allato a Mommseno) contra Ioannem Hierosol. c. 19 (Migne P. Lat. XXIII p. 586): 'Finge aliquem tribuniciae potestatis suo vitio regradatum per singula militiae equestris officia ad tironis vocabulum devolutum, numquid ex tribuno statim fit tiro? non, sed ante primicerius, deinde senator, ducenarius, centenarius, biarchus, circitor, eques, deinde tiro.' — 2) Heruli seniores, 3) Batavi seniores, 4) Mattiaci seniores una recensentur in Notitia Occidentis inter auxilia Palatina sexaginta quinque constituta 'sub dispositione viri illustris magistri peditum praesentalis' (c. V, p. 24 Boeck.), et mox inter numeros 'intra Italiam habitos' (c. VII, p. 53 Boeck). Horum trium numerorum, quos locis iisdem vel non multum inter se distantibus tetendisse apparet inde quod in Notitia nomina eorum iuncta sunt, multi milites, testibus inscriptionibus his harumque similibus, sepulturam Concordiae nacti sunt, aliorum numerorum — nam alii quoque numeri memorantur in illis inscriptionibus — pauci tantum. — 5) sen. ivixit lapis. — 6) Nomina barbarica, fortasse etiam a quadrataro corrupta. — 7) De brachiatis cf. infra N. 2804. — 8) Semissalis non recensetur ab Hieronymo loco supra citato, sed nomen eius firmat et gradum demonstrat, ut monuit Mo., constitutio Iustiniani (cod. Iust. 1, 27, 2, 20 seq.), ubi in officii ducum provinciarum Africanarum post primicerium, numerarium, ducenarius, centenarius, biarchos, circitores, recensentur semissalit. — 9) Magistri primi dignitas praeterea ignota. — 10) n. s. litterae, supra lineam adiectae, non intelleguntur; de semafori vocabulo cf. supra N. 2524 (not. 2). — 11) Campedoctor (cf. supra N. 2446 not. 5). — 12) Fortasse coniu[x] Vandacca.

Fig. 10 - Records of some inscriptions from *Iulia Concordia*, including the one belonged to the soldier *Vassio* (ILS 2803). In this case, one comment is dedicated to several inscriptions.

1.4.3 *Supplementa Italica*, nuova serie (*SupplIt*)

Its name derives from the editorial series *Supplementa Italica* (*SI*), which was proposed by the Lincei Academy in 1880, though only the first issue actually appeared in 1888.

The new series was initiated by the Italian epigraphist Silvio Panciera, under the editorship of the Unione Accademica Nazionale (UAN) and published by Edizioni Quasar. The first volume was published in 1981, and the project is still in progress.

Even though *SupplIt* aims to integrate *CIL* with other inscriptions from the Italian Peninsula, the evolution of Epigraphy as a science was not ignored: each record contains detailed information written in a specific order; an interpretative transcription is provided, made more exhaustive through the use of a new system of diacritical marks, called Krummrey-Panciera,⁶⁵ finally, a photograph of the monument is included whenever it is still preserved, providing a clearer and more objective representation of the support of the inscription. Additionally, lemma and critical *apparatus* are in Italian rather than in Latin.

Each record represents therefore a detailed and meticulous critical edition, divided into three main sections and structured as follows:

- **Identification number and lemma**
 1. ID, consisting of an Arabic progressive number.
 2. Class, shape, and type of the epigraphic document; material and state of preservation.
 3. Description of figurative apparatus.
 4. Measurements of the artifact, the epigraphic field, and the letters.
 5. Life cycle of the inscription (discovery, movements, current location).
 6. Date and author of the autopsy.
 7. Bibliography in abbreviated form: epigraphic; non-epigraphic (*cf.*).

- **Transcription**

The transcription is interpretative, in italic lowercase. Each line in the transcription corresponds to a line in the inscription, with line numbers given at every fifth line on the left. Uppercase and lowercase are distinguished according to contemporary conventions, and logical punctuation is applied similarly. The text is integrated with Krummrey-Panciera diacritical marks.

⁶⁵ *Cf. infra*, § 1.6.3.

- **Critical Apparatus**

1. Variants, reading errors.
2. Palaeographic analysis (direction of writing, alignment, *ductus*, layout, groove); illustration of the *ordinatio* and notable palaeographic aspects.
3. Historical and content commentary.
4. Dating supported by scholarly arguments (based on archaeology, palaeography, onomastics, language, formulaic usage, prosopography, history, and antiquity).

33. Grosso frammento corrispondente all'angolo inferiore destro di una lastra o di stele scorniciata di marmo locale ("bardiglio di Aymavilles") con resti della marginatura rettilinea originale, con la superficie molto consunta e in più punti abrasa; il retro è grezzo. 84 x 39 x 16; alt. lett. 6-8,5. - Trovata nel 2002 a Morgex (AO), nella chiesa parrocchiale di S. Maria Assunta, dove era reimpiegata come sponda di una sepoltura di età carolingia (X sec. d.C.). Attualmente si conserva nei magazzini della Soprintendenza della Valle d'Aosta (cod. lab. 44-10, F 2). - Autopsie 2013 e 2016. - Cavallaro - Framarin - Perinetti 2003, pp. 224-225, nr. 3 con foto; EDR169565 (S. Pesce).

 [- - -]SIO [- - -]
 [- - -]+RO
 [- - -]E *Prîme* (!)
 [- - -? u]xori.



Interpunzioni non più rilevabili. - 1 I[- - -] Cavallaro - Framarin - Perinetti, ma è lettura molto dubbia. 2 [- - -]ERO Cavallaro - Framarin - Perinetti, che avanzano le congetture [GEN]ERO o [SOC]ERO. 3 [- - -]ITIAE o [- - -]NTIAE Cavallaro - Framarin - Perinetti (a me non visibile); PRIMAE Cavallaro - Framarin - Perinetti, ma è PRIME su pietra; R e I, M ed E in nesso. 4 I montante. - Iscrizione funeraria realizzata da un dedicante il cui nome è perduto, alla moglie e ad un altro familiare, forse un genero o un suocero; il cognomen ha confronti ad Augusta Praetoria (vd. D, nr. 47). L'importanza del documento risiede nel luogo di ritrovamento: Morgex è in alta valle, lungo la via per l'Alpis Graia, e al momento quest'iscrizione rappresenta il ritrovamento più nordoccidentale ascrivibile al territorio di Augusta Praetoria. - Datazione alla seconda metà del I sec. d.C., per la paleografia.

Fig. 11 - *SupplIt* 31, n.33. Record of a fragmentary inscription.

1.4.4 Other Noteworthy *Corpora* and Series (AE, *ICUR*, *ILLRP*, *InscrIt*)

For the sake of completeness, the following epigraphic *corpora* and other publications are also worth mentioning, although they are not central to the present study:

- ***Année Épigraphique (AE)***

A series set up by the French epigraphist René Cagnat and his assistant Jean-Guillaume Feignon at the Collège de France in 1888. Originally linked to the *Revue archéologique*, it became an autonomous publication of the Presses universitaires de France (PUF) in 1964. To this day, it collects inscriptions discovered each year from across the world concerning Ancient Rome, mainly in Latin or Ancient Greek, arranged by period.

- ***Inscriptiones Christianae Urbis Romae (ICUR)***

The *ICUR* is a critical *corpus* of Christian inscriptions from the city of Rome. The *corpus* was initiated following the method of Giovanni Battista de Rossi (1822–1894), one of the three chief editors of the *CIL*, who laid the foundations for the systematic collection and study of Christian inscriptions in the city. The first series of *ICUR* volumes was published between 1857 and 1894, directly based on de Rossi's work. A new series was launched in 1922 by his successors, including Angelo Silvagni, and continued by later editors such as Antonio Ferrua, Danilo Mazzoleni, and Carlo Carletti, producing additional volumes of the *corpus*. The tenth and final volume of the new series was published in 1992.

- ***Inscriptiones Latinae liberae rei publicae (ILLRP)***

Corpus compiled by the Italian epigraphist Attilio Degrassi, mentor of Panciera. It is divided into two volumes, published in 1957-1963. A second edition was also published in 1965-1972. This collection is based on the first volume of the *CIL* (*CIL I*²), adding new inscriptions. Degrassi extended the chronological limit to the end of the Roman Republic (31 BC), instead of the assassination of Caesar, as in the *CIL I*². Lemmas are detailed and information about the monument is included. Transcriptions are interpretative.

- ***Inscriptiones Italiae (InscrIt)***

Set up in 1931 by Accademia d'Italia in collaboration with Unione Accademica Internazionale, it was conceived as an updated replacement for the *CIL* volumes concerning the Italian peninsula. Each volume was to represent an Augustan *regio*, and each issue a city. Records were to include a detailed lemma, with the description of the monument, and an interpretative transcription. However, the outbreak of World War II put an end to this project, already hampered by its own difficulty in implementation.

1.5 Online Epigraphic Databases

The advent of the Internet was revolutionary in many respects, including the sharing of and access to scholarly data. Epigraphy is not an exception: several epigraphic databases are now freely accessible online. Here the most prominent ones will be briefly introduced here.

1.5.1 The EAGLE Project

The Electronic Archive of Greek and Latin Epigraphy (EAGLE) is the largest and most ambitious project of this field. It is an international federation of databases, proposed in November 2003 and inaugurated on April 2, 2013, at the Lincei Academy in Rome.⁶⁶ Its data can be consulted both through its own portal and through each single federated database, which are: Epigraphic Database Bari (EDB), Epigraphic Database Heidelberg (EDH), Epigraphic Database Roma (EDR), Hispania Epigraphica (HE or HEpOI).

1.5.2 Epigraphic Database Bari (EDB)

Started in 1988, it specialises in the Christian epigraphic documents from Rome between the third and eighth century AD, containing over 40,000 inscriptions.⁶⁷

Each inscription record includes:

- **ID Number** of the database and in Trismegistos.
- **Pertaining to:** findspot.
- **Type of inscription.**
- **Type of monument and measures.**
- **Last (location) recorded in.**
- **Date.**
- **Edition(s).**


⁶⁶ EAGLE Network. "The EAGLE Project is launched – brings ancient inscriptions to the world." EAGLE Network, www.eagle-network.eu/the-eagle-project-is-launched-brings-ancient-inscriptions-to-the-world/. Accessed 2 Jan. 2026.

⁶⁷ Epigraphic Database Bari. "About." EDB, www.edb.uniba.it/about. Accessed 3 Jan. 2026.

- **An interpretative transcription of the inscription.**
- *Apparatus criticus.*
- **Name and date of the original editor.**
- **Last update, with editor's name and date.**

EDB5536 (TM295375)
 Show corresponding IDs in other databases

Referring to Coem. ss. Marcellini et Petri (via Labicana)
 Titulus sepulchralis insculptus
 Sarcophagus 49.5 x 41 x 2.5. Letters 1.5-2.5
 Last recorded in Parigi (P), Museo Louvre, Louvre MA2985
 Date: 200-299; 350-399
 Edition(s): ICVR VI, 17117; Baratte et alii 1985, n. 201; Christom-Briesenick et alii 2003, 197, pl. 104, 2, n. 430; Ducroux 1975, 223, n. 851



< :a >
 d(is) m(am)ibus
 Aurelius
 Vitalio et Aelia
 Sofias Melisso
 filio dulcissimo
 qui vixit anno uno
 mensibus VII die uno
 Melisse dulcis
 spiritus tuus
 in bono
 ((urva)) ((columna?)) ((avis))

< :b, on the left of the medaillon >
 ++

< :c, on the right of the medaillon >
 N
 O

< :d, along the upper edge >
 [-- dulc]i amico integro Nat[---]
 [---]nio b(ene)m(erenti) fecit Protogene fun[us ---]

Transcriptions different from ICVR. According to Baratte et alii. See also the preambles by Musée du Louvre: <https://collections.louvre.fr/ark:/53355/0102/6/90>. The inscriptions (b), (c), (d) are later than the first text (a), in the medaillon. (a) 1-3. Probably Aurelius Vitalio and his wife Aelia Sofias are the same ones recorded in a lost "Titulus possessionis" used in 17th century at P'raeseide (CIL, XIV 3323, ILS 8590). Then, according to Metzger (in Baratte et alii 1985, p. 303), "le sarcophage de l'enfant Melisso doit provenir de la même tombe, mais il n'a été remployé, peut-être par des descendants de cette famille...". Le type de sarcophage... et la formule spiritus tuus in bono font considérer avec doute comme civilienne au XIXe siècle... mais l'inscription principale ne présente, elle, aucune trace de christianisme" (Metzger, *ibid.*, p. 304), 11. "Au centre, on peut hésiter sur le motif qui sertie à gauche ou à droite une couronne, mais le pied triangulaire surmonté d'un cercle aplati qui est le motif habituel à la base du vase, l'ovale du haut qui figure l'ouverture en perspective et les trois traits qui semblent rappeler les godrons latéraux à penser qu'il s'agit d'une figurine moulurée du cratère habituel, élargi en hauteur, rendu cylindrique et dépourvu d'anse" (Metzger, in Baratte et alii 1985, p. 303). I disagree. (b) and (c) unconcerned in ICVR. (b) "deux acrotères de basile" (Metzger, in Baratte et alii 1985, p. 304), c. 1, also possible M. d. 2m. L. ICVR. (P'raeseide).

Curry Caristi, 11/11/2003
 Last update by Antonio Enrico Fallo on 22/05/2021

Fig. 12 – An example of an EDB record (EDB5536)

1.5.3 Epigraphic Database Heidelberg (EDH)

It records Latin and bilingual inscriptions from every province of the Roman Empire, which, following a series of cooperation agreements, no longer covers the Italian and Iberian peninsulas.

The project was founded in July 1986 by Prof. Géza Alföldy with funding from the Gottfried Wilhelm Leibniz Prize and went online in September 1997. Since August 2004, in accordance with the agreements concerning international cooperation (EAGLE) with the Epigraphic Database Rome (EDR), EDH transferred responsibility for 11,851 inscriptions of Italic provenance to EDR for further completion and updating. In April 2006, an agreement on the distribution of work concerning the Hispanic provinces was reached: apart from the inscriptions of *Tarraco* and the *conventus Tarraconensis* (*CIL* II² pars 14) as well as the *conventus Astigitanus* and *Cordubensis* (partes 5 and 7) the inscriptions of Spain are covered by the database Hispania Epigraphica Online (HEpOnl). At the time of writing this thesis, EDH development has been suspended since 2021, due to phase-out funding.⁶⁸

Each record includes:

- **The transcription** of the inscription, with both the interpretative and diplomatic version side by side, allowing for easy comparison and analysis of the text.
- **Chronological Data**, expressed in Arabic numerals.
- **Literature**
- **Find circumstances / present location**, including a map, the ancient name of the province, the name of the modern country, ancient find spot, modern find spot, modern region and present location.
- **Type of inscription / language**.
- **Type of monument**, including measures and decorations.
- **Historically relevant data**.

⁶⁸ The history of this project is registered step by step in EDH website. Cf. Heidelberg Academy of Sciences and Humanities. "Geschichte des Projekts / History of the Project." EDH Project, <https://edh-www.adw.uni-heidelberg.de/projekt/geschichte>. Accessed 2 Jan. 2026.

- **People**, with the name, gender, and status of each person mentioned in the inscription.
- **General Data**, showing the inscription's database code, work status, last update and a link to the Ubi Erat Lupa website, where one or more photos can be found
- **Download** of the file in XML EpiDoc and JSON.

1.5.4 Epigraphic Database Roma (EDR)

It hosts inscriptions from Rome (excluding Christian ones), the Italian Peninsula, Sicily and Sardinia.

Founded in 1999 as an experimental platform for the creation of a unified database of ancient epigraphy, in accordance with the resolutions adopted in Rome by the Commission "Épigraphie et Informatique" of the Association Internationale d'Épigraphie Grecque et Latine (AIEGL), it became an independent database in 2003, when the same Commission decided not to establish a single unified repository, but instead a federation of databases sharing common standards and accessible through a single portal.

Each record is structured as follows (the original database shows the section labels in Latin):

- ***Schedae numerus* / Record Number**: ID number of the inscription.
- **TM numerus**: the ID number in Trismegistos
- ***Regio Antiqua* / Ancient Region**: abbreviation of the ancient name of the Augustan region
 - ***Regio nostrae aetatis* / Current Region**: abbreviation of the modern country
 - ***Urbs antiqua* / Ancient City**: ancient city name.
 - ***Urbs nostrae aetatis* / Modern City**: modern city name.
- ***Locus inventionis* / Discovery Location**.
- ***Locus adservationis* / Current Location**.
- ***Rerum inscriptarum distributio* / Object Type**.
- ***Rei materia* / Material**.
- ***Scriptura* / Writing Technique**.

- **Lingua / Language.**
- **Titulorum distributio / Inscription type.**
- **Virorum distributio / Type of persons mentioned.**
- **Editiones / Bibliography:** each edition is written in chronological order and numbered by an Arabic progressive numeral.
 - **Textus / Text:** an interpretative transcription with editorial diacritics; normalised or regularised forms can be revealed on demand through expandable elements. This approach preserves local variants and highlights recurring non-standard spellings or errors.
 - **Apparatus:** the main edition used for the transcription is indicated by the formula *textus secundum* plus its progressive number in parentheses. The formula *contulit* is added if an autopsy was conducted by the editor, and *et emendavit* if emendations were introduced., specifying in parentheses the modified rows.
- **Tempus / Date.**
- **Schedae scriptor / Author:** name of the record's editor.
- **Tempus schedae / Last update.**
- **Photo or image of the inscription (optional).**

Record Number: EDR097921 TM Number: [125662](#)
 Ancient Region: VeH
 Current Region: I
 Ancient City: Iulia Concordia [TMGEO](#)
 Modern City: Concordia Sagittaria (Venezia)
 Discovery Location: Concordia Sagittaria (Venezia), necropoli di levante (1873)
 Current Location: Portogruaro (Venezia), Museo Nazionale Concordiese. Senza inv.
 Object Type: sarcophagus
 Material: lapis
 Writing Technique: scalpro
 Language: latina
 Inscription type: sepulcralis
 Type of persons mentioned: mil.; cet.
 Bibliography: CIL 05, 08773 (1)
 ILS 02803 (2)
 ILCV 00457 (3)
 Mus. Helv., 20, 1963, pp. 41-42, nr. 20 (D. Hoffmann) (4)
 Iulia Concordia dall'età romana all'età moderna, Treviso 1978 (2 ed.), p. 144, con foto (B. Forlati Tamaro) (5)
 G. Lettich, Le iscrizioni sepolcrali tardo antiche di Iulia Concordia, Trieste 1983, pp. 83-84, nr. 40 (6)

Text:

(:in operculi latere)
 ((:christogramma))
 (:in arca)
 Arcam(:arca) Vassioni, camped(octori)(:campidoctori)
 numeri Bataor(orum)(:Batavorum) sen(iorum), quem sepe=
 livit(:seppelivit) coniux Suandacca (?), q(tuae) vixit cum
 [e]jo ann(is) XXII, milit(avit) ann(is) XXXV, feret a=
 5 pud se ann(is) LX. Si quis eam arcam vo=
 luerit movere, virib(us) fisci dabit s[o](idos) XXV.

[Show corrections/normalizations](#)

Apparatus: Textus secundum (1)(6), contulit ad apographum (1) et emendavit (vv. 1, 3) Baldassarra a. 2007
Date: 400 d.C. / 450 d.C.
Author: Damiana Baldassarra **Last update:** 23-07-2008

Fig. 13 - EDR record of *Vassio's* inscription (EDR097921).

1.5.5 Hispania Epigraphica (HE or HEpOI)

It contains nearly 32,000 inscriptions from the Iberian Peninsula.

As of late 2024, HEpOI has been undergoing a process of migration to a new server and domain hosted by the University of Alcalá, following the transfer of responsibility for the project and its contents. During this migration process, which began in 2024, the original HEpOI website has remained inaccessible, and its former domain no longer functions as the epigraphic database it once was. The migration is intended to preserve the database, update its contents, and maintain the original inscription identifiers, but at the time of writing this thesis the updated site has not yet been made available online.⁶⁹

1.5.6 Epigraphik-Datenbank Clauss-Slaby (EDCS)

At the time of writing, it contains over 860,000 inscriptions. This project dates to the late 1980s, initiated by Manfred Clauss and the Katholische Universität Eichstätt-Ingolstadt.⁷⁰

Despite the death of Clauss on 20 January 2025, the database continues to be maintained and expanded by Wolfgang A. Slaby with the assistance of Barbara Woitas and Bernward Tewes.⁷¹

The EDCS homepage presents the formal structure of its records and associated metadata, including editorial diacritics, the list of inscription types in Latin, the list of each type of person in Latin, chronological data expressed in Arabic numerals, and other relevant fields.⁷²

⁶⁹ *Hispania Epigraphica*. Digital Classicist Wiki, https://wiki.digitalclassicist.org/Hispania_Epigraphica. Accessed 12 Jan. 2026.

⁷⁰ "Epigraphik-Datenbank Clauss-Slaby." Digital Classicist Wiki, https://wiki.digitalclassicist.org/Epigraphik-Datenbank_Clauss-Slaby. Accessed 3 Jan. 2026.

⁷¹ Manfred Clauss, "Trauer um Prof. Dr. Dr. Dr. h.c. mult. Manfred Clauss / Mourning for Prof. Dr. h.c. mult. Manfred Clauss," Epigraphik-Datenbank Clauss/Slaby, 22 Jan. 2025, <https://db.edcs.eu/epigr/nachruf-clauss.html>. Accessed 3 Jan. 2026.

⁷² Epigraphik-Datenbank Clauss/Slaby (EDCS). Hinweise / Notes on the Database. EDCS, <https://db.edcs.eu/epigr/hinweise/hinweis-en.html>. Accessed 3 Jan. 2026.

Records of inscriptions are structured as follows:

- **Publication:** previous editions.
- **Dating.**
- **EDCS-ID.**
- **Province:** findspot area, naming the Augustan region if the inscription was found in Italy, or the Roman province if outside the Italian Peninsula.
 - **Place:** the exact location, possibly with both the modern and ancient city name.
 - **Text:** a normalised transcription of the inscription according to the database's diacritical marks.
- **Inscription *genus* / personal status:** type of inscription and people mentioned in it.
- **Material.**
- **Comment** (optional).

1.6 How to Read and Transcribe Inscriptions: Abbreviations and Diacritical Marks

1.6.1 The Challenges of Interpreting Inscriptions

The execution of an inscription was expensive, both for the cost of materials and for workers' wages. Therefore, abbreviations were an efficient means of saving space and reducing completion times, even though their use can also be explained as an adherence to conventional forms. During the Roman Empire, a specific but non-normative brachygraphic system developed through shared conventions and became widespread across its vast territories. Within this system, frequently recurring words, such as personal names, social status, professional positions, and actions related to the commissioning of inscriptions, were commonly abbreviated. However, exceptional cases, attributed to local practices or to a single, peculiar inscription alone, are not rare.

The expansion of abbreviations is not the only obstacle a scholar must face. Letters can be ambiguous, unreadable, or lost due to the inscription's state of preservation or its poor execution. Reconstructing words can be difficult, since abbreviations are numerous and Roman inscriptions lack a clear separation between words. Additionally, the stonecutter could have made errors, whether as simple slips or as a result of illiteracy or local linguistic variations, sometimes complicating the interpretation not only of a single word but of an entire sentence, as Latin is a case-marking language and any incorrect inflection can change the sentence's meaning.

These elements can lead to different interpretations of the same inscription by different scholars; thus, in epigraphy it is good practice to add variations present in other scholars' editions in the critical *apparatus*.

Beyond material, graphic, linguistic, and interpretative issues, other ambiguities may arise from historical or prosopographical factors. For the purposes of this paragraph, however, the focus will be solely on the transcription of the inscription.

Diacritical marks are used to record scholars' interventions and the condition of the inscription, while presenting all information in a single, clear transcription.

1.6.2 The Use of Diacritical Marks

In the *Corpus Inscriptionum Latinarum*, transcriptions are recorded in majuscule, aiming to adhere as much as possible to the original inscription. Missing parts are supplemented in minuscule italics. In the critical *apparatus* of some entries, a normalised version of the text is provided, similar to what is seen in modern critical editions. It is presented in a mixed-case Latin script, with abbreviations expanded in square brackets and editorial integrations also indicated in square brackets.

It was not until 1931 that a coherent and international system was established in Leiden. This system, known as the Leiden Conventions or Leiden system, aimed to create a standard for published texts, whether from inscriptions, papyri, or manuscripts. The

symbols and their functions, published in the following year, are summarised in the table below.⁷³

Although the Leiden Convention proved to be an essential system for classicists, it was not exempted from criticisms. Dow noticed that in the Leiden meeting there was a preponderance of papyrologists, thus epigraphists should update the Leiden Convention and adapt it to their researching field.⁷⁴

Table 2. Leiden Convention

Siglum	Exmplanation
ⲁⲃ	Letters unclear, imperfectly preserved, or ambiguous without context.
...	Illegible letters not restored; one dot per letter. Approximation can be expressed with ± or c. before the number.
[. . .]	Missing letters not restored; one dot per letter. Approximation as above.
[or [] or]	Missing letters not restored; extent is unknown.
[abc]	Missing letters restored by the editor.
< > or ***	Letters erroneously omitted by the text, not restored.
<abc>	Letters erroneously omitted, restored by the editor.
{abc}	Letters considered erroneous or superfluous; illegible letters marked with a dot, doubtful letters with subscript dot.
[[abc]]	Rasura: deleted letters that are still legible or restorable. May alternatively be noted in the apparatus.
\abc/	Interlinear addition of letters in the text itself, e.g., added between lines.
	No sigla for corruptions (legible but unintelligible letters); to be handled in apparatus.
	No sigla for literary corrections; to be handled in apparatus or commentary.

⁷³ Wilcken 1932, 211–212. The table is inspired by and partially adapted from the Leiden Conventions table on Wikipedia (accessed 8 January 2026). https://en.wikipedia.org/wiki/Leiden_Conventions

⁷⁴ Dow 1969, 1.

1.6.3 The Krummrey-Panciera System

In 1980 Hans Krummrey, director of the *CIL* at the Akademie der Wissenschaften der DDR, and Silvio Panciera, Professor of Epigraphy at Sapienza University of Rome, published an article in which they proposed a new system of diacritical marks, implemented in the following year in the *Supplementa Italica*.⁷⁵ In 1991, within the 8th volume of *Supplementa Italica*, Panciera proposed minor modifications, to improve clarity and replace some characters that were typographically difficult to reproduce.⁷⁶

Table 3. Krummrey-Panciera System

Siglum 1980	Siglum 1991	Function	Concrete Example
abc / ⁵ abc	–	Division of verses.	et / ⁵ Cantia (CIL, VI 4, vv. 4-5); T. Iulius Genesis/cus et Caecilia / Balbilla ceri/ ¹⁰ olaria duo Satu/ri (CIL, VI 18, vv. 7-11).
abc // abc	–	Division of pages.	P. Roscius Agathopus I. // Min(istri): / Thiasus, / ⁵ Stephanus (CIL, VI 163, p.1, v.10 et p.2, vv.3-5).
abc	–	Letters fully legible for a word or part.	Anabestas (CIL, VI 21); [---]imo iisque qui [---] (CIL, VI 2119, v.2)

⁷⁵ Krummrey, Panciera 1980, 205-215.

⁷⁶ *SupplIt* 8, p. 16.

ABC	–	Fully legible letters, uncertain attachment to word.	[---]MVM[---] (CIL, VI 906 b, v.2)
ⱭⱮⱯ	–	Damaged letters not recognizable outside context.	Sancio Sancto (CIL, VI 569, v.1)
+ + +	–	Traces of letters too corrupted to recognize; one cross per letter.	[Ca]esar / [---]esar ++ (CIL, VI 1210)
<u>abc</u>	–	Letters previously read but now lost.	<u>Iunoni</u> Reginae (CIL, VI 364)
á, é, í, ó, ú	–	Vowels marked with apices.	Fortúnae Reduci (CIL, VI 196, v.1)
<u>abc</u> , <u>V</u>	–	Letters or numerals indicated with overlines.	<u>p</u> (rae) <u>p</u> (ositus) corp(oris) mag(nariorum) digno <u>pat</u> (rono) (CIL, VI 1696, v. 18).
<u>ab</u> , <u>abc</u>	<u>âb</u> , <u>âbc</u>	Connected letters.	Pro salutê pro salutê (CIL, VI 13, in fronte, v.1).
[[abc]]	–	Anciently erased letters, still readable or probable.	[[P. Septimio Getae]] (CIL, VI 220, v. 4).
«abc»	–	Letters inscribed in place of erased ones, readable or probable.	«Brittanicis p(atribus) p(atriciae)» (CIL, VI 220, v.2).
`abc´	–	Ancient addition to correct or supplement text.	Cn. Serius Oppian`ic`us (CIL, VI 1979, v.21).
[abc]	–	Letters lost due to damage, restored by editor.	Apollini sa[crum] (CIL, VI 25, v.1)
[...]	–	Completely lost letters, number known; one dot per letter.	[...]icius Camerinus (CIL, VI 2042 d, v.14 in.)

[- - -]	-	Completely lost letters, number unknown, not restored.	[---]imo iisque qui [---] (CIL, VI 2119, v.2)
[-]	-	Lost praenomen, number of letters unknown.	[-] Helvius Hermog[---] (CIL, VI 32533 b, v.35)
[-----]	-	Lacuna at beginning or end of inscription, one full verse.	[-----] /A. L. [-- -]s L.f. Flaccus,/aid(iles), d(e) stipe Aesculapi (CIL, VI 7, vv.1-3)
-----	-	Lacuna for multiple verses, number uncertain.	----- / Veius post urbem / captam commigra/ ri passus non est (CIL, VI 1308 in.).
[- - ?], [- ?], [----- ?], -----?	-	Uncertain if letters were lost by fracture.	[- - ? -] Helvius Hermug[---] (CIL, VI 32533 b, v.35).
{abc}	-	Letters erroneously added by editor and removed.	dedika{ra}runt (CIL, VI 224, v.21).
<abc>	-	Letters erroneously omitted, added by editor.	huma<na>rum (CIL, VI 930, v.18 in.)
'abc'	-	Letters corrected by editor.	C. Iulius C. 'f.' Arn(ensis) (CIL, VI 100, v.2)
a(bc)	-	Abbreviated word expanded by editor.	Gallicano et Vetere co(n)s(ulibus) (CIL, VI 209, v.1).
a(---)	-	Abbreviated word, cannot be solved.	C. H(---)C. H(---))C. H M(---)M(---)M (CIL, VI 38, v.3)

(abc)	–	Word placed by editor in place of reversed letters or notes.	Mummia / (mulieris) liberta / Fortunata (CIL, VI 9799 a)
(scil. abc)	–	Word not written but supplied by editor.	Antigonus M. Iuni Erotis (scil. servus) (CIL, VI 446, v.4)
(---)	<---	Inscription not completed.	Iul(ius) / Rodo et (---) Iul(ius) / Rodo et <---> (CIL, III 11121, vv.5-6)
(!)	–	Editorial note for attention.	corpus / exanimis (!) (CIL, VI 2160, vv.1-2).
vac.3 or vac.c.3 or vac.	(vac. 3) or (vac.c.3) or (vac.)	Line apparently not inscribed, length in letters estimated.	XVI k(alendas) Iun(ias) vac.c.5 dom(i) XVI k(alendas) Iun(ias) (vac.c.5) dom(i) (CIL, VI 2046, v.4).
vac.?	(vac.?)	Surface too corrupt to determine if inscribed.	vac.? T. Aurelius Norbanu[s] (vac.?) T. Aurelius Norbanu[s] (CIL, VI 32515 e, p. II, v.19)
...	–	Word(s) omitted by editor from old or recent text.	Domino Aesculapio et Hygiae ... T. Iulius Genesiacus (CIL, VI 18, vv.1-8).

1.6.3 Other Relevant Conventions

Dow, Krummrey and Panciera are not the only scholars who proposed an update to the Leiden system. Some further conventions are listed below, documented on the EpiDoc⁷⁷ website:

- **PETRAE system**

It has been adopted by the University of Bordeaux for the publication of epigraphic volumes since the 1990s. It is based on a controlled normalisation of the text, with a limited set of diacritical marks used for the systematic indication of gaps, additions, and uncertainties.⁷⁸

- **DDbDP Conventions**

The DDbDP Conventions form the basis of the publications in the Duke Data Bank of Documentary Papyri. This electronic *corpus* collects published Greek and Latin documents written on papyrus, *ostraca*, or wooden tablets. The project was initiated in 1982 as a collaboration between Professors William H. Willis and John F. Oates of Duke University and Dr. David R. Packard. Funding was provided by the David and Lucile Packard Foundation and the Packard Humanities Institute until 1996, with additional support from the National Endowment for the Humanities. Duke University Libraries, especially the Special Collections Library (now the David M. Rubenstein Rare Book and Manuscript Library), has offered crucial material support throughout the project's development.⁷⁹

- **Open Richly Annotated Cuneiform Corpus (Oracc)**

Oracc is a collaborative effort to develop a complete *corpus* of cuneiform whose rich annotation and open licensing support the next generation of scholarly research.

⁷⁷ “EpiDoc Guidelines: Ancient documents in TEI XML”. EpiDoc, <https://epidoc.stoa.org/gl/latest/> (accessed on 11 January 2026).

⁷⁸ For a reference to the diacritical marks, see <https://epidoc.stoa.org/gl/latest/app-epi-petrae.html> (accessed on 11 January 2026).

⁷⁹ For a reference to the diacritical marks, see <https://papyri.info/conventions.html> (accessed on 11 January 2026).

Created by Steve Tinney, Oracc is steered by Jamie Novotny, Eleanor Robson, Tinney, and Niek Veldhuis.⁸⁰

- **Wingspread Conventions**

The Wingspread Conventions were established at the 1961 Wingspread conference (Racine, Wisconsin) under the auspices of CIPEM, the Permanent International Committee for Mycenaean Studies. They provide standardised rules for the numeration of ideograms, the transcription of phonetic signs, the conventional Latin rendering of ideograms, the notation of metrical signs, and the representation of variants. These conventions ensure uniformity and clarity across editions of Linear B texts and remain a foundational reference in Mycenaean scholarship.⁸¹

⁸⁰ Oracc: The Open Richly Annotated Cuneiform Corpus, <https://oracc.museum.upenn.edu/index.html> (accessed on 11 January 2026). For a reference to the diacritical marks, see: Steve Tinney & Eleanor Robson, “ATF Quick Reference,” Oracc: The Open Richly Annotated Cuneiform Corpus, Oracc (2019), <https://oracc.museum.upenn.edu/doc/help/editinginatf/quickreference/index.html> (accessed 11 January 2026).

⁸¹ History of CIPEM,” Aegean Inscriptions, <https://aegeaninscriptions.org/cipem/> (accessed 11 January 2026). For a reference to the diacritical marks, see: Federico Aurora, Gabriel Bodard, Elli Mylonas & Nora White, “Appendix: Aligning EpiDoc with Mycenaean usage (Wingspread Conventions),” EpiDoc Guidelines (Version 9.7), <https://epidoc.stoa.org/gl/latest/app-epi-mycenaean.html> (accessed 11 January 2026).

2. THE EASTERN NECROPOLIS OF *IULIA* *CONCORDIA*

2.1 Concordia and its Eastern Necropolis

The town of Concordia Sagittaria, once the ancient Roman colony of *Iulia Concordia*, is now located near Portogruaro, in the north-eastern Italian region of Veneto.

In 1873, a large necropolis containing around 300 sarcophagi (*arcae*), one third of which bore inscriptions, was discovered on the eastern side of Concordia. The tombs can be dated to between the third and early fifth centuries AD.

To distinguish this site from the western necropolis, it is known as the “Necropoli di Levante” (eastern necropolis) or the “Sepolcreto dei Militi” (soldiers' graveyard). The latter name derives from the numerous soldiers' tombs present in the necropolis, which enhance the modern understanding of the late Roman army. However, this epithet is misleading, since most of those buried were civilians.

This chapter provides the historical and archaeological background necessary for a thorough understanding of the original material. It includes sections dedicated to the history of *Iulia Concordia*, the circumstances surrounding the discovery of its Eastern Necropolis, the people buried there, and the recent discovery of a new plan of the site, which will be a valuable resource for improving knowledge of the site and providing users with an effective visual tool.

2.2 A Brief History of *Iulia Concordia*

The ancient city of *Iulia Concordia*, today known as Concordia Sagittaria, lies in the modern Veneto region of north-eastern Italy. The area, known as *Venetia* in antiquity, was incorporated under Augustus into the administrative region *Regio X Venetia et Histria*. Situated along the *Via Annia* between *Altinum* and *Aquileia*, the city occupied a strategic position at the intersection of the trade routes that linked the Italian peninsula to central and northern Europe across the Alps and to the eastern Mediterranean through the Adriatic Sea.

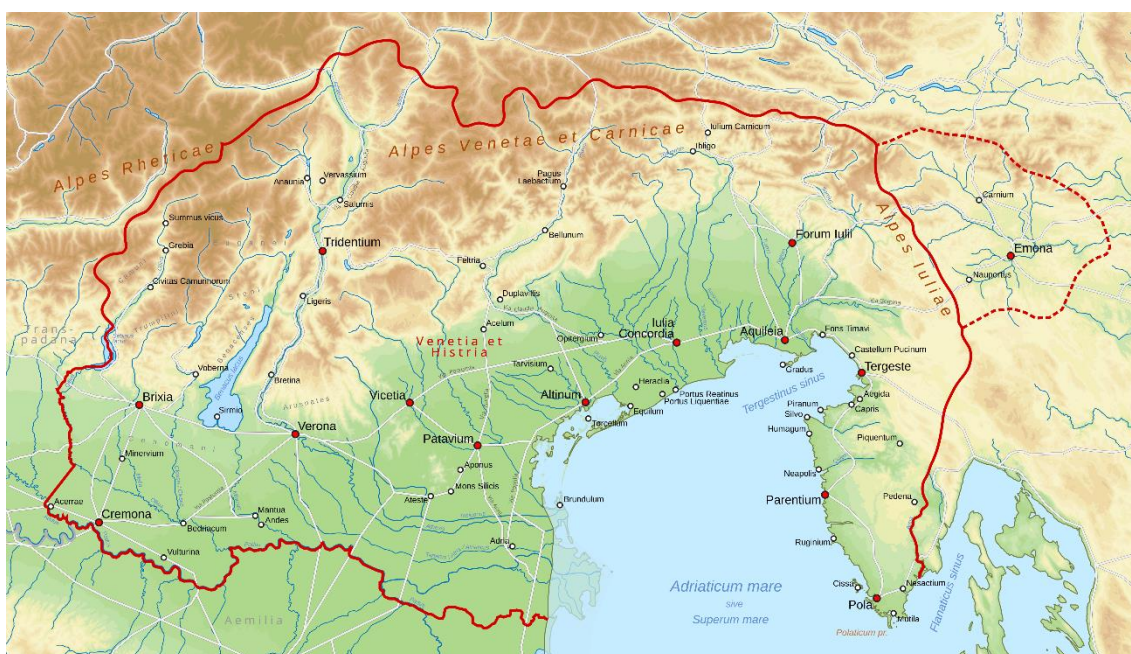


Fig. 14 - Map of the *regio X Venetia et Histria*, with its cities. - Tomisti, CC BY-SA 4.0
<<https://creativecommons.org/licenses/by-sa/4.0/>>, via Wikimedia Commons.

From the north, the Baltic amber travelled along this route since prehistory through present-day Slovenia, as demonstrated by the discovery of this material near the future Roman colony of Emona, today's Ljubljana, a city founded in 35 BC.⁸² From the region around the same city, gold mines that supplied the entire Italian peninsula were already being exploited at the time of Polybius.⁸³

⁸² Šašel 1974, p. 147.; Plesničar Gec 2001, 5.

⁸³ Strab. 4.6.12.

From the Adriatic Sea, the coastline was frequented by Greek merchants since the Bronze Age. In Frattesina, present-day Fratta Polesine in southern *Venetia*, several fragments of Mycenaean pottery were found.⁸⁴

In addition to its strategic location, the *Regio X* had an abundance of inland waterways: navigable rivers and the lagoon facilitated the movement of goods. Furthermore, the lagoon provided a safe harbour for ships coming from the sea and protection from invasions. Titus Livius narrates how the young paduans, the so-called *iuventus patavina*, after defeating the Spartans led by *Cleonimus*, were able to reach the Spartan fleet by flat-bottomed boats and burn some ships owned by the enemy.⁸⁵ The lagoon also used to ensure a healthy environment thanks to its salinity, which killed parasites and small dangerous microorganisms.⁸⁶

These favourable conditions granted the rise of numerous pre-Roman settlements. The site that would be occupied by the Roman city of *Iulia Concordia* shows clues that testify the stable presence of humans since the tenth century BC,⁸⁷ although there are traces of inhabited areas since the Late Bronze Age.⁸⁸

This area underwent Romanisation starting from the third century BC and this process was intensified in the following century, with the foundation of the city of *Aquileia* and the creation of *Annia* and *Postumia* roads, which intersected near the same site where *Concordia* would be founded.⁸⁹

No source exists that can clearly affirm the exact foundation date of *Iulia Concordia*. Thus, the only method to answer this question is to examine its etymology. *Iulia* is a clear reference to the homonymous *gens*, namely the ancient family. Therefore, the city must be founded by a member of this family or at least in his honour.

Concordia is a Latin substantive that represents the peace or reconciliation between two or more parties. There are two main theories among the scholars: the foundation of *Concordia* in the Caesarian era or in the Octavian era.

⁸⁴ Braccesi 2004, 351.

⁸⁵ Liv. 10.2.4-13.

⁸⁶ Rosada, Zabeo 2012, 242.

⁸⁷ Bianchin Citton 2001, 102; Annibaletto 2010.

⁸⁸ Croce Da Villa 1992, 3.

⁸⁹ Cresci Marrone 2001a, 119.

According to the first theory, the word *Concordia* would have represented the Caesar's forgiveness towards his enemies, a virtue consistent with the concept of the Caesarean *pietas*, which gave its name to the city of Pola.⁹⁰

The second hypothesis suggests that *Concordia* was founded after the Second Triumvirate of 43 BC between Octavian, Mark Antony and Lepidus, as was the case with the city of *Iulia Concordia Felix Beneventum*, or after the Peace of Brindisi in 40 BC.⁹¹ It is quite certain that *Concordia* was not founded after 27 BC, since from that point Octavian became *Augustus* and new colonies were named after that name, like the cities of *Augusta Praetoria* and *Augusta Taurinorum*.⁹²

There are few sources of the history of *Concordia* also in the following years, although the surrounding area was the centre of numerous historical events. Antonius Primus passed through with the Danubian troops loyal to Vespasian in 69 AD.⁹³ During the invasions of the Germanic tribes of Quadi and Marcomanni, the barbarians besieged Aquileia and destroyed the near city of *Opitergium*, but they did not pass through *Iulia Concordia*.⁹⁴ However, the agricultural areas around the city experienced depopulation.⁹⁵ In 237-238 AD, the city was crossed by the troops of *Pupienus* and *Balbinus*, who were on their way to Aquileia to fight against Maximinus Thrax.⁹⁶ In the 60s of the 4th century AD, Emperor Julian exempted the city from the *cursus publicus*, which consisted of the cost of transporting messages and goods belonging to the central government.⁹⁷

On 5 and 6 September 394 AD the Roman emperor *Theodosius* the Great fought the rebel *Eugenius* in the Battle of the Frigid River, near the modern Slovenian city of Ajdovščina. According to Hoffman, this event influenced *Iulia Concordia* and its Eastern Necropolis, since the sarcophagi of the soldiers were built after the battle, thanks to the donations of the victorious Theodosius.⁹⁸ However, this hypothesis no longer seems to be supported by most scholars, since the soldiers' graves were almost certainly built over a

⁹⁰ Scarpa Bonazza Buora Veronese 1978, 13.

⁹¹ Zovatto 1973, 1; Scarpa Bonazza Buora Veronese 1978, 13.

⁹² Scarpa Bonazza Buora Veronese 1978, 13.

⁹³ Scarpa Bonazza Buora Veronese 1978, 16.

⁹⁴ Scarpa Bonazza Buora Veronese 1978, 17; Croce Da Villa 2001a, 133, Cresci Marrone 2022, 152-153.

⁹⁵ Croce Da Villa 2001b, 204.

⁹⁶ Scarpa Bonazza Buora Veronese 1978, 17.

⁹⁷ Scarpa Bonazza Buora Veronese 1978, 18; *CIL* V 8658 + *CIL* V 8987.

⁹⁸ Hoffmann 1963, 25; Hoffmann 1969, 101.

longer period and there was probably a military garrison there for some time.⁹⁹ The existence of the *cohors I Concordiensium*, operational since the third century AD,¹⁰⁰ could be a clue that testify a stable presence of soldiers in the city.

From a military perspective, *Iulia Concordia* was important to produce weapons. As early as the third century AD, the city was home to ironworking centres,¹⁰¹ but the most important production began perhaps at the beginning of the 4th century AD when an arrow manufacturing facility was founded,¹⁰² so famous that it gave its name to today's Concordia Sagittaria.

Although the presence of merchants of eastern origin attests to Concordia's economic vitality even at the beginning of the fifth century AD, with the barbarian invasions and the fall of the Western Roman Empire, the city suffered an inevitable decline along with nearby Aquileia.

2.3 The Discovery of the Eastern Necropolis



Fig. 15 - The sarcophagus of *Vassio*, the first tomb that was discovered in the eastern necropolis. Portogruaro - Museo Nazionale Concordiese – Photo made by Ortohl Harl.

In February 1873, while some workers were gathering sand at the left bank of the Lemene river, a sarcophagus that had once belonged to the soldier *Vassio*¹⁰³ was found in the estate of Count Perulli.¹⁰⁴ Since then, many other sarcophagi were discovered. In April, ten stone *arcae* were unearthed, showing that there was a vast necropolis.¹⁰⁵

The discovery of this site represented the

⁹⁹ Cresci Marrone 2001b, 246.

¹⁰⁰ Cresci Marrone 2001b, 246; Rocco 2012, 151.

¹⁰¹ Croce Da Villa 2001°, 135.

¹⁰² Cresci Marrone 2001b, 247; Di Filippo Balestrazzi, Vigoni 2009.

¹⁰³ Zovatto 1965, 33; Vigoni 2022, 51; *CIL* V 8773 = EDR097921.

¹⁰⁴ Bertolini 1874a, 19; Brusin, Zovatto 1960, 14; Pettennò 2004, 139.

¹⁰⁵ Bertolini 1874a, 19.

culmination of Dario Bertolini's career, who played a central role throughout the excavation of the necropolis.¹⁰⁶

Bertolini was born in Portogruaro on 20 January 1823. He was the third son of Giò Batta Bertolini, who came from the town of Caorle.¹⁰⁷ During his youth, he studied at the Episcopal Seminary of Portogruaro where he had a solid classical education, which proved useful in the future.¹⁰⁸ Although Bertolini graduated in law in 1849 and passed the exams to practise law, he had already shown a keen interest in the ancient remains of nearby Concordia a decade before the discovery of the Eastern Necropolis, which convinced him to take up archaeology.¹⁰⁹

Bertolini became the most important promoter of the necropolis, giving the news of this discovery to both local press and scientific journals of this field, one of which was the *Bullettino dell' Instituto di Corrispondenza Archeologica*, where he continued to publish the excavation updates in the following years.¹¹⁰

Encouraged by De Rossi, the director of the *Bullettino di Archeologia Cristiana* journal, Bertolini supervised the archaeological campaign,¹¹¹ although he received the official title of Ispettore Onorario degli Scavi e dei Monumenti (Honorary Inspector of Excavations and Monuments) only in 1875.¹¹² This title was granted by Giuseppe Fiorelli, at the head of the *Direzione centrale degli scavi e dei musei del Regno*, an institution born in the same year that had the role of granting the new reign of Italy a better control over the regional archaeological sites, often relying on local networks.¹¹³ The excavations began thanks also to the mayor of the city, who convinced count Perulli to temporarily concede his estate for a modest fee.¹¹⁴ However, these lands were part only of the eastern section of the



Fig. 16 - Giuseppe Fiorelli.

¹⁰⁶ Vigoni 2016, 211-249.

¹⁰⁷ Marzin 2004, 24.

¹⁰⁸ Marzin 2004, 24-27.

¹⁰⁹ Pettenò 2004, 138.

¹¹⁰ Bertolini 1873, 61

¹¹¹ Pettenò 2004, 139.

¹¹² Pettenò 2004, 141.

¹¹³ Vigoni 2022, 54.

¹¹⁴ Pettenò 2004, 139-140.

necropolis. The other portion was held by count Persico, who refused to concede his estate for several years, until that part of necropolis was finally excavated between 1890 and 1893.¹¹⁵ The archaeological excavation was also supervised by Federico Berchet, member of the same *Commissione per la Conservazione dei Monumenti di Venezia*.¹¹⁶

The three main excavation campaigns took place between 1873 and 1875¹¹⁷ and in 1876, the engineer Antonio Bon created a map of the necropolis. However, the earthworks were not finally completed until 1877, when the *arcae* in the northwestern area were discovered.¹¹⁸

During the excavation works at the Perulli site, Bertolini published his recent discoveries *in rebus* in the periodicals *Bullettino dell'Instituto di corrispondenza archeologica*, *Archivio Veneto* and, starting in 1876, in *Notizie degli scavi di antichità*.



Fig. 17 - Photograph of the Sepulchre, Sorgato photographic studio – Venice, 1866: north-east view (from *Immaginare l'antico* 2016, p. 133; I.G. 7737).

¹¹⁵ Lettich 1983, 17-18.

¹¹⁶ Vigoni 2022, 53.

¹¹⁷ Brusin, Zovatto 1960, 14.

¹¹⁸ Vallicelli 2022, 79.

As early as 1874, Bertolini noticed to the north of the tombs that had been unearthed at that time “[...] an empty space, probably the road that passed through the burial ground” (translation mine).¹¹⁹ In 1875, the discovery of this road was reported, identified at a depth of almost 2 meters, together with other brick tombs at the same height;¹²⁰ therefore, older than the first tombs discovered, whose upper end was only half a meter below the surface.¹²¹ This investigation demonstrates the existence of two main chronological phases in the development of the necropolis, separated by a gap of a few decades during which the Lemene River brought a large amount of sediment that covered the road.¹²² The *terminus ante quem* for the tombs of the second phase is more clear, since it can be traced back to the beginning of the fifth century AD, based on inscriptions dated according to the Seleucid era. For the *terminus post quem*, Brusin dated the sarcophagus of *Firmina*, one among the most ancient tombs, at the end of the second century AD,¹²³ a particularly early chronology for a monumental inhumation burial, featuring a richly decorated figurative *apparatus*, with no indication of elite family status, such as a gentilicium or any reference to a prominent lineage, located at a considerable distance from the city boundary. A more cautious dating of the burial ground, between the third and early fifth centuries AD, is therefore preferable.

The discovery of shrines and heads of pagan statues suggests the presence, in an earlier period, of a burial area with practices other than inhumation, although these finds had been reused and their original provenance remains uncertain.¹²⁴

Further information provided by Bertolini concerns the deeper burials: “It should be noted that in these tombs the skeletons are much better preserved and most of them are found in very clear water with which the tomb is filled, while the space in the (upper) sarcophagi is completely filled with clay or very fine sand.”¹²⁵ (translation mine). However, it is somewhat perplexing that the bodies placed higher up, probably in anaerobic conditions given the presence of clay, were in worse condition than those

¹¹⁹ Bertolini 1874b, 277.

¹²⁰ Bertolini 1875, 119-120.

¹²¹ Bertolini 1874a, 19.

¹²² Lettich 1983, 115-117.

¹²³ Brusin 1960, 59.

¹²⁴ Bertolini 1874a, 277-278.

¹²⁵ Bertolini 1875, 120.

below. It is here suggested that the ‘crystal clear’ water came from the aquifer and dispersed throughout the site during the excavation work.

In fact, during the excavation, water from the subsoil and the nearby river was a hard obstacle,¹²⁶ slowing down the workers, ruining the monuments and creating an unhealthy environment that froze during the winter and was infested with mosquitoes during the summer, which were also a danger for the public health of Concordia.¹²⁷

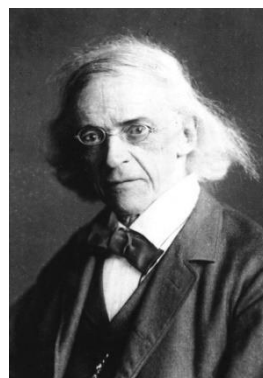


Fig. 18 - Theodor Mommsen

This operation ended in 1877, leading to the discovery of 249 sarcophagi, only about 70 of which present inscriptions, other funerary monuments and fragments of inscriptions. However, the preservation of the site was difficult and expensive because of the water.

In March 1877 a committee from the *Commissione per la Conservazione dei Monumenti di Venezia* visited the site after the first visit in 1873 and reported the critical nature of the situation to the *Direzione centrale degli scavi e dei musei del Regno*.¹²⁸ Fiorelli chose to ask Mommsen, the founding father of modern epigraphy, for a solution, and received the answer on 31 October 1877 with a letter.¹²⁹ The suggestion of Mommsen was radical, yet necessary: he asked for the creation of a 3D model of the necropolis and the removal of the inscribed fronts of the sarcophagi from their original supports in order to preserve them after the backfilling of the site.¹³⁰

Construction of the museum, designed by Bon specifically to house the inscribed fronts removed from the necropolis, began in 1885 and was completed on 28 October 1888.¹³¹ The building, known today as the Museo Concordiese di Portogruaro, still preserves those artefacts. It resembles a three-nave church and follows the faux-Romanesque architectural style that was popular at the time.¹³²

¹²⁶ Pettenò 2004, 141-142.; Vigoni 2022, 53.

¹²⁷ Brusin, Zovatto 1960, 14.; Vigoni 2022, 55.

¹²⁸ Vigoni 2022, 55-56.

¹²⁹ Vigoni 2022, 56-57.

¹³⁰ ACS, Sc. e Mon. Ant., 1860-1890, B. 165, fasc. 341-7, 31/10/77.

¹³¹ Pettenò 2004, 143-144.

¹³² Zovatto 1965, 16.



Fig. 19 - The Museo Concordiese di Portoguraro.

In the meantime, count Perulli obtained the right to subtract from the necropolis pieces of stone that were not considered important from an historical and artistic perspective, while the inscriptions were removed from their sarcophagi, and from 1890 operations to rebury the necropolis began.¹³³

The 3D model project, on the other hand, suffered a worse fate and was never realised. In 1879 Antonio Bon created a second planimetry of the necropolis. This map was intended to be the basis for the creation of the model; thus, it was sent to Naples so that it could be entrusted to the same craftsmen who created the model of Pompeii few years before. However, several measures were missing, such as the dimension of each individual sarcophagus.¹³⁴ Since it would have been too difficult and expensive to

gather all these data in a site that was constantly occupied by water, the project was abandoned, while the 1879 plan disappeared.

The abandonment of the necropolis represents an indelible loss for the studies of *Iulia Concordia*. Due to the limitations of the time, the water that covered the site and the arduous attempt to save the epigraphic material, a complete archaeological study of the necropolis was not carried out. Among the numerous pieces of information that were not published and are now impossible to find, it is worth noting the lack of reference to the stratigraphic level of each tomb, which would have facilitated the dating of the sarcophagi, and the loss or abandonment of the remains. Although Bertolini occasionally mentioned the presence of skeletons,¹³⁵ they did not seem to be of particular interest to

¹³³ Vigoni 2022, 61-62.

¹³⁴ Vallicelli 2022, 74.

¹³⁵ Bertolini 1873a, 59; Bertolini 1873b, 277; Bertolini 1874b, 36; Bertolini 1875, 119-120.

the lawyer and his contemporaries, nor was any attempt made to collect and preserve the remains. This attitude was due to the lack, at the time, of a defined osteological practice, the analysis of which would have made it possible to study the deceased.

However, the recent discovery of Antonio Bon's 1879 plan in the archives of the *Museo Archeologico Nazionale di Napoli* represents a fundamental turning point in the study of the necropolis.¹³⁶ In fact, unlike the map drawn up in 1876, this plan marks the sarcophagi discovered in 1877, and each arca bearing an inscription is labelled with the corresponding *CIL* number. That said, the plan is limited to the *fondo Perulli*. No map appears to exist for the *fondo Persico*, where excavation work was confined to the recovery of epigraphic material.

2.4 The People Buried in the Eastern Necropolis

Most of those buried in the Eastern Necropolis were civilians, numbering more than forty. Apart from a few exceptions, they were common people. The inscriptions typically record the name of the dedicator and the deceased, sometimes accompanied by affectionate expressions, like *coniugi dulcissimo*¹³⁷ (dearest husband) or *pientissimo filio*¹³⁸ (most devoted son). Women actively participated in the creation of sarcophagi: half of civil burials were partly or completely commissioned by a female individual. They contributed to the construction of ten double burials, financed five sarcophagi for a relative and for themselves during their lifetime, commissioned another five exclusively for themselves and, in three cases, dedicated the burial to another person.

There were more than thirty *arcae* dedicated to soldiers. In most cases, their epitaph shows the *numerus* in which they served and their rank.¹³⁹ The *numeri* were a military contingent of the Late Antiquity, and the eastern necropolis of Concordia represents a

¹³⁶ As-Mann VB4, 6.

¹³⁷ *CIL* V 8988a = EDR097931.

¹³⁸ *CIL* V 8988d = EDR097934.

¹³⁹ The inscriptions of *Aurelius Aurelianus* (*CIL* V,8724 = EDR097883: M. Cavalletti) and *Flavius Gidnadius* (*CIL*, V, 8749 = EDR097747: D. Baldassarra) are the only ones who qualify exclusively with the title *veteranus*.

fundamental source to study their number and names, in addition to the *Notitia Dignitatum*.

Another group represented in the necropolis is composed of the *fabricenses*. These skilled workers were linked to the city's arrow factory. The *fabricenses* occupied a unique position, existing at the intersection of the civil and military spheres. From a civilian perspective, they were employed by a civilian official, the *magister officiorum*,¹⁴⁰ and were not permitted to carry weapons, a privilege granted to soldiers.¹⁴¹ However, like soldiers, these workers were organised according to military hierarchy. The vocabulary used in the inscriptions found on the burial grounds is also peculiar and typical of the semantic field of war: the *corpus* of the *fabricenses* is defined as *sc(h)ola*,¹⁴² and one of their members, *Flavius Calladinus*, describes himself as a *veteranus* (veteran) who *militavit in fabrica sagittaria* (served in the arrow-making workshop).¹⁴³ There are seven complete inscriptions mentioning six *fabricenses*: two of them are dedicated to the wives of *Romulianus*, who remarried after the death of his first wife.¹⁴⁴ An epigraphic fragment also suggests the presence of a seventh *fabricensis*, whose name has not been preserved.¹⁴⁵

Another important group is composed of Greek-speaking people who came from the eastern side of the Empire, most of them from the ancient city of Apamea, Syria.¹⁴⁶ Their role was probably as olive oil traders.¹⁴⁷

Thus, the eastern necropolis of Concordia was home to an impressive variety of people from different backgrounds. This is also evident from their names, which are of Latin

¹⁴⁰ *ND.*, *occ.* IX.

¹⁴¹ *Amm. Marc.*, XXXI 6, 2.

¹⁴² EDR098075.

¹⁴³ *CIL* V 8742 = EDR097735.

¹⁴⁴ The following *fabricenses* are attested: *Flavius Romulianus* (*CIL*, V, 8662 = EDR097751; *CIL*, V, 8697 = EDR097857), *Flavius Calladinus* (*CIL*, V, 8742 = EDR097735), *Flavius Messio* (EDR098075), *Flavius Martinianus* (*CIL*, V, 8754 = EDR097902), *Flavius Mercurius* (*CIL*, V, 8757 = EDR097905) e *Flavius Florentius* (EDR098076).

¹⁴⁵ [- - -]enavi[- - -] / [- - - milit]avit in sagit[taria fabrica?] / [- - -] qui vixit ann(is) [- - -]. (EDR098079: G. Cozzarini).

¹⁴⁶ *CIL*, V, 8734 = EDR097893 (D. Baldassarra); *CIL*, V, 8753 = EDR097901 (D. Baldassarra); *CIL*, V, 8754 = EDR097902 (D. Baldassarra); *CIL*, V, 8988a = EDR097931 (D. Baldassarra); *CIL*, V, 8988b = EDR097932 (D. Baldassarra); *CIL*, V, 8988e = EDR097935 (D. Baldassarra).

¹⁴⁷ Cresci Marrone 2001b, 248-249.

(*Mercurius*¹⁴⁸), Germanic (*Gunthia*¹⁴⁹), Celtic (*Sirramnis*¹⁵⁰), Greek (*Ziper*¹⁵¹) and Semitic (*Cham*¹⁵²) origin.

As far as worship is concerned, only a few clues allow us to identify the religious beliefs of certain individuals. Six inscriptions contain the abbreviation *D(is) M(anibus)*, meaning a dedication to the *Manes*, entities associated with the souls of the dead.¹⁵³ Furthermore, six sarcophagi with Latin inscriptions bear the Constantinian monogram. These two elements would suggest Pagan and Christian beliefs respectively. However, the presence of both in the double burial of *Flavius Martinianus* and *Severina* calls into question this apparent distinction.¹⁵⁴ It is possible that the initials *DM* had lost their original meaning in Late Antiquity, while retaining a generic connection with death.¹⁵⁵ Nor can it be ruled out that the two deceased professed different faiths. It should also be noted that the dedication to the *Manes* gods was on the now lost lid, known only from Bertolini's testimony;¹⁵⁶ several significant elements may therefore have been lost without any documentation.

2.5 The Dating of the Inscriptions

Of all the inscriptions in the *fondo Perulli*, only two of the Latin ones can be precisely dated. The first, commissioned in honour of Emperor Julian,¹⁵⁷ dates to the years immediately following 363 AD.¹⁵⁸ The second inscription belonged to the soldier *Manio*¹⁵⁹ and bears a consular date corresponding to the consulships of *Honorius* and *Arcadius*. It can therefore be traced back to 394, 396 or 402 A.D.¹⁶⁰

¹⁴⁸ *CIL* V 8757 = EDR097905.

¹⁴⁹ EDR098097.

¹⁵⁰ EDR098077.

¹⁵¹ EDR098096.

¹⁵² EDR076555.

¹⁵³ Aug., *De civitate Dei* 9, 11.

¹⁵⁴ *CIL* V 8754 = EDR097902.

¹⁵⁵ Lettich 1983, 57; Tantimonaco 2013, 266-268.

¹⁵⁶ Bertolini 1874a, 24.

¹⁵⁷ *CIL* V 8658 = *CIL* V 8987 = EDR097709.

¹⁵⁸ Lettich 1983, 30-31.

¹⁵⁹ *CIL* V 8768 = EDR097916.

¹⁶⁰ LETTICH 1983, 92-93, n. 54.

However, among the Greek inscriptions there are two dates based on the Seleucid era which can be accurately translated and correspond to 409/410 and 426/427 AD.¹⁶¹ Another *arca* can be dated to 418/419 or 433/434 A.D.¹⁶² Most of these individuals spoke Greek and came from the Syrian city of Apamea,¹⁶³ probably for commercial purposes.¹⁶⁴ The burials of the eastern merchants are the most recent: the necropolis was abandoned at the beginning of the fifth century.¹⁶⁵

In many inscriptions a comminatory formula is present, which was intended as a deterrent for whoever wanted to violate the tomb, usually establishing a pecuniary penalty and in some cases a corporal punishment. An example is the inscription of *Flavius Victurinus*, which reads: “*qui eam arcam / aperire voluerit iure ei ma/nus praecidentur (praecidetur) aut fiscus / inferat auri libra una.*” (“whoever wishes to open this sarcophagus shall have their hand cut off or shall pay one Roman pound to the *fiscus*”).¹⁶⁶ The monetary fines provide valuable information that enables us to date the respective tomb. Fines in *sestertii* are typical of the early imperial period. In the Diocletianic era, *folles* appeared as the new currency,¹⁶⁷ but they fell into disuse in the second half of the fourth century, with the last attested official use in 363 AD.¹⁶⁸ *Solidi*, on the other hand, became widespread in the Constantinian era.¹⁶⁹ Later inscriptions indicate penalties in pounds of silver or gold, which provided a more stable standard of value than the circulating currency, particularly marked in the fourth century by irregularities in metal content.¹⁷⁰

¹⁶¹ Lettich 1983, 115-117, n. 93-94.

¹⁶² Lettich 1983, 117, n. 95.

¹⁶³ *CIL* V 8723; *CIL* V 8727; *CIL* V 8728; *CIL* V 8729; *CIL* V 8731; *CIL* V 8732.

¹⁶⁴ Cresci Marrone 2001b, pp. 248-249.

¹⁶⁵ Vigoni 2015, 48.

¹⁶⁶ *CIL* V 8761 = EDR097909.

¹⁶⁷ Carlà 2007, 162–165.

¹⁶⁸ CTh XIV, 4, 3.

¹⁶⁹ CARLÀ 2007, p. 160.

¹⁷⁰ Tosi 1993, 212.



Fig. 20 - Portogruaro, Concordiese National Museum. The sarcophagus of *Firmina* (photo by the author).

The names of the deceased allow us also to estimate the date of the inscriptions to a certain extent. During the late Republic and early empire, it was common for men born already free (*ingenui*) or manumitted slaves (*liberti*) to have names composed of three or more onomastic elements, a naming

convention known as *tria nomina*.¹⁷¹ The *praenomen* was the first name, and the firstborn son usually inherited it from his father. The *nomen* represented the extended family, known as *gens*, of the person.¹⁷² The *cognomen* was the third name and typically distinguished a specific branch within a larger *gens*.¹⁷³

Although there are sporadic examples of *tria nomina* within the necropolis,¹⁷⁴ even the earliest tombs, which appeared alongside the spread of stone sarcophagus burials in the third century AD, demonstrate a decline in the use of *praenomina* and a tendency towards *duo nomina* (two names).

Initially, there were various *gentes*, such as the *Enni*¹⁷⁵ and the *Fabii*,¹⁷⁶ as well as some of local origin, such as the *Cicrii*.¹⁷⁷ These family names were subsequently replaced by imperial *nomina*. Following the *Constitutio Antonina*, upon obtaining citizenship, individuals also received the *nomen Aurelius*.¹⁷⁸ However, when Constantine and his family rose to power, *Flavius* became the name given to the new citizens, mostly in the Western Empire.¹⁷⁹ In the Eastern Empire, the *nomen* Αὐρήλιος (*Aurelios*) was still

¹⁷¹ Salway 1994, 124.

¹⁷² Salway 1994, 124-126.

¹⁷³ Salway 1994, 127-128.

¹⁷⁴ *CIL* V 8674 = EDR097834, *CIL* V 8676 = EDR097836, *CIL* V 8677 = EDR097837.

¹⁷⁵ *CIL* V 8988a = EDR097931, *CIL* V 8988e = EDR097935.

¹⁷⁶ *CIL* V 8692 = EDR097852, *CIL* V 8694 = EDR097854.

¹⁷⁷ *CIL* V 8686 = EDR097846, *CIL* V 8687 = EDR097847, *CIL* V 8688 = EDR097848, *CIL* V 8988b = EDR097932.

¹⁷⁸ Salway 1994, 134-136.

¹⁷⁹ Salway 1994, 137.

the most common, as can be seen from the names of Greek-speaking individuals originating from Apamea.

In the later phases of the necropolis, numerous inscriptions attest single-name *formulae* (onomastic monomembral sequences).¹⁸⁰ However, this phenomenon should not always be taken as an indicator of a later date. In some cases, the *simplex nomen* represented, for Christians, a sign of humility and detachment from one's family, signalling exclusive affiliation with the local Christian community.¹⁸¹ In other cases, the *nomen gentilicium* may simply have been omitted as understood, when the deceased bore the same *gens* as the dedicator.¹⁸²

Another valuable method of dating inscriptions is the palaeographic analysis of letterforms. The earliest inscriptions, such as the one from the sarcophagus of *Firmina*,¹⁸³ feature square capitals. From the fourth century onwards, there is a gradual yet consistent lateral compression of the letters, resulting in increasingly vertical proportions. From the mid-fourth century onwards, the evolution of the letters F and G can be traced in several inscriptions, including that of Julian. The F develops an additional stroke resting on the baseline, making it difficult to distinguish from the E, while the G loses its horizontal spur and its tail extends below the baseline.

Towards the end of the fourth century, the A with a broken crossbar appears. Initially, it alternates with the A characterised by the regular horizontal stroke, but by the beginning of the fifth century, it has completely replaced the earlier form, as evidenced in the *Victurus* inscription.¹⁸⁴

¹⁸⁰ EDR097744, EDR097819, EDR097832, EDR097881, EDR097919, EDR097921, EDR097933, EDR097934 (D. Baldassarra); EDR076555, EDR076556, EDR098096, EDR098097, EDR098077 (G. Cozzarini).

¹⁸¹ Calvelli 2015, 90–97.

¹⁸² This may be the case with the burials of *Eutherius* (*CIL* V 8988d = EDR097934) and *Marinus* (*CIL* V 8746 = EDR097744). Their fathers, *Flavius Constantius* and *Flavius Exsuperantius* respectively, are named at the opening of the inscriptions as dedicators.

¹⁸³ *CIL* V 8696 = EDR097856.

¹⁸⁴ *CIL* V 8762 = EDR097910 (D. Baldassarra).

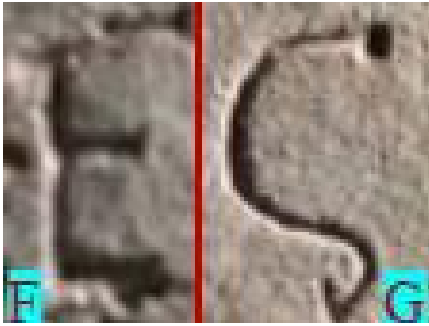


Fig. 21 - Concordia Sagittaria, National Museum of Concordia in Portogruaro. Front of sarcophagus. Detail of the letters 'F' and 'G' from the inscription of Emperor Julian (Picture by O. Harl).



Fig. 22 - Concordia Sagittaria, National Museum of Concordia in Portogruaro. Front of sarcophagus. Detail of the letter 'A' from the inscription of the soldier *Victurus* (photo O. Harl).



Fig. 23 - Concordia Sagittaria, National Museum of Concordia in Portogruaro. Front of sarcophagus. Detail of the letter 'G' from the inscription of the soldier *Manio* (photo O. Harl).

2.6 Reconciling Bon's Plan with Bertolini's Archaeological Evidence

The plan drawn up by Bon in 1879 is a valuable discovery that will support the interactive element of the project, although it requires careful verification. The first step is to check the *CIL* number references, as Vallicelli¹⁸⁵ has already identified several typographical errors: number 134 is repeated and incorrectly assigned to a sarcophagus that should be 234, the inscription of *Firmina* is linked to two *arcae* (216 and 276), and the epigraph of

¹⁸⁵ Vallicelli M. C. 2022, 82.

*Caius Iunius*¹⁸⁶ is associated with sarcophagus 84. The latter, preserved in the Trevisan house in Portogruaro, is unrelated to the necropolis.

To clarify these discrepancies, two factors must be considered. First, the inscriptions in the Perulli collection not shown on the plan need to be examined. Excluding minor fragments, there are seven: those of *Aurelius Aurelianus*,¹⁸⁷ *Flavius Calladinus*,¹⁸⁸

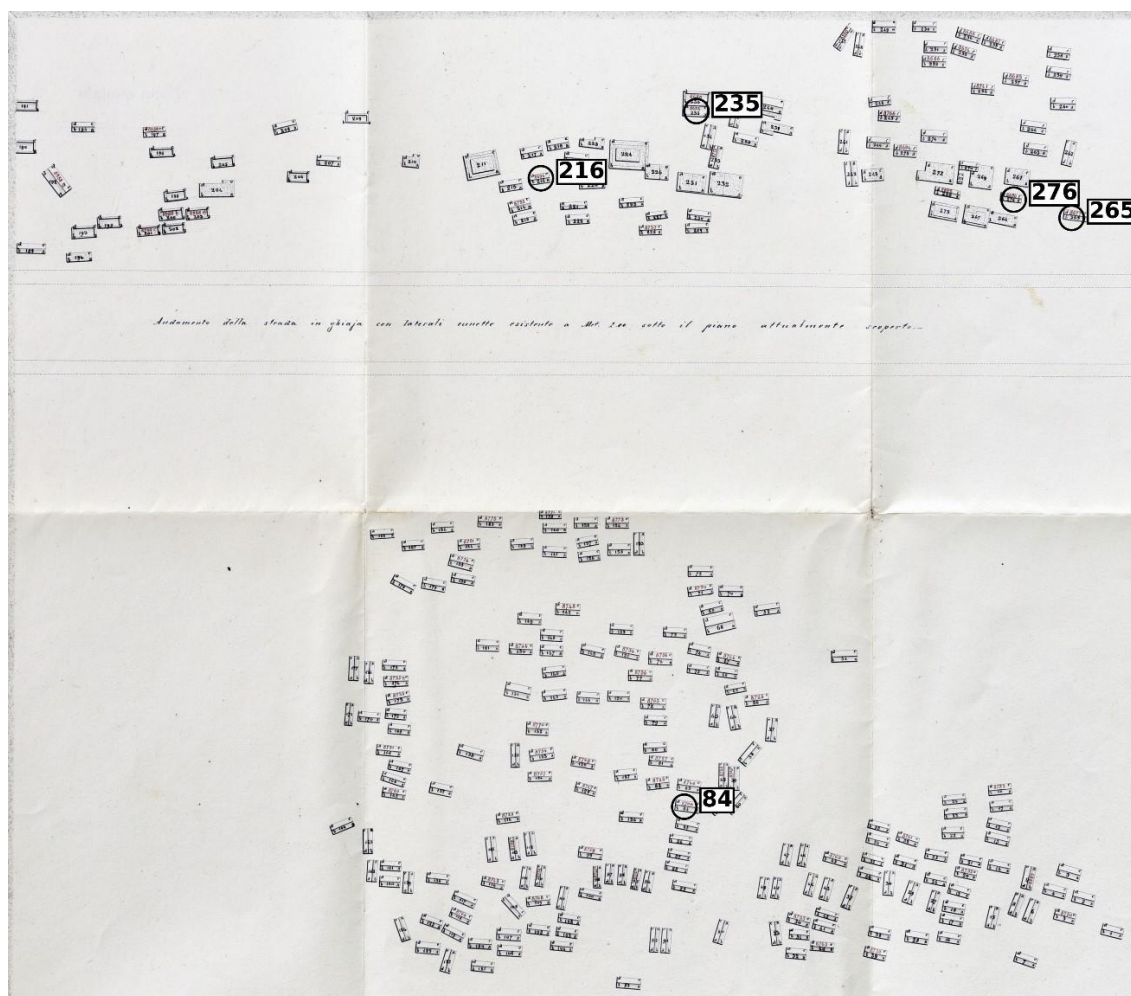


Fig. 24 - Naples, National Archaeological Museum, Archive. Plan of the burial ground drawn in 1879 by Antonio Bon (AS-MANN VB4, 6). The sarcophagi marked with a circle correspond to those with incorrect or repeated *CIL* numbering. Reworked by the Author.

¹⁸⁶ *CIL* V 8700 = EDR097860 (D. Baldassarra).

¹⁸⁷ *CIL* V 8724 = EDR097883 (M. Cavalletti, D. Baldassarra).

¹⁸⁸ *CIL* V 8742 = EDR097735 (D. Baldassarra).

Tahetis,¹⁸⁹ [---]erco,¹⁹⁰ *Flavius Sauma*,¹⁹¹ *Caius Caesius*¹⁹² and the emperor *Flavius Claudius Julianus*.¹⁹³ However, the last of these must be excluded, as it is an honorary text whose support was reused as building material: one fragment as a sarcophagus lid¹⁹⁴ and another as a supporting stone¹⁹⁵ and was never intended as a funerary inscription.

Second, although Bertolini's accounts are less precise than Bon's plan, his reports in the *Bullettino dell' Instituto di corrispondenza archeologica*, *Archivio Veneto*, and *Notizie degli Scavi di Antichità* are essential for identifying the locations of the epigraphs.

The first case concerns sarcophagus 84, located in the southern section of the necropolis, far from the road running through the site. Therefore, the northern inscriptions listed by Bertolini, those of *Calladinus*,¹⁹⁶ *Tahetis*,¹⁹⁷ *Caius Caesius*,¹⁹⁸ and [---]erco,¹⁹⁹ must be excluded, suggesting that the unidentified inscription likely corresponds to that of *Flavius Sauma*, a soldier of the *Brachiati Equites* whose tomb was placed among the southernmost burials. The proximity of tomb 84 to that of another *Brachiati* member, *Flavius Andia*,²⁰⁰ and the similarity between the *CIL* numbers of *Iunius* and *Sauma* reinforce this hypothesis.

The second error involves *Firmina*'s inscription, recorded on sarcophagi 216 and 276, likely due to the similarity between the numbers. As Vallicelli notes, Bertolini located this epigraph in the northeastern sector, meaning *Firmina*'s *arca* corresponds to 276,²⁰¹ while the identity of 216 remains uncertain. Bertolini mentioned that the *fabricensis Calladinus* inscription was found on the northernmost edge of this area,²⁰² perhaps corresponding to one of the three *arcae* north of 216. Nearby²⁰³ were also the inscriptions of *Tahetis*,

¹⁸⁹ *CIL* V 8697 + *CIL* V 8721 = EDR097857 (D. Baldassarra).

¹⁹⁰ *CIL* V 8777 = EDR097925 (D. Baldassarra).

¹⁹¹ *CIL* V 8760 = EDR097908 (D. Baldassarra).

¹⁹² *CIL* V 8681 = EDR097841 (M. Cavalletti, D. Baldassarra).

¹⁹³ *CIL* V 8658 + *CIL* V 8987 = EDR097709 (L. Calvelli, D. Baldassarra).

¹⁹⁴ Bertolini 1875, 106.

¹⁹⁵ Bertolini 1877, 45.

¹⁹⁶ Bertolini 1877, pp. 35-36, nn. 47-48.

¹⁹⁷ Bertolini 1874a, p. 32, n. 28; Bertolini 1874a, p. 294 n. 21; Bertolini 1892, pp. 335-336.

¹⁹⁸ Bertolini 1874a p. 32., n. 29.

¹⁹⁹ Bertolini 1877, p. 37, n. 50.

²⁰⁰ *CIL* V 8740 = EDR097899 (D. Baldassarra).

²⁰¹ Vallicelli 2022, p. 82; Bertolini 1875, p. 115, n. 56.

²⁰² Bertolini 1877, p. 36

²⁰³ Bertolini 1874a p. 32.

Aurelianus, *Caius Caesius*, and one too fragmentary to read.²⁰⁴ Excluding the latter, these date to the third–fourth centuries, as indicated by the use of *folles* in the epitaphs of *Tahetis* and *Aurelianus* and *praenomen* in that of *Caesius*, and any of them could match the funerary monument number 216. Yet the solution may lie in the numbering itself: several errors stem from the inversion of digits in *CIL* or sequence numbers. The *CIL* numbers of *Tahetis* (8697) and *Firmina* (8696) are consecutive, and *Tahetis*'s tomb, originally meant also for her husband, a *Fabricensis* who later remarried, was probably near that of *Calladinus*, also a *fabricensis*. It is therefore plausible that the inscription for sarcophagus 216 belongs to *Tahetis*.

A final inconsistency, identified through Bertolini's evidence, involves sarcophagi 235 and 265. According to *Notizie degli Scavi*, the epigraph of *Asconia Severina* was located at the northeastern edge of the necropolis,²⁰⁵ while that of *Marcus Aterius Florentius* and *Iulia Valeria* was found in the north-central sector;²⁰⁶ Bon's plan, however, inverts their *CIL* numbers, 8676 for *Asconia Severina* and 8677 for *Florentius* and *Valeria*, confirming that many of the plan's inconsistencies result from simple numerical transpositions.

2.7 The Diachronic Evolution of the Necropolis

With a comparative analysis of the plan and the dating of each inscription, it is possible to propose a hypothesis that could reconstruct the diachronic evolution of the *Necropolis di Levante*.

Brick tombs and the first stone sarcophagi probably appeared from the third century AD onwards; the latter were found only to the north of the road that divided the necropolis in two.²⁰⁷ Among the inscriptions in the northern section, there is a wide variety of names and the presence of at least one family, that of the *Cicrii Eutyches*, although there were probably also those of the *Ennii* and *Fabii*.

²⁰⁴ *CIL* V 8720 = EDR097880 (D. Baldassarra).

²⁰⁵ Bertolini 1877, 29, n. 14.

²⁰⁶ Bertolini 1877, 31, n. 24.

²⁰⁷ Bertolini 1874b, 277; Bertolini 1875, 119-120; Bertolini 1876, 131.

Subsequently, the road and the oldest tombs were covered by sediments from the Lemene River.²⁰⁸ However, it appears that in a later period, the road was replaced by a dirt path, as no sarcophagi were found above the ancient road.²⁰⁹

During the first half of the 4th century AD, new stone tombs, larger than the previous ones, were built in the southern section, near where the road once stood. As the inscriptions attest, these belonged to civilians and *fabricenses*. At that time, imperial *nomina* had become the most common.

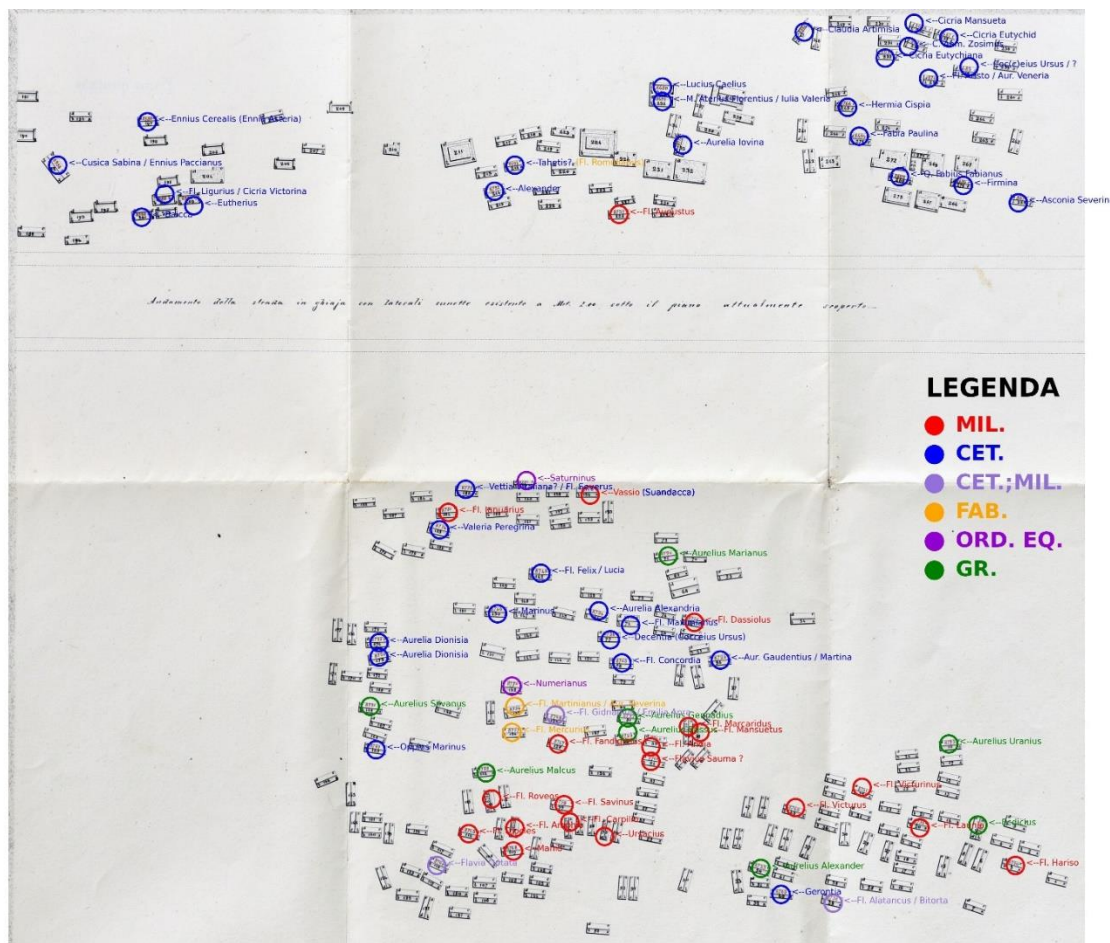


Fig. 25 - Naples, National Archaeological Museum, Archive. Plan of the burial ground drawn up in 1879 by Antonio Bon (from AS-MANN VB4, 6), showing the macro-groups of the deceased, highlighting the inscribed archaia and with the names written alongside. Revised by the author.

²⁰⁸ Lettich 1983, 18.

²⁰⁹ Bertolini 1874b, 277.



Fig. 26 - Concordia Sagittaria, National Museum of Concordia in Portogruaro. Front of sarcophagus. Detail of the letters 'F' and 'G' from the inscription of the soldier *Augustus*, member of the *Mattiaci* (photo O. Harl).

In the second half of the same century, the first burials of soldiers were recorded, all of whom, except in one case,²¹⁰ bore the nomen *Flavius*. The earliest one was part of the *numerus* of the *Mattiaci*,²¹¹ as can be deduced from the F with three horizontal strokes in their inscriptions, a palaeographic feature similar to that found in the inscription of Emperor Julian, and from the lack of a clear spatial arrangement. In the following years, there was a greater influx of soldiers, who were buried at the southern end of the burial ground and seem to have formed coherent groups

based on their military contingent. This arrangement is particularly evident among the tombs of the *Batavi*,²¹² the largest contingent, who tended to place their burials in close proximity to one another. Furthermore, the proximity of a member of the *Eruli*²¹³ to two *Batavi*²¹⁴ reflects the historical coherence between the two contingents, as they are historically attested to have marched and fought together.²¹⁵

The location of the more recent sarcophagi, belonging to eastern merchants, is difficult to interpret, as they do not follow any apparent pattern. These burials date to the early 5th century, when the burial ground seemed to have been abandoned by the local population.

²¹⁰ *Aurelius Aurelianus* is the only soldier who did not bear the nomen *Flavius* (*CIL* V 8724 = EDR097883).

²¹¹ *CIL* V 8737 = EDR097896 (D. Baldassarra); *CIL* V 8739 = EDR097898 (D. Baldassarra); *CIL* V 8744 = EDR097737 (F. Luciani); *CIL* V 8751 = EDR097762 (D. Baldassarra).

²¹² *CIL* V 8743 = EDR097736 (D. Baldassarra); *CIL* V 8752 = EDR097900 (D. Baldassarra); *CIL* V 8759 = EDR097907 (D. Baldassarra); *CIL* V 8761 = EDR097909. (D. Baldassarra); *CIL* V 8773 = EDR097921 (D. Baldassarra); *CIL* V 8776 = EDR097924 (D. Baldassarra); EDR098084 (G. Cozzarini); EDR098088 (G. Cozzarini).

²¹³ *CIL* V 8750 = EDR097748 (D. Baldassarra).

²¹⁴ *CIL* V 8752 = EDR097900 (D. Baldassarra); *CIL* V 8761 = EDR097909. (D. Baldassarra).

²¹⁵ Amm. Marc. 20.1-4; Amm. Marc. 27.1.

3. DIGITAL ENCODING OF THE INSCRIPTIONS

This section illustrates the structure of each XML file, corresponding to an inscription of the Eastern Necropolis of Concordia. It discusses what TEI/EpiDoc guidelines are and why they were chosen, the characteristics of each inscription's record, the materials and how data were gathered, how they were encoded. Furthermore, these files are compared with those stored in the EAGLE database to highlight the advantages and reusability of the current project's structure.

3.1 Introduction to TEI/EpiDoc

The Text Encoding Initiative (TEI) was established in 1987, sponsored by the Association for Computers in the Humanities and funded by the National Endowment for the Humanities. Its foundation was driven by a specific objective: to create systems facilitating the representation of textual materials in digital formats, especially in the humanities. Previous systems were often poorly designed and incompatible, hindering the preservation and sharing of data, thereby impeding academic scholarship.

Thus, TEI's main objective since its inception has been to develop, maintain, and promulgate hardware- and software-independent methods for encoding humanities data in electronic form, establishing common standards and guidelines that ensure interoperability. Even though the first Guidelines (P1 and P2) were realised between 1990 and 1994, the first official version (P3) was released in 1994.

In January 2001 the TEI Consortium, proposed in 1999 by the University of Virginia and the University of Bergen (Norway), became formally operational. It is a nonprofit membership organisation composed of academic institutions, research projects, and individual scholars from around the world and still today it aims to maintain, continue developing, and promote internationally the TEI.

In the meantime, in 1998, the World Wide Web Consortium released the first specification of the Extensible Markup Language (XML), aiming to enable generic SGML to be served, received, and processed on the Web in the way that is now possible with HTML.²¹⁶

TEI Consortium decided to implement this new technology and, shortly after its establishment, P3 was implemented to enable users to work with the emerging XML toolset. Since then, XML became the tool required by TEI Guidelines, which were updated until the P5 Version 4.10.2 at the writing of this thesis. Nowadays TEI is seen as one of the most important tools in Digital Humanities for the preservation of texts and has been endorsed by many organizations, including the US National Endowment for the Humanities, the UK's Arts and Humanities Research Board, the Modern Language Association, the European Union's Expert Advisory Group for Language Engineering Standards, and many other agencies around the world that fund or promote digital library and electronic text projects.²¹⁷

Building on the TEI framework, a dedicated subset for the encoding of ancient documentary texts was developed in the late 1990s and early 2000s: EpiDoc. The initiative was started by Tom Elliott, then a graduate student at the University of North Carolina at Chapel Hill, in response to the recommendations of a round-table meeting on epigraphy and information technology convened in Rome in 1999 by Silvio Panciera, then President of the Commission for Epigraphy and Information Technology of the Association Internationale d'Épigraphie Grecque et Latine. The meeting had called for the creation of a free and unrestricted online database of all surviving Greek and Latin epigraphic texts and had recognised the importance of a platform-independent format

²¹⁶ Extensible Markup Language (XML) 1.0 - <https://www.w3.org/TR/1998/REC-xml-19980210.html>.

²¹⁷ TEI: Guidelines for Electronic Text Encoding and Interchange - <https://tei-c.org/release/doc/tei-p5-doc/en/html/index.html>.

suitable for archiving and data interchange. Elliott's early work, developed in collaboration with Hugh Cayless, John Bodet, and Charles Crowther among others, led to the first draft of the EpiDoc Guidelines in January 2001. The involvement of Charlotte Roueché, who was exploring new technologies for the publication of the inscriptions from Aphrodisias, and the support of the Leverhulme Trust and the Arts and Humanities Research Council accelerated the development of the standard through a series of workshops. Although originally conceived as a common interchange format for epigraphic databases, EpiDoc has since expanded its scope to serve as a mechanism for the creation of complete digital editions and corpora, and its domain now extends beyond Greco-Roman inscriptions to include papyri and manuscripts.²¹⁸

3.2 Autoptic Analysis of the Inscriptions

Even though in the Eastern Necropolis fragmentary inscriptions and damaged objects associated with crematory funerary practices were found, this thesis will focus on the inscriptions engraved on sarcophagi.

As introduced in the previous paragraph, the fronts of the sarcophagi were removed, with the exception of the *arcae* of *Firmina* and *Vassio*, that are still preserved in their entirety.²¹⁹ The main elements shared by the inscriptions are listed below:

- **Type of document:** these are fronts or panels cut from sarcophagi and subsequently removed, except for the *arcae* of *Firmina* and *Vassio*, still intact in their entirety. They are currently embedded into the walls of the *Museo Nazionale Concordiese di Portogruaro* or kept in its storage facilities.
- **Material:** all the sarcophagi were made of limestone, which most probably came largely from the Aurisina quarry.
- **Figurative apparatus:** with few exceptions, the sarcophagi from the necropolis are now lost; consequently, most of the decorative apparatus has vanished. In many cases, the description relies on the observations of Dario

²¹⁸ About EpiDoc - <https://sourceforge.net/p/epidoc/wiki/About/>.

²¹⁹ Cf. § 2.3

Bertolini, the first and, for some *arcae*, the only scholar to have conducted an autoptic examination.

- **Life cycle:** all the inscriptions were found in the necropolis and transferred directly to the museum or to its storage facilities. Each inscription is accompanied by the inventory number assigned by the *Soprintendenza alle Antichità del Veneto*.
- **Dating:** these inscriptions can be roughly dated between the third and the end of the fifth century, but only a few of them can be dated precisely. Among these are the epigraphs of Emperor Julian and of *Manio*.²²⁰ Dating relies primarily on palaeographic comparison with these two anchors to propose a chronology that remains necessarily approximate.
- **Prosopography:** available evidence is limited, as the majority of individuals mentioned are ordinary persons otherwise unattested in literary or historical sources.
- **Bibliography:** crucial are Bertolini's reports in the *Bullettino dell' Instituto di Corrispondenza Archeologica* and in the *Notizie degli Scavi*, where, in addition to the transcription of the inscriptions, the context of their discovery is also described. Mommsen visited Concordia in August 1876 during one of his journeys in Italy, but for the inscriptions discovered subsequently he relied on Bertolini's transcriptions. Other epigraphic *corpora* that have dealt with some of the inscriptions from the necropolis are the *ILS* and the *ILCV*, which are based chiefly on what was reported by Mommsen. Between the 1940s and the 1970s of the twentieth century, particularly significant were the contributions of Paolo Lino Zovatto and Giovanni Battista Brusin; the former was appointed curator of the *Museo Nazionale Concordiese at Portogruaro* in 1945, while the latter was one of the founders of the *Associazione Nazionale per Aquileia*. More recently, Giovanni Lettich included the inscriptions from the burial ground in two collections: *Le iscrizioni sepolcrali tardoantiche di Concordia* (1983) and *Le iscrizioni romane di Iulia Concordia* (1994).

²²⁰ *CIL* V 8658 + *CIL* V 8987; *CIL* V 8768.

Furthermore, the following data was gathered by the autopsy carried out by the present author in 2024 and his studies:

- **Measurements of the monument:** the measurements were taken personally in the Museo Nazionale Concordiese at Portogruaro or in its associated storage facilities. With the exception of the *arcae* of *Firmina* and *Vassius*, the measurements that can be provided correspond only to the portion of the sarcophagus that was cut off and built into the museum.
- **Palaeographic analysis:** the most noteworthy palaeographic features, like peculiar shapes of the letters that differ from the standard imperial ones and ligatures, were recorded and will be provided in the digital files.

3.3 Structure of the XML Files for This Project

The XML files of this project follow the TEI EpiDoc Schema. Their structure consists of an enriched version of the basic EpiDoc template.

Particular attention was paid to the individuals mentioned in the inscriptions, as well as to the recording of an interpretative transcription and a detailed apparatus.

The files comprise three main elements: `<teiHeader>`, which contains document metadata; `<facsimile>`, where the URL of the inscription's image is encoded; and `<text>`, containing the transcription, critical apparatus, translation, commentary, and bibliography.

3.3.1 Metadata - `teiHeader`

In `<publicationStmt>`, the id number of TrisMegistos (tm), EDR (edr) and Ubi Erat Lupa (uel) are present. Trismegistos is essential because it serves as a global aggregator that assigns a stable and permanent ID to epigraphic records, ensuring interoperability

between digital databases and providing a "universal key" to uniquely identify the inscription across the international scholarly community.

```
<publicationStmt>
  <authority>Università Ca' Foscari Venezia</authority>
  <idno type="filename">Vassio.xml</idno>
  <idno type="tm">125662</idno>
  <idno type="edr">EDR097921</idno>
  <idno type="uel">29333</idno>
</publicationStmt>
```

Listing 1 - Publication identifiers in <publicationStmt>: the file is linked to external databases through persistent identifiers for Trismegistos (@type="tm"), Epigraphic Database Roma (@type="edr"), and Ubi Erat Lupa (@type="uel")

The organisation that preserves the inscriptions, always corresponding to the Museo Nazionale Concordiese di Portogruaro, and their inventory number is shown in <msIdentifier>.

```
<msIdentifier>
  <repository>
    <orgName type="museum" ref="#museo-concordiese">
      <name>
        Museo Nazionale Concordiese di <settlement
ref="#portogruaro">Portogruaro</settlement>
      </name>
    </orgName>
  </repository>
  <idno type="inventory">401</idno>
</msIdentifier>
```

Listing 2 - Physical location in <msIdentifier>: the repository is identified through a reference to the Museo Nazionale Concordiese di Portogruaro, with the inventory number recorded in <idno>.

In <history> are recorded the movements and locations of the monument rather than a historical analysis of people mentioned in the inscription. In <origin> is encoded the place of origin and its date, whereas in <provenance type="found"> its findspot; excluding fragmentary inscriptions and reused materials, in the Eastern Necropolis of Concordia the place of origin of the inscriptions corresponds to their find spot. However, in the latter element are also present x and y coordinates, even though they don't represent the absolute original position of the sarcophagus, but their relative location in the plan

created by Bon in 1879. In `<provenance type="observed">` was added the exact date and place where the autopsy of the inscription was performed. Furthermore, the date in `<origDate>` is justified with the attribute evidence. Despite the existence of more accurate terms (palaeography, prosopography, onomastics, etc.), for reasons of compliance and interoperability, only a reduced list of standard value is used (context, internal-date, lettering, nomenclature, prosopography, reign, titulature).

In `<physDesc>` are nested elements required to describe the physical object. Within it, there are `<objectDesc>`, `<handDesc>` and `<decoDesc>`.

`<objectDesc>` contains a description of physical components of the monument. It includes the monument types, materials, and its conditions. The absolute dimensions of the monument are encoded in `<supportDesc>`, while the ones of the inscribed field are added in `<layoutDesc>`.

`<handDesc>` is the element focused on the letters, script and writing style. In it the minimum and maximum height of the letters are recorded and a palaeographic analysis as a note is added whenever there are peculiarities which differs from the standard script of a roman imperial inscription.

In `<decoDesc>` the figurative apparatus is described, whenever there is any decoration. The majority of the supports of the inscriptions analysed in this project are frontal panel removed from their sarcophagi; thus, it is also added the decorations present on the *arca* whenever there is a written witness Bertolini.

`<particDesc>` describes persons named or otherwise referred to in a text, edition, or metadata. One among the main focuses of this project is to valorise people mentioned in the inscriptions and their relationships. Thus, in `<listPerson>` there is a detailed record of each person with their full name, each onomastic element, their gender, occupation, their role in the monument commission, either as dedicator, deceased or both (dedicator/deceased), and their relationships with other people mentioned in the Eastern Necropolis.

```

<particDesc>
  <listPerson>
    <person xml:id="vassio">
      <persName>
        <name type="full">Vassio</name>
        <name type="cognomen" nymRef="celtic">Vassio</name>
      </persName>
      <gender>m</gender>
      <note type="occupation" ana="#soldier">soldier</note>
      <note type="rank" ana="#campidoctor">campidoctor</note>
      <note type="numerus">Batavi</note>
      <note type="role">deceased</note>
      <note type="relationship" corresp="#suandacca">husband</note>
    </person>
    <person xml:id="suandacca">
      <persName>
        <name type="full">Suandacca</name>
        <name type="cognomen" nymRef="celtic">Suandacca</name>
      </persName>
      <gender>f</gender>
      <note type="occupation">civil</note>
      <note type="role">dedicator</note>
      <note type="relationship" corresp="#vassio">wife</note>
    </person>
  </listPerson>
</particDesc>

```

Listing 3 - Prosopographic data in <particDesc>, with the entries of Vassio and Suandacca, each with only a cognomen.

```

<person>
  <persName xml:id="maflorentius">
    <name type="full">Marcus Aterius Florentius</name>
    <name type="praenomen">Marcus</name>
    <name type="nomen">Aterius</name>
    <name type="cognomen" nymRef="latin">Florentius</name>
    <name type="gens">Ateria</name>
  </persName>
  <gender>m</gender>
  <note type="occupation">civil</note>
  <note type="role">dedicator/deceased</note>
  <note type="relationship" corresp="#valeria">husband</note>
</person>

```

Listing 4 – The entry of Marcus Aterius Florentius, an example of tria nomina.

<encodingDesc> documents the relationship between an electronic text and the source or sources from which it was derived. It includes taxonomic data for selected categories to facilitate data integration, reuse, and interoperability with external projects and databases. The taxonomies currently implemented cover:

- **Places (geographic locations):** including ancient sites and modern museums, linked to Trismegistos (TM), Digital Atlas of the Roman Empire (DARE), Getty Thesaurus of Geographic Names (TGN), and Virtual International Authority File (VIAF).
- **Decoration (epigraphic ornaments):** such as chi-rho and hedera, linked to EAGLE Vocabularies (EAGLE) and Getty Art & Architecture Thesaurus (AAT).
- **Military ranks (late Roman hierarchy):** including ranks such as *tribunus*, *protector domesticus*, *centenarius*, and others, linked to Latin Lexicon and, where available, Wikidata.
- **Occupation (professional categories):** including military personnel and *fabricenses*, linked to AAT and Latin Lexicon.

Due to time and resource constraints, the current implementation is limited in scope and could be significantly expanded in future iterations. Furthermore, specialised late Roman military vocabulary often lacks representation in general-purpose authority files. For instance, the military rank of senator has no correspondence in standard databases, as existing entries refer exclusively to the civic/political office of senator. Similarly, many late Roman military units (*numeri*) mentioned in the inscriptions are not represented in these resources. Creating a comprehensive taxonomy of these units would require extensive research and access to specialised prosopographic databases, although this could represent a significant area for future expansion, through the creation of a new database dedicated to the *numeri*. Overall, the current implementation, while necessarily limited, provides a foundation for future integration with the semantic web and ensures that the data remains open, reusable, and interoperable with both existing and emerging digital projects in epigraphy and ancient history.

```

<taxonomy xml:id="places">
  <category xml:id="concordia">
    <catDesc>
      <term xml:lang="la">Iulia Concordia</term>
      <ref type="tm" target="https://www.trismegistos.org/place/12269">
        <idno>12269</idno>
      </ref>
      <ref type="dare" target="https://imperium.ahlfeldt.se/places/10645.html">
        <idno>10645</idno>
      </ref>
      <ref type="viaf" target="https://viaf.org/en/viaf/148456131">
        <idno>148456131</idno>
      </ref>
    </catDesc>
  </category>
  <category xml:id="portogruaro">
    <catDesc>
      <term xml:lang="en">Portogruaro</term>
      <ref type="tgn"
target="https://www.getty.edu/vow/TGNFullDisplay?find=Portogruaro&place=
&nation=&prev_page=1&english=Y&subjectid=7003045">
        <idno>7003045</idno>
      </ref>
      <ref type="viaf" target="https://viaf.org/en/viaf/148456131">
        <idno>148456131</idno>
      </ref>
    </catDesc>
  </category>
  <category xml:id="museo-concordiese">
    <catDesc>
      <term xml:lang="en">National Concordiese Museum of Portogruaro</term>
      <ref type="viaf" target="https://viaf.org/en/viaf/124364831">
        <idno>124364831</idno>
      </ref>
    </catDesc>
  </category>
</taxonomy>

```

Listing 5 - A taxonomy element dedicated to places.

3.3.2 Image of the Inscription - facsimile

As the facsimiles, images were taken from the *Ubi Erat Lupa* website and by kind permission of the Museo Concordiese Nazionale di Portogruaro.²²¹

3.3.3 Text of the Document - text

In EpiDoc, <text> contains five main <div> elements, with the following attribute types: edition, apparatus, translation, commentary, and bibliography.

In <div type="edition">, an interpretative transcription is recorded, using appropriate TEI/EpiDoc elements instead of traditional diacritical marks. Other elements are also considered, such as personal names in <persName> and eventual comminatory formulae in <measure type="fine">.

```
<div type="edition" xml:lang="la">
  <div type="textpart" subtype="side_of_the_lid">
    <ab>
      <lb n="1"/><g ref="#chi-rho"/>
    </ab>
  </div>
  <div type="textpart" subtype="chest" n="b">
    <ab>
      <lb n="1"/>Arca<surplus>m</surplus> ...
      <lb n="3" break="no"/>numeri ... sepe
      <lb n="3">livit
    </ab>
  </div>
</div>
```

Listing 6 - The structure of the encoded transcription.

²²¹ *Ubi Erat Lupa – Image Database of Ancient Stone Monuments*, available at <https://lupa.at/>, accessed 3 February 2026.

```

<measure type="fine" unit="solidus" quantity="25">
  <expan><abbr>sol</abbr><ex>idos</ex></expan> <num value="25">XXV</num>
</measure>

```

Listing 7 - Encoding of a fine.

In `<div type="apparatus">` is recorded the apparatus criticus, which provides different interpretations of the text in other critical editions whenever they exist.

```

<app loc="3" from="#w2" to="#w3">
  <lem>
    coniux Suandacca
  </lem>
  <rdg source="#ilcv457">
    coniux<surplus>s</surplus> Vandacca
  </rdg>
</app>

```

Listing 8 - An <app> in the critical apparatus, with a diverging interpretation of two words.

A translation of the text and a historical and prosopographic commentary is provided in `<div type="translation">` and `<div type="commentary">`. Eventual sources are added in the commentary in parentheses.

A bibliography is provided in `<div type="bibliography">` with links to the Master Bibliography.²²² Only sources with the transcription of the inscription are considered. Any other sources are eventually added in the commentary

²²² The **master bibliography** (`bibliography/master_bibliography.xml`) is a single TEI XML file that serves as the centralised bibliographic authority for the entire project. Each entry carries a unique `@xml:id`, which is referenced from the individual inscription files through `<ref target="">` elements. This architecture avoids the duplication of bibliographic data across files, ensures that any correction or addition to a reference is automatically propagated to all inscriptions that cite it, and keeps the entire *corpus* self-contained within the same format and repository. An alternative approach would be to link to an external bibliographic manager such as Zotero via persistent identifiers; while this was not implemented in the current project, it would offer additional interoperability and remains a viable option for future development within a Linked Open Data framework.

3.3.4 Elements Used in the Interpretative Transcription

EpiDoc provides a list of elements and attributes that allow for an interpretative description even more detailed than any diacritical system. These elements and attributes can be found on the EpiDoc website, with their corresponding diacritical marks where they exist.

However, the use of elements and diacritical marks is not always straightforward: an example is the choice between correcting one or more letters and showing the original, non-normalised word. Since some words diverging from classical Latin are particularly common in the Eastern Necropolis of Concordia, such as *propio* instead of *proprio* and *comparavi* instead of *comparavi*, it is possible to conclude that they were regional variations rather than mistakes. It is good practice to show them in the transcription, since they provide fundamental evidence for linguistic study.

In the following table, the TEI/EpiDoc elements used in the transcriptions are presented alongside their corresponding Krummrey-Pancierera diacritical marks:

Table 4. TEI/EPIDOC ELEMENTS FOR TRANSCRIPTIONS

Description	Krummrey-Panciera 1991	Elements
Word divided across lines.	ab= c	<lb n="6"/>ab<lb n="7" break="no"/>c
Uninterpreted characters (Leiden uppercase).	ABC	<orig>abc</orig>
Ambiguous characters (Leiden underdot).	ḁḃḥ	<unclear>abc</unclear>
Text visible to previous editor	<u>abc</u>	<supplied reason="lost" evidence="previouseditor">abc</supplied>
Apices and other ancient diacritics.	á, é, í, ó, ú	<hi rend="apex">a</hi>, <hi rend="apex">e</hi>, <hi rend="apex">i</hi>, <hi rend="apex">o</hi>, <hi rend="apex">u</hi>
Supralinear lines, etc.	ā, ṽ	<hi rend="supraline">abc</hi>, <hi rend="supraline">V</hi>
Ligatures.	âb, âbc	<hi rend="ligature">ab</hi>, <hi rend="ligature">abc</hi>
Erased but legible text.	[abc]	<del rend="erasure">abc
Erased and lost.	[[...]]	<del rend="erasure"><gap reason="lost" quantity="3" unit="character"/>
Text struck over erasure.	«abc»	<subst> <add place="overstrike">abc</add> def </subst>
Text added by ancient hand.	`abc`	<add>abc</add>

Text added by ancient hand (above).	<code>`abc`</code>	<code><add place="above">abc</add></code>
Text added by ancient hand (below).	<code>`abc`</code>	<code><add place="below">abc</add></code>
Restored text.	<code>[abc]</code>	<code><supplied reason="lost">abc</supplied></code>
Uncertainly restored text.	<code>[abc?]</code>	<code><supplied reason="lost" cert="low">abc</supplied></code>
Lost characters, quantity known.	<code>[...]</code>	<code><gap reason="lost" quantity="3" unit="character"/></code>
Lost characters, quantity unknown.	<code>[- - -]</code>	<code><gap reason="lost" extent="unknown" unit="character"/></code>
Lost lines, quantity known.	<code>[- - - - -]</code> <code>[- - - - -]</code>	<code><gap reason="lost" quantity="2" unit="line"/></code>
Lost Lines, Quantity Unknown.	<code>-----</code>	<code><gap reason="lost" extent="unknown" unit="line"/></code>
	<code>-----?</code>	<code><gap reason="lost" extent="unknown" unit="line"> <certainty match=".." locus="name"/> </gap></code>
Superfluous characters.	<code>{abc}</code>	<code><surplus>abc</surplus></code>
Supplement of omitted characters.	<code><abc></code>	<code><supplied reason="omitted">abc</supplied></code>
Correction of erroneous characters.	<code>'abc'</code>	<code><choice> <corr>abc</corr> <sic>def</sic> </choice></code>
Abbreviation fully expanded.	<code>a (bc)</code>	<code><expan> <abbr>a</abbr> <ex>bc</ex> </expan></code>
Abbreviation uncertainly expanded.	<code>a (bc?)</code>	<code><expan>a<ex cert="low">bc</ex></expan></code>

Abbreviation not expanded at all.	a(---)	<abbr>a</abbr>
	(abc)	
Editor makes "subaudible" word manifest.	(scil. abc)	<supplied reason="subaudible">abc</supplied>
Text not completed (omission not restored)	<--->	<gap reason="omitted" extent="unknown" unit="character"/>
Regularization of dialect or late spellings, etc.	abc (!)	<choice> <reg>def</reg> <orig>abc</orig> </choice>
Vacat, measured in characters (horizontal space).	(vac. 3)	<space quantity="3" unit="character"/>
	(vac.)	<space quantity="unknown" unit="character"/>
Possible vacat.	(vac.?)	<space quantity="5" unit="character"> <certainty match=".." locus="name"/> </space>
Words omitted by editor.	...	<gap reason="ellipsis"/>
Numeral, value known.	V	<num value="5">V</num>
Symbols: Chi-rho.	((chi-rho))	<g ref="#chi-rho"/>

3.4 Advantages and Reusability of the XML Files

These files represent the outcome of a project that follows the FAIR principles (Findability, Accessibility, Interoperability, and Reusability):

- ✓ **Findability:** Metadata and data should be easy to find for both humans and computers. → The inclusion of persistent identifiers, such as Trismegistos (TM) and EDR, along with rich metadata concerning the typology, history, and location of the monument, provides the foundation for automated discovery. Additionally, taxonomic data linked to authority files (EAGLE, AAT, VIAF, Latin Lexicon, Wikidata) enhance discoverability across multiple databases and semantic web resources.
- ✓ **Accessibility:** Once the user finds the required data, they need to know how these can be accessed. Metadata must remain accessible even when the data are no longer available. → Even in the event of data or image loss, the XML files ensure metadata persistence, as they remain preserved and human-readable.
- ✓ **Interoperability:** Data need to be integrated with other data and interoperate with applications or workflows for analysis and processing. → The use of a standard language (TEI/EpiDoc), standardized attributes (e.g. `evidence="lettering"`), and controlled vocabularies (VIAF) makes these files broadly applicable across diverse datasets. The taxonomies for places, decorations, military ranks, and occupations facilitate data exchange and integration with external projects.
- ✓ **Reusability:** Metadata and data should be well-described so they can be replicated or combined in different settings. → Metadata are easily comprehensible to any scholar thanks to the TEI/EpiDoc standard and a rich variety of elements that describe the monument in detail, ensuring the files are fully reusable.

The application of these principles makes this project more open than other databases. Neither EDCS nor EDR offer downloadable TEI/EpiDoc files for individual inscriptions, despite XML being the standard format in digital epigraphy like EpiDoc. Although they represent valuable databases, the lack of a downloadable markup language with standard elements is an impediment for reusability.

The EAGLE website provides downloadable XML files according to the TEI/EpiDoc standard. However, they do not seem to be natively conceived as such, but rather a conversion from EDR records. The inscription of the soldier *Vassio* will be analysed as a case study.

The `<publicationStmt>` element is rich, containing ID of the same object in other platforms, enhancing findability and interoperability.

```
<publicationStmt>
  <authority>Epigraphic Database Roma</authority>
  <idno type="URI">http://www.edr-
edr.it/edr_programmi/res_complex_comune.php?id_nr=EDR097921</idno>
  <idno type="TM">125662</idno>
  <idno type="localID">EDR097921</idno>
  <availability>
    <licence target=" http://www.europeana.eu/rights/rr-f/">Reserved Rights
- Free access via Epigraphic Database Roma</licence>
  </availability>
</publicationStmt>
```

Listing 9 – The publicationStmt element in an EAGLE record.

In contrast, the element dedicated to the repository is insufficient and the inventory number is wrongly labeled as non-existing. Beyond the editor’s lack of data, a significant structural issue emerges: the inventory status (“Senza inv.”) is embedded as plain text within the `<repository>` element, rather than being isolated in a dedicated `<idno>` tag, a lack of data granularity that hinders traceability and automated harvesting.

```

<msIdentifier>
  <repository>Portogruaro (Venezia), Museo Nazionale Concordiese.
  Senza inv.</repository>
  <collection/>
  <idno/>
</msIdentifier>

```

Listing 10 – The msIdentifier element in an EAGLE record.

Transcription is made with the proper TEI/EpiDoc elements. However, linebreaks are used improperly: even the sentence that show place of the text of the inscription, such as <:in operculi latere> (“on the side of the lid”) is recorded as a numbered line of the inscription. Furthermore, the parts of the text are not divided in separated <div> elements; thus, the numeration of the lines does not reset with the changing of the text or support.

```

<div type="edition" xml:lang="la">
  <head>Text</head>
  <ab>
    <lb n="1"/> <:in operculi latere>
    <lb n="2"/><g type="christogramma"/>
    <lb n="3"/> <:in arca>
    <lb n="4"/><choice><sic>Arcam</sic><corr>arca</corr></choice>
    ...
  </div>

```

Listing 11 - Transcription of an inscription in an EAGLE record.

The critical apparatus is presented according to the EDR standard, showing the reference edition for the transcription and identifying the specific lines where the editor’s modifications differ from that source, marked as “emendavit”. Although this system is clear and efficient for an online record, the absence of a rich critical apparatus and the lack of linking between variations and the transcription represent a clear obstacle to

reusability. This file cannot be used for purposes outside of online records, such as critical editions, without a heavy addition of further data.

```
<div type="apparatus">  
  <p> Textus secundum (1) (6), contulit ad apographum (1) et emendavit (vv.  
  1, 3) Baldassarra a. 2007 </p>  
</div>
```

Listing 12 - Apparatus in an EAGLE record.

The comparison with other databases revealed a general lack of XML files in a TEI/EpiDoc standard that are natively created as such. Therefore, this project does not propose itself merely as a work of data enrichment but also entails the creation of proper born-digital critical editions that do not exist in the main digital epigraphic databases.

4. ACCESSIBILITY, VISUALISATION AND WEB PRESENTATION

As discussed in the previous section, this project resulted in the creation of enriched XML files encoded according to TEI/EpiDoc guidelines. These files already constitute valuable documentation for specialists in the field. However, their consultation requires an adequate level of expertise in epigraphy, XML, and EpiDoc.

The next step is to make these files openly available and accessible. Moreover, since the aim of this project is to address both scholars and non-specialist users, a visualisation layer is necessary. Data must be presented and structured according to academic standards, while also remaining understandable to a broader audience.

Several technical solutions are possible, but the creation of a GitHub repository provides an effective infrastructure for accessibility, version control, and dissemination. The repository hosts the XML source files and supports a reproducible publication workflow, while the actual visualization is handled through an automated transformation pipeline that converts the encoded data into HTML web pages. This approach ensures that the data remain both machine-readable in their original TEI/EpiDoc form and human-readable through the generated website.

4.1 From Encoding to Visualisation: A Data-Driven Approach

Data visualisation is a direct outcome of the work carried out on the inscriptions, which constitutes the core of this project. The visualisation layer must therefore provide a reliable means of presenting the XML files without interpretative alteration, so that users can form a clear understanding of how the data are stored in the original sources and how they are structured. To follow this principle, the XML files are treated as the sole authoritative data source and are processed exclusively through formal transformations into other markup languages. These transformations do not introduce additional content or modify the underlying data but only convert their encoded structure into a readable presentation format.

For this project, the visualisation layer is produced through an automated conversion into HTML. This format was chosen because it is stable, widely supported, and suitable for long-term web dissemination, while remaining fully compatible with a workflow driven by structured markup. Rather than relying on generic stylesheets, a custom XSLT was developed specifically for this project to ensure a transformation that is as faithful as possible to the encoded data and fully aligned with the project's scholarly and editorial objectives.

XSLT functions here as a declarative transformation language, converting the encoded XML structures into readable HTML output without altering their semantic value. The transformation changes the syntax of representation but not the meaning of the encoded information. For example, EpiDoc elements used in the interpretative transcription are rendered as Krummrey–Panciera diacritical signs in the HTML output: although the notational system differs, their scholarly function and semantic value remain unchanged. In this way, the visualisation layer translates structured markup into a readable format while preserving full fidelity to the source data and avoiding the introduction of additional editorial decisions.

This ensures that the visualisation remains fully traceable to the encoded source, reinforcing both reproducibility and scholarly reliability.

4.2 Structure of the Repository

The project is hosted in a single GitHub repository that serves a dual function: it stores the source data and the transformation tools, and it generates the public website through an automated pipeline. The directory structure reflects a clear separation between source files, processing scripts, and published output.

At the root level, the `inscriptions/` directory contains the TEI/EpiDoc XML files, one per inscription. These are the authoritative source data of the project and the only files that need to be edited when updating or expanding the corpus. The `bibliography/` directory holds `master_bibliography.xml`, the centralised bibliographic file from which both the bibliography and the corpora and databases pages are generated.

The `xslt/` directory contains the three XSLT 2.0 stylesheets responsible for transforming the XML sources into HTML: `epidoc-to-html.xsl` for the individual inscription pages, `bibliography-to-html.xsl` and `corpora_databases-to-html.xsl` for the two reference pages. The `scripts/` directory houses the Python scripts that orchestrate these transformations and generate the aggregate pages: `transform.py`, `transform_bibliography.py`, and `transform_corpora_databases.py` apply the corresponding stylesheets, while `generate_list.py`, `people.py`, and `generate_map.py` produce, respectively, the inscription index, the prosopographic catalogue, and the interactive map.

The `docs/` directory contains the entire published website. Its internal structure mirrors the navigation of the site: `pages/inscriptions/` holds the generated HTML pages for each inscription, `pages/references/` the bibliography and *corpora* pages, and `pages/context/` the static contextual pages. The `css/` subdirectory contains the shared stylesheet, while `images/` is organised into three subdirectories: `inscriptions/` for the photographs of the epigraphic monuments, `plan/` for the 1879 planimetry of the necropolis used as the base layer of the interactive map, and `silhouette/` for the icons employed in the prosopographic catalogue.

Finally, `.github/workflows/deploy.yml` defines the GitHub Actions workflow that automates the entire pipeline, and `requirements.txt` lists the Python dependencies needed for execution. The `README.md` file provides a general description of the project.

This organisation ensures that the relationship between source, transformation, and output is immediately legible. A scholar wishing to reuse the XML data can access them directly in `inscriptions/`; one wishing to modify the presentation layer can edit the stylesheets or the scripts without touching the source files; and the automated workflow guarantees that any change is consistently propagated to the published site.

```
EasternNecropolisofConcordia_EpiDoc_project/
├── .github/workflows/
│   └── deploy.yml — CI/CD workflow
├── bibliography/
│   └── master_bibliography.xml — centralised bibliographic source
├── docs/ — published website
│   ├── css/
│   │   └── style.css
│   ├── images/
│   │   ├── inscriptions/ — photographs of the monuments
│   │   ├── plan/ — 1879 planimetry
│   │   └── silhouette/ — icons for the prosopographic catalogue
│   ├── pages/
│   │   ├── context/ — static contextual pages
│   │   ├── inscriptions/ — generated inscription pages
│   │   ├── references/ — bibliography & corpora pages
│   │   ├── inscriptions.html — inscription index
│   │   ├── krummrey-panciera_epidoc.html
│   │   ├── map.html — interactive map
│   │   └── people.html — prosopographic catalogue
│   └── index.html — home page
├── inscriptions/ — TEI/EpiDoc XML source files
├── scripts/ — Python transformation scripts
│   ├── generate_list.py — inscription index generator
│   ├── generate_map.py — interactive map generator
│   ├── people.py — prosopographic catalogue generator
│   ├── transform.py — main XSLT transformation
│   ├── transform_bibliography.py
│   └── transform_corpora_databases.py
├── xslt/ — XSLT 2.0 stylesheets
│   ├── bibliography-to-html.xsl
│   ├── corpora_databases-to-html.xsl
│   └── epidoc-to-html.xsl — main inscription stylesheet
├── README.md
└── requirements.txt — Python dependencies
```

Figure 28 - Directory structure of the GitHub repository. Key directories are highlighted.

4.3 XSLT Transformation of the Inscriptions

The transformation of TEI/EpiDoc files into HTML is performed through a custom XSLT 2.0 stylesheet (`epidoc-to-html.xsl`), designed specifically for the *corpus* of this project. Unlike generic EpiDoc stylesheets, such as the one maintained by the EpiDoc community for general-purpose rendering, this stylesheet was developed to address the particular features of the Concordia inscriptions and to support the editorial decisions taken throughout the encoding process. It controls not only the rendering of the transcription but also the generation of the full-page structure, including metadata, the critical *apparatus*, translation, commentary, prosopography, and bibliography.

The most delicate aspect of the transformation concerns the interpretive transcription. As discussed in the previous chapter,²²³ the encoding process involved translating the Krummrey–Panciera diacritical conventions into their corresponding TEI/EpiDoc elements. The XSLT stylesheet now performs the reverse operation, converting those elements back into the diacritical marks that an epigraphist would expect to read. Although the XML files are born-digital editions and do not derive from a pre-existing printed text, the encoding was carried out with constant reference to the Krummrey–Panciera conventions, so that this return journey, from markup to diacritics, restores the very notation that informed the editorial choices in the first place. The stylesheet operates line by line, iterating over each `<lb>` element within the `<ab>` container: for every line break, the content that follows up to the next `<lb>` is processed through a set of templates operating in what XSLT defines as an "interpretive mode" for the interpretive transcription (`mode="interp"`). This mechanism ensures that each epigraphic convention is rendered according to Krummrey–Panciera standards without altering the underlying data.

²²³ Cf. § 3.4.4

```

<xsl:template match="tei:ab" mode="interp">
  <div class="ab-content">
    <xsl:apply-templates select="."//tei:lb[1]" mode="line-start"/>
  </div>
</xsl:template>

<xsl:template match="tei:lb" mode="line-start">
  <span class="line" n="{@n}">
    <xsl:variable name="lineContent">
      <xsl:apply-templates select="following-sibling::node()
        [not(self::tei:lb)
         and count(preceding-sibling::tei:lb)
          = count(current()/preceding-sibling::tei:lb) + 1]"
        mode="interp"/>
    </xsl:variable>

    <xsl:copy-of select="$lineContent"/>

    <!-- Add line-break marker if next line continues the word -->
    <xsl:if test="following-sibling::tei:lb[1]/@break = 'no'">
      <xsl:text>=</xsl:text>
    </xsl:if>
  </span>
  <xsl:apply-templates select="following-sibling::tei:lb[1]"
    mode="line-start"/>
</xsl:template>

```

Listing 13 - Line handling - The first template initiates the line-by-line rendering by selecting the first `<lb>` element within the `<ab>` container. The second template processes each line recursively: it collects all sibling nodes between the current `<lb>` and the next, applies the interpretive templates to them, appends the `=` sign if the following line continues an incomplete word (`@break="no"`), and then calls itself on the next `<lb>`, advancing through the inscription until all lines have been rendered.

```

<!-- Abbreviation expansion: (text) -->
<xsl:template match="tei:ex" mode="interp">
  <xsl:text></xsl:text>
  <xsl:apply-templates mode="interp"/>
  <xsl:if test="@cert = 'low'">
    <xsl:text>?</xsl:text>
  </xsl:if>
  <xsl:text></xsl:text>
</xsl:template>

```

Listing 14 - Abbreviation expansion - This template matches the `<ex>` elements, corresponding to the expansion of an abbreviation, and adds round brackets, according to Leiden and Krummrey-Panciera standard.

```

<!-- Supplied text (lost) -->
<xsl:template match="tei:supplied[@reason = 'lost']"
  mode="interp" priority="1">
  <xsl:text>[</xsl:text>
  <xsl:apply-templates mode="interp"/>
  <xsl:text>]</xsl:text>
</xsl:template>

```

Listing 15 - Supplied lost characters - This template matches the supplied elements with “reason='lost'” attribute, corresponding one or more lost characters, and adds square brackets, according to Leiden and Krummrey-Panciera standard. Since there are more specific templates, priority is low.

The stylesheet operates line by line, iterating over each <lb> element within the <ab> container: for every line break, the content that follows up to the next <lb> is processed through a set of templates operating in what XSLT defines as an "interpretive mode" (mode="interp"). This mechanism ensures that each epigraphic convention is rendered according to Krummrey-Panciera standards without altering the underlying data.

```

<xsl:variable name="isBrokenChoice"
  select="$lastElemBefore/ancestor-or-self::tei:choice[tei:reg and tei:orig]
  and normalize-space(string-join($textInBetween, ' ')) = ''"/>

<xsl:when test="$isBrokenChoice">
  <xsl:choose>
    <xsl:when test="contains($trimmed, ' ')">
      <xsl:value-of select="substring-
        before($trimmed, ' ')" />
      <xsl:text> (!)</xsl:text>
      <xsl:text> </xsl:text>
      <xsl:value-of select="substring-
        after($trimmed, ' ')" />
    </xsl:when>
    <xsl:otherwise>
      <xsl:value-of select="$trimmed" />
      <xsl:text> (!)</xsl:text>
    </xsl:otherwise>
  </xsl:choose>
</xsl:when>

<xsl:template match="tei:choice[tei:reg and tei:orig]"
  mode="interp">

```

```

<xsl:apply-templates select="tei:orig" mode="interp"/>
<xsl:if test="not($isWordBroken)">
  <xsl:text> (!)</xsl:text>
</xsl:if>
</xsl:template>

```

Listing 16 - Non-normalised forms – The first template matches <choice> elements containing a regularisation. It outputs the original, non-normalised form and appends the (!) marker only if the word is not broken across a line boundary. When the word is split, the marker is suppressed and its placement is delegated to the following template. The second template fires on the first text node after a line break marked with @break="no". It checks whether the preceding element belongs to a broken regularisation; if so, it completes the word and inserts the (!) marker immediately after it, before any subsequent text on the same line.

The second transformation of note concerns the linking between the transcription and other sections of the page. Words that carry an @xml:id attribute, indicating that they are discussed in the *apparatus criticus*, and personal names enclosed in <persName> with a @ref pointing to the prosopographic section, are rendered as interactive references. When a word has both a link to the *apparatus* and to a person record, as can occur with the first element of a name that also carries a textual variant, the stylesheet generates a dropdown element offering both links. This interactive layer is produced entirely by the XSLT transformation and does not rely on external scripts or libraries, keeping the output self-contained and lightweight.

```

<!-- Word with both apparatus and person reference: create dropdown -->
<xsl:template match="tei:w[@xml:id][ancestor::tei:persName[@ref]]"
  mode="interp">
  <span class="dropdown dual-reference">
    <button class="dropbtn word-with-refs">
      <xsl:apply-templates mode="interp"/>
    </button>
    <div class="dropdown-content">
      <a href="#{@xml:id}"> Apparatus</a>
      <a href="{ancestor::tei:persName[@ref][1]/@ref}"> Person</a>
    </div>
  </span>
</xsl:template>

```

Listing 17 - Dropdown - This template matches words that carry both an @xml:id (linking to the apparatus criticus) and an ancestor <persName> with a @ref (linking to the prosopographic record). It generates a dropdown offering both references, so that the user can navigate to either section from a single point in the transcription."

The *apparatus criticus* itself is transformed through a separate set of templates (mode="apparatus"), following the conventions adopted in the *Supplementa Italica* series: variants are arranged by line number, the inscribed text is rendered in uppercase with the substitution of U by V, approximating a diplomatic transcription, and each reading is attributed to the scholars who proposed it. Each <rdg> element is associated with its bibliographic source through the @source attribute; the stylesheet resolves these references against the bibliography section of the same file, generating hyperlinks that connect each variant to the corresponding editorial entry.

```
<!-- Convert text to uppercase and u→v for apparatus -->
<xsl:template match="text()" mode="apparatus" priority="1">
  <xsl:value-of select="upper-case(translate(., 'u', 'v'))"/>
</xsl:template>
```

Listing 18 *Apparatus Text* - This template converts all text nodes within the apparatus to uppercase and substitutes every occurrence of U with V, reproducing the quasi-diplomatic convention adopted for the critical apparatus.

The transcription is divided into distinct <div type="textpart"> elements whenever the inscription extends across different parts of the monument (for instance, the lid and the chest of a sarcophagus), so that line numbering restarts with each section. The stylesheet processes these divisions by generating labelled sub-sections with independent line sequences. This approach reflects the physical reality of the inscribed object more accurately than a single continuous numbering, which is one of the structural improvements over the EAGLE encoding discussed in the previous chapter.

Beyond the transcription, the stylesheet generates the metadata section by extracting information from the <teiHeader>: repository, inventory number, findspot, dating criteria, and autopsy data. External identifiers (Trismegistos, EDR, Ubi Erat Lupa) are rendered as hyperlinks. Where the <encodingDesc> provides taxonomic data linked to authority files (VIAF, TGN, DARE, EAGLE), these are presented through dropdown elements that allow the user to access the corresponding external records without leaving the page.

Symbols and glyphs are rendered through direct Unicode substitution: the chi-rho monogram (<g ref="#chi-rho"/>) becomes Ꝩ (U+2627), and the *hedera distinguens*

```

<!-- Symbols and glyphs -->
<xsl:template match="tei:g" mode="interp">
  <xsl:choose>
    <xsl:when test="@ref = '#chi-rho'">ϱ</xsl:when>
    <xsl:when test="@ref = '#cross'">†</xsl:when>
    <xsl:when test="@ref = '#hedera'">♣</xsl:when>
    <xsl:otherwise>
      ((<xsl:value-of select="substring-after(@ref, '#')"/>))
    </xsl:otherwise>
  </xsl:choose>
</xsl:template>

```

Listing 19 *Symbols and glyphs* - This template renders the three most common glyph references as dedicated Unicode characters — chi-rho (ϱ), cross (†), hedera (♣) — for immediate visual recognisability, while falling back to the Krummrey–Panciera convention of double round brackets for any other symbol.

(`<g ref="#hedera"/>`) becomes ♣ (U+2766). This choice ensures that the symbols remain accessible and searchable across different platforms and browsers.

The same stylesheet also handles the translation, commentary, and bibliography sections, processing TEI elements such as `<term xml:lang="la">`, rendered in italics, and `<ref>` elements, whose `@target` attributes are converted from `.xml` to `.html` extensions in order to maintain internal cross-referencing across the generated site.

```

<!-- Italicise Latin terms outside edition -->
<xsl:template match="tei:term[@xml:lang='la'][not(ancestor::tei:div[@type
  = 'edition'])]">
  <em>
    <xsl:apply-templates/>
  </em>
</xsl:template>

```

Listing 20 *Italicise Latin Terms* - This template italicises Latin terms marked with `@xml:lang="la"` whenever they appear outside the edition

4.4 The Python–Saxon Pipeline

The XSLT stylesheet described above requires an XSLT 2.0 processor, as it relies on features such as `tokenize()`, `analyze-string`, and regular expression matching that are not available in XSLT 1.0. While browser-based processors are limited to XSLT 1.0, server-side solutions offer the necessary capabilities. For this project, the transformation is executed through Saxon-HE, accessed via its Python binding SaxonC-HE (the `saxonche` library), which provides a convenient interface for integrating XSLT processing into a Python-based workflow.

The transformation pipeline is implemented through a set of Python scripts, each responsible for a specific output. The main script (`transform.py`) iterates over all XML files in the `inscriptions/` directory, applies the `epidoc-to-html.xsl` stylesheet to each file, and wraps the resulting HTML fragment in a complete page structure that includes the site's navigation bar and a link to the shared CSS stylesheet. The output is written to the `docs/pages/inscriptions/` directory, with each inscription receiving its own HTML page.

```
import os
from saxonche import PySaxonProcessor

def transform_xml():
    xml_dir = 'inscriptions'
    xslt_path = 'xslt/epidoc-to-html.xsl'
    output_dir = 'docs/pages/inscriptions'

    os.makedirs(output_dir, exist_ok=True)

    with PySaxonProcessor(license=False) as proc:
        xslt_proc = proc.new_xslt30_processor()

        if not os.path.exists(xslt_path):
            print(f"Error: {xslt_path} non found")
            return

        for filename in os.listdir(xml_dir):
            if filename.endswith('.xml'):
                xml_path = os.path.join(xml_dir, filename)
                output_filename = filename.replace('.xml', '.html')
                output_path = os.path.join(output_dir, output_filename)
```

```

    try:
        executable =
xslt_proc.compile_stylesheet(stylesheet_file=xslt_path)
        output = executable.transform_to_string(source_file=xml_path)

```

Figure 29 - Main transformation script (transform.py). For each XML file in the `inscriptions/` directory, the script compiles the XSLT stylesheet through Saxon-HE and transforms the source into an HTML string. The output is then wrapped in a full page template (including the site navigation bar and a link to the shared stylesheet) and written to the `docs/pages/inscriptions/` directory.

Two additional scripts handle the transformation of the master bibliography file (`bibliography/master_bibliography.xml`).

The first (`transform_bibliography.py`) applies `bibliography-to-html.xsl` to generate the bibliography page, while the second (`transform_corpora_databases.py`) applies `corpora_databases-to-html.xsl` to produce a separate page listing epigraphic *corpora*, prosopographic tools, and digital databases. Both scripts follow the same pattern: they load the XML source, apply the relevant XSLT stylesheet through Saxon, and embed the output in a page template with navigation.

```

import os
from saxonche import PySaxonProcessor

def transform_bibliography():
    script_dir = os.path.dirname(os.path.abspath(__file__))

    root_dir = os.path.dirname(script_dir)

    xml_path = os.path.join(root_dir, 'bibliography',
'master_bibliography.xml')
    xslt_path = os.path.join(root_dir, 'xslt', 'bibliography-to-html.xsl')
    output_dir = os.path.join(root_dir, 'docs', 'pages', 'references')
    output_path = os.path.join(output_dir, 'bibliography.html')

    os.makedirs(output_dir, exist_ok=True)

    if not os.path.exists(xml_path):
        print(f"ERROR: XML not found!")
        return

    header_html = """
<header>

```

```

        <h1 class="main_title">Digital Approaches to the Inscriptions of
        Iulia Concordia</h1>
        <nav class="navbar">
            <ul class="menu">

                # (navigation links omitted)

            </ul>
        </nav>
    </header>
    """

with PySaxonProcessor(license=False) as proc:
    xslt_proc = proc.new_xslt30_processor()
    try:
        executable = xslt_proc.compile_stylesheet(stylesheet_file=xslt_path)
        output = executable.transform_to_string(source_file=xml_path)

        full_page = f"<!DOCTYPE html><html lang='it'><head><meta
        charset='UTF-8'><link rel='stylesheet'
        href='../css/style.css'><title>Bibliography</title></head><body>{header_h
        tml}<main>{output}</main></body></html>"

        with open(output_path, 'w', encoding='utf-8') as f:
            f.write(full_page)
            print("Transformation completed successfully!")

    except Exception as e:
        print(f"Error during transformation: {e}")

if __name__ == "__main__":
    transform_bibliography()

```

Listing 21 – Bibliography transformation script (transform_bibliography.py). The script applies *bibliography-to-html.xsl* to the master bibliography XML file and embeds the result in a page template with the site navigation. The same pattern is followed by *transform_corpora_databases.py*, which applies a separate stylesheet to produce the corpora and databases page; the two scripts differ only in the XSLT file and the output path.

This separation of concerns, one stylesheet per output type, one script per transformation task, keeps the pipeline modular and easy to maintain. Adding a new inscription to the *corpus* requires only placing the XML file in the appropriate directory; the pipeline will process it automatically on the next execution.

4.5 Automated Generation of Aggregate Pages

The website comprises three types of pages. The majority are generated from individual XML files through the XSLT transformations described in section 4.3. A smaller group (the contextual pages under Study and Context) are written directly as static HTML, since their content is discursive and not structured as epigraphic records. Finally, three pages are generated by scripts that aggregate data extracted from all XML files in the *corpus*: the inscription index, the prosopographic catalogue, and the interactive map of the necropolis. These scripts use Saxon-HE's XPath processor to query specific elements from each file and assemble the results into composite HTML pages. What follows is a discussion of each.

4.5.1 The Inscription Index

The inscription index (`generate_list.py`) provides an alphabetical list of all encoded inscriptions, each linked to its corresponding HTML page. The script iterates over every XML file in the `inscriptions/` directory, extracts the title from `<titleStmt>` and the filename from `<idno type="filename">`, and compiles them into an ordered list. Since the page is regenerated at every pipeline execution, the index always reflects the current state of the corpus without requiring manual updates: adding a new inscription to the directory is sufficient for it to appear in the published list.

```
for filename in files:
    xml_path = os.path.join(xml_dir, filename)
    try:
        node = proc.parse_xml(xml_file_name=xml_path)
        xpath_processor.set_context(xdm_item=node)

        title_item = xpath_processor.evaluate(
            "//*[local-name()='titleStmt']/*[local-name()='title'][1]")
        idno_item = xpath_processor.evaluate(
            "//*[local-name()='idno'][@type='filename'][1]")

        if title_item is not None and title_item.size > 0:
            display_title = title_item.item_at(0).string_value.strip()
```

```

else:
    display_title = filename

    if idno_item is not None and idno_item.size > 0:
        target_link = "inscriptions/" +
idno_item.item_at(0).string_value.strip().replace('.xml', '.html')
    else:
        target_link = "inscriptions/" + filename.replace('.xml',
'.html')

    inscriptions_data.append({'title': display_title, 'link':
target_link})

```

Listing 22 - Generation of the inscription List. Core extraction loop of *generate_list.py*. For each XML file, the script queries the title and the filename identifier via XPath; if either is absent, it falls back to the file's system name. The resulting pairs are collected, sorted alphabetically, and assembled into the inscription index page.

4.5.2 The Prosopographic Catalogue

The prosopographic catalogue (*people.py*) represents the most substantial case of data aggregation and constitutes one of the distinctive features of this project. As discussed in the previous chapter,²²⁴ each XML file contains detailed records of the individuals mentioned in the inscription, encoded within `<listPerson>` in the `<particDesc>` element. The script extracts these records from all files in two passes. In the first pass, it collects the full names associated with each `@xml:id`, building a lookup table that will be used to resolve cross-references. In the second, it gathers the complete data for each individual, such as onomastic components, gender, occupation, military rank, role in the monument's commission, and family relationships, and merges entries that share the same `@xml:id` across different inscriptions, ensuring that a person attested in more than one epigraph appears as a single record with links to all relevant pages.

The output is a searchable page with one card per person. Each card displays the individual's onomastic elements (*praenomen*, *nomen*, *cognomen*, *gens*), the linguistic origin of the *cognomen*, where recorded, in the `@nymRef` attribute, gender, occupation, role, and family relationships rendered as internal links to other individuals in the

²²⁴ Cf. § 3.4.1.

catalogue. When a person appears in more than one inscription, all relevant pages are listed.

A visual element was introduced to improve accessibility: each card displays a silhouette icon that varies according to the individual's gender and occupation. Male figures are differentiated into soldiers, *fabricenses*, civil officials, and civilians, while female figures share a single silhouette. These icons serve as an immediate visual cue, making the catalogue more approachable for non-specialist users.

```
# All names
names_data = []
name_elements = xpath_processor.evaluate(
    "//*[local-name()='persName']/*[local-name()='name']")
if name_elements and name_elements.size > 0:
    for j in range(name_elements.size):
        name_elem = name_elements.item_at(j)
        name_type = name_elem.get_attribute_value("type") or "name"
        if name_type == "full":
            continue
        name_value = name_elem.string_value.strip()
        nymref = name_elem.get_attribute_value("nymRef")

        names_data.append({
            'type': name_type,
            'value': name_value,
            'nymref': nymref
        })

# Notes
notes_data = []
occupation = None
note_elements = xpath_processor.evaluate("//*[local-name()='note']")
if note_elements and note_elements.size > 0:
    for j in range(note_elements.size):
        n = note_elements.item_at(j)
        n_type = n.get_attribute_value("type") or "info"
        n_value = n.string_value.strip()
        corresp = n.get_attribute_value("corresp")

        notes_data.append({
            'type': n_type,
            'value': n_value,
            'corresp': corresp
        })
```

```

if n_type == "occupation":
    occupation = n_value

```

Listing 23 - Core data extraction from people.py. For each <person> element, the script queries all onomastic components — preserving their type (praenomen, nomen, cognomen, gens) and the linguistic origin recorded in @nymRef — then collects gender and the full set of notes, which encode occupation, military rank, role in the monument's commission, and family relationships with their @corresp cross-references. These structured records are subsequently assembled into the filterable catalogue.

Showing: 5/61

Filters

GENDER

Male (32)

Female (28)

Unknown (1)

GENS

Flavia (17)

Aurelia (6)

Ennia (4)

Valeria (2)

Aurelia? (1)

[± more](#)

ORIGIN

Latin (41)

Greek (5)

Celtic (3)

Germanic (3)

Unknown (2)

[± more](#)

OCCUPATION

Civil (49)

Soldier (5)

Fabricensis (3)

Functionary (2)

Aurelia Alexandria

NOMEN	Aurelia
COGNOMEN	Alexandria
ORIGIN (OF THE COGNOMEN ALEXANDRIA)	Latin
GENS	Aurelia
GENDER	Female
OCCUPATION	Civil
ROLE	Dedicator/deceased
RELATIONSHIP	Wife (→ Flavius Sopatrus)
INSCRIPTION(S)	The Epigraphy of Alexandria and Sopatrus

Aurelia Dionisia

NOMEN	Aurelia
COGNOMEN	Dionisia
ORIGIN (OF THE COGNOMEN DIONISIA)	Greek
GENS	Aurelia
GENDER	Female

Fig. 30 - People Filtering

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The page also implements a client-side filtering system, generated directly by the Python script as inline JavaScript. The data attributes attached to each card (data-gender, data-gens, data-origin, data-occupation, data-role, data-relationship) enable real-time filtering through a sidebar interface. Users can combine multiple criteria, for instance, selecting all female individuals of the gens Aurelia who appear as dedicators. The results update immediately without requiring a page reload. A free-text search field further allows filtering by name. This functionality is entirely driven by the structured data encoded in the XML source: it would not be possible without the granularity of the `<person>` records, demonstrating how careful encoding enables forms of querying and exploration that go well beyond what a printed catalogue or an unstructured database can offer.

4.5.3 The Interactive Map

The interactive map (`generate_map.py`) provides a spatial visualisation of the inscribed sarcophagi within the Eastern Necropolis. As noted in the previous chapter,²²⁵ each XML file records two coordinates, `plan_x` and `plan_y`, corresponding to the relative position of the sarcophagus on the planimetry drawn by Bon in 1879. These coordinates, encoded in the `<provenance type="found">` element, had so far served only as metadata; this script gives them a visual purpose.

The script parses all XML files, extracts the coordinates together with the inscription's title, the names of the individuals mentioned, and their occupations, and outputs a single HTML page built around the Leaflet.js mapping library. Rather than geographical tiles, the map uses Leaflet's `L.CRS.Simple` coordinate system, which allows the 1879 planimetry to be loaded as a raster image overlay. Each inscription is represented by a circle marker positioned at its recorded coordinates. Hovering over a marker displays a tooltip with the inscription's title, a thumbnail image, and the names of the individuals; clicking pins the card in place as a popup with a link to the full inscription page.

²²⁵ Cf. § 3.4.1

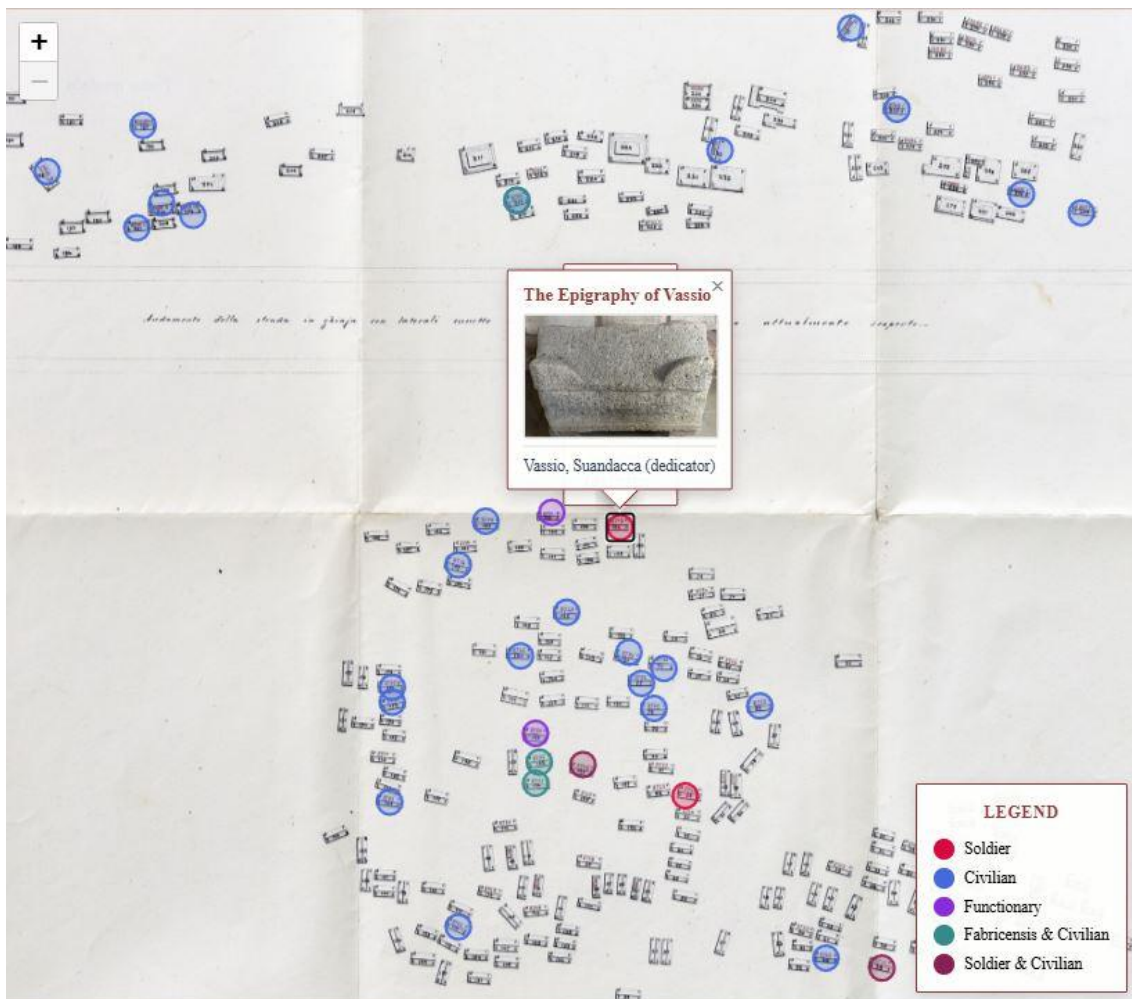


Fig. 31 - The interactive map of the Eastern Necropolis, with the sarcophagus of *Vassio* selected. Note the marker highlighted in red, the colour assigned to soldiers: *Vassio's* wife *Suandacca* appears only as the dedicator, not as a co-occupant of the burial, and the inscription itself makes no mention of the sarcophagus being intended for her as well.

The markers are colour-coded according to the occupation of the deceased: soldiers, *fabricenses*, civilians, functionaries, and mixed cases. For this classification logic, only individuals whose role includes "deceased" are considered, so that dedicators who were not buried in the sarcophagus do not affect the categorisation. A legend, generated dynamically from the categories present in the data, is displayed in the corner of the map.

As with the prosopographic catalogue, this visualisation is produced entirely from the XML source files and introduces no additional data. The map makes it possible to observe spatial patterns in the distribution of burials that would be difficult to discern from the textual records alone, like the clustering of military personnel or the proximity of family groups.

4.6 Deployment and Automation

The transformation pipeline described in the previous sections is executed automatically through GitHub Actions, a continuous integration service provided by the platform. The workflow, defined in `deploy.yml`, is triggered upon every push to the main branch: it installs the required dependencies, runs all Python scripts in sequence, and deploys the resulting HTML pages to GitHub Pages. In practical terms, updating an inscription or adding a new XML file to the *corpus* requires only a single commit; the entire site is regenerated and published within minutes, with no manual intervention.

The website is published as a static site. This choice is deliberate: static HTML pages require no server maintenance, no database, and no runtime dependencies. They can be archived, mirrored, or preserved with standard web archiving tools, a relevant consideration for the long-term availability of research outputs. Moreover, because the HTML is generated from XML through deterministic transformations, the relationship between source data and published output remains fully transparent and verifiable at every stage.

4.7 The Published Website

The result of the pipeline described in this chapter is a public website that presents the encoded inscriptions alongside their contextual documentation. A persistent navigation bar provides access to six sections: Home, Inscriptions, People, Map, Study and Context, and References, the last two organised as dropdown menus with sub-pages. An additional page, dedicated to the correspondence between Krummrey–Pancieria conventions and EpiDoc elements, was included as a reference tool for users unfamiliar with either system. The website is freely accessible at:

[https://easternnecropolisofconcordia.github.io/EasternNecropolisofConcordia_EpiDoc_project/index.html]

Each inscription page follows a consistent layout that mirrors the structure of the underlying XML file. A metadata section opens the page with repository, inventory number, external identifiers, findspot, dating criteria, and autopsy data. The physical

description follows, with monument type, material, dimensions, letter height, and an expandable palaeographic comment. Below, the image of the inscription precedes the interpretive transcription, which is rendered line by line with Krummrey–Panciera diacritical marks and interactive links to the *apparatus* and to the prosopographic records. The *apparatus criticus*, translation, and commentary follow the transcription, providing both rigorous scholarly analysis (*apparatus* and commentary) and an accessible guide for non-specialist readers (translation and commentary). The prosopographic cards and the bibliography close the page.

This structure ensures that the information can be navigated at different levels of detail: an epigraphist may proceed directly to the *apparatus*, a historian to the commentary and prosopography, a student to the translation and the image. The same data are always presented in the same position, so that familiarity with one inscription page transfers immediately to all others.

The website is, ultimately, only a presentation layer. The authoritative data remain in the XML files, which can be consulted, downloaded, and reused independently of their HTML rendering. What the visualisation layer adds is accessibility: it makes the encoded information legible to users who may not be familiar with TEI/EpiDoc, and it enables forms of interaction that would not be available from the source files alone, such as filtering the prosopographic catalogue, exploring the necropolis on the map, navigating between related inscriptions. In this sense, the transformation pipeline does not merely publish data; it activates them, making explicit the connections and patterns that structured encoding was designed to preserve.

CONCLUSION

This thesis has presented a digital edition of the inscriptions from the Eastern Necropolis of *Iulia Concordia*, from the autoptic analysis of the monuments to their encoding in TEI/EpiDoc XML and their publication as an open-access website. The project was conceived with the conviction that a rigorous encoding of epigraphic sources, grounded in direct observation and informed by the scholarly tradition, can produce outputs that serve both the specialist community and a broader public.

The starting point was the autoptic examination of the inscribed panels and sarcophagi preserved in the Museo Nazionale Concordiese at Portogruaro and in its storage facilities. Measurements, palaeographic observations, and the condition of each monument were recorded and subsequently encoded alongside the textual, prosopographic, and bibliographic data gathered from the existing scholarly literature, from Bertolini's nineteenth-century reports to Lettich's two collections. The result is a set of XML files that constitute born-digital critical editions: not digitisations of pre-existing printed texts, but original scholarly works created natively in a structured format.

These files follow the TEI/EpiDoc standard and incorporate persistent identifiers (Trismegistos, EDR, Ubi Erat Lupa) as well as references to authority files (VIAF, EAGLE Vocabularies, Getty AAT, Latin Lexicon, Wikidata), ensuring compliance with the FAIR principles of Findability, Accessibility, Interoperability, and Reusability. The comparison with existing digital resources has demonstrated the necessity of such an effort. EDR does not produce TEI/EpiDoc files, limiting the reusability of its records beyond the platform. EAGLE provides downloadable XML files in EpiDoc format, but these are not natively conceived as structured editions: they appear to be direct conversions from EDR records, carried out without the adaptations that the TEI/EpiDoc standard would require. This mechanical transposition results in undivided transcriptions, incorrect line numbering, descriptive notes embedded among the lines of the inscription, and unstructured repository information, issues that do not affect the EDR database in its own context, but that compromise the reusability of the files as standalone EpiDoc editions. The files produced in this project address these shortcomings, offering a level of

granularity and structural correctness that the main epigraphic databases do not currently provide.

The visualisation layer, generated through a fully automated pipeline of XSLT transformations and Python scripts, translates the encoded data into a public website without introducing additional content or editorial decisions. Each inscription page renders the TEI/EpiDoc markup as Krummrey–Panciera diacritical marks, preserving the scholarly conventions of the discipline while making the text accessible through a standard web browser. The critical *apparatus* follows the conventions of the *Supplementa Italica*, with readings arranged by line, rendered in uppercase, and attributed to the scholars who proposed them. An epigraphist can consult the transcription and the *apparatus*, a historian the prosopographic records and the commentary, a linguist the original forms, marked in the transcription, that preserve evidence of regional and late Latin variation, each finding the relevant information in a consistent and predictable position.

Beyond the individual inscription pages, the project offers two tools that exploit the structured nature of the encoded data in ways that would not be possible with unstructured records. The prosopographic catalogue aggregates the <person> records from all XML files into a searchable and filterable interface, where individuals can be queried by gender, gens, occupation, role, and family relationships. The silhouette icons, differentiated by gender and occupation and designed to evoke the clothing and lorica of the late antique period, provide an immediate visual cue that makes the catalogue approachable for non-specialist users. The interactive map positions the sarcophagi on the 1879 planimetry of the necropolis, colour-coded by the occupation of the deceased, making it possible to observe spatial patterns that would be difficult to discern from the textual records alone, such as the clustering of military burials and the proximity of family groups.

The entire project is hosted in a public GitHub repository that serves simultaneously as a data archive, a transformation pipeline, and a publication platform. The XML files can be downloaded, forked, and reused independently of their HTML rendering; the transformation scripts and stylesheets are openly available for inspection and adaptation; and the automated workflow ensures that any modification to the source data is propagated to the published site within minutes. This architecture makes the relationship

between source and output fully transparent, and it guarantees that the data will remain accessible even if the website itself should cease to be maintained.

At its core, this project is concerned with ordinary people. The inscriptions of the Eastern Necropolis record soldiers, *fabricenses* of the arrow factory, functionaries, and civilians of all ages and conditions, bound together by ties of kinship, friendship, and comradeship, individuals who left no trace in literary sources. A digital edition that makes their names searchable, their relationships navigable, and their burial places visible on a map is a small but concrete contribution to a history that attends not only to emperors and generals, but to the men and women who lived and died in a modest colony of north-eastern Italy, far from the centres of power whose history has been transmitted by ancient historiography.

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