

Documenting the Coins of the Wilcox Collection

chaduhl.github.io/Wilcox-Coins

Spring 2018

Chad Uhl

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Project Abstract

In the past decade, several digital projects aimed at digitizing, mapping, linking, and studying material culture from the ancient world have sprung up. Many of these can be viewed at [The Digital Classicist Wiki](#), but several of primary interest to this project are noted below. All of these projects seek to broaden the community of digital scholarship and launch collections material culture into the realm of open-access. The Wilcox Collection at the University of Kansas holds nearly 800 ancient coins with dates ranging from the 6th c. BCE to 7th c. CE. Several undergraduates and I have started documenting these coins and creating a database of their numismatic data. We are currently creating a robust site for the collection, through which scholars, students, and the general public can easily access the data. These coins have never been properly studied by numismatists or classicists, so opening the collection to a wider audience will undoubtedly benefit the entire scholarly community. Further, we will promote its original pedagogical purposes by providing lesson outlines that can be incorporated into Classics courses. The database will also have the functionality to create visual queries of the numismatic data itself, providing opportunities for investigative research and learning. The insights produced by querying a representative collection of ancient coins can be used in all Classics courses with the added benefit of having the real objects available for physical study. Overall, this project adds to the current scholarly work to digitize existing collections of ancient coins (and artifacts of material culture at large) to further document, preserve, and open them to those inside and outside the academy.

Project Description

When Dr. Phil Stinson first introduced me to the notion of this project, I was overwhelmed. He began explaining that we had several hundred coins belonging to the collection of the Wilcox Museum in storage—coins which had rarely ever been seen by human eyes. Our job would be to document the collection, create a robust database, and design a proper website on which the collection can be displayed and navigated by anyone, anywhere. It has been a bit of an embarrassment that our department would let such a relatively large collection simply collect dust in a storage room, when there are now many tools with which to communicate the collection online. The original purpose of the collection was for pedagogy, but that has fallen out of standard practice in the past decades since professors often display images in classes instead of taking more time to find a suitable coin in the archaic records of this collection. This digital humanities project

aims to provide detailed information about our collection to scholars, students, and those outside of the academy. By creating an open-access database of our collection, we hope to provide an apt resource for incorporating ancient coins into Classics courses and contributing the growing corpora of digitized records on ancient material culture. In this documentation, I hope to demonstrate the processes and modalities we have thus far employed to document, photograph, and digitize the overall collection of coins.

Thus far in the project, we have begun sorting through the coins, recording new and accurate measurements of their diameter (mm) and weight (g), the orientation of their respective axial alignments, and photographing the objects themselves. While this work has been tedious, the numismatic data collected on the coins will be beneficial for doing computational analysis and providing data visualizations of the collection—neither of which have been done in the past. In fact, data such as this will be of importance to scholars and numismatists, both inside and outside the academy. In this project, we aim to provide a robust, searchable database to display our collection which can also be queried to create visualizations of the data corpus.

Having very little knowledge of numismatics and digital curatorial practices, we approached these tasks with a DIY attitude and we have learned much since the beginning. In combing the web and the online Classics, Archaeology, and Numismatic communities on Twitter, we learned of Nomisma.org, Pelagios, and other linked-data initiatives aimed at uniting different collections of material culture across the globe in order to provide a most robust and comprehensive collection of data not only for scholars, but anyone interested in exploring ancient numismatics. These projects have duly affected how we are implementing our own project, which will be described in the future sections of this documentation. Tied into these projects is an additional facet which we had not previously considered: XML description schema. These sites pull in data from wide-ranging communities via XML documents which ensure that the data is appropriately segmented and readable by HTML, JavaScript, and other web-development languages, search engines, and machines in general. In order to do this appropriately, there needs to be a standard way of describing numismatic data, hence the dawn of the [Numismatic Description Standard \(NUDS\)](http://NumismaticDescriptionStandard.org). NUDS makes use of the XSD (an XML schema) to ensure that, if an institution or individual would like to contribute data to the linked-data community, they have the right schema by which to describe their collections.

In addition to these resources, we are making use of the connected, open-source back-end software developed to manage numismatic data, Numishare, which was developed and still maintained by [Ethan Gruber](http://EthanGruber.com). Gruber developed this software with funding from

the National Endowment for the Humanities, thus situating it as an exemplary scholarly project which props up the work of further scholarship. It is the back-end software that drives numismatic-oriented sites like [Mantis](#), a division of the [American Numismatics Society](#), as well as the following projects: [Online Coins of the Roman Empire \(OCRE\)](#), [Coinage of the Roman Republic Online \(CRRO\)](#), [Coinage of the Kings of Macedonia \(PELLA\)](#), [Seleucid Coins Online](#).

While this project does not directly relate to the current cultural context of any modern population, it does create a space for conversation on the socio-political context of artifacts, cultural property, and repatriation. These coins do not have a secure provenance and so it has impossible to say how they were obtained for where exactly they came from. Such a lack of history on a collection is distressing for numerous reasons, but perhaps more so given the long-standing debate concerning the Elgin Marbles at the British Museum, which has seen a resurgence in recent years. In brief summary, Lord Elgin, a British aristocrat took many of the better-preserved marble sculptures from the site of the Parthenon when Greece was experiencing war and unrest under the Ottoman Empire. There is an alleged note from the Ottoman Empire permitting Lord Elgin to export these sculptures, but the modern Greek government has requested that they be returned and built a new facility to house them. The British Museum, however, maintains that the move would be detrimental to the integrity of the artifacts and that the Greek government (in light of their recent economic bailout) is not is not economically sound enough to merit the care of these precious sculptures. It is my opinion that this situation could perhaps be mediated by creating robust 3D models of the Parthenon sculptures and make them freely available online. Similarly, digitizing the coins of the Wilcox Collection, making them openly available online, and incorporating them into the massive database(s) of linked-data will perhaps assuage concerns about who “owns” the coins that comprise our pedagogical collection.

Goals of the Project

Having thus introduced the project and its origins, I will now outline the principal goals of this project more clearly and hierarchically. The following list is comprised of the 6 central aims of digitizing the coins of the Wilcox Collection:

1. Fully document and photograph all coins held within the Wilcox Collection so that we may not only make the collection more accessible, but also for archival purposes related to the department and university.
2. Fully describe the numismatic data of the collection in order to implement a searchable, data-driven website accessible to all.
3. Provide faculty and graduate teaching assistants at the University of Kansas with an efficient, impactful, and robust way to access the ancient Greek and Roman coins of the Wilcox Collection for both pedagogy and research.
4. Maintain an open-access site that allows all users to access the collection and visualize both the data of the collection and any specific queries they would like to make on said data.
5. Connect the database of the Wilcox Collection with the linked-data projects Nomisma.org, Pelagios, and any others that may be relevant to the study of numismatics or ancient material culture.

Methodology

As I have previously noted, Dr. Stinson and I had very little knowledge of Numismatics as we started this project and have approached it with a DIY attitude, learning as we go. It is little surprise then, that our process in both documenting the coins and creating an online database for them is truly one of trial and error. It is thanks to the Brian Rosenblum and the Institute for Digital Research in the Humanities here at the University of Kansas alongside the work and kind advice of other scholars such as Jane Evans, Ethan Gruber, *et al.* In this section, I will walk through our process step-by-step, noting what I think we did well (especially for beginners), what we would have done differently (hindsight is 20/20), and what still needs to be completed or improved in the future.

Getting Started

As we began to discuss the collection and of what types of coins it was comprised, we immediately realized that the collection's original purpose must have been for pedagogy but had been supplemented with other collections donated to the department, notably the Toomy and Banks Collections. Overall, the coins span from the 7th century BCE to the late 5th century CE, feature an abundance of different iconographic subjects, and of course are from both Greek- and Latin-speaking regions of the Mediterranean. The collection was accompanied by an inadequate spreadsheet of the data, likely imported from the accounts written by the previous collection holders. Thus, the items in our collection have little or no provenance at all so we are limited in terms of existing knowledge about the artifacts. Since we have a finite amount of time to work on this collection, it has seemed fitting to document the coins—that is, to photograph and record data on their weight (g), diameter (mm), axis, and condition—rather than complete in-depth studies on individual coins (henceforth, I will use the verb “document” to refer to the process I have outlined here). Our next step, was then to work with the existing data—to modify, append, and reformat it as necessary.

Working with the Existing Data

As we started to work with the existing spreadsheet (fig. 1), we did not consider several factors which would affect future goals, namely: how the data could be converted into

other formats such as CSV, XML, etc.; what requirements would such file types have in terms of data-types and general format; data “cleanliness;” and labelling schema.

Coin	Date	Mat	Denom	D/Wt	Align	Ethnic	Obv	Obv Insc	Rev	Rev Insc	Display	Cond	Biblio	Notes
1	1857 CE	AU	non-govt issue, 10 karats: "jeweler's gold" = taken	9.97 mm; 3.84 g	12	Calif	head of Indian, l, with feather headdress; 13 stars around head of	1857	wreath; in center, 5-pointed star	around star: CALIFORNIA; below, GOLD	NO	mint		
2	BCE 88-87	AR	denarius			RRep	head of Tattius		Tarpeia before 2 warriors		Yes; R7			moneyer L. Titivilius Sabinus
3	BCE 83	AR	denarius	17.45 mm; 3.84 g	12	RRep	head of Venus r.	C.NORBANVS, CIII	Prow-stem, fasces with ax, caduceus	-	NO	VG	M132	C. Norbanus moneyer
4	BCE 48	AR	denarius			RRep	Pallor, military triumph behind		Ephesian Diana stands with radiate crown		Yes			
5	BCE 91	AR	denarius	17.38-17.72 mm; 3.56 g	12	RRep	Female head of r.	PIETAS	Young man carrying father on shoulders	HERENNI, S.[C]	NO	Good	Stevenson p. 461; Sydenham 567a; M101	see Valerius Max V.H.4; Pausanias V.28.4
8	BCE 89	AR	denarius	17.39-17.70 mm; 3.52 g	2	RRep	head of Apollo r., different letters and emblems	-	L. Piso Fru. Horseman going at rapid pace; in some coins w. palm or sword, etc.	A, L.PIS... I?	NO	Fair	Stevenson p. 166 M113.40	L. Piso Frugi of the gens Calpurnia moneyer
9	BCE 79	AR	denarius	17.68-18.85 mm; 4.02 g	9	RRep	Laureate head of Jupiter r.	S.C	Juno Sospita walking w/ shield and buckler raised, a serpent rising from ground	L.PROCILI.F	NO	Good	Stevenson p655	L. Proculus moneyer
11	BCE c. 30	AE	As ("middle" brass)	25.93-26.25 mm; 15.32 g	1	RRep, Nemausus	heads of Augustus & Agrippa back to back	IMP.DIVI.F	Crocodile chained to palm	COLNEM (Nemausus)	NO	Fair	Bab., Cohen, Stevenson p.569 illustration	
12	BCE c. 17	AE	As	24.62-25.04 mm; 6.35 g	5	RRep	head of Augustus r.	AUGUSTUS. PONT.MAX	altar (Lugdunum altar type 35)	ROMA.ET.A VG	NO	Fair		
13	c. 254 CE	AR	antoninianus	23.15m m; 3.26g	12	RImp, Cornelia Salonina (254-268 CE)	head of Cornelia Salonina, wife of Gallienus, r. w/ diadem & crescent	SALONINA.AVG	Star, Juno standing front, with patera in l. hand & scepter in r. peacock at feet.	IVNO.REGINA (only occurrence of legend on coins)	NO	Fine	Cohen 68, 212R	

Figure 1: Preliminary Spreadsheet for Coin Data

As you can easily tell, there are several problems with this spreadsheet if the ultimate goal of the project is to translate this numismatic data into a searchable, online database. Firstly, many of the cells are joined via Excel's "Merge & Center" capability, which, while helpful for many projects, is the nemesis of data analysis. Since only some were merged, these types of cells prevented us from exporting the data to a CSV file (with the thought of creating a traditional MySQL database with LAMP (Linux, Apache, MySQL, PHP) architecture). Similarly, the words chosen to define "Condition" and "Display" (a category meant to indicate if the coin was on display in the museum) were not normalized and many prosaic wanderings were present throughout the list. Alongside these oversights, the data for the diameter and weight had been put in the same column. If a spreadsheet is to be used for analysis, data such as the examples I have just described must obviously be located in separate columns and abide by a normalized schema. By schema, I mean a clear, structural model for describing data. For instance, the typical coin grading scheme (fig. 2) is not well-represented in this original spreadsheet. Since the

Good
Very Good
Fine
Very Fine
Extremely Fine
About
Uncirculated
Mint

Figure 2: Standard Coin Grading Schema

beginning of the project, we have normalized the coin grading column, separated and updated the diameter and weight columns, and simplified the “Display” category to a binary value, with ‘1’ indicating the coin is on display in the museum and ‘0’ indicating that it is in storage. These are some of the simple errors which we had not considered at the beginning but eventually required several hours of human-intervention in order to make the spreadsheet appropriate for data analysis. We eventually fixed these problems in the process of trying to find a suitable method for creating a searchable database.

Creating the Database

Though I have a limited understanding of programming and web-development, I imagined that creating suitable back-end software which could display the coin data from a pre-defined database created in MySQL would not be a Sisyphean task. I was entirely and utterly incorrect. Upon this realization, I investigated several different options, often attempting to implement the software in order to evaluate its fit to our aims. In this section I will illustrate our process of finding the proper software which would fit our goals, as previously outlined. As I previously stated, we had very few resources at our disposal to bring this project to fruition, so we attempted to investigate any route that seemed viable. After realizing the shortcomings of our own skills, we started investigating relatively common platforms like [Wordpress](#) and [Omeka](#), the latter of which is often used for creating online collections or curations of objects. These fell short but we eventually an open-source project called [CollectiveAccess](#). This software seemed like the best option for a time, however, it paled in comparison to [Numishare](#), which I have already discussed. In the following subsections, I will discuss the pros and cons of each of these platforms as they related to our project.

Wordpress

Because we are based in a public institution, we are working within the confines of our university’s IT department. While they have been helpful throughout this project, there are limitations, as I will discuss later, with regard to Numishare. These limitations, however are the main reason we decided to try Wordpress first. If not using the Drupal system developed for university sites, a project at KU must use CPanel and the pre-loaded and pre-approved software included by IT. Wordpress is easily the best-known software for blogs and standard sites and is well-suited to a myriad of different projects. Creating an online database of numismatic data, however, is not one of these projects.

We attempted to use several different capabilities of Wordpress to accomplish our goals, but the platform was not well-suited to creating a searchable database, at least without a lot of original code. We quickly moved on to finding new options after realizing this.

Omeka

The University of Kansas (KU) does not purchase institutional access to Omeka which immediately limits its functionality. The free version has scant resources for taking on a project of this size. We did not have the funding to purchase access to the full version, nor will the collection ever have the budget that hosting the site on Omeka would require, especially given the company's price schedule on server space and the sheer number of high-quality photos we would need to host. Establishing the site on Omeka would have been a supremely unsustainable decision for the longevity of the collection. This is why we have chosen to host the project on the servers maintained by KU IT. Hosting a site or project at an institution immediately extends the assumed longevity of the project (a perennial problem for projects in the Digital Humanities community), since it will exist and be accessible after the faculty and students who author the project leave or move onto different enterprises. Additionally, though this sense is dissipating, the .edu suffix of a site immediately creates a sense of credibility and scholarly authority. For these reasons, we did not choose to pursue Omeka as our platform and instead maintained our original decision to host the site on KU servers.

CollectiveAccess

In sincerity, CollectiveAccess seemed like the solution to all of our problems. This platform provided a back-end and administrative management system which were incredibly easy to install on the KU server. The back-end was up and working in a matter of hours. It did not require complex programming or system administration. This was ideal, given that a collection management system like this would likely survive past my time at KU and be accessible to any student or faculty member who might take up the mantle of managing the collection. CollectiveAccess even provides encoding frameworks to better organize your data in reference to other, larger initiatives. Truly, this platform had all the tools (and more) that we would need to adequately manage this collection of coins (even the functionality to import CSV files), but it lacked the possibility for visualizing data queries and it was not built for coins specifically. This lack of specification would have prevented the collection from being used in the pedagogical and scholarly ways we had envisioned, and so we regrettably had to abandon the idea of using it as our main platform.

Numishare

After the disappointment of having to abandon a great, open-source, back-end platform, we were happy to stumble upon [Numishare](#). This open-source software designed specifically for organizing numismatic collections and integrating them with linked- and open-data projects checked every box on our list. Numishare does not have a typical LAMP (Linux, Apache, MySQL, PHP) architecture, which makes it easier to manage. Instead, it works off XML files and the NUDS schema from Nomisma, thus incorporating field-standards to ensure long-term sustainability. We are currently working with IT to install this software on our KU server space but are facing challenges. IT has a lengthy process to approve software, especially the open-source applications on which Numishare runs (Orbeon, Apache Solr, and eXist-db). In preparation for this, however, we are currently focusing our efforts on finishing documentation of the collection and preparing the photographs and current data for the installation. Once installed, our site will have the same functionality as the sites listed in the Project Description. Take for instance the OCRE (fig. 3):

The screenshot shows the OCRE (Open Cultural Resource Explorer) search interface. The top navigation bar includes links for Browse, Search, Maps, Symbols, Identify a Coin, Contributors, Visualize Queries, APIs, About, and Language. A search bar is located on the right. The left sidebar contains 'Data Options' with icons for RSS, JSON, and KML, and 'Geographic' filters for Mints (geoJSON, KML) and Findspots (geoJSON, KML). Below this is a 'Keyword' search box and a 'Refine Results' section with various filters like Authority, Deity, Denomination, Findspot, Issuer, Manufacture, Material, Mint, Object Type, and Portrait. The main content area displays 'All Terms' and 'Map Results' for 'RIC I (second edition) Augustus 1A'. It shows a list of records with details such as Date (25 BC - 23 BC), Denomination (Quinarius), Mint (Emerita), Obverse (AVGVST: Head of Augustus, bare, left), and Reverse (P CARISI LEG: Victory standing right, placing wreath on trophy with dagger and sword at base). To the right of the text are two coin images. Below this, the same format is shown for 'Augustus 1B' and 'Augustus 2A'. The bottom of the page shows the start of 'Augustus 2B'.

Figure 3: Screenshot of the OCRE Search Page

The OCRE is a prime example of what we will implement for our own project. Its search functions, data visualizations, mapping, and integration with linked-data all make this a

prime candidate for employing as a platform for numismatic data. To my knowledge, this platform has only been used to frame larger datasets combined from several locations. Thus, we will be the first to use it for a teaching collection that has an incredibly vast date range. We predict that having such a wide-ranging corpus will allow for interesting scholarly insights about the collection. To accomplish this, however, we have exported the updated spreadsheet of the collection data to a CSV file. I am currently writing a Python script which will translate the data into an XML file adherent to NUDS. Below are screenshots of the preliminary front-end design for the site (figs. 4-5):



Figure 4: Prospective Home Page Design for the Wilcox Collection

Of course, I created these initial designs before discovering Numishare, so the latter (fig. 5) design for the coin-search page will likely have to be modified in order to fit the back-end software. This is inconsequential however, given Numishare’s robust page design and filtering techniques as seen in the OCRE project (fig. 3).

At the current moment, the site for the Wilcox Collection is hard-coded with examples of coins and does not make use of any searchable back-end software or database. This is merely for aesthetic purposes while we work on fully implementing Numishare and finish documenting the coins. In Fig. 4, you can also see that we are expecting to add pages to display our collection of plaster casts and ancient artifacts. These pages are still in development and will require future documentation and photography. The “Plaster Casts” page has a few examples from our collection, with descriptions and low-quality photos created previously. For now, however, we focus on the coins of the collection.

Coins of the Wilcox Collection

[Under Construction]

[Home](#) [About](#) [Contact](#)



WC 0003

Date
83 BCE
Denomination
Denarius
Mint
N/A
Obverse
C.NORBANVS, CIII (Diadem Head of Venus)
Reverse
Prow-stern, fasces with ax, caduceus



WC 0005

Date
91 BCE
Denomination
Denarius
Mint
N/A
Obverse
PIETAS: Female head of r.
Reverse
HERENNI, S.[C]: Young man carrying father on shoulders



WC 0008

Date
89 BCE
Denomination
Denarius
Mint
N/A
Obverse
Head of Apollo r., different letters and emblems
Reverse
[A, L.PIS... I(?)]: L. Piso Fru. Horseman going at rapid pace; in some coins w. palm or sword, etc.

Figure 5: Prospective Coin Search Page Design

Scholarship

Many Classicists are beginning to (re-)recognize the importance of incorporating material culture and real artifacts into their lessons and scholarship. Take for instance Dr. Sarah Bond's [blog post](#) this past January about teaching Latin through 3D models of Roman epigraphy. While Bond is focused on epigraphy in her post, her argument that the effect of students and the general public seeing visual (and often relatively interactive) representations of the ancient material they are studying is more potent and exciting than reading a so-called "squeeze" (an impression, molding, or cast of a physical object), is likewise true for the study of coins. Not only do ancient coins provide inscription-evidence, but they are incredibly rich for studying iconography, economics, industry, *et al.* She writes that "3D models and digital humanities approaches to material culture provide ample opportunity for transporting students and the general public to "visit" and then translate inscriptions in situ." Here, Dr. Bond sums up one of the central aims of this project, namely to provide exemplary pedagogical and research tools that are supported by an in-house collection of real artifacts. The real strength of digitizing our collection for pedagogical purposes is that students will be able to complete queries on the larger corpus of data, do case-studies of individual coins, and be able to interact with the physical objects themselves.

Ethan Gruber and Kris Lockyear have also published an article about the process of “turning a long-term personal *research* database into a publicly available *resource* database built on the principles of linked open data” (Gruber, Lockyear 2013: 1). In this article, the authors trace the impact of digital analysis on numismatic study and how combining many coin databases across the world beneficially impact the study of the ancient world, writing that “Quantitative analysis of hoards provides insight to scholars on the social and economic conditions in the time and place where the hoard was buried” (Gruber, Lockyear 2013: 6). Several other scholars have come to similar conclusions about the intersection of numismatics and digital humanities, notable Gruber, Lockyear, Bransbourg, Meadows, and Pett, to name a few.

Material culture, and coins specifically, provide fantastic insight into the living conditions, economic state, and social matters of antiquity. Projects like this help scholars fill in the holes often left by literature. The study of Classics has long been concerned with reading the literature of antiquity—the works of Homer and Vergil for instance—but these works, produced by wealthy, free men, neglect myriad other facets of ancient society and can comprise only a small factor of what life was like. Studying material culture tells us about the every-day people and their “mundane” activities. It informs us about slaves, low-class citizens, farmers, tradesmen, and many others who were equal participants in the societies of antiquity. The aristocrats of any society are always bound to receive higher notoriety in history, but collections of coins and other material artifacts like those we have at the Wilcox Collection aid scholars in better understanding the untold histories of everyday men and women.

Future Plans

I hope to have shown here the importance of this project and how it will benefit students, researchers, and the general public. To conclude, I have provided a list below of the tasks to be completed moving forward and possible outlets for presentations and improvement.

1. Finish installing Numishare on a test server in order to work out any kinks and experiment with settings.
2. Finalize the front-end aesthetic and operability of the site.
3. Fully install Numishare on the KU server and incorporate complete coin data.
4. Present on the project at the Digital Frontiers Conference hosted by the Institute for Digital Research in the Humanities at KU in fall 2018.
5. Integrate the project with the linked-data partnerships at Nomisma and Pelagios.

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