Zsolt Visy (ed.)

Proceedings
of the Corpus Limitum Imperii Romani
International Online Conference
held in Pécs on May 15th, 2021

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CLIR21

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The organizers and supporters of the CLIR International Online Conference, from left to right **Prof. Dr. László LÉNÁRD DSc** head of the Pécs Regional Committee of the Hungarian Academy of Sciences, **Prof. Dr. Zsolt VISY DSc FSA** professor emeritus of the University of Pécs and **Prof. Dr. Attila J. Miseta DSc** rector of the University of Pécs. Photo taken in the Assembly Room of the Centre of the Pécs Regional Committee of HAS.

FOREWORD

The research of the frontiers of the Roman Empire goes back to centuries, but the importance of its research on international level and broad collaboration emerged in the fifties of the 20th century. The initiator of this process was Professor Eric Birley who organized the first International Limes Congress in 1949. The long row of these conferences has brought together the scholars of many nations, and now it is evident that the only possible and effective way to gain more precise results about the military history of Rome and the immense organisation of its frontier defence can be achieved only through international cooperation in the fields of ancient history and archaeology. This activity has got a strong impetus from new research methods like aerial archaeology, geophysics, GPS and LIDAR technology, but first of all by the computer technology and internet in the last decades of the 20th century.

It is then the time to apply all old and new methods in an international system to provide a common platform to support the international research, and to facilitate the access to the enormous quantity of different data. This device is an international scientific database–the CLIR database–that comprises all possible features and data of the Roman Frontiers. Following the first steps have been made since the seventies of the previous century the idea got its form in the Corpus limitum imperii Romani program that has been adopted by the International Union of Academies in 2011 as the 79th – now 80th– international scientific research program of IUA for the Danube provinces.

I owe to express my gratitude towards the International Union of Academies, the Pécs Regional Committee of the Hungarian Academy of Sciences, and the University of Pécs for their strong and permanent support to create and activate the CLIR program. My special thank is due to Professor Miklós Maróth who has been supporting the program since the beginnings. This conference could not have been organized without the financial support of UAI and Professor Jean-Luc de Paepe, the Pécs Regional Committee of HAS as hosting institute, and the University of Pécs that ensures the research possibilities to the CLIR International Academic Research Centre. Let me express my gratitude to all these institutions and their representants!

Pécs, September 2021

Zsolt Visy

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JOSEP GUITART I DURAN – MARTA PREVOSTI

TIR-FOR, a century-old programme by the UAI currently renewed online

Firstly, we would like to thank those responsible for the UAL project, Corpus Limitum Imperii Romani (CLIR), and its director Zsolt VISY, for their invitation to take part in the online conference. It's true that one of the challenges facing the International Union of Academies in the coming years is how to ensure collaboration between the various UAI projects but, in this respect, the use of new technologies can help a great deal. The collaboration is promising between two projects as close as the CLIR and TIR-FOR, both focusing on Roman antiquity, based on a geographically structured database and using digital cartography. The TIR-FOR International Commission is therefore ready to set up this collaboration in the immediate future.

THE BACKGROUND

The TIR-FOR project, supervised by the International TIR-FOR Commission, results from the methodological and conceptual unification of the Tabula Imperii Romani (TIR) and Forma Orbis Romani (FOR); two major projects during the 20th century for the cartographic topography of Roman antiquity (Gardiner 1973; Migliorati 2014). They've been set up as an extensive collaboration between scientists from different countries, a partnership which, today, the International Commission aims to maintain and enhance by taking full advantage of new technologies (Guitart et al. 2018).

DIGITISING THE PROJECT

At present, the project's main aim is to share an online map and gazetteer of the Roman Empire. A huge online digital application is being created, cataloguing and mapping all the data available on sites, toponyms and landforms in the Roman Empire based on precise, reliable and first-hand archaeological information provided by specialists from each region we're working on. The Commission's goal is to globalise and systematise all this information via an online portal shared by all the teams involved in the project.

Technologically, the current basis of the project is the combination of an SQL Server database, a geoportal or map viewer and a public website with a powerful search tool[1]. One fundamental objective is to link this application with other maps and databases of the Roman world to enrich their capacity and help build up an extensive network of information and analysis related to the Roman world.

Given the recent emergence of a large number of other projects on Roman topography that are highly specialised in various subjects, the TIR-FOR project could seem to have become less relevant. However, our proposal will help to rejuvenate this project. It's an innovative proposal, possible due to the structure created by TIR-FOR within the UAI and thanks to the huge amount of information generated by it.

TIR

The TIR project focused on summary maps with record sheets and reviews of all the Roman toponyms appearing in the classical sources and the archaeological research carried out in countries formerly occupied by the Roman Empire. It was designed to create maps to a scale of 1:1,000,000. The objective of the TIR project was therefore to create a scientific map with a gazetteer summarising the Roman world.

FOR

The FOR project, on the other hand, was designed to produce more detailed maps. It was set up as a large-scale collaboration between countries in order to create detailed cartography of the Roman world with maps to a scale of 1:25,000 or 1:50,000, accompanied by site catalogues (gazetteers) on all the features appearing on the maps themselves, as well as scientific analysis with conclusions regarding the corresponding territories[2]. The ultimate goal of the FOR project was to produce an exhaustive collection of all the evidence available from sources, epigraphy and archaeology that can be included on a map. The online FOR will therefore have great research potential as it's based on information from either excavations or direct surveys and reports in the archives.

TIR-FOR

The current online project is actually an enlargement of the TIR project by means of the FOR project, producing even more detailed mapping. It's like zooming in on some specific regions. Both objectives have been maintained, namely to produce a general map and also a detailed map. Consequently, when a general map (or TIR map) is being created for an area, we enter only the most significant and well-known archaeological sites and the toponyms. When a detailed map (FOR map) is being created for an area, however, all the toponyms and also all the sites and finds known must be entered (including small, doubtful and/or relatively unknown sites and finds). Consequently,
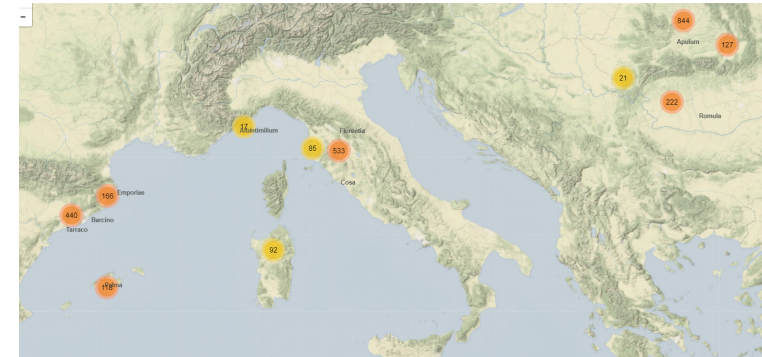
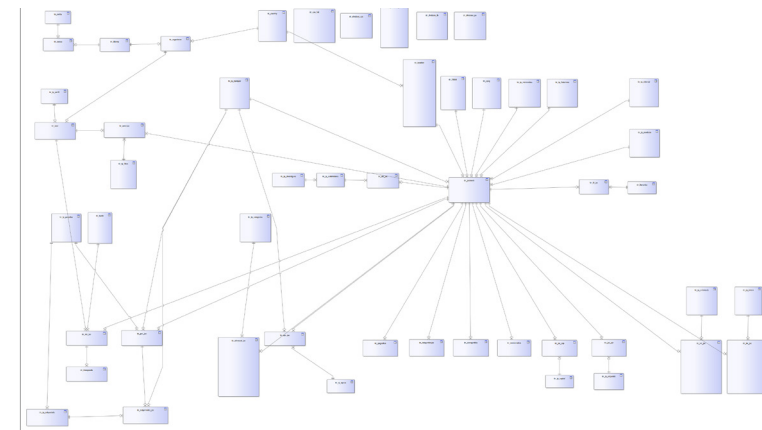Figure 1. The TIR map and the sites currently published on the public website.

Figure 2. TIR-FOR application database tables.

the FOR can provide a detailed view of specific zones on the TIR map, as an extension to and more detailed version of the TIR for those regions that have been studied thoroughly and are particularly rich in terms of their archaeological documentation.

TIR-FOR, THE ONLINE APPLICATION

We've created a complex geodatabase to digitise the TIR-FOR Project data and disseminate it online. This online PostgreSQL relational database allows us to spatially process the project's archaeological data. The application is equipped with a map viewer, a public website, an administrator website and a powerful advanced search facility.

The system has been created following strict security protocols with an independent multi-user environment. Each country has its own workspace within the database system in order to enter, edit and search information. In the management application, each team can only see and manage its own data whereas, on the public website, you can see all the information from all the countries, although only in the case of information that has been classified as public.

UNIFIED CRITERIA

The current project is driven by a new unified methodology. The database is used as an integrated system to store the data generated by each country's archaeological team and is the result of considerable systematic work regarding all the concepts concerned. Extensive work has been carried out to define and systemise the types of site, chronological periods, citation of ancient sources and administrative categories (Fig. 3). Unified criteria enable data to be compared, as well as producing chronological-typological maps of the whole Empire or extensive parts of it.
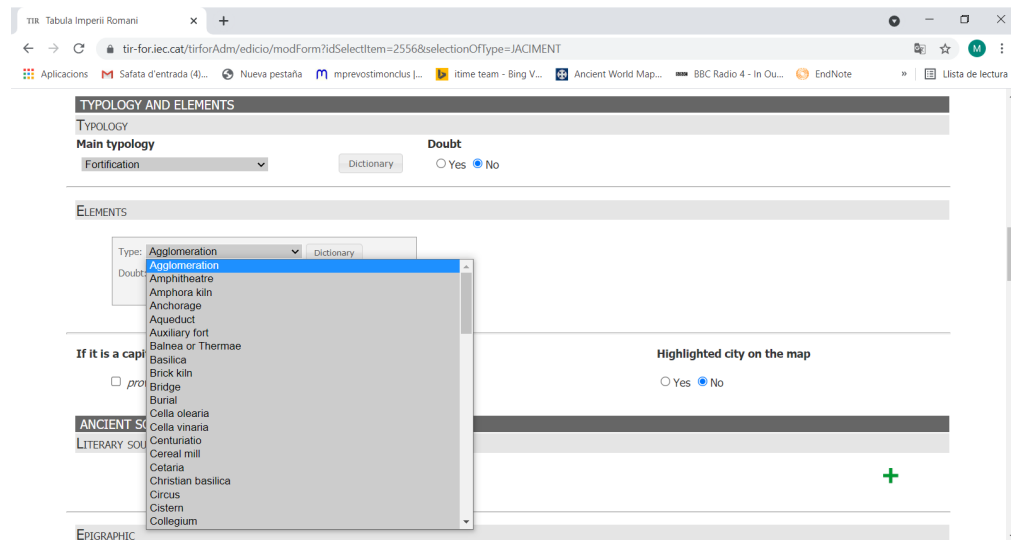

Figure 3. The TIR-FOR application has a drop-down list of typologies and elements as well as a dictionary of typologies and elements with definitions of the different concepts, criteria to identify them and TIR criteria to include them in the database to appear on the map.

SEARCHES

Significantly, one of the main objectives established for the TIR-FOR online project was to create a powerful search and filtering system for data and archaeological sites. This is essential in order to provide society and researchers with a truly useful platform on the archaeological reality of the Roman era. The application is equipped with a "Search" tab and an "Advanced search" tab. On entering "Advanced search", a multiple-choice menu is available to carry out more powerful and complex searches, providing a detailed system in which users can combine all the fields from the database sheet to create personalised filters (Fig. 4).

Each search produces a map with the results, as well as a list of the sites resulting from the search, which can be downloaded in a csv file suitable for exporting data to GIS programs, containing records with archaeological and geographical information selected from each site. The unification of criteria regarding the different types of site
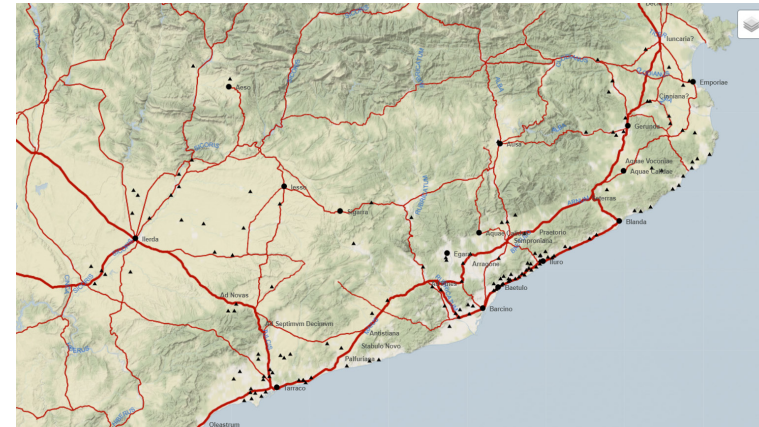

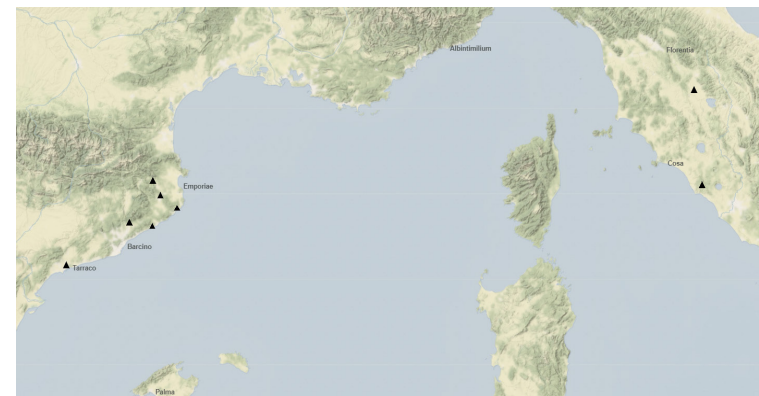Figure 4. Map resulting from the search for Catalonia, city, villa, roads and rivers.

Figure 5. Searches can be made throughout the empire, such as the search for villa with aqueduct.

and the elements they might contain, as well as the use of the same chronological periods, means that highly consistent maps can be created of the whole Roman Empire.

PILOT TEST OF THE APPLICATION

This software is now operational and in the testing and fine-tuning phase. In parallel to the construction phase, it was agreed that three of the teams from the International Commission (the team from the Italian Union, the team from the Romanian Academy and the team from the Institut d'Estudis Catalans) would begin to use the application as a TIR pilot test, digitising the data from their respective territories that had been previously published in paper format, as well as updating the information at the same time[3]. The outcome of this pilot test can now be consulted freely online on the project's website and its results can be seen today, as well as appreciating its future potential for managing and analysing documentary and archaeological data from Roman times.
https://tir-for.iec.cat/

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3 For the FOR, a first pilot test is being done based on the Ager Tarraconensis Project (Guitart et al. 2003; Prevosti and Guitart 2010; id. 2011, Prevosti et al. 2013; Járrega and Prevosti 2014).
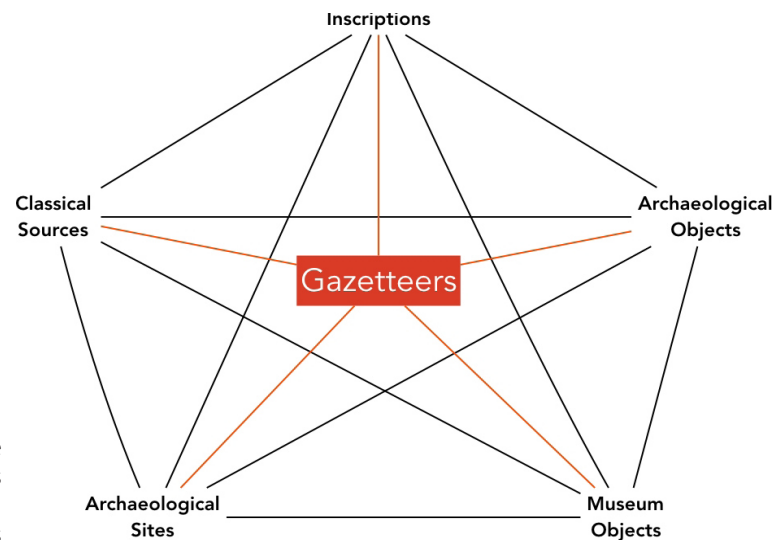
Figure 6. The TIR map of Catalonia.

Figure 7. Diagram of the function of gazetteers as connectors of Linked Open Data projects

RESEARCH TOOL

Once a region's information has been collected and entered in the database, we have information about all the Roman sites under unified criteria, providing us with a good quality tool to manage scientific data. This will become a key instrument for historians and archaeologists to consult and carry out advanced searches, providing basic information about sites which is often difficult to obtain outside a researcher's own country of work. This tool will therefore help to advance many aspects of archaeological research, for instance comparisons between regions, cross-border issues and specific types of site.

LOD

A large number of historical gazetteers and international databases currently include archaeological heritage information on different historical, epigraphic, numismatic and archaeological subjects. The TIR-FOR application can be networked with these using linked open data protocols. Our aim is for the different archaeological sites to be linked with online applications such as DARE, Pelagios, GAP, ORBIS, Epigraphische Datenbank Heidelberg and others. The value of this application lies in the fact that it's a tool created on a geographical basis that produces a map, so that all data that meet certain criteria can be found, without exception.

We hope this tool will become an essential resource for anyone interested in the Roman world and specifically in archaeological sites, since it combines open access, the backing offered by TIR-FOR and the scientific quality of its data. Combining our archaeological knowledge and historical heritage in an innovative, direct, entertaining and appealing way will also engage the public at large. As a heritage dissemination and management tool, it can be used for teaching, museums, demos, tourism, outreach and entertainment. Another consequence of this unification will be to promote a sense of a common Mediterranean origin based on classical culture.

We wouldn't like to end this brief presentation without mentioning one of the aims of the project on which the International Commission has placed considerable emphasis at its most recent meetings: the TIR-FOR online map and gazetteer have great potential for research. Obviously, such research needs to be carried out within each of the teams that make up the Commission and in cooperation between them, but this collaboration can also be opened up to all researchers working on related topics or subjects. Along these lines, in 2020 we organised the "1st TIR-FOR Symposium. From territory studies to digital cartography", dedicated on this occasion to the relevant aspects of research into the Roman world that are potentially related to TIR-FOR. The Symposium welcomed all researchers interested in these topics and benefitted from a considerable number of contributions. The Symposium in 2020 had to be held online but the aim is to organise regular symposiums, as far as possible every two years, each of them on a specific topic and, if possible, attended in person or combining on and offline. The proceedings from the first Symposium are currently in preparation, a publication which should become available on 2021.

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