Linking Islands of Data

Nomisma, Numismatics and LOD

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Handout

http://tinyurl.com/jo5v3o9

1. Why coins? Why bother?

2. Why the web? What sort of Web?

3. What have we done? What more can we do?

1. Why coins? Why bother?

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Known point of origin (*Places*)

Known issuer (*People; roles*)

Known point of discovery

(*Places; contexts*)

1. Where the first coins were produced

2. Where the first coins are found
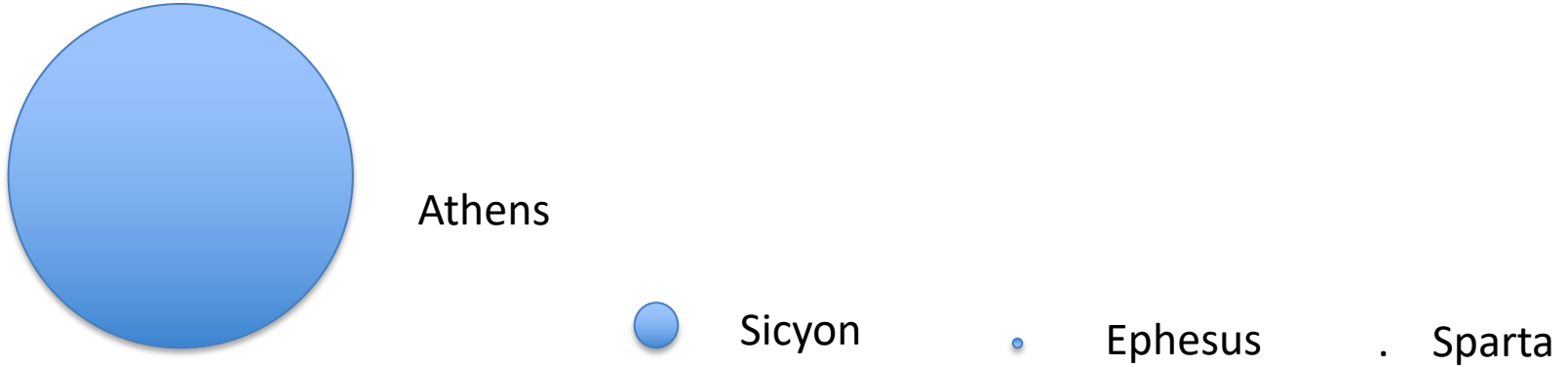
Decorated (*Iconography; religion*)

Inscribed (*Titulature; Text*)

SPQR Imperatori Caesari Quod
Viae Munitae Sunt Ex Ea
Pecunia Quae Iussu Senatus Ad
Aerarium Delata Est

Civic coin production, 450-400 BC

Athens

Sicyon   Ephesus   . Sparta

Quantifiable (*Statistics*)

Good News: it survives in huge quantities

Collection	Approx No.
New York	200, 000
London	200, 000
Berlin	200, 000
Paris	200, 000
Vienna	100, 000
UK PAS	434, 036
Coinarchives.com	1,606,696
Total	c. 3 Million +

AsA nomisma.org

Bad News: it survives in huge quantities

- Over 20 collections of 20,000+ ancient coins
- At least 5 different national reporting schemes
- All catalogue in their own systems, with their own standards, in their own languages
- All are at different stages in their digital journeys

AsA Anomisma.org

It gets worse…

- Many of the standard catalogues and corpora are more than 50 years old

- None of them exist digitally

- There is no international co-ordinating body for their creation

Reference works (*Roman Imperial Coinage – RIC*)

( )

And what about the humans?

- We work in different institutions
- We work with different institutions
- We work on different projects
- We work on different types of projects
- We work in different ways
- We work in different languages
- But we want to link and share data

Linking a Discipline

Hoards

Finds

Specimen   Specimen

Specimen   Reference   Reference   Reference   Reference   Specimen

Specimen

Reference

Corpora/
Mint studies
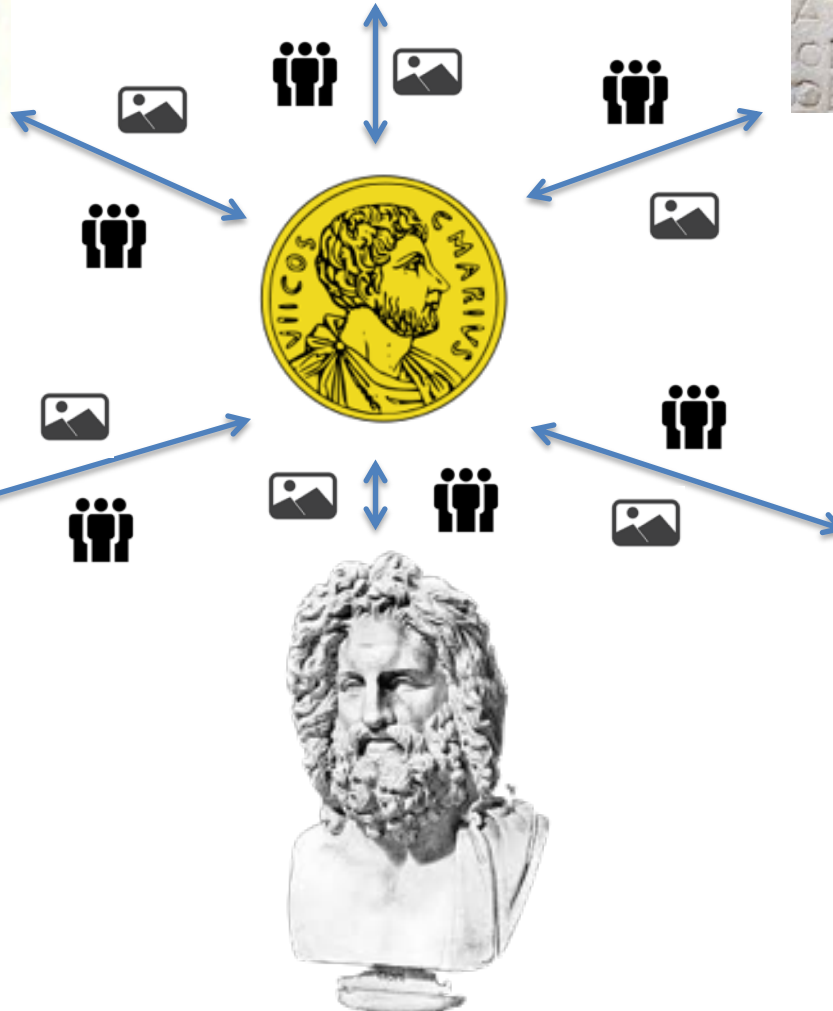
Collections

Linking Disciplines

The Answer?

Linked Open Data

Nomisma, Numismatics and LOD

1. Why coins? Why bother?

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Linked Open Data

Five Stars

★ Make your stuff available on the Web (whatever format) under an open license

★★ Make it available as structured data (e.g., Excel instead of image scan of a table)

★★★ Use non-proprietary formats (e.g., CSV instead of Excel)

★★★★ Use URIs to denote things, so that people can point at your stuff

★★★★★ Link your data to other data to provide context

nomisma.org

Four Rules

1. Use URIs as names for things

2. Use HTTP URIs so that people can look up those names

3. When someone looks up a URI, provide useful information, using the standards (RDF*, SPARQL)

4. Include links to other URIs, so that they can discover more things

Statement

This coin in my collection

was minted at
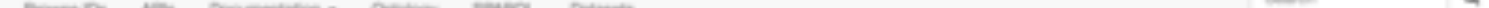
Rome

A Statement with URIs

http://numismatics.org/collection/1010.1.51

http://nomisma.org/ontology#hasMint

http://pleiades.stoa.org/places/423025

http://numismatics.org/collection/1010.1.51

http://nomisma.org/ontology#hasMint

http://nomisma.org/id/rome

nomisma.org/id/rome

RDF Statements

1. Subject (http://numismatics.org/collection/1010.1.51)

2. Predicate (http://nomisma.org/ontology#hasMint)

3. Object (http://nomisma.org/id/rome)

   There are three parts: this is a 'Triple'

So where do URIs come from?

Standard vocabularies for describing relationships:

- SKOS - Simple Knowledge Organization System

- Dublin Core (dcterms) - Defines general metadata attributes

- Friend-of-a-Friend (foaf) - For describing people and their social network

See further:
http://www.w3.org/wiki/TaskForces/CommunityProjects/LinkingOpenData/CommonVocabularies

http://lov.okfn.org/dataset/lov/

So where do URIs come from?

Specialised resources for common things

- Geonames.org (Modern geography)
- Pleiades (Ancient geography)
- VIAF.org (People)

So where do URIs come from?

Objects: CIDOC-ICOM recommendation on Linked Open Data for museums

- When museum objects are referred to in Internet applications, it is necessary that the objects are uniquely identified by suitable URIs.

- In order to avoid different institutions generating competing URIs for the same object, each object (or set of objects) should have one preferred authority that assigns the URI for the object. The URI authority for the object must be known to all interested parties or be easy to discover.

- The most natural candidate for the URI authority for an object is the museum that curates the object, regardless of whether the museum intends to provide its own services on the Internet or not. This is because it is the only institution that can absolutely determine that two different museum object URIs actually describe the same thing.

- This URI should be derived in a simple way from the inventory numbers published in exhibition catalogues, through on-line museum catalogue access or by asking museum staff. This will avoid the need go through a matching process that could generate errors.

- This URI should have a form that enables any museum to provide a Linked Open Data service that resolves to the associated description of that object.
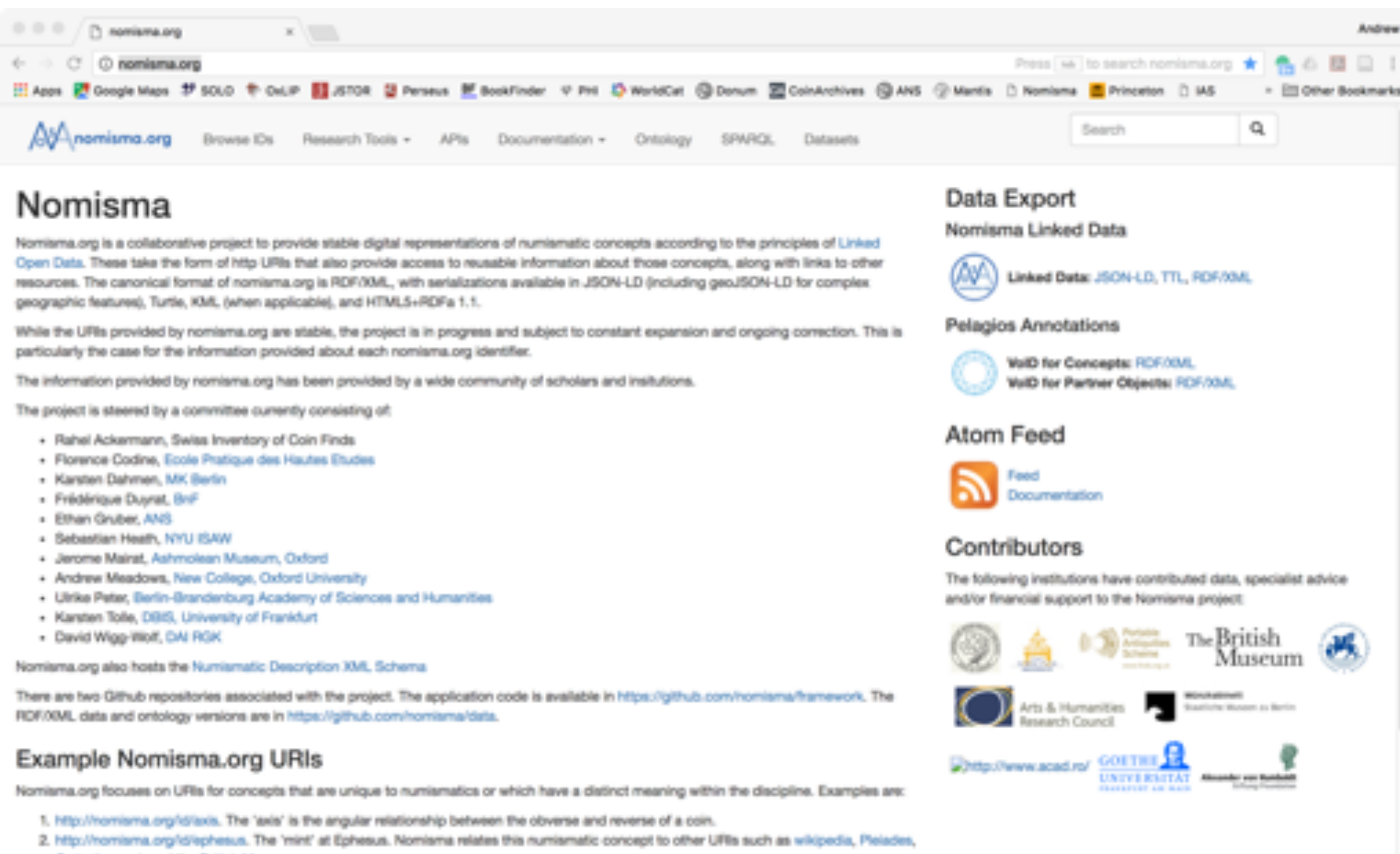
So where do URIs come from?

Controlled Vocabulary for a Discipline

Q. Where do the URIs for specifically
numismatic concepts come from?

A. Nomisma.org

http://nomisma.org/

nomisma.org   Browse IDs   Research Tools ▾   APIs   Documentation ▾   Ontology   SPARQL   Datasets

Search

Nomisma

Nomisma.org is a collaborative project to provide stable digital representations of numismatic concepts according to the principles of Linked Open Data. These take the form of http URIs that also provide access to reusable information about those concepts, along with links to other resources. The canonical format of nomisma.org is RDF/XML, with serializations available in JSON-LD (including geoJSON-LD for complex geographic features), Turtle, KML (when applicable), and HTML5+RDFa 1.1.

While the URIs provided by nomisma.org are stable, the project is in progress and subject to constant expansion and ongoing correction. This is particularly the case for the information provided about each nomisma.org identifier.

The information provided by nomisma.org has been provided by a wide community of scholars and institutions.

The project is steered by a committee currently consisting of:

- Rahel Ackermann, Swiss Inventory of Coin Finds
- Florence Codine, Ecole Pratique des Hautes Etudes
- Karsten Dahmen, MK Berlin
- Frédérique Duynat, BnF
- Ethan Gruber, ANS
- Sebastian Heath, NYU ISAW
- Jerome Mairat, Ashmolean Museum, Oxford
- Andrew Meadows, New College, Oxford University
- Ulrike Peter, Berlin-Brandenburg Academy of Sciences and Humanities
- Karsten Tolle, DBIS, University of Frankfurt
- David Wigg-Wolf, DAI RGK

Nomisma.org also hosts the Numismatic Description XML Schema.

There are two Github repositories associated with the project. The application code is available in https://github.com/nomisma/framework. The RDF/XML data and ontology versions are in https://github.com/nomisma/data.

Example Nomisma.org URIs

Nomisma.org focuses on URIs for concepts that are unique to numismatics or which have a distinct meaning within the discipline. Examples are:

1. http://nomisma.org/id/axis. The 'axis' is the angular relationship between the obverse and reverse of a coin.
2. http://nomisma.org/id/ephesus. The 'mint' at Ephesus. Nomisma relates this numismatic concept to other URIs such as wikipedia, Pleiades,

Data Export

Nomisma Linked Data

Linked Data: JSON-LD, TTL, RDF/XML

Pelagios Annotations

VoID for Concepts: RDF/XML
VoID for Partner Objects: RDF/XML

Atom Feed

Feed
Documentation

Contributors

The following institutions have contributed data, specialist advice and/or financial support to the Nomisma project:

The British Museum

Arts & Humanities Research Council

http://www.acad.ro/   GOETHE UNIVERSITÄT   Alexander von Humboldt

Statement about an Ashmolean object

http://hcr.ashmus.ox.ac.uk/coin/HCR23285

(Ashmolean-created URI)

http://nomisma.org/ontology#hasMint

(Nomisma.org)

https://pleiades.stoa.org/places/491687

(URI for Pella in the online vocabulary for ancient placenames)

Statement about an Ashmolean object

http://hcr.ashmus.ox.ac.uk/coin/HCR23285

(Ashmolean-created URI)

http://nomisma.org/ontology#hasMint

(Nomisma.org)

http://nomisma.org/id/pella_macedon

(URI for the mint of at Nomisma.org)

Statement about an Ashmolean object

http://nomisma.org/id/pella_macedon (for humans)

http://nomisma.org/id/pella_macedon (for machines)

nm:pella_macedon a nmo:Mint;
        rdf:type <http://www.w3.org/2004/02/skos/core#Concept>;
        dcterms:isPartOf <http://nomisma.org/id/greek_numismatics>;
        skos:prefLabel "Pella"@en,
                "Pella"@pl,
                "Pella"@fr,
                "Pela"@es,
                "Pella"@hu,
                "Pella"@it,
                "Pella"@et,
                "ペラ"@ja,
                "Αγροια Πέλλα"@el,
                "Χωρ"@ar,
                "Pela"@pt,
                "Pella"@sk,
                "Пелла"@ru,
                "Пелла"@mk,
                "Pel·la"@ca,
                "Pella"@fi,
                "Пелла"@uk,
                "Pella"@la,
                "Pella"@cy,
                "Pella"@nn,
                "Pella"@cs,
                "Χω"@da,
                "Пелла"@bg,
                "Пелла"@sr,
                "Pella"@de,
                "佩拉"@zh,
                "Pella"@vi,
                "Pella"@nb,
                "Pella"@eu,
                "Pella"@ro,
                "Pela"@sl;
        skos:definition "The mint at the ancient site of Pella in Macedonia."@en;
        skos:closeMatch <http://dbpedia.org/resource/Pella>,
                <http://pleiades.stoa.org/places/491687>,
                <http://www.geonames.org/734726>,
                <http://collection.britishmuseum.org/id/place/x46346>,
                <http://vocab.getty.edu/tgn/7011026>,
                <https://www.wikidata.org/entity/Q213679>,
                <https://www.freebase.com/m/0d9rvk>;
        geo:location <http://nomisma.org/id/pella_macedon#this>;
        skos:broader <http://nomisma.org/id/strymonian_and_bottiaean_district>.

nm:pella_macedon#this a geo:SpatialThing;
        geo:lat "40.760033"^^xsd:decimal;
        geo:long "22.525642"^^xsd:decimal;
        dcterms:isPartOf <http://nomisma.org/id/strymonian_and_bottiaean_district#this>.

So where do URIs come from?

Specialised resources for numismatic things

 Nomisma.org

(Ontology and basic vocabulary)

RRC, RIC, OCRE, CHRR, CHREP, RPC, IGCH, OGC

(numbering systems)

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The four pillars

1. Collections

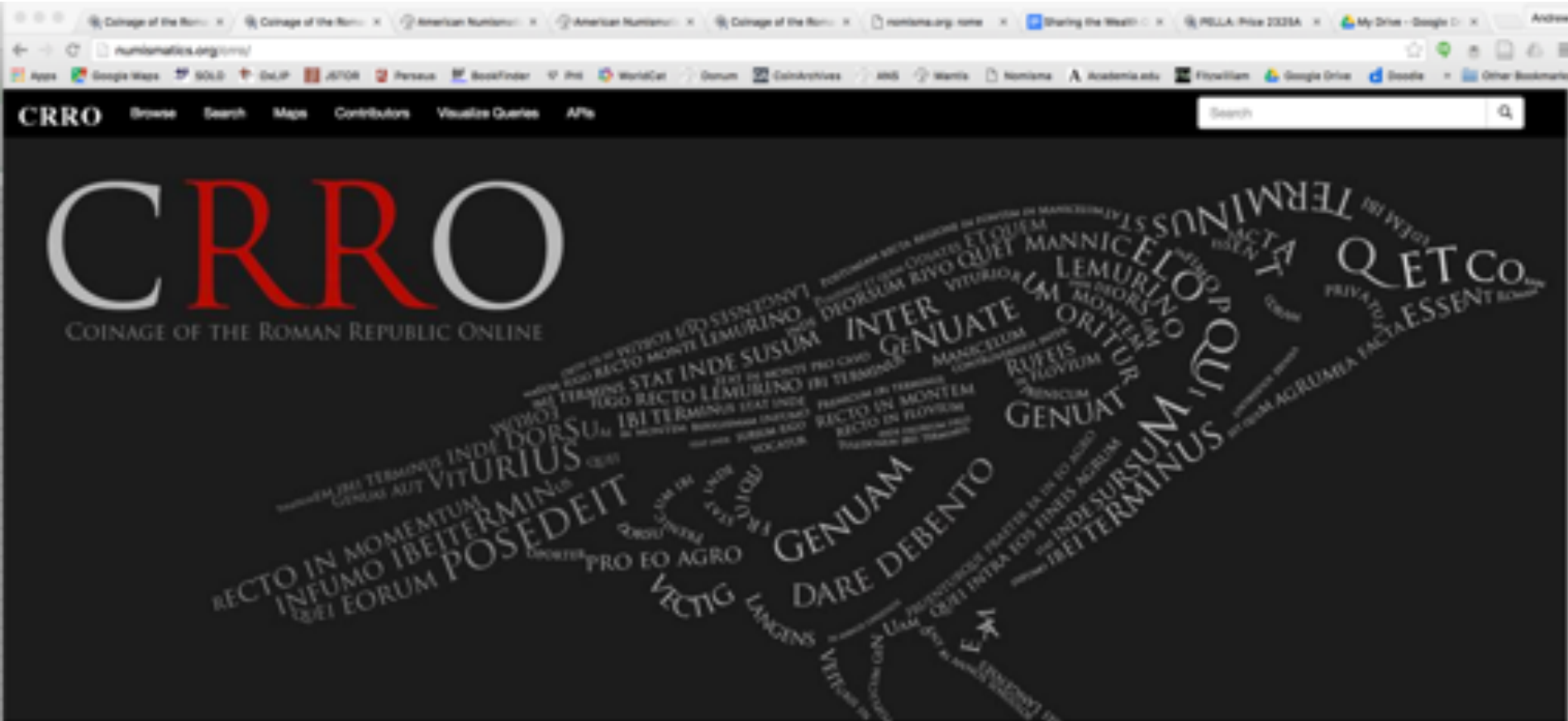2. Reference works

3. Hoards

4. Single finds

1. Collections

http://numismatics.org/collection/1010.1.51

http://nomisma.org/ontology#hasMint

http://nomisma.org/id/rome

2. Reference Works

2. Reference Works

Hellenistic Royal Coinages (HRC) is a National Endowment for the Humanities funded project based at the American Numismatic Society in New York City. HRC is a web-based resource for users to learn about, research, and conduct different types of analyses on the coinages produced by the different dynasties and rulers of the ancient Mediterranean and Near East during the Hellenistic period (ca. 323–31 BC). These include the coins struck by (and in the name of) Alexander the Great and those struck by his successors, such as the Seleucids in the Near East and the Ptolemies in Egypt.

This site, the HRC Union Catalogue, allows users to search across all existing HRC type corpora simultaneously. These include: PELLA, a resource that currently focuses on the coinage in the name of Alexander the Great; Seleucid Coins Online, a resource devoted to the coinage of the Seleucid dynasty; and Ptolemaic Coins Online, a resource for the coinage of the Ptolemaic dynasty. In the future we hope to add additional resources for the coinages of other Hellenistic dynasties and rulers including the Antigonid, Attalid, and Bactrian dynasties.

Support

In March 2017, the National Endowment for the Humanities awarded Hellenistic Royal Coinages $262,000 as part of the the broader Hellenistic Royal Coinages (HRC) initiative. This grant is issued through the NEH Humanities Collections and

3. Hoards

4. Findspots

Multiple finds projects now exist:

UK: the Portable Antiquities Scheme (PAS)
https://finds.org.uk/

Europe: Antike Fundmünzen in Europa (AFE)
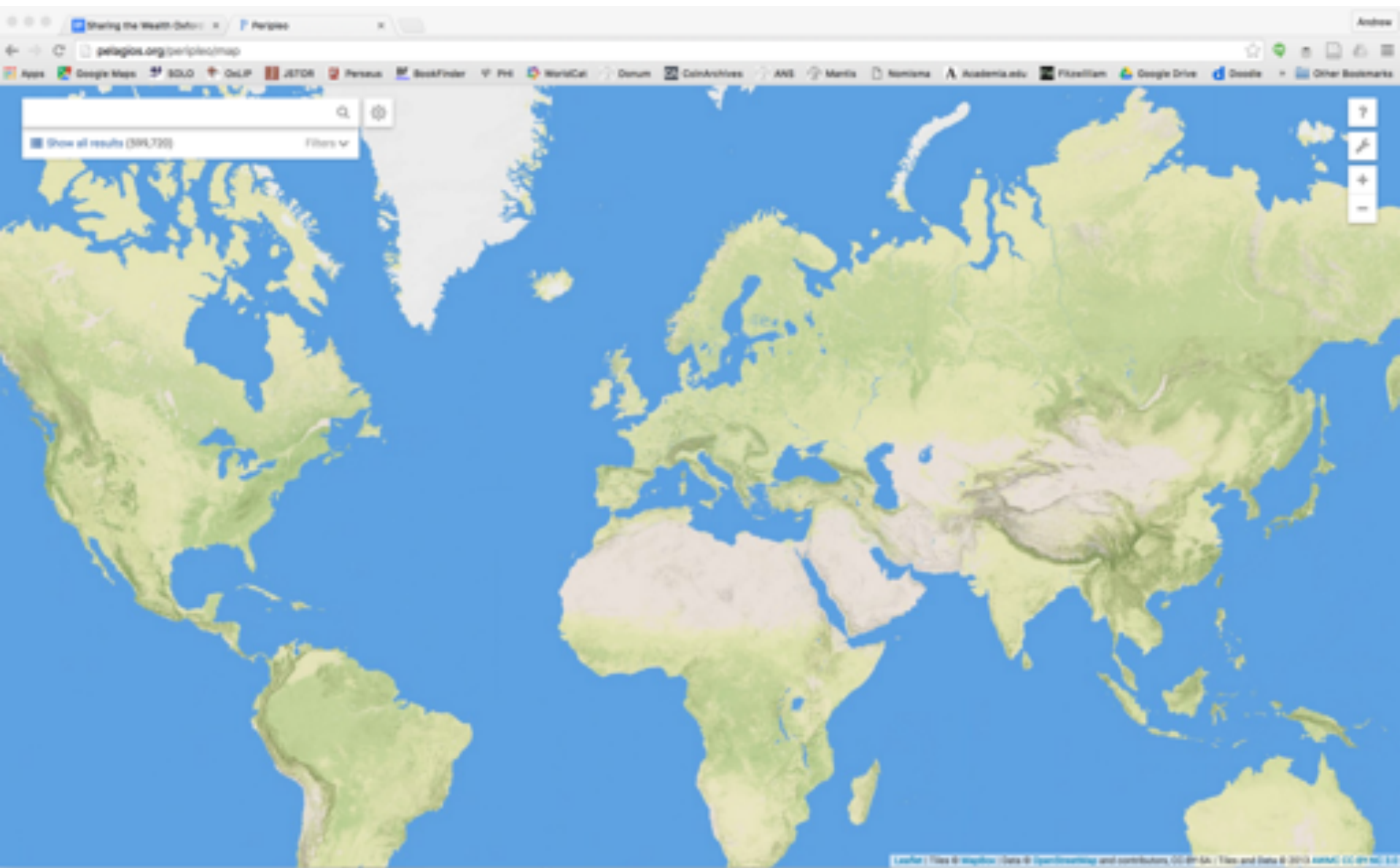http://afe.fundmuenzen.eu/

Pulling it together
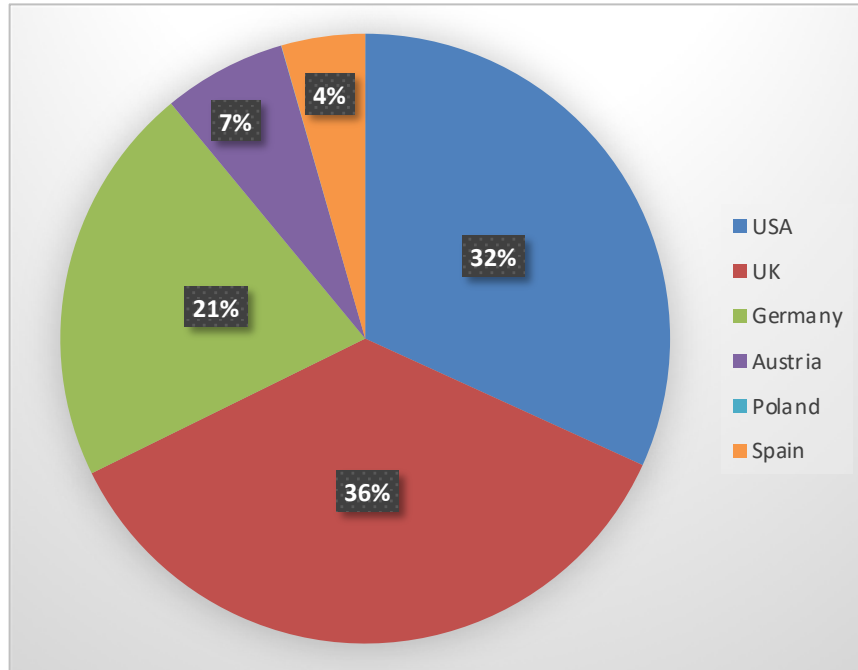
Speaking to the wider world…
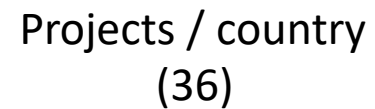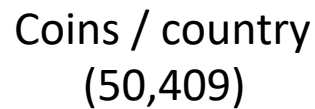
Linking Disciplines
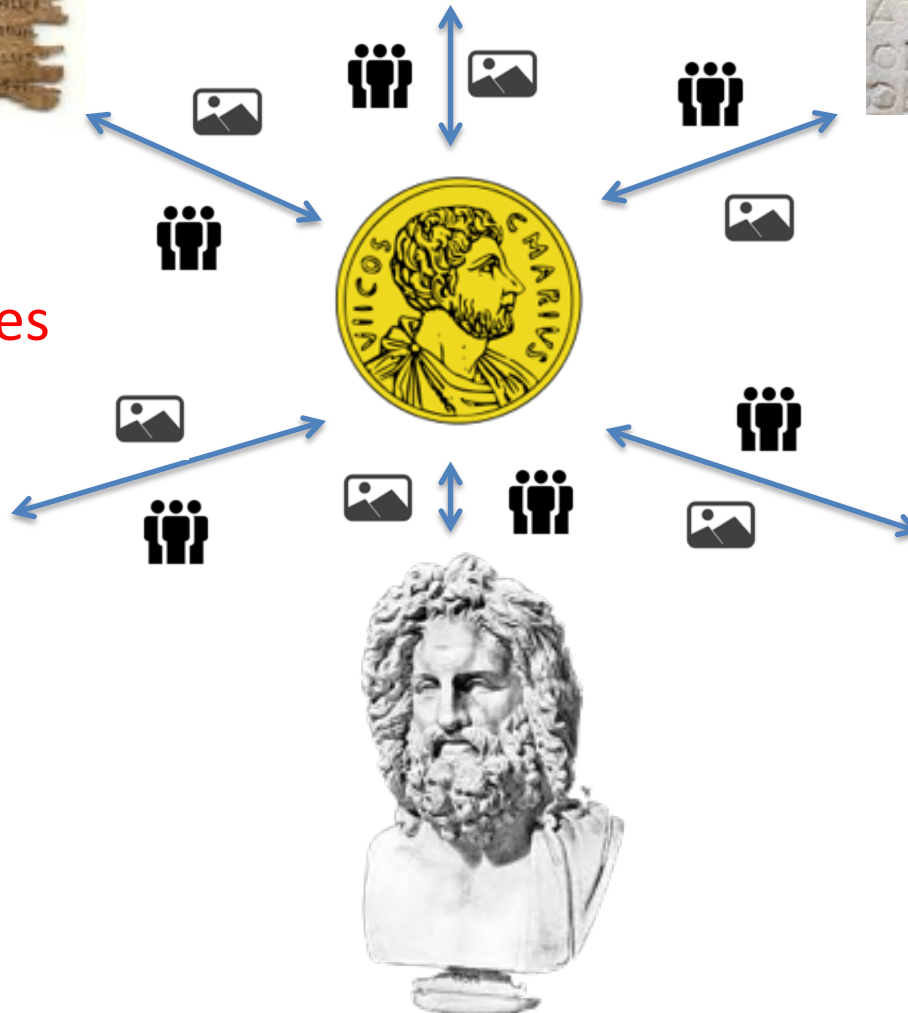
Speaking to the wider world…

Contributors to OCRE

Coins / country
(132,074)
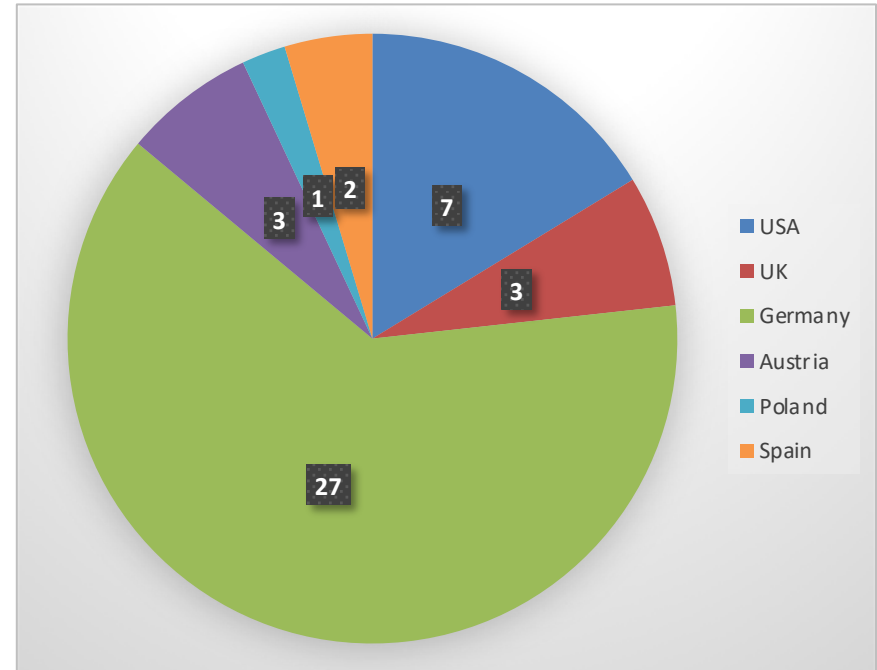
Projects / country
(43)

Contributors to CRRO

Coins / country
(50,409)

Projects / country
(36)

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Money, Data, Tea and Sympathy:

The End