Cypriot archaeology in the ARIADNE Portal: the aggregation of the Cypriot Medieval Coins and the Cypriot inscriptions' collections

Valentina VASSALLO, The Cyprus Institute - Science and Technology in Archaeology and Culture Research Center (STARC), Cyprus

Introduction

This contribution will focus on the provision of Cypriot archaeological datasets to the ARIADNE Portal, presenting the issues encountered, the solutions adopted, and the successful results in the data aggregation and integration into the infrastructure. Under one of the subdomains ARIADNEplus aggregates, namely the application profile for inscriptions (both carved on stones and made on objects), the Cyprus Institute (CyI) has been contributing some data to this group of archaeological material: ancient coins and epigraphs.

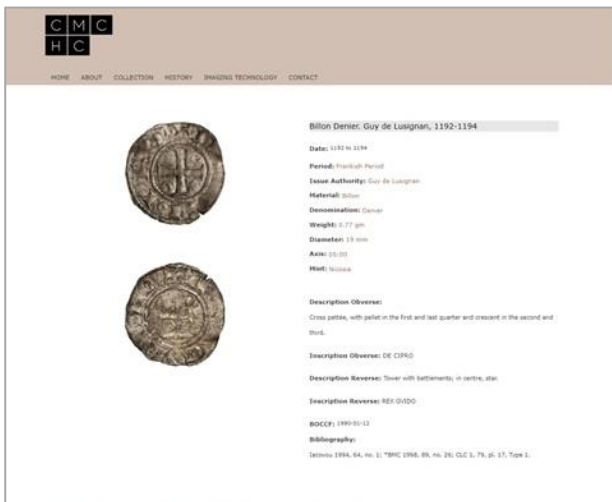## The Cypriot Medieval Coins and the Cypriot inscriptions' collections

The first one is a collection of Cypriot Medieval Coins[1], published in the CyI DIOPTRA, a digital library dedicated to the rich Cypriot Cultural Heritage, covering topics from archaeology to anthropology to art history and culture. The collection documents the use of currency on the island during the Middle Ages, specifically during the Cypriot Frankish (1192-1489) and Venetian period (1489-1571), covering a period from the 12th to the 16th century. Beyond the access to the coinage of the period, the digital platform offers an interactive exploration of the items through Reflectance Transformation Imaging (RTI) and high-resolution super-zoom, complemented with text descriptions and links to other collections, providing context as well as alternative ways to study and access the material (Avgousti et al., 2017). Fig. 1a

The second collection is the Archeia Kypriaki Grammateia, published in the CyI STARC Repo[2], a digital library dedicated to the curation of the born-digital data where, together with digital objects, it presents novel interactive methods for accessing and exploring information. The dataset is a digital corpus of Ancient Greek Cypriot inscriptions collected in a series of volumes (Voskos et al., 1995).

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1 https://numismatics-medieval.dioptra.cyi.ac.cy. The digital collection was an integrated effort of the Cyprus Institute and the Bank of Cyprus Cultural Foundation, whose museum conserves the physical coins collection.
2 http://public.cyi.ac.cy/starcRepo/explore/objects

The corpus includes a wide range of literary genres in a time span of almost thirteen centuries (7th century BC to 5th-6th century AD). In particular, the data brought into the ARIADNE Portal consists of the Cypriot epigrams inscribed on stones found in Cyprus and elsewhere (mainly Greece) and conserved in several locations. The collection gives access to different resources such as the transcribed Ancient Greek text, the translated Modern Greek text, the commentaries, the archaeological object's image, and, in some cases, the 3D. Fig. 1b
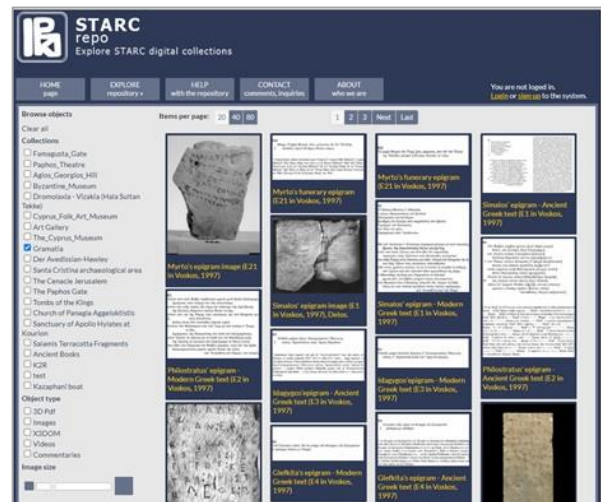
a	b

Fig. 1. a) The Cypriot Medieval Coins collection in DIOPTRA; b) the Archeia Kypriaki Grammateia in the STARC Repo (© Vassallo).

The aggregation pipeline

The peculiarity and character of these collections and their chronological and geographical coverage were the motivation to integrate them into the ARIADNE Portal. Indeed, the possibility through the portal to discover, access and share Cypriot archaeological artefacts helps to make them visible and do research (re-use) both within and across national and regional borders, especially considering the fact that Cypriot archaeology in the past was subjected to export and dispersion into different countries. The integration in the infrastructure allows the global sharing of the Cypriot datasets, the interoperability between the resources, and their digital preservation.

A specific pipeline and mandatory criteria in the aggregation procedure guarantee the data standardisation, the ingestion and the meeting of the FAIR principles (Bardi et al., 2020; Hollander et al., 2018). Fig. 2a and Fig. 2b

Specifically, the aggregation work started from the extraction of the metadata used to describe the two collections' items. In the case of the coins, the metadata used is simple, with few fields, and usually employed in the traditional description of the physical coins. Nevertheless, on the one hand, this structure helps to describe those objects easily, but on the other hand, much information is missing for a proper alignment to the ARIADNE ontology (AO-Cat) -based on CIDOC CRM- and compliance with the requested mandatory fields. In the case of the inscriptions' collection, a complex metadata schema, appositely created for the description of Cypriot inscriptions, is used (Vassallo et al., 2013, pp. 79–82). In both cases, adaptations and adjustments of the metadata to the

standard and the priorities definition for ingestion were necessary (e.g., the inclusion of some fields and merging of subsets).
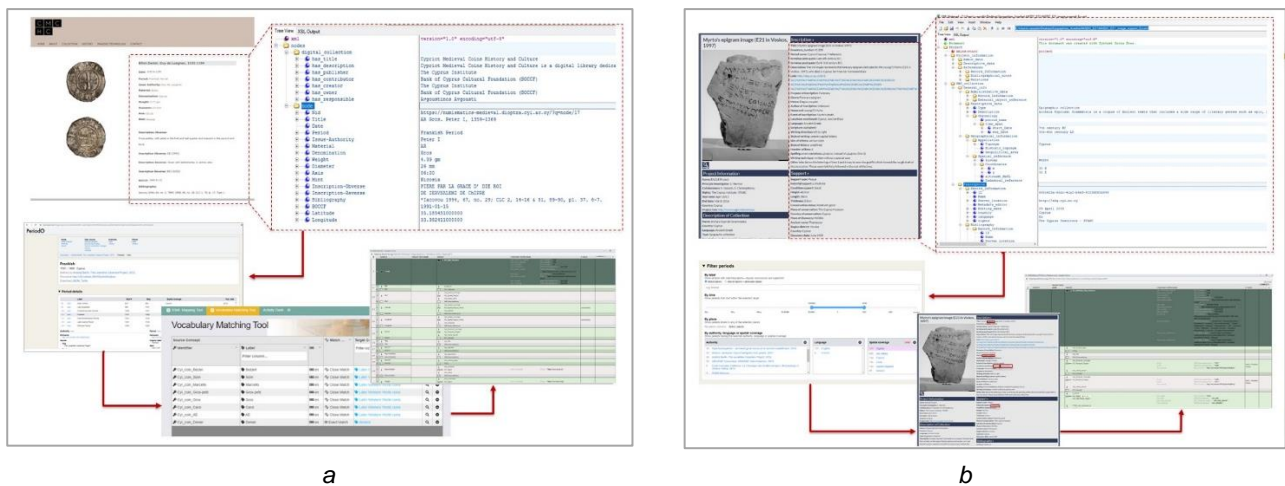

a   *b*

Fig. 2. The aggregation pipeline, from the metadata extraction, standardisation, and enrichment to the alignment to the ARIADNE ontology: a) the Cypriot Medieval Coins dataset; b) the Archeia Kypriaki Grammateia dataset (© Vassallo).

In parallel, the work continued with the standardisation and enrichment of the two collections' metadata through the use of some vocabularies adopted by ARIADNEplus: PeriodO for time periods and Getty Art & Architecture Thesaurus (AAT) for subjects.[3] For both the collections, the existence of already published periods in PeriodO correspondent to their chronology facilitated the standardisation process. Concerning the subject terminology alignment, the Vocabulary Matching Tool integrated into the ARIADNE platform helped carry out the work. The first step was to extract the terminology used in the datasets. In the case of the coins' collection, the work was facilitated by the existence of a list of terms. Nevertheless, in some cases, a lack of detailed or precise terms was noted during the operation. That brought to establishing collaboration with other numismatists for terminology homogenisation in the field.[4] In the inscriptions' collections case, the work was complicated by the lack of terminology; a thorough analysis and extractions of terms were needed before the vocabulary matching. Eventually, thanks to the X3ML tool[5] integrated into the ARIADNE infrastructure, the last step consisted of the collections' metadata mapping to the ARIADNE ontology, specifically to the CIDOC CRMtext extension, dedicated to the description of inscribed archaeological artefacts. That last step allowed the final metadata homogenisation and the successful publication into the ARIADNE portal. Fig. 3.

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[3] PeriodO is a gazetteer of scholarly definitions of time periods (https://perio.do/en/); the AAT is a hierarchical standardised thesaurus used in the Cultural Heritage field (https://www.getty.edu/research/tools/vocabularies/aat/).

[4] A collaboration started with the Nomisma.org project (https://nomisma.org/).

[5] X3ML is the mapping tool developed by Forth for the homogenisation and aggregation of the datasets (https://www.ics.forth.gr/isl/x3ml-toolkit).
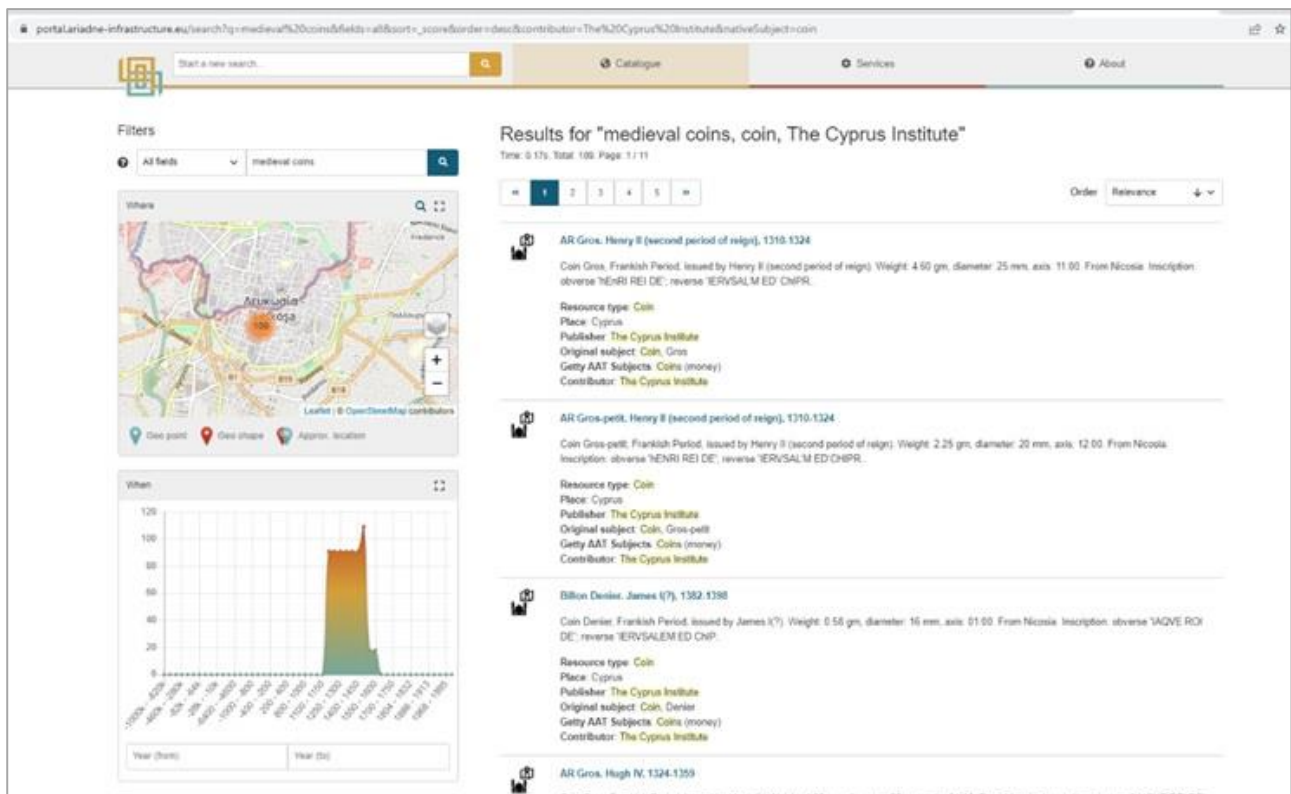
Fig. 3. The final publication of the Cypriot Medieval coins datasets into the ARIADNE Portal (© Vassallo).

Conclusions

The publication of the mentioned datasets is a significant result regarding the Cypriot archaeological material aggregation into a research infrastructure specifically-dedicated to archaeology. Other portals exist for Cultural Heritage data aggregation, but the possibility of a Research Infrastructure Archaeology-oriented facilitates many of the daily tasks of the domain's scholars. The opportunity offered by the ARIADNE Portal to share, access, find and re-use archaeological data, as well as to access tools for analysis, is surely a plus in archaeological research. Indeed, the digitization of datasets guarantees the future preservation of the information and the possibility to easily analyse and compare data thanks to the help of tools and digital solutions. As previously mentioned, in the past, Cypriot archaeological finds were subjected to export and dispersion into several countries. The standardised integration in the infrastructure allows for global share of Cypriot archaeological datasets conserved in several countries: beyond digital preservation, it allows interoperability between the resources and doing research (using and re-using data) within and across regional and national borders.

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