

SunoikisisDC Spring 2025

# EpiDoc:

Digital editions of inscriptions and papyri

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# Overview

- What is epigraphy?
- What is EpiDoc?
- Leiden to TEI
- EpiDoc encoding
- EpiDoc case studies

What is epigraphy?

ΖΗΝΩΝΟΣ  
ΚΟΝΙΑΚΩΒ ΜΑΝΑΣΚΗΣ  
ΕΥΔΑΣΕΥΣΕΒΙΟΥ  
ΕΦΤΑΣΙΟΣΚΑΛΙΚΑΡΤΙΟΥ  
ΒΙΩΤΙΚΟΣ· ΙΟΥΔΑΣΑΝΦΡΑΝΟΣ  
ΕΥΓΕΝΙΟΣΧΡΥΣΟΧΟΟΣ  
ΓΕΡΑΣΙΜΟΣ· ΙΟΥΔΑΣΠΡΑΟΝΟΥ  
ΡΟΥΦΟΣ· ΟΥΣΥΧΟΛΙΟΣΓΕΡΩΝ  
ΑΜΑΝΤΙΟΣΧΑΡΙΝΟΥ· ΒΕΥΡΤΙΛΟΣ  
ΙΑΚΩΤΤΡΟΒΑΤΩΝ· ΣΕΒΗΡΟΣ  
ΕΥΟΛΟΣ· ΙΑΚΩΒΝΕΥΟΔΟΥ  
ΕΥΣΑΒΒΑΘΙΟΣΑΝΔΡΕΑΣ  
ΕΥΣΑΒΒΑΘΙΟΣΣΕΝΟΣ· ΜΙΛΩΝ  
ΟΥΣΥΧΟΛΙΟΣΝΕΩΤΕΡΟΣ









THIS STONE WAS LAID BY  
HIS MAJESTY KING GEORGE V  
ON THE TWENTY-SIXTH DAY OF JUNE 1933  
IN THE TWENTY-FOURTH YEAR OF HIS REIGN  
HER MAJESTY QUEEN MARY  
BEING PRESENT ON THE OCCASION

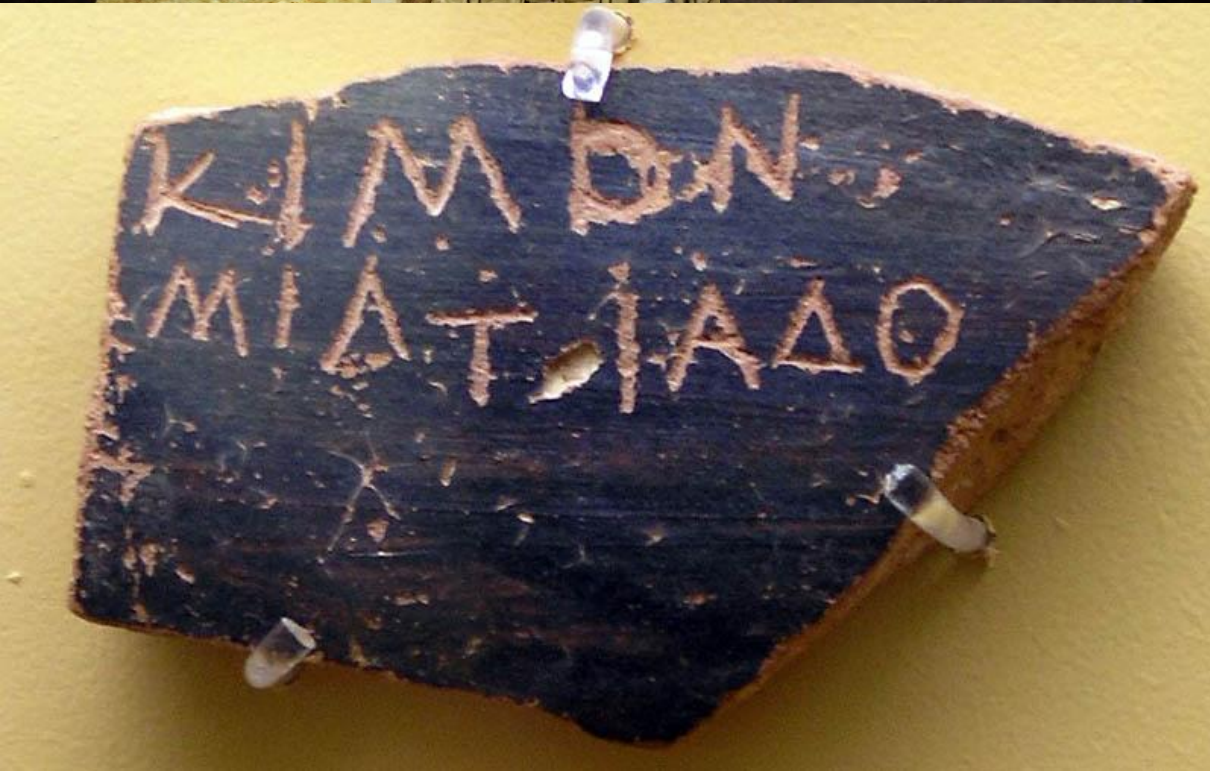












|                  |  |
|------------------|--|
| ...              | Illegible letters, not restored by editor.       |
| <b>ab</b>        | Letters ambiguous without their context.         |
| [...]            | Letters missing, not restored by editor.         |
| [ <b>abc</b> ]   | Letters missing, restored by editor.             |
| <...>            | Letters erroneously omitted, not restored.       |
| < <b>abc</b> >   | Letters erroneously omitted, restored by editor. |
| <b>a(bc)</b>     | Abbreviation expanded by editor.                 |
| { <b>abc</b> }   | Letters considered superfluous by editor.        |
| [[ <b>abc</b> ]] | Deletion which can be restored.                  |



What is EpiDoc?

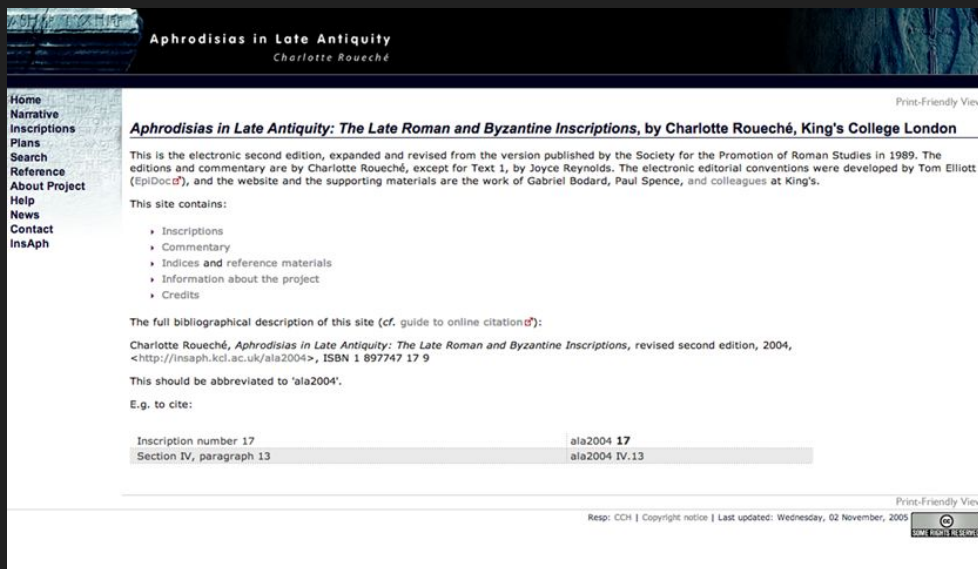
# EpiDoc

- Leading standard for encoding inscriptions, papyri and other primary and documentary texts
- Based on XML (eXtensible Markup Language)
- [TEI](#) sub-standard for epigraphy, papyrology, ancient documents in a broad sense (one of the most structured TEI sub-standards)
- Developed according to the recommendation of the EAGLE Commission for Epigraphy and Information technology (Panciera 1999) by Tom Elliott, Hugh Cayless, and Amy Hawkins (Ancient World Mapping Center), who published in 2000 the EpiDoc Guidelines Version 1



# EpiDoc History

- First projects: [Aphrodisias in Late Antiquity](#), [US Epigraphy Project](#), [Vindolanda Tablets](#)
- Beyond epigraphy: [Papyri.info](#) and the conversion tools
- [EAGLE Europeana](#) network



# EpiDoc Tools

- Guidelines: <https://epidoc.stoa.org/gl/latest/>
- Homepage: <http://epidoc.sf.net/>
- Schema: <http://www.stoa.org/epidoc/schema/latest/tei-epidoc.rng>
- Stylesheets: <https://github.com/EpiDoc/Stylesheets>
- Template: <https://epidoc.stoa.org/gl/latest/ex-epidoctemplate.xml?format=raw>
- Visualization/publication platform (EFES): <https://github.com/EpiDoc/EFES>
- Converters: [I.Sicily EpiDoc Viewer](#), [EpiDoc Converter](#) of the Patrimonium Project





## EpiDoc Guidelines: Ancient documents in TEI XML

EpiDoc is an international, collaborative effort that provides guidelines and tools for [encoding](#) scholarly and educational editions of ancient documents. These are the *Guidelines* produced by the collaborative. In addition, the [EpiDoc Website](#) provides access to all the tools and collaboration environments supported by the collaborative.

EpiDoc uses a subset of the [Text Encoding Initiative's](#) standard for the representation of texts in digital form using the [Extensible Markup Language \(XML\)](#), a technical standard promulgated by the [World-Wide Web Consortium](#). It addresses not only the transcription and editorial preparation of the texts themselves, but also the the history and materiality of the objects on which the texts appear.

These *Guidelines* contain descriptions of the textual, descriptive, and other features that are often expressed with EpiDoc, as well as the [TEI](#) elements and attributes that are used to encode them. The links below provide a number of entry points into the full document and should be thought of more as a series of thematic indexes into the content of the *Guidelines*, rather than a single "table of contents" that reflects an ordered, hierarchical document structure.

### Browse Guidelines

- [Introduction to the Guidelines](#)
- [Overview of EpiDoc structure](#)

#### *Full listing of guidelines pages:*

- [Descriptive and historical data](#)
- [Text transcription](#)
- [Vocabularies and indexing terms](#)

# EpiDoc Tools

- Guidelines: <https://epidoc.stoa.org/gl/latest/>
- Homepage: <http://epidoc.sf.net/>
- Schema: <http://www.stoa.org/epidoc/schema/latest/tei-epidoc.rng>
- Stylesheets: <https://github.com/EpiDoc/Stylesheets>
- Template: <https://epidoc.stoa.org/gl/latest/ex-epidoctemplate.xml?format=raw>
- Visualization/publication platform (EFES): <https://github.com/EpiDoc/EFES>
- Converters: [I.Sicily EpiDoc Viewer](#), [EpiDoc Converter](#) of the Patrimonium Project

# Welcome to EFES!

Now that you have EFES up and running, it's time to start building your project. Start with one of the options listed below and go from there.

## Add your TEI

Put your files in  
webapps/ROOT/content/xml/tei  
(TEI) or  
webapps/ROOT/content/xml/epidoc  
(EpiDoc) and go to the [admin](#) and  
index them for searching. Then see  
how they are displayed ([TEI](#) and  
[EpiDoc](#)).

## Customise the templates

Change the look of this site by  
modifying the templates in  
webapps/ROOT/assets/templates.  
The template for this page is  
home.xml, and it builds on the base  
template base.xml.

## Read the documentation

The system comes with  
documentation both [online](#) and, in  
source form, in the docs directory of  
your installation. It explains how you  
can modify everything about your  
project.

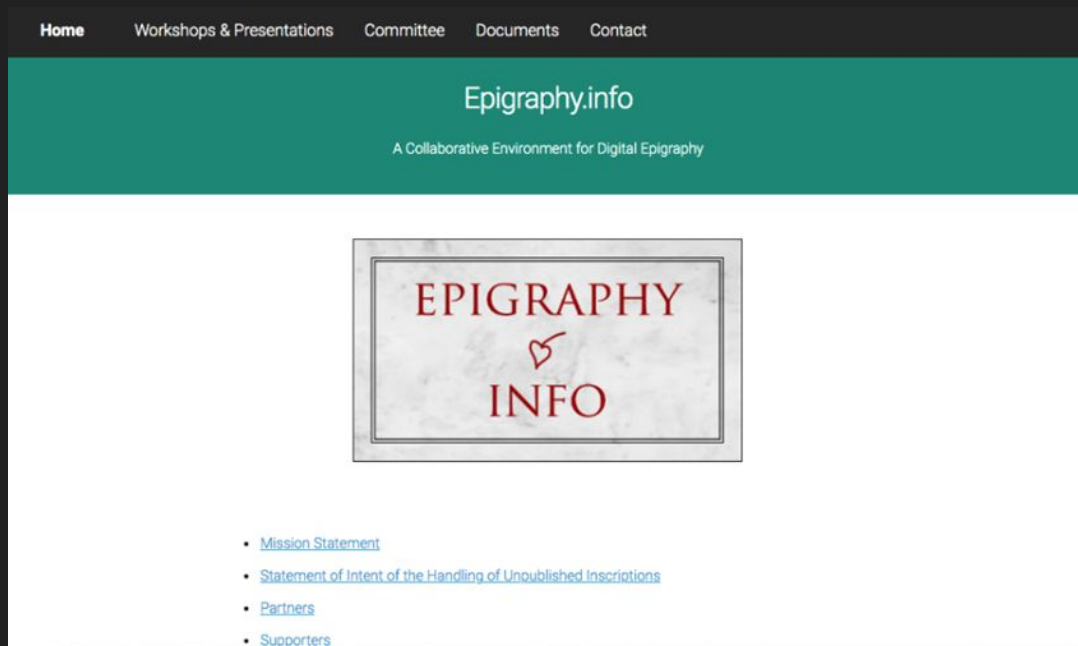


# EpiDoc Tools

- Guidelines: <https://epidoc.stoa.org/gl/latest/>
- Homepage: <http://epidoc.sf.net/>
- Schema: <http://www.stoa.org/epidoc/schema/latest/tei-epidoc.rng>
- Stylesheets: <https://github.com/EpiDoc/Stylesheets>
- Template: <https://epidoc.stoa.org/gl/latest/ex-epidoctemplate.xml?format=raw>
- Visualization/publication platform (EFES): <https://github.com/EpiDoc/EFES>
- Converters: [I.Sicily EpiDoc Viewer](#), [EpiDoc Converter](#) of the Patrimonium Project

# Keeping in touch with the EpiDoc community

- [Markup List](#)
- [Epigraphy.info](#) (controlled vocabularies, ontologies...)



# Structure of an EpiDoc Edition

<https://epidoc.stoa.org/gl/latest/supp-structure.html>

**<TEI>**

→ root element

**<teiHeader>...</teiHeader>**

→ descriptive & historical data

**<facsimile>...</facsimile>**

→ images

**<text>...</text>**

→ text, apparatus, translations,  
commentary, bibliography

**</TEI>**



# <text>: div[@type]

- **edition**
  - **textpart**
- **apparatus**
- **translation**
- **commentary**
- **bibliography**

<text>

<body>

<div type="edition">

<div type="textpart">...</div>

</div>

<div type="apparatus">...</div>

<div type="translation">...</div>

<div type="commentary">...</div>

<div type="bibliography">...</div>

</body>

</text>

# div[@type='edition']

```
<div type="edition" xml:lang="grc">
```

```
  <ab>
```

```
    <lb n="1"/>...
```

```
    <lb n="2"/>...
```

```
    <lb n="3"/>...
```

```
  </ab>
```

```
</div>
```

- @xml:lang is required (unless textparts have individual languages)
  - (see <http://iana.org/assignments/language-subtag-registry/>)
- all epigraphic/papyrological/etc. Text
  - contained in <ab>, <lg>/<l>, <p>, etc.
  - all Leiden sigla must be represented in EpiDoc

# div[@type='apparatus']

```
<div type="apparatus">  
  <listApp>  
    <app loc="1">...</app>  
    <app loc="2">...</app>  
  </listApp>  
</div>
```

- TEI app module designed for Lachmannian *apparatus criticus*
  - multiple witnesses
- epigraphic *apparatus criticus*
  - comment on letterforms
  - supplements, interpretations
  - previous editors



# div[@type='translation']

```
<div type="translation" xml:lang="en">  
  <p>...</p>  
  <p>...</p>  
</div>
```

- essentially the same rules as for edition
  - EpiDoc sigla, etc., but probably much less markup
    - simpler structure, silent expansion
- @xml:lang='en' | 'de' | 'fr' | 'it' | *etc.*
- @resp/@source
- @subtype='literal' | 'literary' | 'pedagogical' | *vel sim.*

# div[@type='commentary']

```
<div type="commentary">  
  <p>...</p>  
  <p>...</p>  
</div>
```

- mostly prose, discussion, commentary
- dating
- quoted text
- external references
- line-by-line comments

# div[@type='bibliography']

```
<div type="bibliography">  
  <listBibl>  
    <bibl>...</bibl>  
    <bibl>...</bibl>  
  </listBibl>  
</div>
```

- <listBibl>/<bibl>
  - links to master bibliography
  - free-standing content
- @subtype='principal' | 'derived' | 'discussion' | *etc.*



# <teiHeader>

<fileDesc>

<sourceDesc>...

<msDesc>...

<msIdentifier>Information about the repository in which the object is stored</msIdentifier>

<physDesc>Physical description of the object</physDesc>

<history>Ancient and modern history of the object</history>

</msDesc>

</source Desc>

</fileDesc>

Leiden to TEI

|                  |  |
|------------------|--|
| ...              | Illegible letters, not restored by editor.       |
| <b>ab</b>        | Letters ambiguous without their context.         |
| [...]            | Letters missing, not restored by editor.         |
| [ <b>abc</b> ]   | Letters missing, restored by editor.             |
| ⟨...⟩            | Letters erroneously omitted, not restored.       |
| ⟨ <b>abc</b> ⟩   | Letters erroneously omitted, restored by editor. |
| <b>a(bc)</b>     | Abbreviation expanded by editor.                 |
| { <b>abc</b> }   | Letters considered superfluous by editor.        |
| [[ <b>abc</b> ]] | Deletion which can be restored.                  |

|         |  |
|---------|--|
| ...     | <gap reason="illegible" extent="unknown"/> |
| ab      | <unclear>ab</unclear>                      |
| [...]   | <gap reason="lost" extent="unknown"/>      |
| [abc]   | <supplied reason="lost">abc</supplied>     |
| <...>   | <gap reason="omitted" extent="unknown"/>   |
| <abc>   | <supplied reason="omitted">abc</supplied>  |
| a(bc)   | <expan><abbr>a</abbr><ex>be</ex></expan>   |
| {abc}   | <surplus>abc</surplus>                     |
| [[abc]] | <del>abc</del>                             |



EpiDoc encoding

# SIMPLE ABBREVIATION

AVG = Augustus

aug            part of the **abbr**eviation that is on the stone: **<abbr>**

ustus        part you need to **ex**pend to resolve word: **<ex>**

Augustus    whole **ex**anded word: **<expan>**

# SIMPLE ABBREVIATION

AVG = Augustus


|          |         |   |                  |
|----------|---------|---|------------------|
| aug      | <abbr>  | ⇒ | <expan>          |
| ustus    | <ex>    |   | <abbr>Aug</abbr> |
| Augustus | <expan> |   | <ex>ustus</ex>   |
|          |         |   | </expan>         |

Critical edition: Aug(ustus)

Diplomatic edition: AVG

# UNEXPANDED ABBREVIATION

XOP = ?

$\chi$ op    <abbr>        <abbr> $\chi$ op</abbr>

Critical edition:     $\chi$ op(- - -)

Diplomatic edition:    XOP



# ONE MORE COMPLEX ABBREVIATION

|             |                      |   |   |
|-------------|----------------------|---|---|
|             |                      |   | <b>&lt;expan&gt;</b>                          |
|             |                      |   | <b>&lt;abbr&gt;</b>                           |
| augg        | <b>&lt;abbr&gt;</b>  |   | Aug   |
| g           | <b>&lt;am&gt;</b>    | ⇒ | <b>&lt;am&gt;</b> g <b>&lt;/am&gt;</b>        |
| usti duo    | <b>&lt;ex&gt;</b>    |   | <b>&lt;/abbr&gt;</b>                          |
| augusti duo | <b>&lt;expan&gt;</b> |   | <b>&lt;ex&gt;</b> usti duo <b>&lt;/ex&gt;</b> |
|             |                      |   | <b>&lt;/expan&gt;</b>                         |

Critical edition: Aug(usti duo)

Diplomatic edition: AVGG

# Partially restored lacuna



Κατεσκευ[άσθη]  
ἐπὶ τῶν εὐσ[εβεστάτων]

# Partially restored lacuna



Κατεσκευ<supplied reason="lost">άσθη</supplied>  
ἐπὶ τῶν εὐσ[εβεστάτων]

# Partially restored lacuna



Κατεσκευ<supplied reason="lost">άσθη</supplied>  
ἐπὶ τῶν εὐσ<supplied reason="lost">εβεστάτων  
</supplied>

# Partially restored lacuna



Κατεσκευ<supplied reason="lost">άσθη</supplied>  
ἐπὶ τῶν εὐ<unclear>σ</unclear><supplied  
reason="lost">εβεστάτων</supplied>



# Partially restored lacuna



Κατεσκευ[άσθη ...]  
ἐπὶ τῶν εὐσ[εβεστάτων ...]

# Unrestored lacuna



Κατεσκευ<supplied reason="lost">άσθη</supplied><gap/>  
ἐπὶ τῶν εὐ<unclear>σ</unclear><supplied  
reason="lost">εβεστάτων</supplied>

# Unrestored lacuna



Κατεσκευ<supplied reason="lost">άσθη</supplied> <gap/>  
ἐπὶ τῶν εὐ<unclear>σ</unclear><supplied  
reason="lost">εβεστάτων</supplied>

# Unrestored lacuna



Κατεσκευ<supplied reason="lost">άσθη</supplied> <gap  
reason="lost" extent="unknown" unit="character"/>  
ἐπὶ τῶν εὐ<unclear>σ</unclear><supplied  
reason="lost">εβεστάτων</supplied>

# Unrestored lacuna



Κατεσκευ<supplied reason="lost">άσθη</supplied> <gap  
reason="lost" extent="unknown" unit="character"/>  
ἐπὶ τῶν εὐ<unclear>σ</unclear><supplied  
reason="lost">εβεστάτων</supplied> <gap reason="lost"  
extent="unknown" unit="character"/>



“But...”

<supplied reason="lost">άσθη</supplied>

⇒ [άσθη]

“But...”

**<supplied reason="lost">άσθη</supplied>**

⇒ [άσθη]

**<gap reason="lost" extent="unknown" unit="character"/>**

⇒ [...]

# Unrestored lacuna—display



Κατεσκευ[άσθη] [...]  
ἐπὶ τῶν εὐσ[εβεστάτων] [...]

# Unrestored lacuna—corrected



Κατεσκευ[άσθη] [...]  
ἐπὶ τῶν εὐσ[εβεστάτων] [...]

# Unrestored lacuna—corrected



Κατεσκευ[άσθη ...]  
ἐπὶ τῶν εὐσ[εβεστάτων ...]

# Symbols and marks

- Non meaning-bearing symbols:
  - leaf, scroll, crux, point, dolphin, star, wreath
- Meaning-bearing symbols or shorthand marks:
  - denarius, etos, half, artabe, centurion
- Marks with expansion or regularization to text values:
  - Chi-rho, monogram, ligatures, complex abbreviations

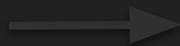


# Non meaning-bearing symbols

- `<g ref="#leaf"/>`
- `<g ref="#scroll"/>`
- `<g ref="#crux"/>`
- `<g ref="#dipunct"/>`

To include the Unicode:

- `<g ref="#leaf">𐌿</g>`
- `<g ref="#leaf">&#10087;</g>`



Critical edition: ((leaf))

Diplomatic edition: 𐌿

# Meaning-bearing marks

- `<g ref="#denarius"/>`
- `<expan>`
  - `<abbr>`
    - `<am><g ref="#denarius"/></am>`
  - `</abbr>`
  - `<ex>δηνάρια</ex>`
- `</expan>`

Critical edition: ((δηνάρια))

Diplomatic edition: \*

# Chi-rho

- Expand to name ( Ɱ ):

```
<expan>  
  <abbr><am><g ref="#chi-rho"/></am></abbr>  
  <ex>Χριστός</ex>  
</expan>
```

- Expand to string ( Ɱ OPHER):

```
<expan>  
  <abbr><am><g ref="#chi-rho"/></am></abbr>  
  <ex>Christ</ex>  
  <abbr>opher</abbr>  
</expan>
```

# Chi-rho

- Ligature ( Ϡ ΥΣΟΦΟΡΟΣ):  
`<hi rend="ligature">Xρ</hi>υσοφόρος`
- Just a symbol ( Ϡ ):  
`<g ref="#chi-rho"/>`

To include the Unicode:

- `<g ref="#chi-rho"> Ϡ </g>`
- `<g ref="#chi-rho">&#x2627;</g>`

# EpiDoc case studies



Catherine Dobias-Lalou

# Inscriptions of Greek Cyrenaica

in collaboration with Alice Bencivenni and Hugues Berthelot  
with help from Simona Antolini, Silvia Maria Marengo and Emilio Rosamilia

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Catherine Dobias-Lalou

## Greek Verse Inscriptions of Cyrenaica

in collaboration with Alice Bencivenni  
with help from Joyce M. Reynolds and Charlotte Roueché

Cyrene, agora. Photo by courtesy of J.-P. Perrin, enhanced by A. Bencivenni

<https://igcyr.unibo.it/>



Catherine Dobias-Lalou

## Inscriptions of Greek Cyrenaica. Second edition

in collaboration with Alice Bencivenni and Hugues Berthelot  
with help from Simona Antolini, Silvia Maria Marengo and Emilio Rosamilia

Catherine Dobias-Lalou

## Greek Verse Inscriptions of Cyrenaica. Second edition

in collaboration with Alice Bencivenni  
with help from Joyce M. Reynolds and Charlotte Roueché

The edition is designed by Irene Vagionakis to draw on and enhance IGCyr | GVCyr: <https://igcyr.unibo.it/>



# Appendix: Aligning EpiDoc With Mycenaean Usage (Wingspread Conventions)



| Description   | Wingspread          | DAMOS       | EpiDoc encoding   | DAMOS example                                  | EpiDoc Guidelines                                |
|---|---------------------|-------------|---|--|--|
| <b>Characters and glyphs</b>                            |                     |             |   |  |  |
| syllabogram (in a syllabic word)                        | pa- or -ro2         | pa- or -ro2 | pa-<br>-ro2   | <a href="#">4327 (PY An(6) 35); 4471; 4626</a> | <a href="#">Clear text</a>                       |
| syllabic word   | da-mo-de            | da-mo-de    | <code>&lt;w xml:id=""&gt;da-mo-de&lt;/w&gt;</code>                          | <a href="#">4579</a>                           | <a href="#">Words and lemmata</a>                |
| logogram  | OLE                 | OLE         | <code>&lt;w type="logogram" xml:id=""&gt;OLE&lt;/w&gt;</code>               | <a href="#">4560</a>                           | Not yet covered.                                 |
| syllabogram used as logogram (i.e. adjectival logogram) | PA                  | PA          | <code>&lt;w type="syllabogram-as-logogram" xml:id=""&gt;PA&lt;/w&gt;</code> | <a href="#">4960</a>                           | Not yet covered.                                 |
| Monogram (i.e. ligatured syllabograms used as logogram) | MERl                | ME±RI       | <code>&lt;w type="monogram" xml:id=""&gt;ME±RI&lt;/w&gt;</code>             | <a href="#">2</a>                              | Not covered.                                     |
| Ligatured logograms                                     | TELA+PO             | TELA+PO     | <code>&lt;w type="ligature" xml:id=""&gt;TELA+PO&lt;/w&gt;</code>           | <a href="#">681</a>                            | cf. <a href="#">Ligatured Letters</a>            |
| Metrogram   | S                   | S           | <code>&lt;w type="metrogram" xml:id=""&gt;S&lt;/w&gt;</code>                | <a href="#">4214</a>                           | Not yet covered.                                 |
| Arithmogram   | 1                   | 1           | <code>&lt;num xml:id=""&gt;1&lt;/num&gt;</code>                             | <a href="#">4170</a>                           | <a href="#">Numbers/Numerals Of Known Value</a>  |
| Syllabogram as abbreviation                             | o                   | o           | <code>&lt;w xml:id=""&gt;&lt;abbr&gt;O&lt;/abbr&gt;&lt;/w&gt;</code>        | <a href="#">380</a>                            | <a href="#">Abbreviation not Expanded at All</a> |
| Word divider  | ,                   | ,           | <code>&lt;pc xml:id=""&gt;&lt;g ref="#word-divider"/&gt;&lt;/pc&gt;</code>  | <a href="#">4421</a>                           | cf. <a href="#">Symbol: interpuncts</a>          |
| Dividing line   | :                   | :           | <code>&lt;pc xml:id=""&gt;&lt;g ref="#dividing-line"/&gt;&lt;/pc&gt;</code> | <a href="#">5096</a>                           | cf. <a href="#">Symbol: interpuncts</a>          |
| Uninterpreted glyph (syllabogram)                       | *47                 | *47         | <code>&lt;w&gt;&lt;g ref="#s47"/&gt;&lt;/w&gt;</code>                       | <a href="#">5034</a>                           | Cf. <a href="#">Symbol (non meaning-bearing)</a> |
| Uninterpreted glyph (logogram)                          | *123                | *123        | <code>&lt;g ref="#l123"/&gt;</code>   | <a href="#">4364</a>                           | Cf. <a href="#">Symbol (non meaning-bearing)</a> |
| Uninterpreted glyph (vase logogram)                     | *155 <sup>VAS</sup> | *155VAS     | <code>&lt;g ref="#l155vas"/&gt;&lt;/w&gt;</code>                            | <a href="#">4976</a>                           | Cf. <a href="#">Symbol (non meaning-bearing)</a> |

<https://epidoc.stoa.org/gl/latest/app-epi-mycenaean.html>

# Appendix: Aligning EpiDoc With ORACC

 search


| Description                             | Conventional display                | ATF                   | EpiDoc page(s)  |
|---|-------------------------------------|-----------------------|---|
| Correction of sign                      | AB <sup>!</sup>                     | AB!                   | <a href="#">Correction (without specification)</a>          |
| Correction of sign (original shown)     | AB <sup>!</sup> (BA)                | AB!(BA)               | <a href="#">Erroneous substitution</a>                      |
| Damage to sign                          | bi- <sup>r</sup> it-su <sup>1</sup> | bi-it#-su#            | <a href="#">Ambiguous characters (Leiden underdot)</a>      |
| Unknown number of characters lost [...] |                                     | [...]                 | <a href="#">Lost characters, quantity unknown</a>           |
| One character lost                      | [x]                                 | [x]                   | <a href="#">Lost characters, quantity known</a>             |
| Six characters lost                     | [x x x x x x]                       | [x x x x x x]         | <a href="#">Lost characters, quantity known</a>             |
| Three to six characters lost            | [x x x (x x x)]                     | [x x x (x x x)] (tba) |   |
| Restored lost characters                | [AB]                                | [AB]                  | <a href="#">Editorial restoration</a>                       |
| Uncertainly restored lost characters    | [AB <sup>?</sup> ]                  | [AB?]                 | <a href="#">Editorial restoration, uncertain</a>            |
| Restoration of accidental omission      | <ab>                                | <ab>                  | <a href="#">Supplement of omitted characters</a>            |
| Restoration of intentional omission     | bi-it-<(su)>                        | bi-it-<(su)>          | <a href="#">Abbreviation fully expanded</a>                 |
| Characters rejected by editor           | <<ab>>                              | <<ab>>                | <a href="#">Superfluous characters</a>                      |
| Unclear sign                            | x                                   | x                     | <a href="#">Illegible characters, quantity known</a>        |
| Clear but uninterpreted sign            | AB                                  | \$AB                  | <a href="#">Uninterpreted characters (Leiden uppercase)</a> |
| Ligature or compound grapheme           | a+na                                | a+na                  | <a href="#">Ligatures</a>                                   |

Cf. also Steve Tinney and Eleanor Robson, [ATF Quick Reference](#), *Oracc: The Open Richly Annotated Cuneiform Corpus*, Oracc, 2014.

<https://epidoc.stoa.org/gl/latest/app-epi-oracc.html>

# Exercise