

Romans 1by1 v.1.1 New developments in the study of Roman population

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Abstract: The proposed paper documents *Romans 1by1*, a population database working on Roman-era inscriptions. The database architecture is built for accommodating all categories of people attested epigraphically. Besides the structure, we will present the difficulties faced and questions raised when expanding and diversifying the metadata, as well as the solutions we opted for and our motivation(s) in doing so. The last section of the presentation will focus on some applications of the database. The most obvious ones, which were the focus of our interest so far as well, refer to prosopographical reconstructions (linking people which have not been linked/identified as the same person throughout more inscriptions and reconstructing relatively fluent life courses) and network analyses.

1. Introduction

This paper documents *Romans 1by1*, a population database working with Roman-era inscriptions. The first general presentation of the database and its metadata were published¹ in the proceedings of the EAGLE 2016² international conference on *Digital and Traditional Epigraphy in Context*. But as this is a very dynamic tool, its configuration has considerably changed since August 2015 (when the article was sent for publishing). Besides the database architecture, we will currently present the first practical employments of *Romans 1by1*: the HISCO adaptation and encoding for epigraphically attested professions and some first phase network studies.

2. Database architecture

Romans 1by1 is a relational database, built with MySQL and following the best practice models for population databases.³ We began with a metadata schema adapted for registering members of the middle classes coming from the Latin language provinces of the Roman Empire, but expanded it in the fall of 2015 to accommodate all individuals epigraphically attested (at least) in Roman Dacia, Moesia Inferior and Moesia Superior.⁴ Thus the epigraphic categories diversified, the attributes required for registering life details (*cursus honorum*) became more complex

1 Version 1.0.

2 Varga (in print).

3 Mandemakers, Dillon (2004).

4 For the sources we use the main online inscription databases ([p://www.manfredclauss.de/](http://www.manfredclauss.de/); <http://edh-www.adw.uni-heidelberg.de/home>; <http://inscriptions.packhum.org/>) and the published epigraphic corpora: CIL, AE and regional compendia.

and the linguistic scope extended due to the Greek inscriptions of Moesia Inferior – bringing forth new epigraphic habits and patterns as well. At⁵ the day of writing (December 2016) the metadata (see Fig. 1) is structured into four major tables (Inscriptions, Bibliography, Personal Data and Personal relationships – Fig. 2), summing up to more than 100 separate attributes and over 8.000 individuals registered.⁶

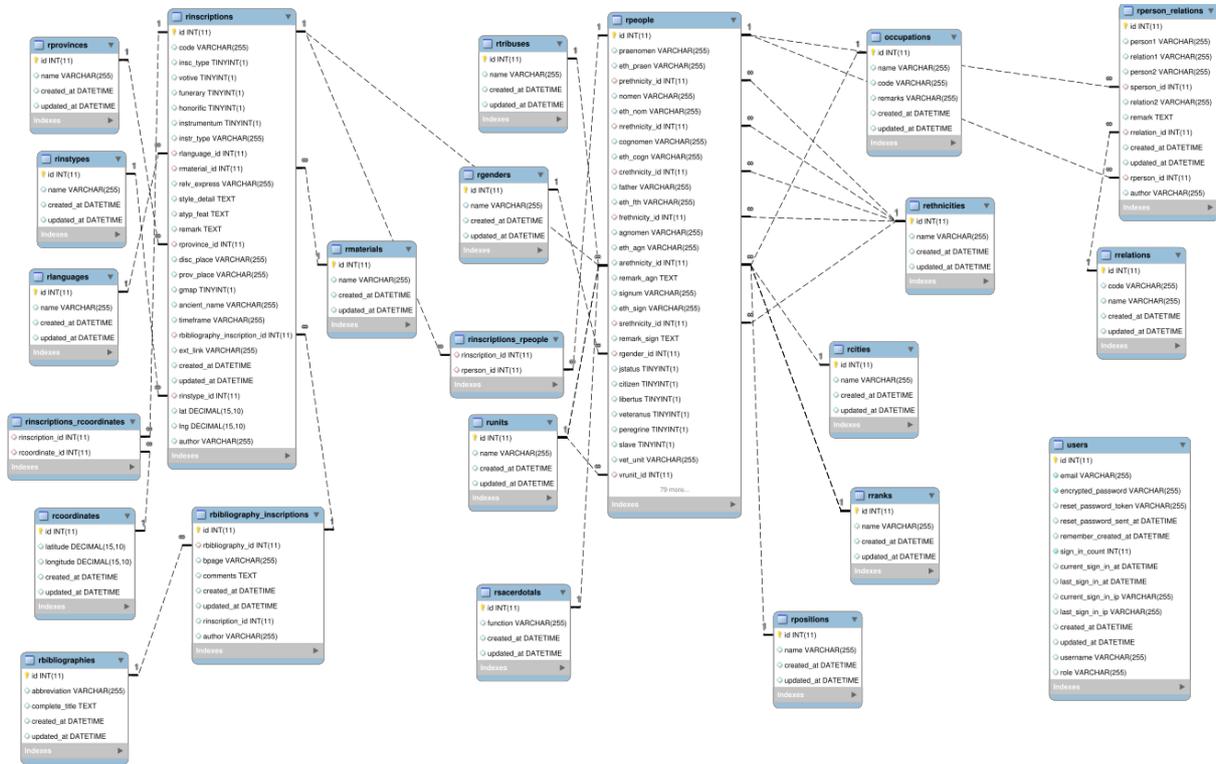


Figure 1: Diagram of the metadata

5 2.12.2016.

6 At this point, we have completed all inscriptions from Dacia Porolissensis and by summer 2017 all Dacia and most of Moesia Inferior will be completed. With certainty, in 2017, some datasets will be standardized and published in an open access format.

ROMANS ONE BY ONE

INSCRIPTIONS

COORDINATES

ETHNICITY

LANGUAGE

MATERIAL

CITY/TOWN

GENDER

SACERDOTAL FUNCTION

OCCUPATION

MILITARY UNIT

MILITARY RANK

POSITIONS

TRIBUS

INSCRIPTION TYPE

RELATIONS

PROVINCES

GENERAL BIBLIOGRAPHY

USERS

INSCRIPTION BIBLIOGRAPHY • PERSONAL DATA • PERSONAL RELATIONS

Logged in as radvarga@gmail.com | Sign out | Signed in successfully

Listing Inscriptions

Excel download

Search filters

Number of records: 3311
Number of records/search: 1000



New Inscription record

Inscription code	Type of inscription	Language	Material	Relevant expressions	Stylistic details	Atypical features	Observations	Province	Place of discovery	Place of provenience	Ancient name provenience	Timestamp/Timeframe	External links
Show Edit Destroy 00001P	Funerary	Latin	Limestone					Dacia	Drobeta Turnu Severin	Drobeta		151-200 AD	http://odp-www.adw.uni-heidelberg.de/roman/inscriptions/00001P
Show Edit Destroy 00002D	Votive	Latin	Marble					Dacia	Sarmizegetusa	Sarmizegetusa	Colonia Ulpia Traiana Sarmizegetusa	201-250 AD	http://odp-www.adw.uni-heidelberg.de/roman/inscriptions/00002D
Show Edit Destroy 00003S	Votive	Latin	Limestone					Dacia	Sarmizegetusa	Sarmizegetusa	Ulpia Traiana Sarmizegetusa	101-250 AD	http://odp-www.adw.uni-heidelberg.de/roman/inscriptions/00003S
Show Edit Destroy 00004D	Votive	Latin	Limestone					Dacia	Alba Iulia	Alba Iulia	Apulum	171-270 AD	http://odp-www.adw.uni-heidelberg.de/roman/inscriptions/00004D
Show Edit Destroy 00005D	Votive		Marble					Dacia	Alba Iulia	Alba Iulia	Apulum	211-275 AD	http://odp-www.adw.uni-heidelberg.de/roman/inscriptions/00005D
Show Edit Destroy 00009M	Funerary	Latin	Limestone					Moesia Inferior	Novae	Novae	Novae		

Figure 2: Database tables structure

The first table to be filled in is the file of the source – *Inscriptions* (Fig. 3). To begin with, each inscription gets an identification code, formed of 5 digits and an acronym of the province’s name (D for Dacia, MS for Moesia Superior, DAL for Dalmatia, etc.) – so we have, for example 00001MS. The form for the *Inscriptions* category contains free text fields (*Relevant expressions*, *Stylistic details*, *Atypical features*, *Observations*, *Place of discovery*, *Place of provenience*, *Ancient name provenience*, *Timestamp/Timeframe* and *External links*), as well as fields with controlled value lists (*Type of inscription*, *Language*, *Material*).⁷ At this point, linking our fields to the already existing online resources is very important. Currently, we are working on linking the toponyms to Pleiades⁸ and/or Trismegistos.⁹ Although we are aware that some of the data (*Timestamp/Timeframe*) could have benefitted from a standardized entry form,¹⁰ we opted in this case for more flexible possibilities of expression and adaptation. Making this field operational and easy to work with is a very important desideratum, as temporal data is paramount for all cross-sectional studies we would undertake. The *Inscription bibliography* section was conceived in a way so that extracting complete or selective bibliographical lists would be possible. Thus, a normalization table includes all bibliographical titles referred to and being cited; with the help of a value list, one can choose one *Bibliography abbreviation* for which the full reference, detailed information and comments are shown. Of course, all data are linked to the *Inscription code*, selected as well from a value list.

7 For these, we are mainly using the Eagle vocabularies: <http://www.eagle-network.eu/resources/vocabularies>.

8 <https://pleiades.stoa.org/>.

9 <http://www.trismegistos.org/>.

10 Standardization will be undertaken when the data will be made open access.

Figure 3: The Inscriptions table

The core of the database is a table used for recording data about individual persons (labelled *Personal data*– Fig. 4), around which the entire network of relations needed to ensure proper information recording is built. Each new entry represents a singular epigraphic attestation of an individual, and a unique ID is generated, which will help to link the character within the various components of the database and with other database entries. The person is also manually linked to the source using a value list of the inscriptions` codes. In the case of one person being attested by multiple epigraphic sources, each attestation will be represented by a new entry, to which a new unique ID will be assigned and which will be doubled during linkage procedures by a common ID for all instances of the same person.

Expectedly, this metadata is the most volatile one, being in a continuous process of modification and enlargement, although some attributes remained unchanged since the initial implementation of the database¹¹ (*Praenomen, Nomen, Cognomen/Personal name, Father/Master name, Agnomen, Signum, Ethnicity* for each name category). As a principle, we are trying to remain faithful to the source and to record during the first phase only the minimum of deduced information but nonetheless we are operating with some conventional onomastic standardizations (e.g. for AUR, we have recorded Aurelius from the beginning). As we considered them important in the analysis of (self-assumed) identities and epigraphic habits, we opted for a detailed registration of geographic origin and geo-political appurtenance details; thus, we have *Natione, Ethnicity, Origo, Domus* and *Local citizenship* as separate attributes. As already stated,¹² some information will be recorded deductively: such are the cases of *Gender* and *Juridical status* (though the servile one often is literally recorded). The rest of the fields accommodate supplementary information, if needed: *Occupation, Deities, Age* (at death), *Details of life/death* and *Observations*. For *Collegium/Association* and *Religious position* we opted for check-boxes

11 And are documented as such: Varga (in print).

12 Varga (in print).

which open a series of fields. For the associative forms we have three free text boxes: *Type of association*, *Position within the association*, *Activities within the association* which allow for certain flexibility and the possibility to accommodate information and realities from both Roman and Greek inscriptions. In the case of *Religious position*, the situation is a bit more complex: when checking this option, a drop down list of *Sacerdotal office* opens whose values are (at the moment) *Augur*, *Flamen* and *Pontifex* and a series of further check-boxes: *Coloniae/Municipii sacerdos*, *Military sacerdos*, *Imperial priest*, *Divinity priest*, *Laurentium Lavinatium*. All of them, with the exception of the last one, open a *Details* text field for description. We decided to register *Laurentium Lavinatium* separately as it cannot be associated with other religious positions and it has been recorded on several inscriptions from Ulpia Traiana Sarmizegetusa (Dacia).

The screenshot shows the 'ROMANS ONE BY ONE' web application interface. At the top, there are logos for the University of Vienna, the Central de Studi Romane, the 'Romans 1 by 1' project, the Fritz Thyssen Stiftung, and the Ue-fiscdi. Below the logos is a navigation bar with the title 'ROMANS ONE BY ONE' and a menu with options: INSCRIPTIONS, INSCRIPTION BIBLIOGRAPHY, PERSONAL DATA, and PERSONAL RELATIONS. The main content area is titled 'New Person record' and is divided into three columns. The left column contains personal data fields: Praenomen, Ethnicity praenomen (dropdown), Nomen, Ethnicity nomen (dropdown), Cognomen/Personal name, Ethnicity Cognomen/Personal name (dropdown), Father/Master name, Ethnicity Father/Master (dropdown), Agnomen, Ethnicity agnomen (dropdown), Observations agnomen, Signum, Ethnicity signum (dropdown), and Observations signum. The middle column contains fields for: Nazione, Ethnicity, Local Citizenship, Gender (dropdown), Juridical status, Tribus (dropdown), Origo, Domus, Collegium/Association (checkbox), Religious Position (checkbox), Occupation (checkbox), Deities, Age, Details of life/death, Dedicated for: (checkbox), and Dedicated by: (checkbox). The right column contains a list of positions with checkboxes: Inscription code (dropdown), Ordo senatorius, Ordo equester, Provincial Governor, Procurators, Local Magistrate, Decurion, Imperial slave, Imperial freedman, Military personnel, Decorations, and Observations. At the bottom of the form, there are 'Save' and 'Back' buttons.

Figure 4: The Personal data table

The second half of the *Personal information* table is dedicated to the political and social status of the elites. This part of the metadata consists of a series of check-boxes each opening different categories of specialized attributes (Fig. 5). *Ordo senatorius* and *Ordo equester* each open two text fields, concerning *Details* and *Cursus honorum*. Though a standardization of the various steps of the *cursus honorum* was thought to be an option at some point, due to the great diversity of possible existing functions and positions we decided for this descriptive approach.

<input checked="" type="checkbox"/>	Ordo senatorius details	<input type="text"/>
	Cursus honorum sen.	<input type="text"/>
<input checked="" type="checkbox"/>	Ordo equester	
	Ordo equester details	<input type="text"/>
	Cursus honorum eq.	<input type="text"/>
<input checked="" type="checkbox"/>	Provincial Governor	
	Provincial Governor details	<input type="text"/>
<input type="checkbox"/>	Praetorian Rank	
<input type="checkbox"/>	Consular rank	
<input checked="" type="checkbox"/>	Procurators	
	Procurators details	<input type="text"/>
<input type="checkbox"/>	Praesidial Procurator	
<input type="checkbox"/>	Financial Procurator	
<input checked="" type="checkbox"/>	Local Magistrate	
	Local Magistrate details	<input type="text"/>
<input checked="" type="checkbox"/>	Decurion	
	Decurion details	<input type="text"/>
	City/Town	<input type="text" value="Select"/>
<input checked="" type="checkbox"/>	Multiple decurionate	
	Multiple decurionate details	<input type="text"/>

Figure 5: The tables covering the political/social status of the elites

In a following phase we will standardize these data entries as much as possible.

The next two check-boxes *Provincial Governor* and *Procurator* both open attributes for *Details*, but also two further options marking if we are dealing with a Governor of *Praetorian* or *Consular Rank*, respectively a *Praesidial* or a *Financial Procurator*. The *Local magistrate* check-box again contains a details field. While so far we haven't generally faced major problems with modelling these attributes, the *Decurionate* option raised some issues connected to the possibility of multiple decurionates. Our first idea was to give the possibility to choose multiple options in the *City/Town* table with each option being described with a separate *Details* field. But this would have caused problems with creating the .csv files exported from the database, and later with the import in statistical software (R) or even Excel spreadsheets. Trying to avoid these disturbances, we opted instead for another check-box (*Multiple decurionate*) with a field in which the city names can be entered as free text. Even though this solution will impose restrictions for some types of analyses, we believe that the final export file will not require too much additional systematization work in the case of a research focused on decurions. On the other hand, for the external user this will not constitute an inconvenience as one will have all the available search options necessary for finding the relevant information: the possibility of choosing *Multiple decurionate*, of searching for the registered city names and – eventually – of using the general search field. The next information items cover *Imperial slave*, *Imperial freedman* and the *Military personnel*, all equipped with *Details* attributes. Only the

last category needs additional options: two text fields for details and career and two drop-down menus for rank and unit. The final field refers to *Decorations* that we considered necessary to being recorded separately.

Based on the personal ID given to each individual, the *Relationship* table will solely name the relationship between individuals (A to B and B to A), choosing from a drop-down menu (Fig. 6).

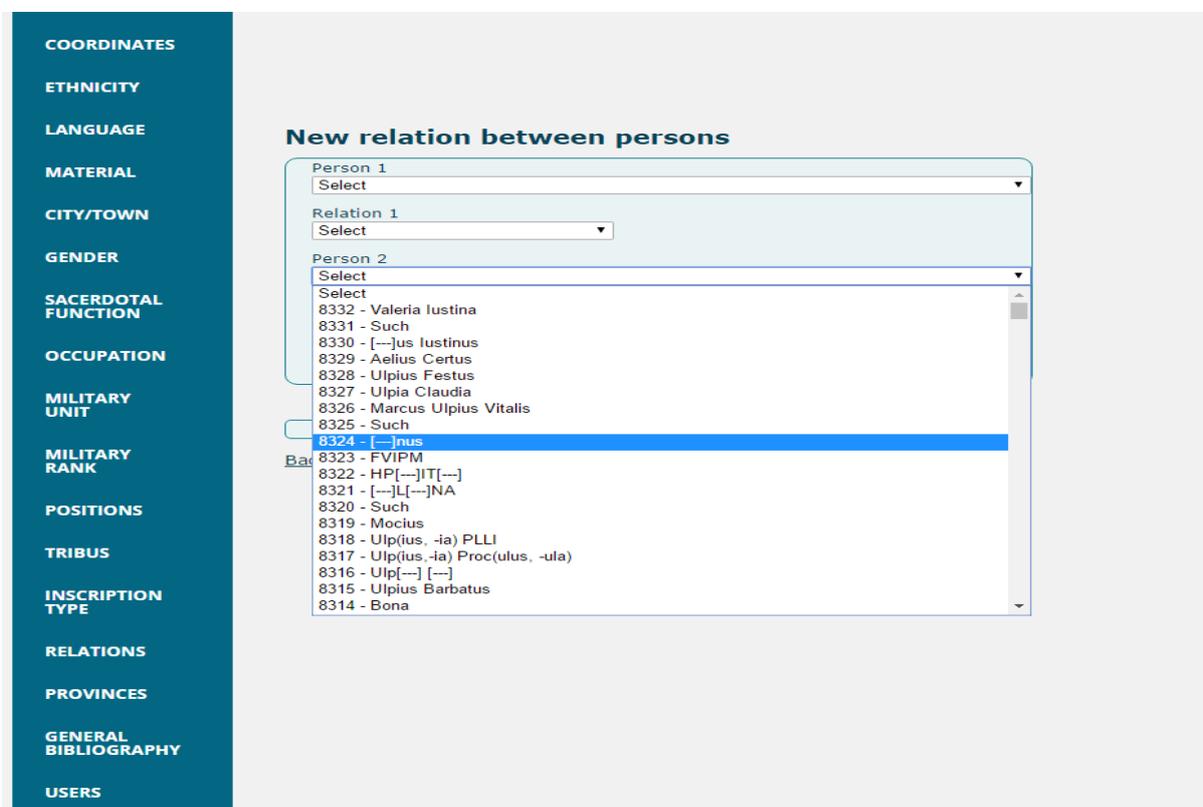


Figure 6: The Relationships table

The relationship values have been encoded (see table 1) and we have tried to adjust the concepts to the SnapDrgn ontology.¹³ We have assigned 1- figures for 1st degree family, 2- for 2nd degree family, 3- for more distant and/or not blood kin, 4- for the *familia Romana* (slaves, clients, alumni, etc.) and 5- for unspecified or unreadable relationships. For males we use odd numbers and for females even numbers. Encoding them from the start was very useful for analyses on dedication habits, gender-related patterns and expressions of family connections.

101	HusbandOf
102	WifeOf
103	FatherOf
104	MotherOf
105	SonOf
106	DaughterOf
201	BrotherOf
202	SisterOf
203	GrandfatherOf

¹³ <https://snapdrgn.net/ontology>.

204	GrandmotherOf
205	GrandsonOf
206	GrandaughterOf
301	UncleOf
302	AuntOf
303	NieceOf
304	NephewOf
305	Cousin (M) Of
306	Cousin (F) Of
307	Son-in-lawOf
308	Daughter-in-lawOf
309	Father-in-lawOf
310	Mother-in-lawOf
311	Brother-in-lawOf
312	Sister-in-lawOf
401	Heir (M) Of
402	Heir (F) Of
403	Testamentary executor (M) Of
404	Testamentary executor (F) Of
405	Slave (M) Of
406	Slave (F) Of
407	FreedmanOf
408	FreedwomanOf
409	Patron (M) Of
410	Patron (F) Of
411	AlumnusOf
412	AlumnaOf
413	Co-worker/associate (M) Of
414	Co-worker/associate (F) Of
415	AmicusOf
416	AmicaOf
417	Partner (M)Of
418	Partner (F) Of
501	Unspecified relationship (M) Of
502	Unspecified relationship (F) Of
503	Unreadable relationship (M) Of
504	Unreadable relationship (F) Of

Very important for us was the search interface of the database (see in Fig. 7 the search options for personal data). Built with Ruby-on-rails, it was designed to respond to most manifold and varying search options. Every component of the database has search filters for every particular field, as well as a general search. For administrators and data entry operators there is also an *Author* search field but it is not accessible for external guest users.



ROMANS ONE BY ONE

INSRIPTIONS ▾ INSCRIPTION BIBLIOGRAPHY ▾ PERSONAL DATA ▾ PERSONAL RELATIONS ▾

COORDINATES
ETHNICITY
LANGUAGE
MATERIAL
CITY/TOWN
GENDER
SACERDOTAL FUNCTION
OCCUPATION
MILITARY UNIT
MILITARY RANK
POSITIONS
TRIBUS
INSCRIPTION TYPE
RELATIONS
PROVINCES
GENERAL BIBLIOGRAPHY
USERS

Listing Persons

Excel download

Search Filters

Praenomem:	Ethnicity praenomen:	Nomen:	Ethnicity nomen:	Cognomen/Personal name:
Ethnicity Cogn./Pers. name:	Father/Master:	Ethnicity Father/Master:	Agnomen:	Ethnicity agnomen:
Observations agnomen:	Signum:	Ethnicity signum:	Observations signum:	Gender:
<input type="checkbox"/> Citizen <input type="checkbox"/> Not citizen	<input type="checkbox"/> Libertus/-a <input type="checkbox"/> Not libertus/-a	<input type="checkbox"/> Veteranus <input type="checkbox"/> Not veteranus	<input type="checkbox"/> Peregrine <input type="checkbox"/> Not peregrine	<input type="checkbox"/> Slave <input type="checkbox"/> Not slave
Veteranus unit:	Veteranus rank:	Tribus:	Relations:	Origo:
Domus:	<input type="checkbox"/> Collegium true <input type="checkbox"/> Collegium false	<input type="checkbox"/> Occupation true <input type="checkbox"/> Without occupation	Occupation title:	Occupation code:
Age:	Details of life/death:	Inscriptions:	<input type="checkbox"/> Ordo senatorius <input type="checkbox"/> Not Ordo senatorius	Ordo senatorius details:
<input type="checkbox"/> Ordo equester <input type="checkbox"/> Not Ordo equester	Ordo equester details:	<input type="checkbox"/> Decurion <input type="checkbox"/> Not decurion	Decurion details:	City/Town:
<input type="checkbox"/> Imp. priest <input type="checkbox"/> Not imp. priest	Imperial priest details:	<input type="checkbox"/> Div. priest <input type="checkbox"/> Not div. priest	Divinity priest details:	<input type="checkbox"/> Imp. slave <input type="checkbox"/> Not imp. slave
Imperial slave details:	<input type="checkbox"/> Imp.freedman <input type="checkbox"/> Not imp. freedman	Imperial freedman details:	<input type="checkbox"/> Milit. personnel <input type="checkbox"/> Not milit. personnel	Military personnel details:
Military personnel rank:	Military personnel unit:	Observations:	Nation:	Ethnicity nation:
<input type="checkbox"/> Dedicated for <input type="checkbox"/> Not dedicated for	<input type="checkbox"/> Dedicated by <input type="checkbox"/> Not dedicated by	<input type="checkbox"/> Local Magistrate <input type="checkbox"/> Not Local Mag.	Local Mag. details:	<input type="checkbox"/> Provincial Governor <input type="checkbox"/> Not Provincial Gov.
Imperial Mag. details:	Sacerdotal function:	Delities:	Local Citizenship:	Province:
Author:	<input type="checkbox"/> Laurentium Lavinatium yes	<input type="checkbox"/> Multiple decurionate yes <input type="checkbox"/> Multiple decurionate no	<input type="checkbox"/> Praetorian rank <input type="checkbox"/> Consular rank	<input type="checkbox"/> Procurator yes <input type="checkbox"/> Procurator no
<input type="checkbox"/> Praesidial Procurator <input type="checkbox"/> Financial Procurator	<input type="checkbox"/> Laurentium Lavinatium no <input type="checkbox"/> Decorations <input type="checkbox"/> No decorations	<input type="checkbox"/> Col./Mun. sacerdos <input type="checkbox"/> Not col./mun. sacerdos	Col./mun. sacerdos details:	<input type="checkbox"/> Milit sacerdos <input type="checkbox"/> Not milit sacerdos
Milit. sacerdos details:	Inscription:			

Search

Number of records: 8179
Number of records/person/search: 1000

New Person record

1 2 3 4 5 6 7 8 9 Next > Last >>

Figure 7: The search options for personal data

3. Encoding of occupational titles

The codifications are an essential part for the whole project not only for the individual linkage procedures, but also for the analyzing process. Once the database will comprise enough data, properly recorded and with all codifications undertaken, statistical software can be used in order to identify trends and run comparisons over large scale geographical and administrative units. These results might lead to a better understanding of the social history of the Roman Empire.

At this point, as part of an already finished project,¹⁴ we have encoded the epigraphically attested professions from the European Latin language provinces of the Empire. For this, we have used

14 *Carving a Professional Identity. The Occupational Epigraphy of the Roman Latin West*, Fritz Thyssen Stipend – <http://romans1by1.com/doc/Carving.pdf>.

and adapted HISCO¹⁵ – *Historical International Standard Classification of Occupations*. The HISCO codes were later on classified in HISCLASS,¹⁶ HISCAM¹⁷ and SOCPO¹⁸ – systems that put profession into relation with social status. Although efficient for the periods they were built for, they are completely irrelevant for the Roman era (servile status is ignored, it cannot be adjusted to the fact that the socio-economical high upper classes are basically excluded from any professional/occupational category, etc.). Thus we have decided not to use any of the social encoding systems.

Online and in print,¹⁹ HISCO has been thoroughly documented and therefore we will not describe the details here in length. Basically, it offers a standard codification system for historical registered occupations – albeit only from Early Modernity up to nowadays. The system is based on the HISCO-tree, which contains 9 major professional groups:

- 0/1 – Professional, technical and related workers;
- 2 – Administrative and managerial workers;
- 3 – Clerical and related workers;
- 4 – Sales workers;
- 5 – Service workers;
- 6 – Agricultural, animal husbandry and forestry workers, fishermen and hunters;
- 7-8-9 – Production and related workers, transport equipment operators and labourers.

Each major group contains minor groups (01 – Physical scientists and related workers, 02 – Architects, engineers and related workers) unit groups (011 – Chemists, 012 – Physicists), and micro groups (01110 – Chemist general, 01120 – Organic chemist). Each occupational title from the unit group files is associated with a description and a link to equivalent occupational titles, in various languages. Of course, these are modern languages, directing the search towards databases dealing with occupations and/or demographic databases for the times indicated above.

Adapting the system for the occupational titles of the Roman period was rather painstaking, as certain *mutatis mutandis* processes had to take place. After normalizing the professions attested in inscriptions, we ended up with approximately 250 different professions, which is an unexpectedly high number. The number more or less corresponds to the one extracted from pre- and early-industrial era church registers for a given geographical region. The general conclusion of this encoding process, which will be presented and discussed in detail in a separate publication, is that most of the attested occupational titles belong to the HISCO major group number 4 (sales workers). Besides the large variety of types of sellers attested, this group also raised a serious problem and we were faced with the necessity of adapting the encoding system: for the Latin speaking part of the Roman empire it is often hard to make a clear-cut distinction (as HISCO does) between producer and seller. For example, the *ampullarius* most probably did not only produce flasks but also sold them, just as the *sagarus*, at least sometimes, also produced the cloaks he sold, etc. These kinds of situations are quite frequent and a decision is to be made regarding the encoding, as HISCO does not have codes for any type of producer-seller, let alone for all the multiple sub-specializations attested in inscriptions. The options were either adapting the codes and creating new ones, or assigning general and/or two codes. We have decided for the second option, as introducing new codes would have made the system more opaque for outside users. So, sometimes we assigned two codes: 4-32.00 (commercial

15 <http://historyofwork.iisg.nl/>.

16 Van Leeuwen, Maas (2011).

17 Lamber, Zijdemans, van Leeuwen (2013).

18 Van de Putte, Miles (2015).

19 Van Leeuwen, Maas (2002).

traveller code) or 4-90.90 (general salesman code), plus a specialized producer code. Coming back to one of the mentioned examples, for *ampullarius* we took the code 8-91.90 (Other Glass Formers, Cutters, Grinders and Finishers) plus 4-90.90 (Other Sales Workers – as we don't know anything about his status as a seller).

Other problems faced when encoding in HISCO were connected to the inner structure of the system itself. Thus, the medical specializations do not have separate codes – which, in our opinion, would be very useful.²⁰ Equally, the system provides no separate codes for itinerary artists²¹ or for amateur teachers who occur in Greek inscriptions. In all these cases adjustments and integration into more general classes of codes were necessary.

In spite of the raised problems and the doubts faced during the encoding process, the codifications were completed (Fig. 8) and proved to be a useful step for analyzing the data. In the last section of this article a few examples which demonstrate the benefits will be discussed.

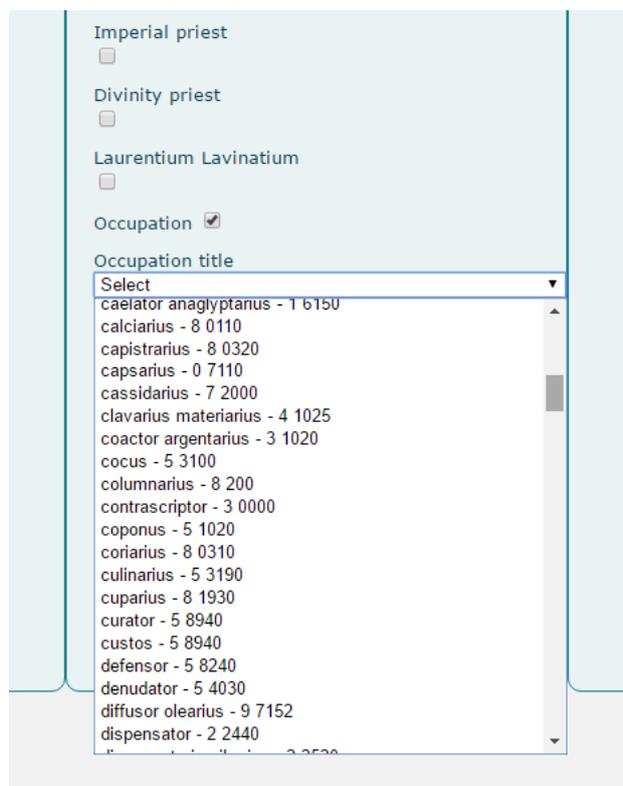


Figure 8: The occupational titles

4. Micro-historical reconstructions

One of prosopography's main stakes and most appealing features is the possibility to reconstruct history at a micro level: history of individuals, families, small groups. Of course, the *Romans1by1* database facilitates this kind of research enormously, as it helps to identify connections and possible similarities.

²⁰ One of the databases linked to HISCO, *TRA preliminary version 1803–1970*, encodes ophthalmologists with 0-75.20, but the description of this code is: *Optometrist – Examines eyes and prescribes spectacles or treatment not involving the use of medicines, surgery or drugs, to conserve or improve vision*. Thus, the solution is one of compromise – http://historyof-work.iisg.nl/detail_hiswi.php?know_id=47007&lang=.

²¹ We have *pictor pelegrinus* attested.

For this purpose, we will present the example of Aurelius Aquila,²² a *negotians* from Dacia, relocated in Salona and whom we identified on two different inscriptions, along with family members and business connections. He is attested on two inscriptions,²³ which previously were not related to each other. The arguments which support an identity of character are not only based on Aurelius Aquila's mere name. In the first inscription we have Aquila, decurio of Potaissa and *negotiator* from Dacia, erecting a funerary monument for his wife, Valeria Ursina, daughter of Titus, and for himself. The two spouses lived together without a single fight, the text says, for seven years. Even if the *decurio* had in mind to be buried next to/ together with his wife, he lived for many years longer, if we take into consideration the second monument. Here, Aquila buries a son,²⁴ Titus Aurelius Apollonius (who died at the age of 33 years and bears the name of his former father-in-law), together with two friends: Aurelius Flavus, *negotians natione Surus* and Aurelius Lucianus. The former is also present, along with an Aurelius Alexander, on a dedication for Jupiter Optimus Maximus Dolichenus from Apulum.²⁵ Expectedly, these two are the only epigraphic testimonies from the Roman Empire which attest Aurelius Flavus, *negotiator Surus*. In Fig. 9, one can see the ties identified through the research summed up above.

This small-scale prosopographical reconstruction of a network from the (most probable) beginning of the 3rd century AD, offers details on the great mobility of traders in the Roman Empire as well as on how strong and time-enduring business connections could be.

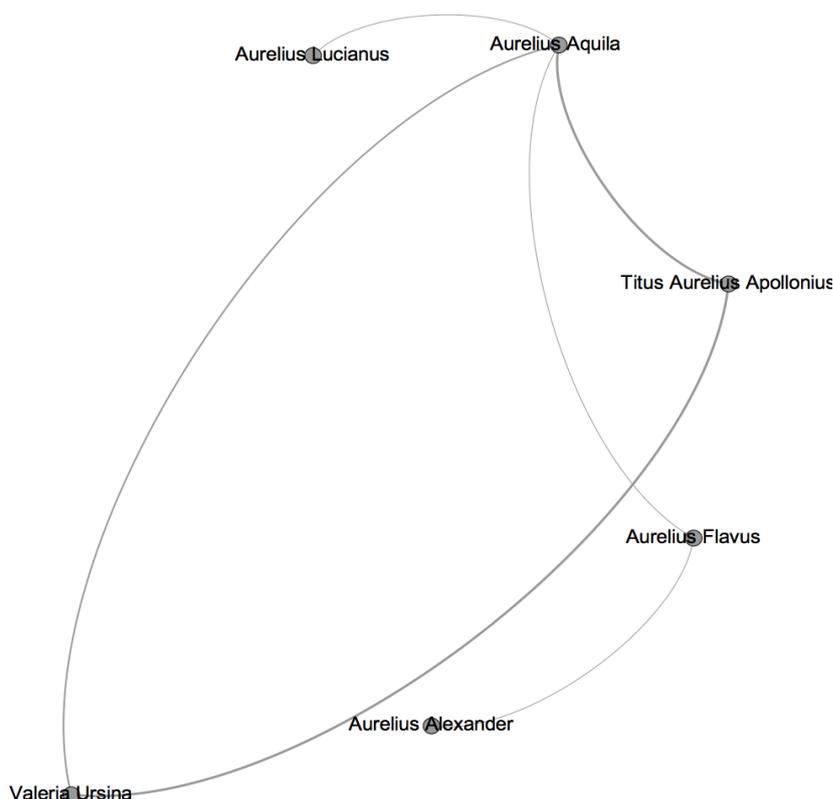


Figure 9: Aurelius Aquila's personal network

²² A detailed article on this is under press: Varga (2016).

²³ CIL III 2086 (<http://edh-www.adw.uni-heidelberg.de/edh/inschrift/HD058504>; EDCS-ID: EDCS-27700136;) and CIL III 2006 (<http://edh-www.adw.uni-heidelberg.de/edh/inschrift/HD054337>; EDCS-ID: EDCS-27601572).

²⁴ There is a duality of roles implied by the inscription (son/brother) leading to different opinions between epigraphists and historians who mention this text. The only explanation we have found for this duality of roles refers to a semantic overlapping of terms denominating both family connections and business relationships. As well, it could denote a religious relation – and maybe this hypothesis is more plausible, as initiation degrees could be as important as blood-ties. Another possibility, given the name from the wife's family, is that Apollonius was Aquila's brother-in-law, a bigger age gap justifying the paternal feelings as well.

²⁵ CIL III 7761 = IDR III/5, 218; <http://edh-www.adw.uni-heidelberg.de/edh/inschrift/HD038327>; <http://www.ubi-erat-lupa.org/imagelink/index.php?Nr=17510>.

5. Network visualizations

Although in the preceding section we have mentioned analyzing a network of connections, the real network analyses based on our database imply large samples and characters connected by common features not necessarily by real-life relationships. Trends, sometimes visible in case studies, can be proved or highlighted better by statistical quantification and by employing social networks analyses (SNA)²⁶ means – connecting people based on common traits, obtaining and finally visualizing various networks. Over the last few years these methods have become increasingly popular for historical research in general²⁷ and antiquity studies in particular. For the visualizations we have used the tool Gephi.²⁸

Below, we will present some case studies we have worked on so far. The first one (Fig. 10) is connected to the occupational studies described above, presenting the occupational clusters from Dacia (blue), Moesia Superior (pink) and Moesia Inferior (yellow). The predominance of Moesia Inferior is due to the Greek epigraphs and the different Greek epigraphic habit, which implies inscriptions more detailed and narrative than the average Roman provincial inscriptions.

The predominating clusters are HISCO 0/1 (lower right corner) and HISCO 4 (middle left), as expected, but the visualization makes this statement very easily presentable and beyond doubts.

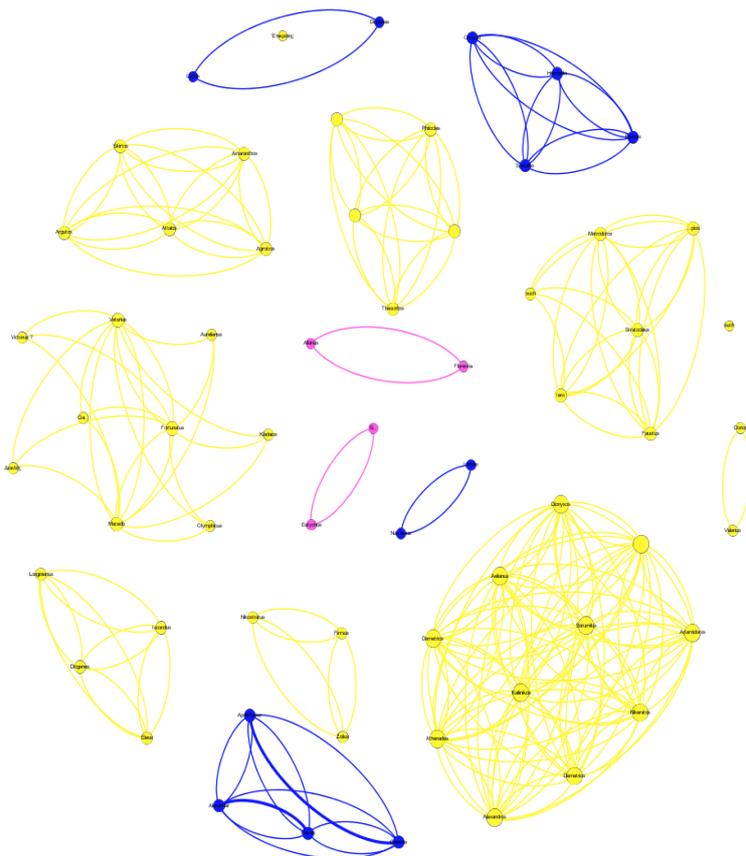


Figure 10: The occupational networks of Dacia and Moesia

²⁶ Barabási (2002).

²⁷ <http://historicalnetworkresearch.org/resources/bibliography/provides> a rather extensive bibliographical list.

²⁸ <https://gephi.org/>.

The other example represents the people attested on military funerary monuments from Roman Dacia (Fig. 11). The military personnel is represented by red nodes and the connected civilians by blue nodes. The edges' thickness is determined by the degrees from the relationships ontology (1–5, with 1 being the thickest). On this visualization, one can see small-sized networks, usually connected through family ties. Also interesting, some examples of so-called military families are visible – cases where two brothers, or father and son, have both opted for a military career.

The networks presented and shortly analyzed serve as example of what one can do with the help of quantification and visualization, based on the information extracted from the population database. We want to underline the scientific benefits of employing this technical tool and the informational profits of such enterprises.

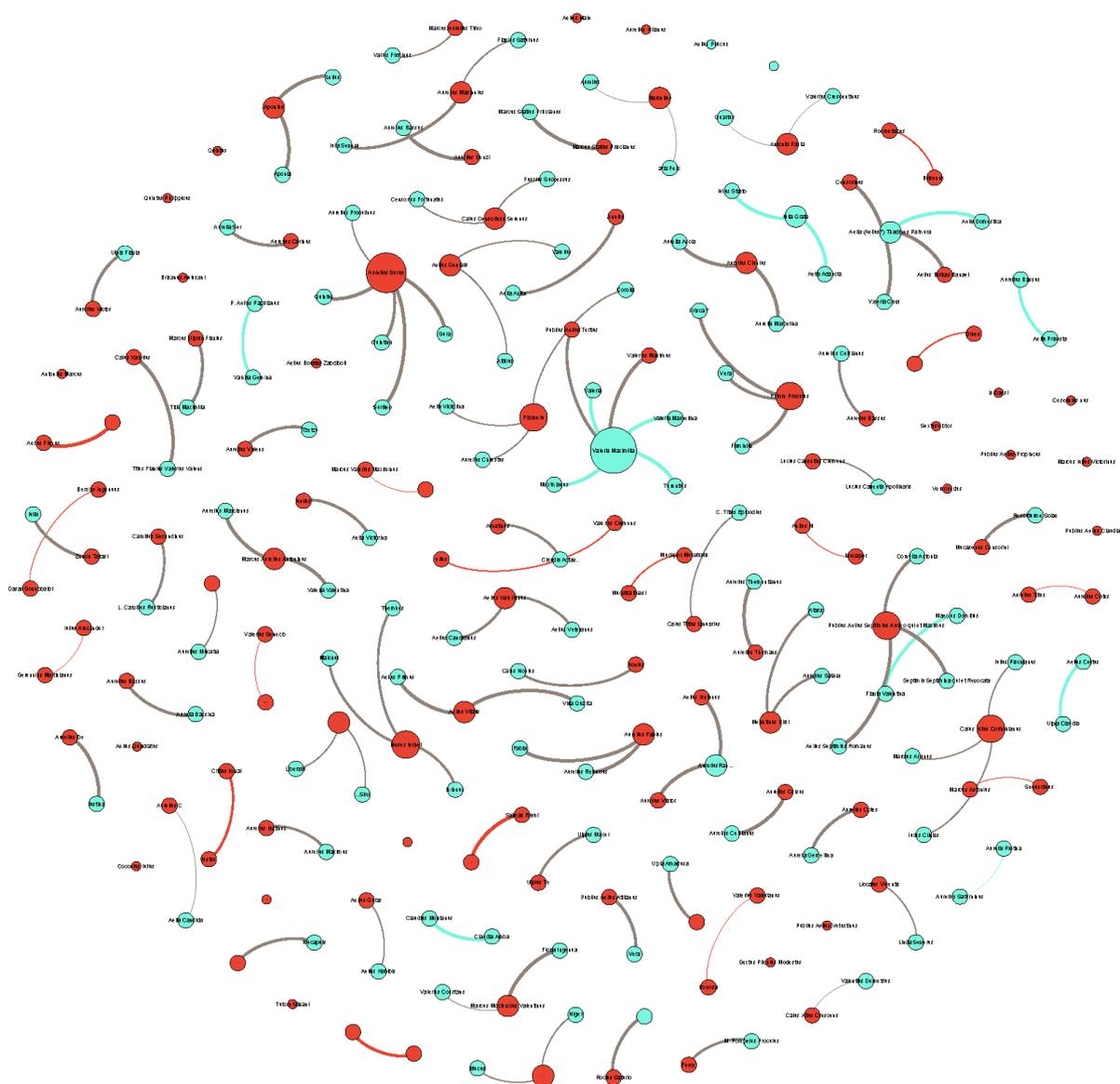


Figure 11: Links of the people attested on military funerary monuments

6. Conclusions

This article documents the *Romans Ibyl* database and presents some of the first scientific results of our work. Being a population database built exclusively for epigraphic sources, it can shed light on many aspects of life from the Roman provincial world. The research on professions revealed an amazing variety of occupational titles; the encoding of these occupational titles with the HISCO-codes was a first step to better understand the identity values of professional status and their epigraphic presentations. The prosopographical and network analyses shed light on various aspects, trends and particularities of the Roman society. Expanding and making *Romans Ibyl* more complete will be a scientific gain and a step forward in knowing and understanding the classical world.

7. List of abbreviations

AE: L'Année Épigraphique, Paris.

CIL: Corpus Inscriptionum Latinarum, Berlin.

IDR: Inscriptiones Daciae Romanae, București – Paris.

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