

## OXLOD Open Workshop

8 May 2018 - OeRC

13.00:

Introduction: Jon Ray

Project and Linked Data primer: Athanasios Velios

Chinese collections: Sarah Joomun

Chinese data integration: Athanasios Velios



## OXLOD and Linked Data (5min)















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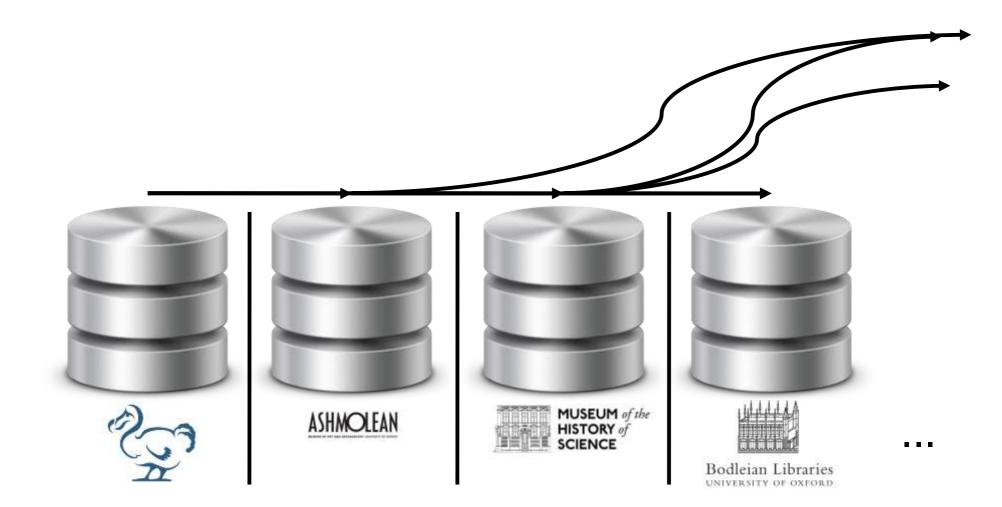


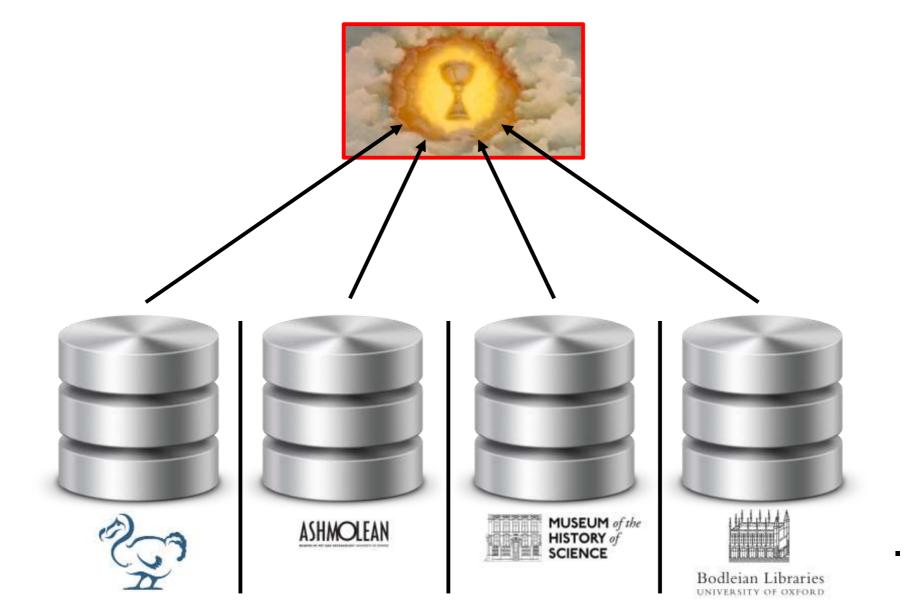




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# ontology MUSEUM of the HISTORY of SCIENCE **ASHMOLEAN** Bodleian Libraries





#### ICOM INTERNATIONAL COMMITTEE FOR DOCUMENTATION



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#### What's New?

Meeting on 24 - 26 February, 2016

International Journal on Digital

New version of the CRMgeo (version 1.2)...

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#### What is the CIDOC CRM?

The CIDOC Conceptual Reference Model (CRM) provides definitions and a formal structure for describing the implicit and explicit concepts and relationships used in cultural heritage documentation.

The CIDOC CRM is intended to promote a shared understanding of cultural heritage information by providing a common and extensible semantic framework that any cultural heritage information can be mapped to. It is intended to be a common language for domain experts and implementers to formulate requirements for information systems and to serve as a guide for good practice of conceptual modelling. In this way, it can provide the "semantic glue" needed to mediate between different sources of cultural heritage information, such as that published by museums, libraries and archives.

The CIDOC CRM is the culmination of over 10 years work by the CIDOC Documentation Standards Working Group and CIDOC CRM SIG which are working groups of CIDOC. Since 9/12/2006 it is official standard ISO 21127:2006.

#### Who we are

Over many years, CIDOC and the CIDOC Documentation Standards Working Group (DSWG)have engaged in the creation of a general data model for museums, with a particular focus on information interchange. Until 1994 the product of these activities had been the CIDOC Relational Data Model. In the interim meeting in March 1996 in Crete, the DSWG decided to engage in an object-oriented approach in order to benefit from its expressive power and extensibility for dealing with the necessary diversity and complexity of data structures in the domain. This effort resulted in 1999 in the first

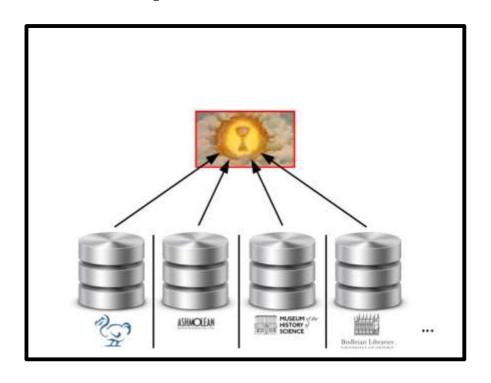
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recommendations. (The CIDOC CRW has been accepted as working draft by ISO/TC46/SC4 in September 2000. Since 9/12/2006 it is official standard ISO 21127:2006.

### OXLOD explores:



- How is it relevant to GLAM?
- How is this done in practice?
  - Workflow Technical infrastructure
  - Suitable software tools Knowledge transfer







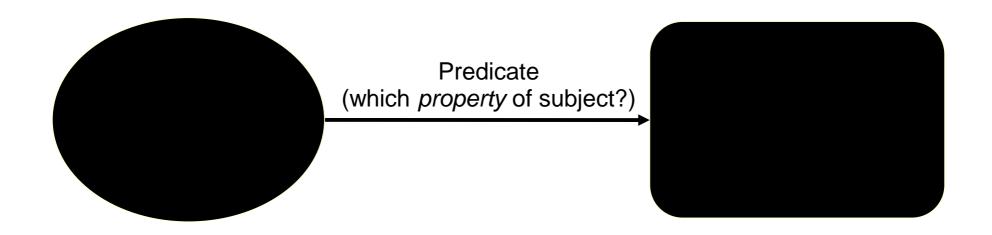


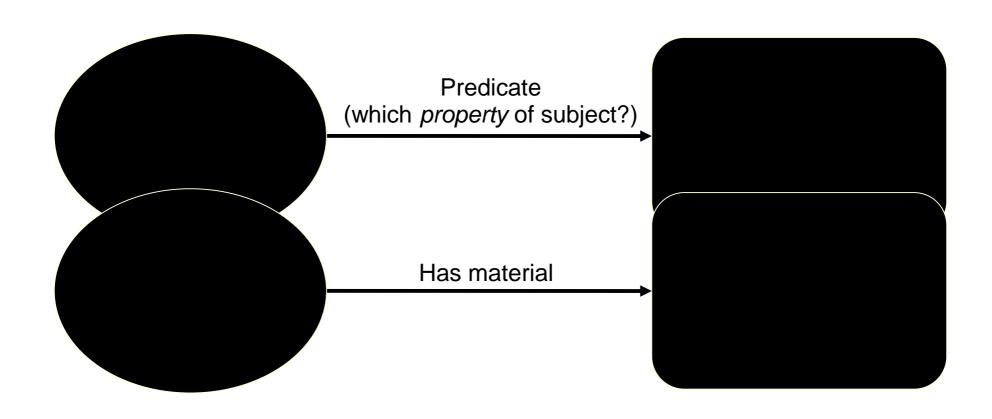
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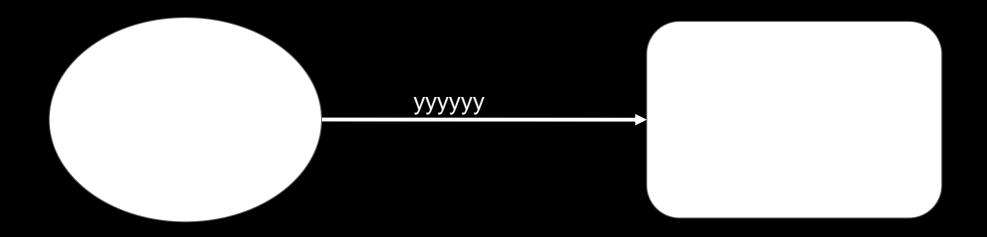
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  - Tim Berners-Lee five star open data
  - http://5stardata.info/en/

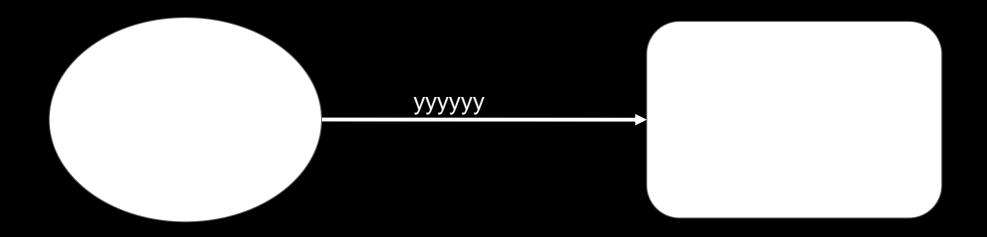
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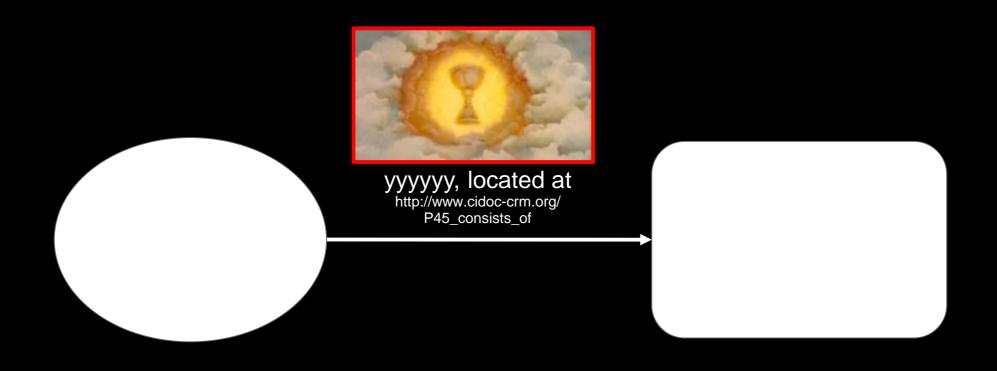
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  - Tim Berners-Lee five star open data
  - http://5stardata.info/en/
- Resource Description Framework (RDF)











### Linked Data

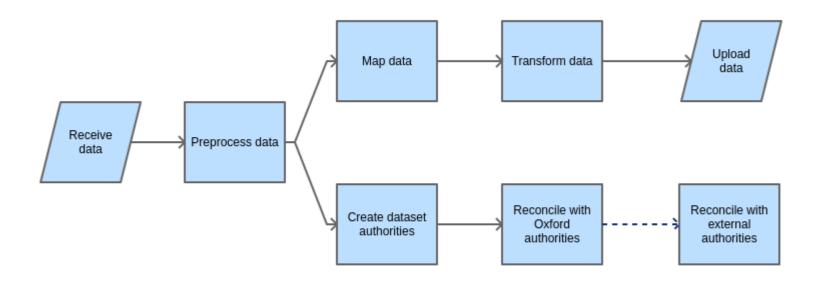
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- Resource Description Framework (RDF)
- Universal Resource Identifiers (URI)

### Linked Data

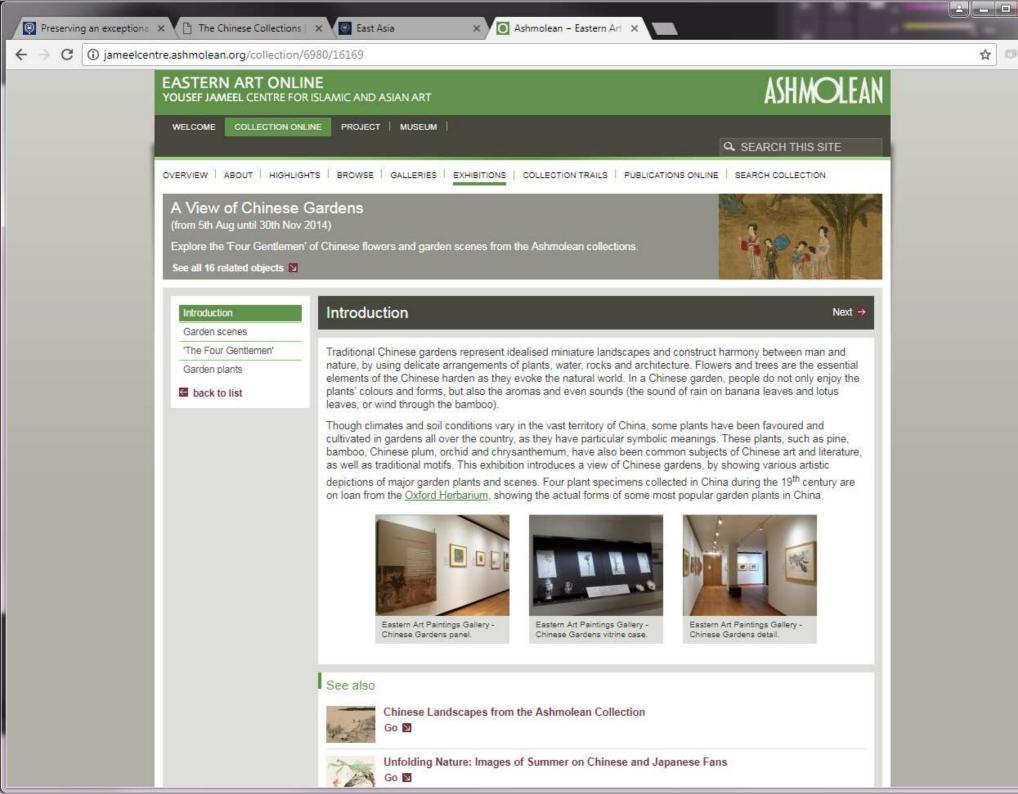
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- Universal Resource Identifiers (URI)
- SPARQL

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### **OXLOD** workflow



### Chinese collections in Oxford



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The Heberden Coin Room



### Search coins in this department

### East Asia

The East Asian Collection is one of the most important in Europe with more than 20,000 coins. It includes approximately 15,000 Chinese coins through the entire history of China from 600 BC to the 21th century, and 3,000 Korean coins - from the Koryo period to Korea's first modern milled coinage (1882). Vietnamese coins and Chinese amulets are also well represented. The Japanese coin collection of 1,600 coins has been documented by Nobuhisa Furuta, Shin'ichi Sakuraki and Lyce Jankowski.



#### Japanese coin (HCR35786)

Period Japanese Dating

Person Tenmu 天武



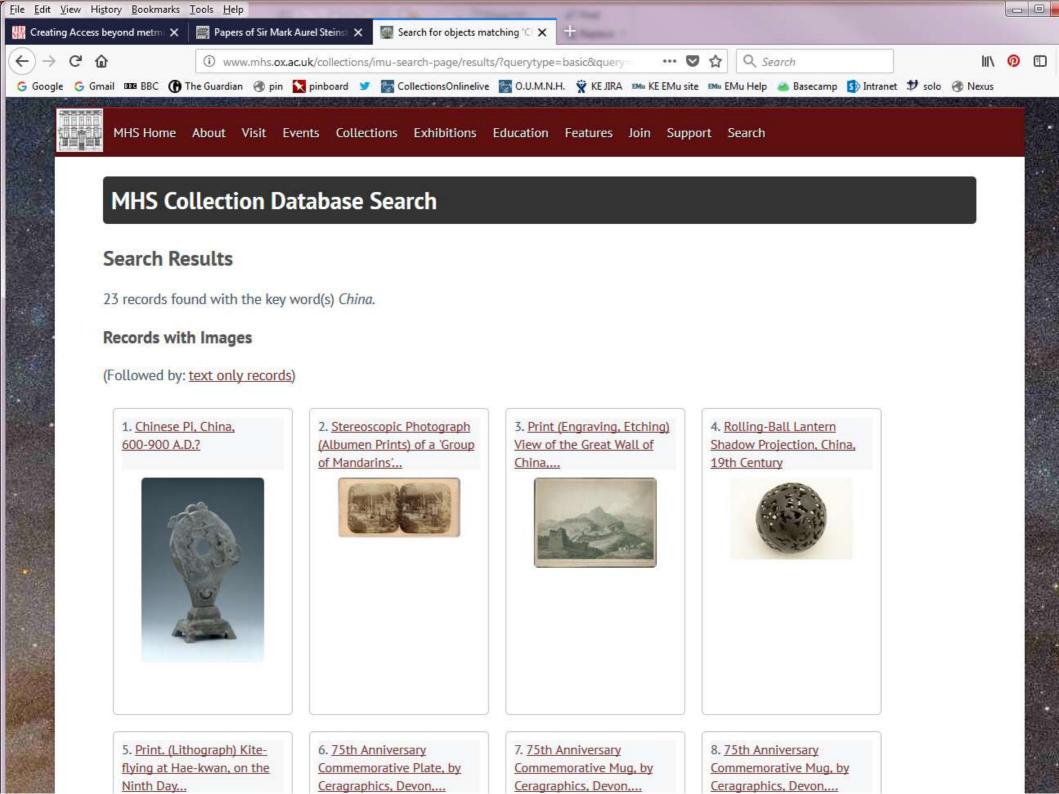


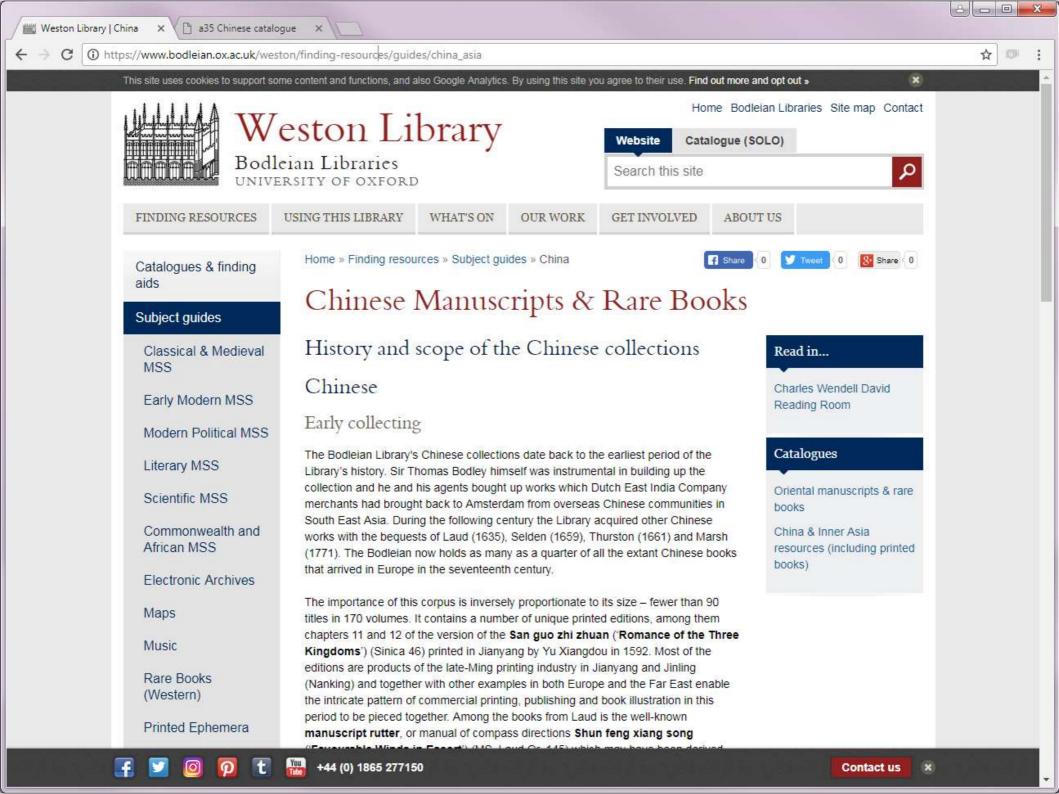
### Japanese coin (HCR35117)

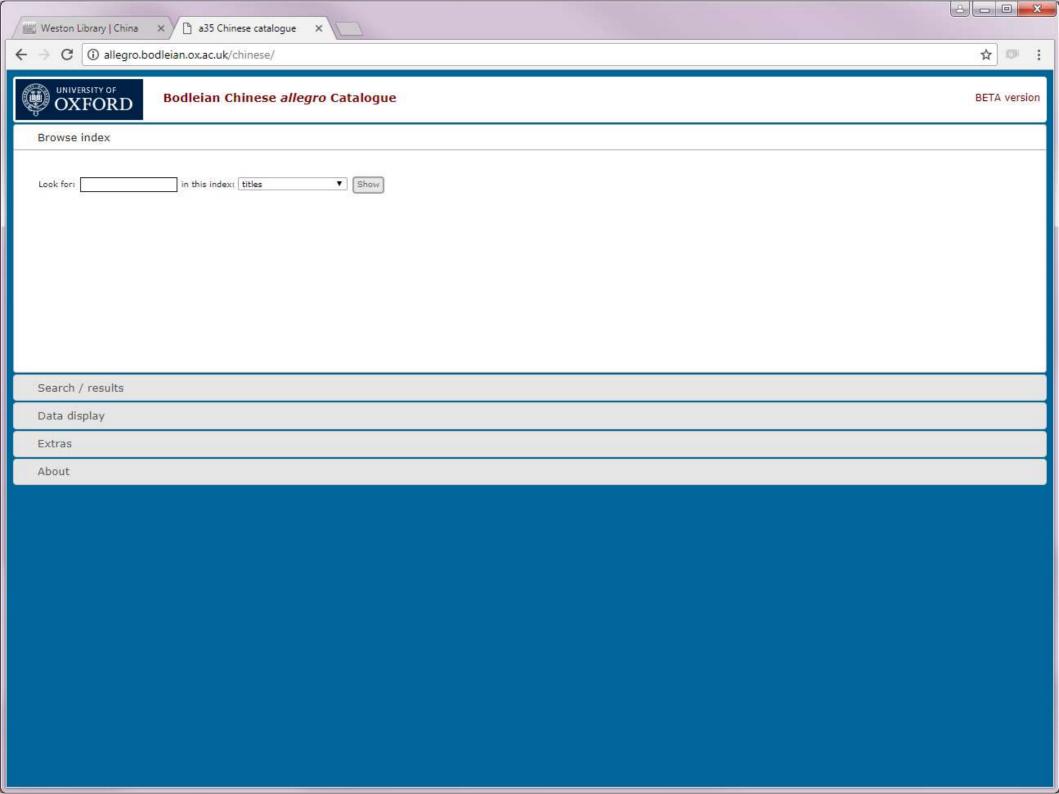
Period Japanese 708 Dating

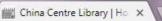
Person Genmei - 元 和同開珎, Regular script Obverse















← → C ① https://www.bodleian.ox.ac.uk/ccl





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### China Centre Library

**Bodleian Libraries** 

UNIVERSITY OF OXFORD

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INFORMATION FOR READERS

CATALOGUES

COLLECTIONS

E-RESOURCES

ABOUT US

### Bodleian K B Chen China Centre Library

More...







Hours Location

#### TERMTIME

Mon-Fri (1st-8th weeks) 09:00-19:00 Sat (0th-8th weeks) 11:00-14:00

Sun closed

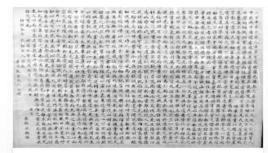
#### VACATION

Mon-Fri 09:00-17:00 Closed Sat (except 0th week) and Sun



### Information for readers

Welcome to our reading room. Click on image for more information. See also our Libquide at ox.libquides.com/bodleian-ccl Ask a CSL Librarian



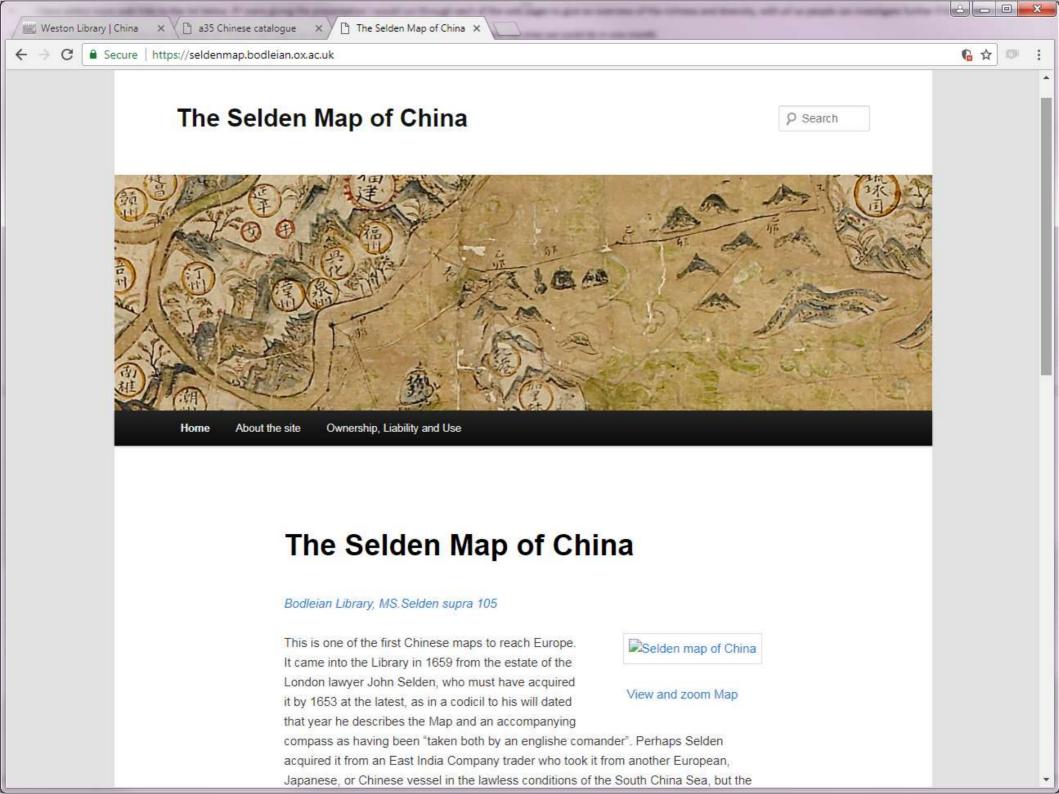
### Chinese Studies Catalogues

Information for finding books and journals.



### China Centre Library reference shelves

A view of our reference shelves. Click on image for information about collections.













### Collection Level Description: Papers of Sir Mark Aurel Stein (1862-1943)

Reference: MSS. Stein 1-458

Title: Papers of Sir Mark Aurel Stein (1862-1943)

Dates of Creation: 1854-1953 Extent: 458 shelfmarks

Language of Material: English, Hungarian, German, Chinese, and Sanskrit

#### Administrative/Biographical History

Sir Mark Aurel Stein (1862-1943) was an archaelogist and explorer. Details are given in the Dictionary of National Biography.

#### Scope and Content

Stein's papers consist of:

- Letters to P.S. Allen and Helen Allen, 1898-1943
- Correspondence with F.H. Andrews, 1899-1943
- · General correspondence
- · Family correspondence
- Notebooks, field diaries, personal diaries and 'personal narratives', 1889-1943
- · Miscellaneous and personal papers, including catalogue of Stein's library
- . Correspondence and papers concerning expeditions, mainly in Central Asia, and to archaeology and survey work in India
- · Drafts of, and papers and correspondence concerning, publications
- · Maps and photographs

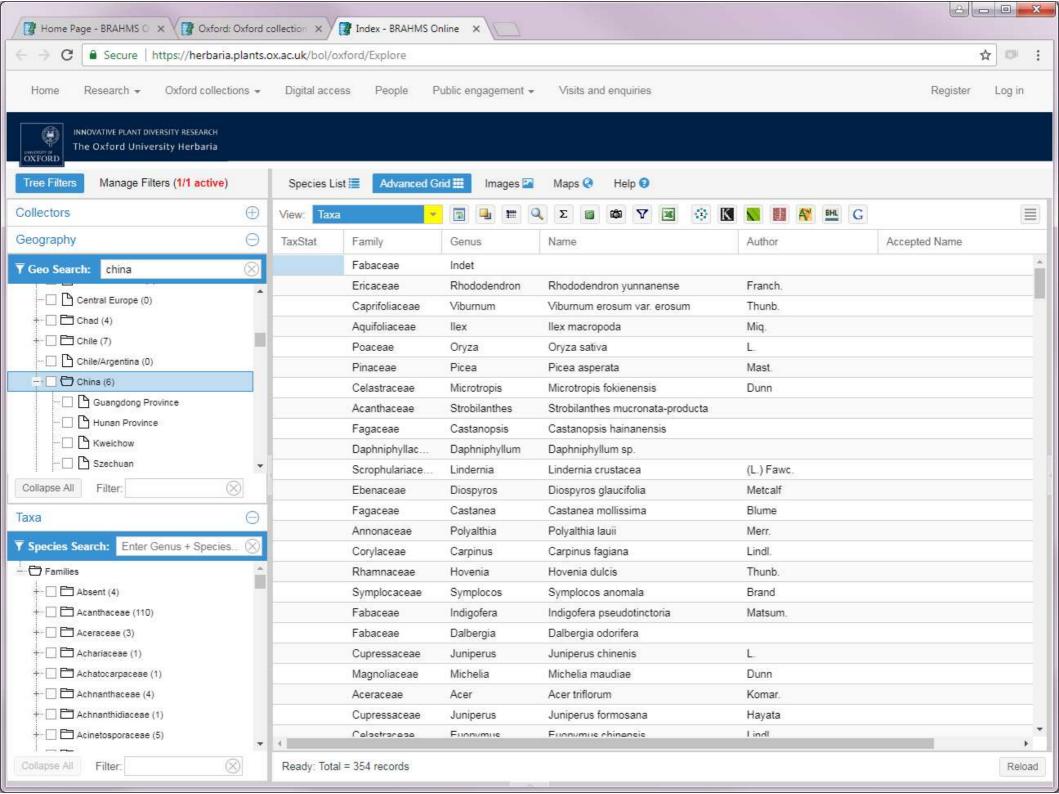
#### **Administrative Information**

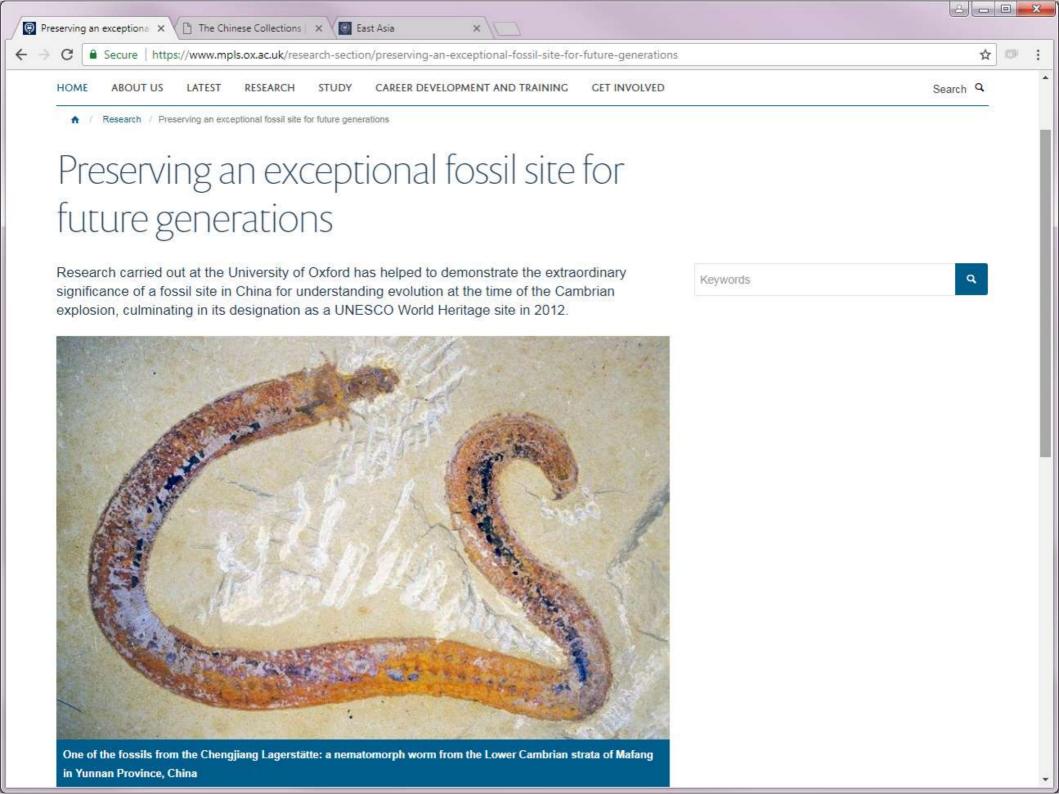
#### Immediate Source of Acquisition

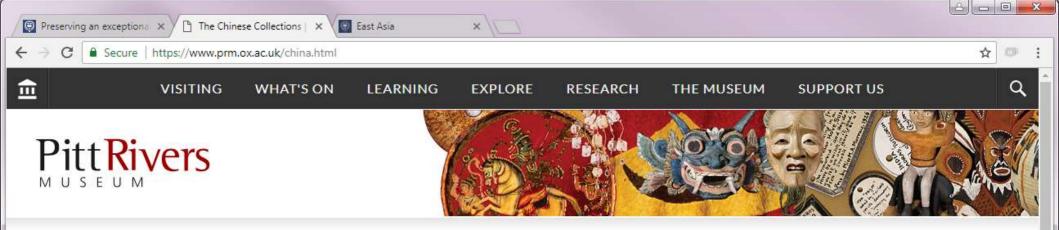
The papers were bequeathed by Stein to the Indian Institute, Oxford, 1943

#### Access Conditions

Entry to read in the Library is permitted only on presentation of a valid reader's card (for admissions procedures see http://www.bodleian.ox.ac.uk/services/admissions/).







#### The Chinese Collections

The Pitt Rivers Museum is one of the world's greatest ethnographic museums. It was founded in 1884 when General Pitt Rivers gave his collection of some 25,000 archaeological and ethnographical artifacts to the University. It has grown substantially since then through donations and purchases from a variety of sources and now holds more than 250,000 objects.

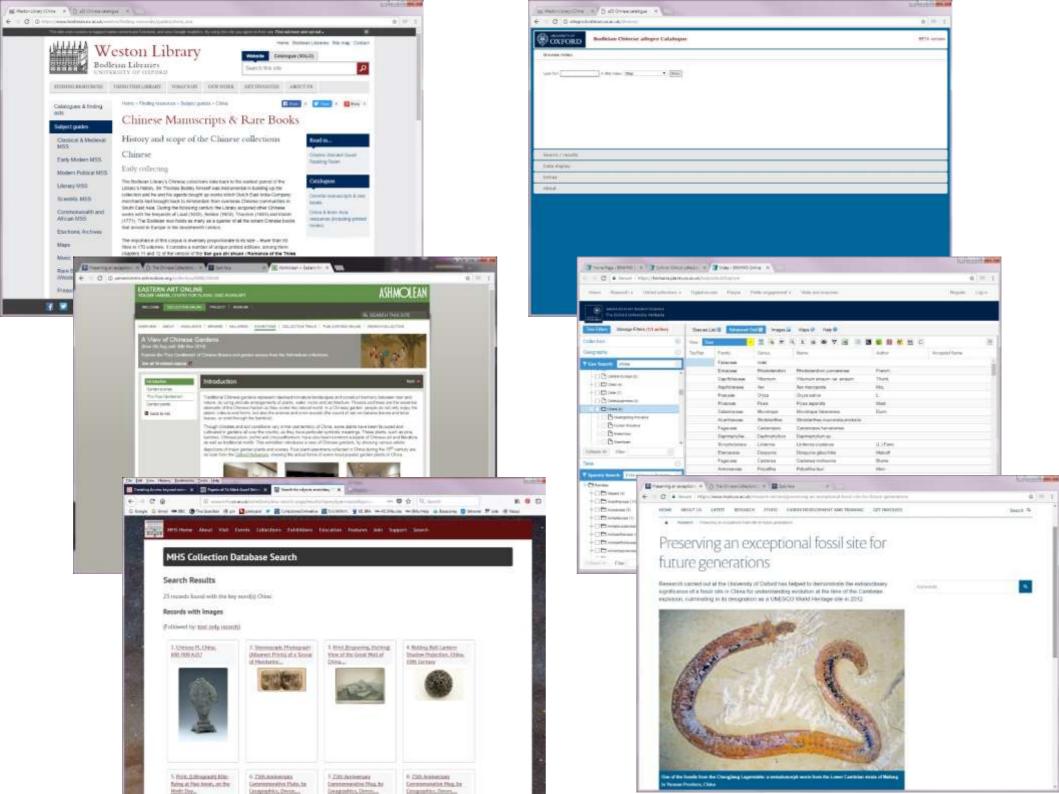
The Chinese collections in the Pitt Rivers Museum comprise well over 3000 items. In keeping with the spirit of the Museum, the Chinese collections include artifacts which demonstrate technologies as well as fine arts, embroidered textiles and ceramics. Material from Chinese minority communities is also to be found, such as Miao embroideries. This breadth makes it an exceptional teaching collection.

The Museum has many objects relating to the daily life, such as opium and tobacco pipes, jade earscoops, lamps, lacquered pillows, card and chess games, fans, a large shop-sign of gilded wood and combs (including an ivory and bamboo moustache comb worn as an ornament only by men who are



fathers). Many of these items, when first collected, were in everyday use but are now rarities as they were not collectors items. A set of eyebrow tweezers, a combined compass and sundial and a gambling die with its own brass shaking box are typical of such ordinary rarities. Within the music collection examples include the largest collection of pigeon whistles in Britain and whistling arrows "taken during a punitive expedition against pirates in 1865".

The Museum has a display cabinet devoted to its ivory collections. These include a Chinese ball of eleven graduated hollow spheres cut from a solid block of ivory, each sphere elaborately carved and fretted. The ingenuity of the workmanship is astonishing and this piece is much remarked on by visitors. A court necklace of fretted ivory worn only by officials in the top five ranks during the Qing dynasty is also to be found in the ivory cabinet. This was recently used as a centrepiece in the Dorling Kindersley Eyewitness book on China.



# Integration

### Integration

- 6 datasets
  - Ashmolean Chinese
  - Bodleian Chinese
  - Museum of History of Science Chinese
  - Museum of Natural History
    - Petrology
    - Minerals
  - Herbaria Chinese specimens

#### No linked data approach

- Query each system on-the-fly
  - complex programming
  - breaks easily



#### No linked data approach

- Query each system on-the-fly
  - complex programming
  - breaks easily

Decide on schema
minimum shared fields
(lose data)

all fields (too complex)

Transfer data

export fields from local databases

import into one database

Query database as a new slo



#### **Narratives**



Hsüan-chi

- What is it?
  - category "xuanji"
- What is it made of?
  - jade, lots of jade in MNH
- How many in Oxford?
  - at least 3, MHS and Ashmolean

#### **Narratives**



Pagoda at Tiger Hill in Suzhou

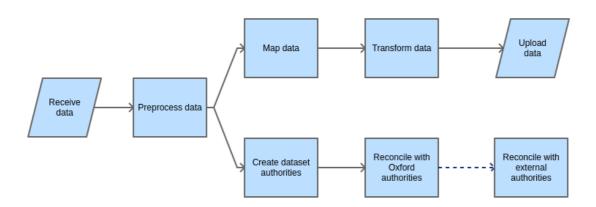
- What else is related to Suzhou?
  - Bodleian titles
  - Objects made there
- What are these flowers?
  - magnolias
- Do the herbaria hold samples?

### Challenge: one month

- Integrate datasets
- Show narratives with queries

#### Challenge: one month

- Bodleian Chinese: workshop 1
- Druce collection: workshop 2
- Natural History and MHS: workshop 3
- Ashmolean: workshop 4, 5



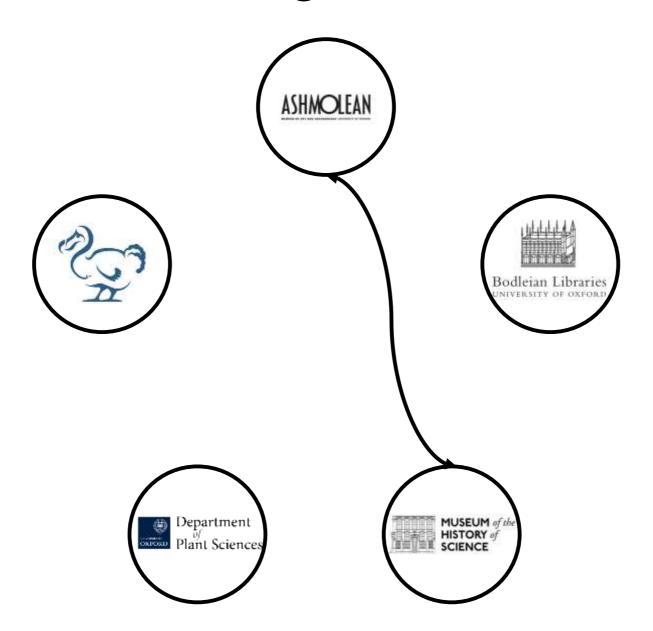


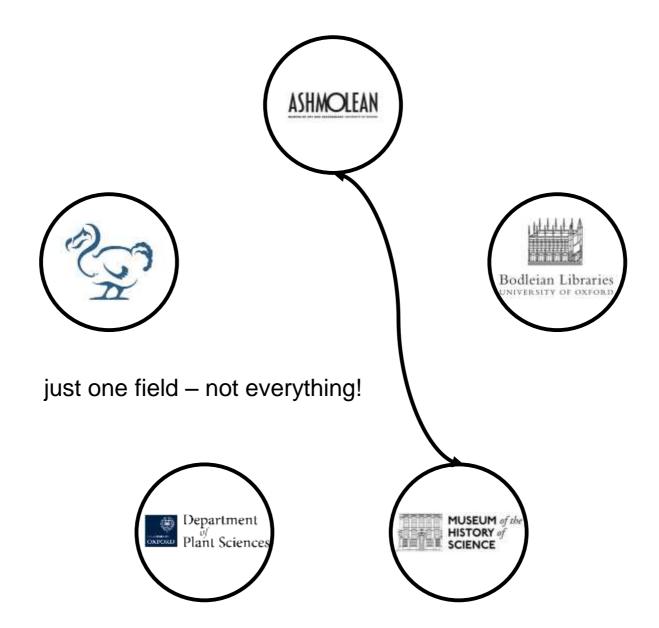


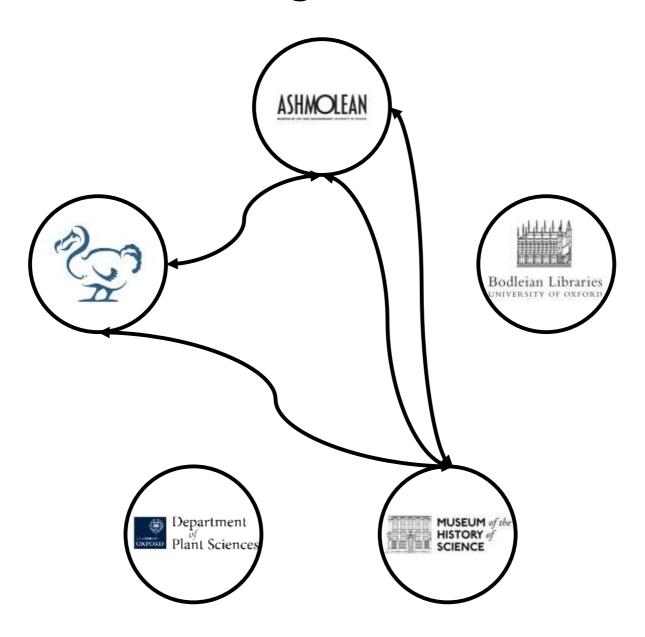


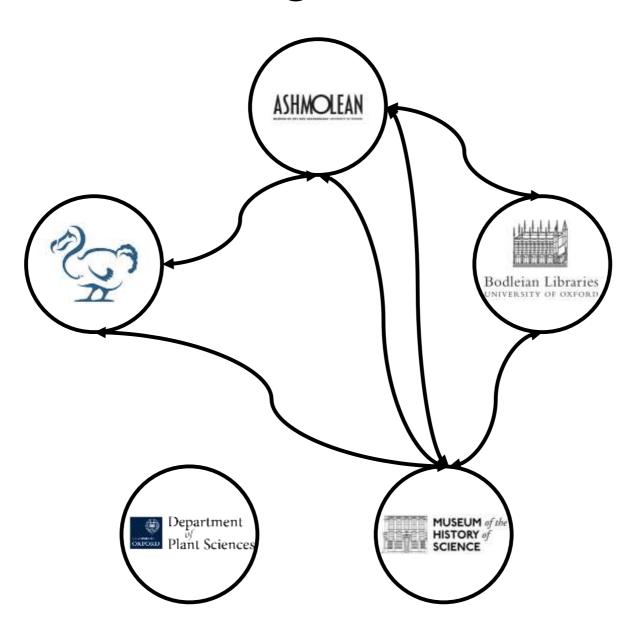


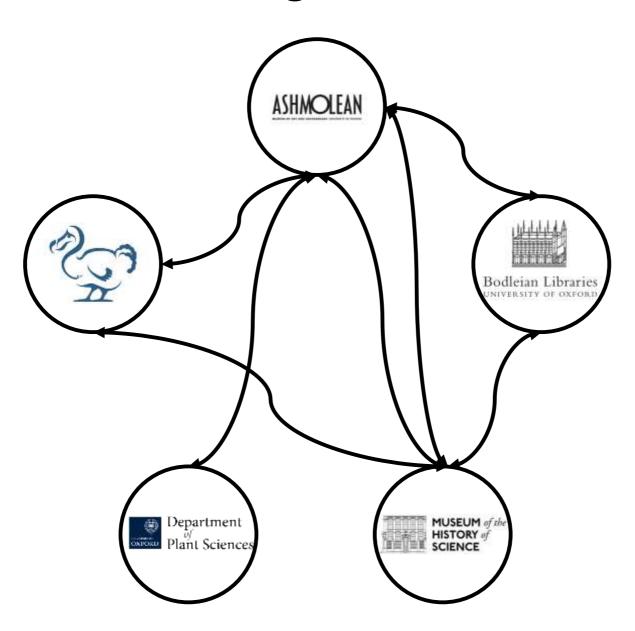






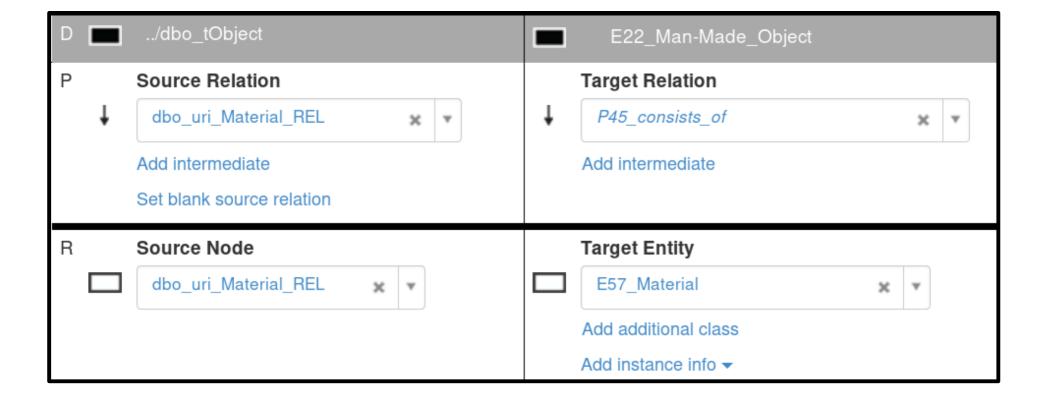




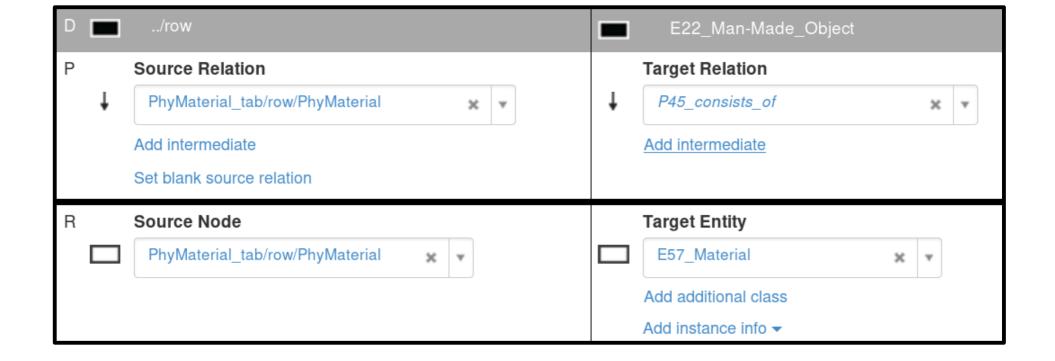




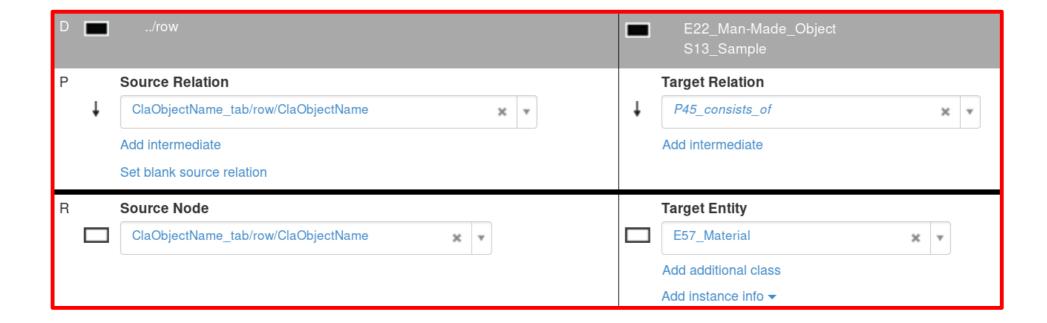












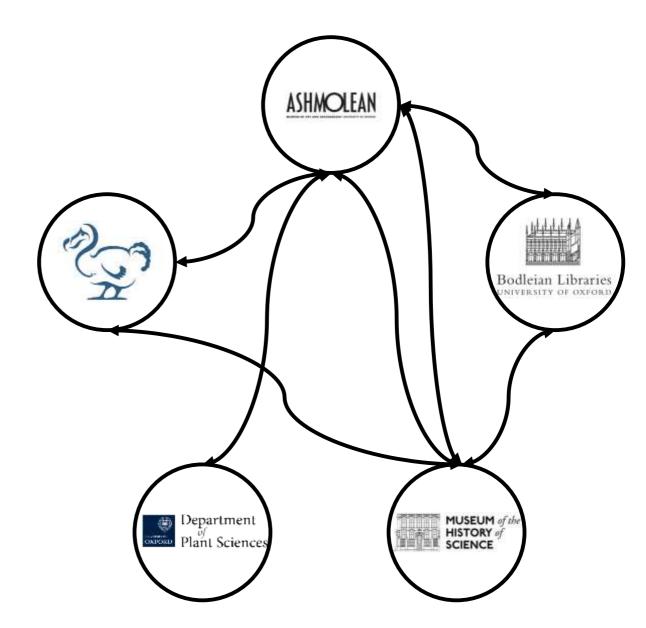
- To establish known links:
  - only need 9 fields
  - from a total of hundreds
- Incremental improvement:
  - add more fields without breaking any schema

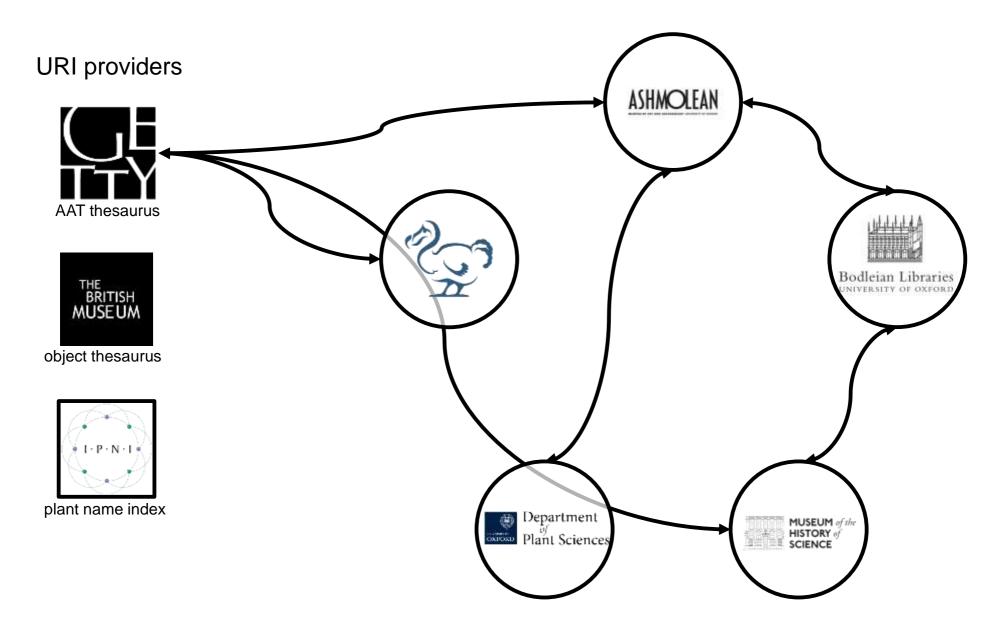
#### **URI** providers







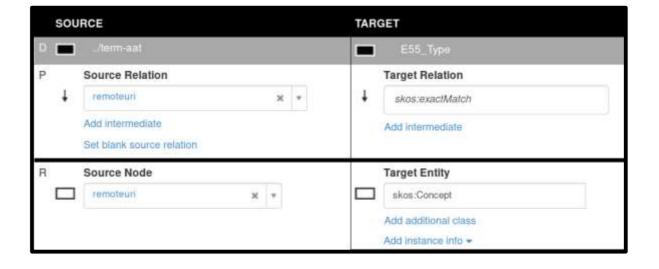


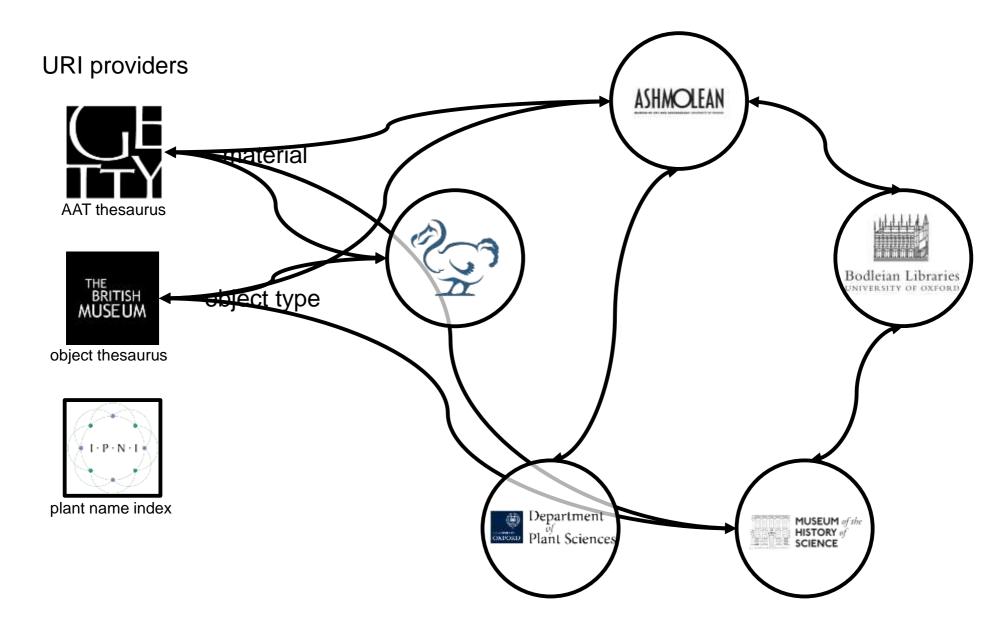


#### material

- Ash material → reconciliation to Getty
- MHS material → reconciliation to Getty
- MNH object to add material → reconciliation to Getty

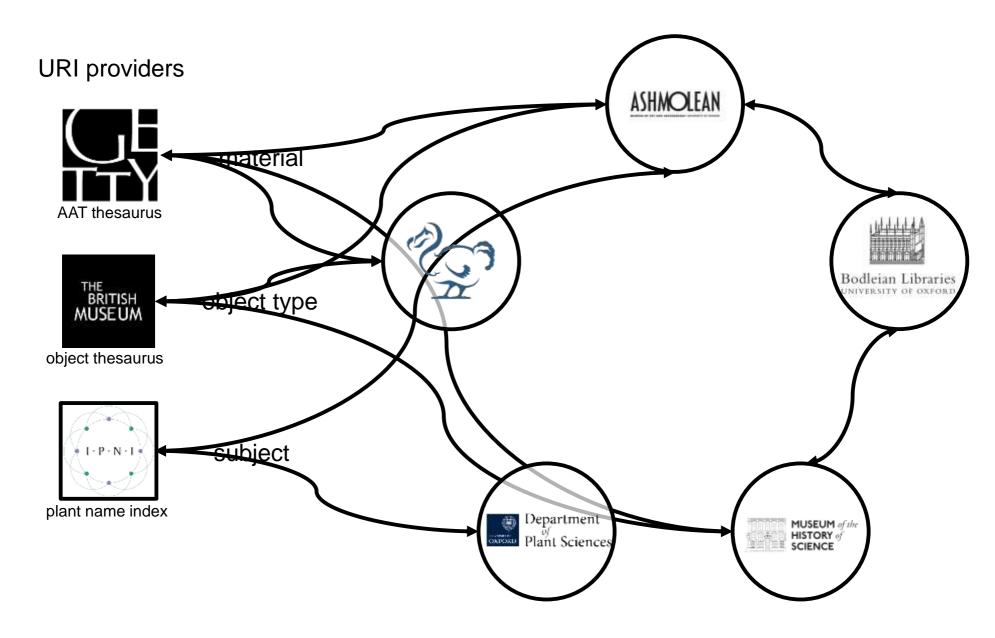
```
<?xml version="1.0" encoding="UTF-8"?>
<rows>
  <term-aat>
    <remoteuri>300014041</remoteuri>
    <localuri>43110</localuri>
    <label>flax</label>
  </term-aat>
  <term-aat>
    <remoteuri>300011870</remoteuri>
    <localuri>43176</localuri>
    <label>gourd</label>
  </term-aat>
  <term-aat>
    <remoteuri>300011105</remoteuri>
    <localuri>43226</localuri>
    <label>hematite</label>
  </term-aat>
  <term-aat>
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    <localuri>43685</localuri>
    <label>chalcedony</label>
  </term-aat>
  <term-aat>
    <remoteuri>300011141</remoteuri>
    <localuri>43700</localuri>
    <label>chert</label>
  </term-aat>
  <term-aat>
    <remoteuri>300133223</remoteuri>
    <localuri>43787</localuri>
    <label>cornelian</label>
  </term-aat>
  <term-aat>
    <remoteuri>300011856</remoteuri>
    <localuri>43972</localuri>
    <label>elephant tusk</label>
  </term-aat>
```



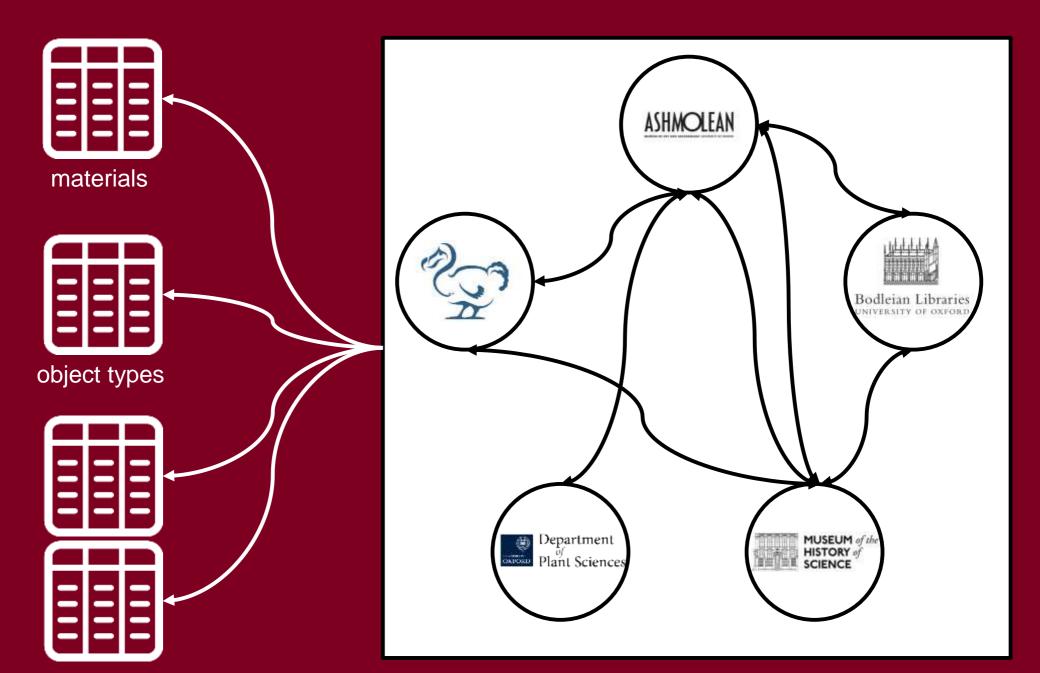


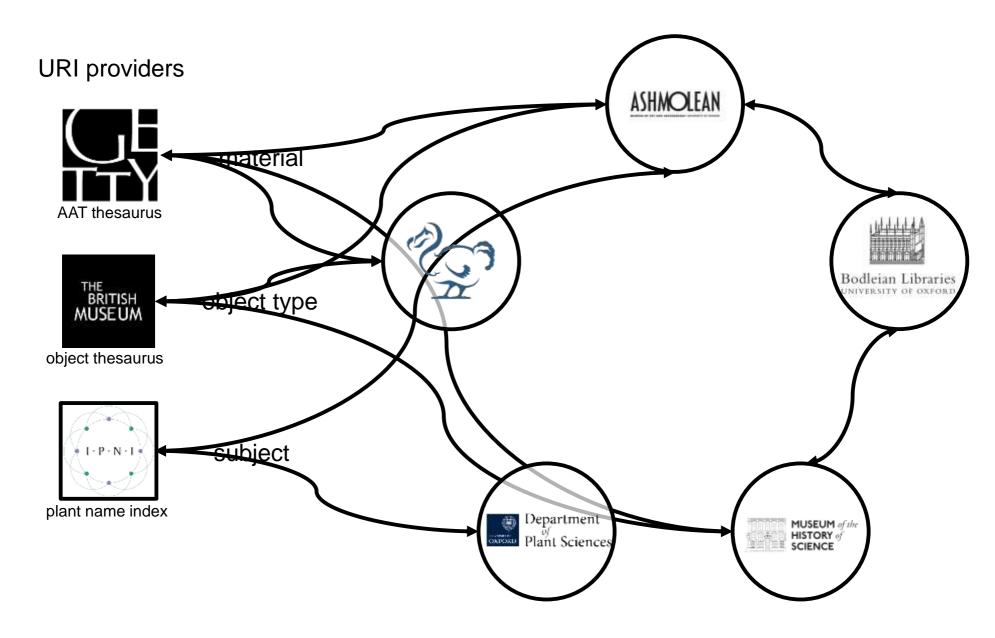
#### object type

- Ash object type → reconcile to BM + Getty
- MHS object type → reconcile to BM + Getty



#### Relational DB normalisation





Example Records -

Home / Sparql

http://www.mhs.ox.ac.uk/object/inv/90478

http://www.ashmus.ox.ac.uk/collections/361987

```
>>
Queries
          1 PREFIX rdfs: <a href="http://www.w3.org/2000/01/rdf-schema">http://www.w3.org/2000/01/rdf-schema">
              PREFIX crm: <http://www.cidoc-crm.org/cidoc-crm/>
          3 ₹
                       SELECT ?subject ?label WHERE {
          4
                          ?subject rdfs:label ?label .
                          ?subject crm:P2 has type ?type .
          5
                          ?type a crm:E55 Type .
          6
                          ?type rdfs:label ?typelabel
                          FILTER REGEX(?typelabel, "xuanji", "i")
          8
          9
                       }
       Repository:
                    (from context) -
                                         Execute
                                                   Save
         Raw Response
                          Table
                                   <u>+</u>
                                       </>
                                                                                                                                               Fetch Labels: OFF
        Filter Results
         subject
                                                                                label
         http://www.mhs.ox.ac.uk/object/inv/77193
                                                                                77193 Hsüan-chi, Early Chinese Astronomical Instrument
```

90478 Chinese Pi, China, 600-900 A.D.?

EA1956.1578 -

Example Records -



Home / Sparql

>>

Queries

```
PREFIX crm: <a href="http://www.cidoc-crm.org/cidoc-crm/">http://www.cidoc-crm.org/cidoc-crm/</a>
                 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
                 SELECT ?subject ?label WHERE {
   3 +
                   ?subject rdfs:label ?label .
                   ?subject crm:P45 consists of ?type .
   5
                   ?type a crm:E55 Type .
   6
                   ?type rdfs:label ?typelabel
                   FILTER REGEX(?typelabel, "jade", "i")
   8
   9
Repository:
             (from context) -
                                  Execute
                                             Save
  Raw Response
                   Table
                            +
                                 </>
                                                                                                                                            Fetch Labels: OFF
 Filter Results
  subject
                                                                           label
  http://www.mhs.ox.ac.uk/object/inv/77193
                                                                           77193 Hsüan-chi, Early Chinese Astronomical Instrument
  http://www.mhs.ox.ac.uk/object/inv/90478
                                                                           90478 Chinese Pi, China, 600-900 A.D.?
  http://www.oum.ox.ac.uk/collections/irn/476273
                                                                           DR.0707
  http://www.oum.ox.ac.uk/collections/irn/11763
                                                                           MIN.3010
  http://www.oum.ox.ac.uk/collections/irn/12662
                                                                           MIN.3913
  http://www.oum.ox.ac.uk/collections/irn/12665
                                                                           MIN.3916
  http://www.oum.ox.ac.uk/collections/irn/17792
                                                                           MIN.9072
  http://www.oum.ox.ac.uk/collections/irn/20981
                                                                           MIN.12281
```

Example Records -

Home / Sparql

```
>>
```

Queries

```
1 PREFIX crm: <http://www.cidoc-crm.org/cidoc-crm/>
        PREFIX skos: <a href="http://www.w3.org/2004/02/skos/core#">http://www.w3.org/2004/02/skos/core#>
       PREFIX gvp: <a href="mailto:right">gvp: <a href="mailto:right">http://vocab.getty.edu/ontology#></a>
       PREFIX xl: <a href="http://www.w3.org/2008/05/skos-xl#>">http://www.w3.org/2008/05/skos-xl#>">
        PREFIX luc: <a href="http://www.ontotext.com/owlim/lucene#">http://www.ontotext.com/owlim/lucene#></a>
        PREFIX aat: <a href="http://vocab.getty.edu/aat/">http://vocab.getty.edu/aat/>
   7 * SELECT ?subject WHERE {
   8 +
   9
              ?subject crm:P2 has type ?type .
              ?type skos:exactMatch ?aaturi
  10
 11
           }
           SERVICE <a href="http://vocab.getty.edu/sparql">SERVICE <a href="http://vocab.getty.edu/sparql">http://vocab.getty.edu/sparql</a> {
 12 v
              ?aaturi luc:term "bi (ceremonial disk)" .
  13
              ?aaturi skos:inScheme aat: .
  14
              ?aaturi gvp:broaderExtended aat:300264092
  15
 16
 17 }
Repository:
               (from context) -
                                         Execute
                                                      Save
   Raw Response
                       Table
                                  <u>+</u>
                                       </>
  Filter Results
                                                                                                                                                                      Fetch Labels: OFF
   subject
   http://www.mhs.ox.ac.uk/object/inv/77193
   http://www.mhs.ox.ac.uk/object/inv/90478
   http://www.ashmus.ox.ac.uk/collections/361987
```



#### China Biographical Database Project (CBDB)

HOME

About Us v

Methodology v

Sources v

Events •

Download v

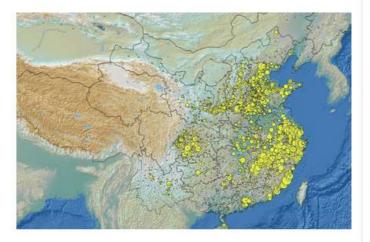
Blogv

中文

#### Welcome

#### Introduction

The China Biographical Database is a freely accessible relational database with biographical information about approximately **417,000 individuals as of August 2017**, primarily from the 7th through 19th centuries. With both online and offline versions, the data is meant to be useful for statistical, social network, and spatial analysis as well as serving as a kind of biographical reference. The image below shows the **spatial distribution** of a cross dynastic subset of 190,000 people in CBDB by basic affiliations (籍買).



#### How to Cite CBDB

Harvard University, Academia Sinica, and Peking University, China
Biographical Database (January 1, 2018), https://projects.iq.harvard.edu/cbdb.

#### Updates

(April 2017) CBDB's 2017 April update is released! Download the standalone database <u>here!</u>

(April 2017) New blog post about ChinaX is up! See here.

(April 2017) Ming Government Official Titles: A Crowd-Translation Project

Help CBDB translate official titles from the Ming dynasty! This new crowdsourcing <u>project</u> will be open until June 6th, 2017. There are still 1,500 titles to be translated!

(Sep. 2016) CBDB now has a <u>blog!</u> You can also watch videos on its new <u>Youtube channel!</u>

#### **New Release**

UPDATED CBDB database as of March 24, 2017 - for download and information about this release please visit this page.

#### Signing up for the CBDB mailing list

#### **URI** providers



Chinese Biographical database, people



Chinese Biographical database, places



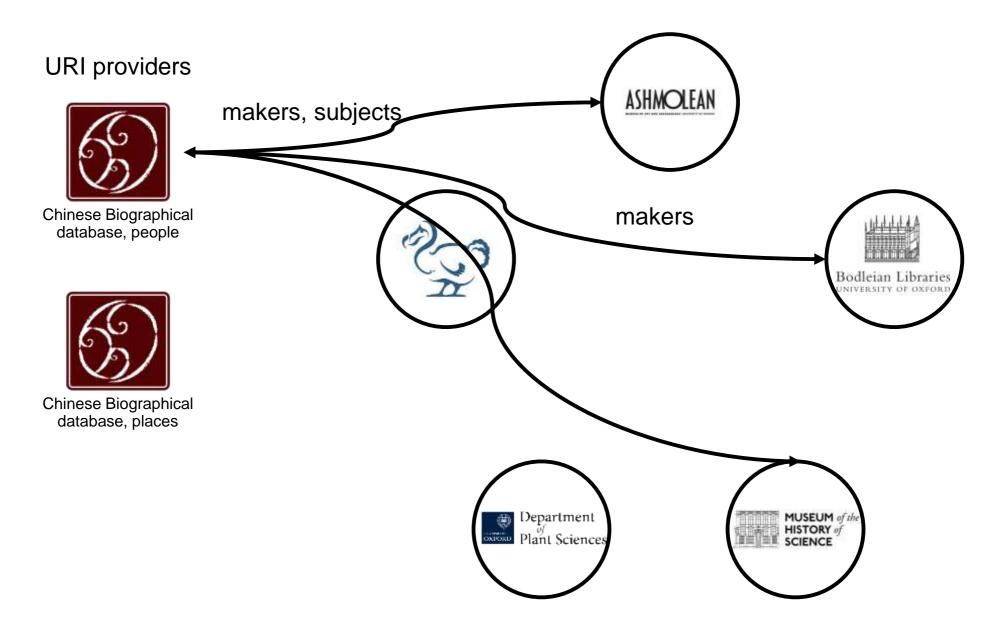




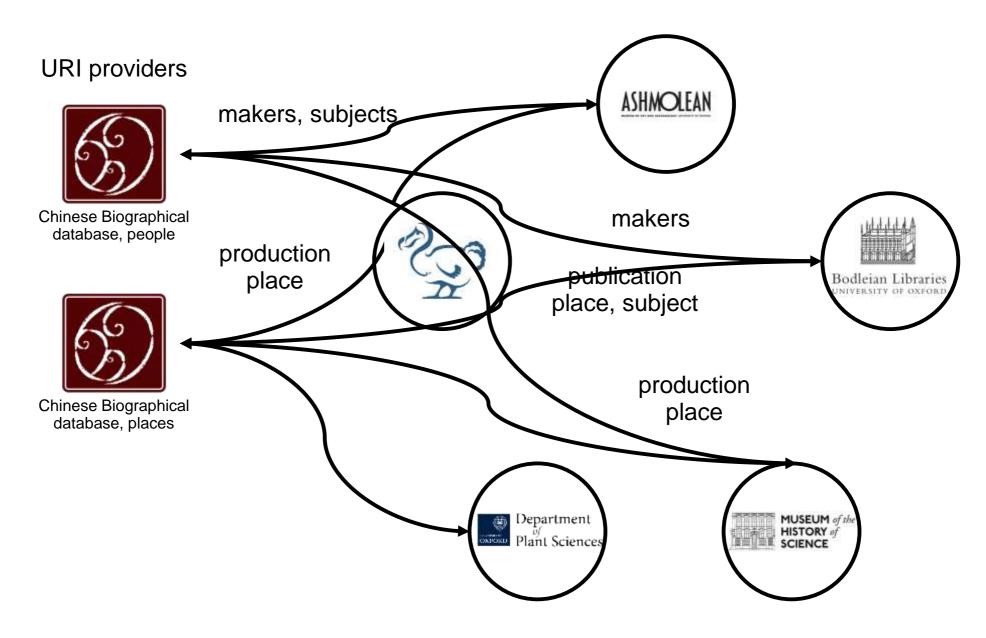




## Establishing unknown links

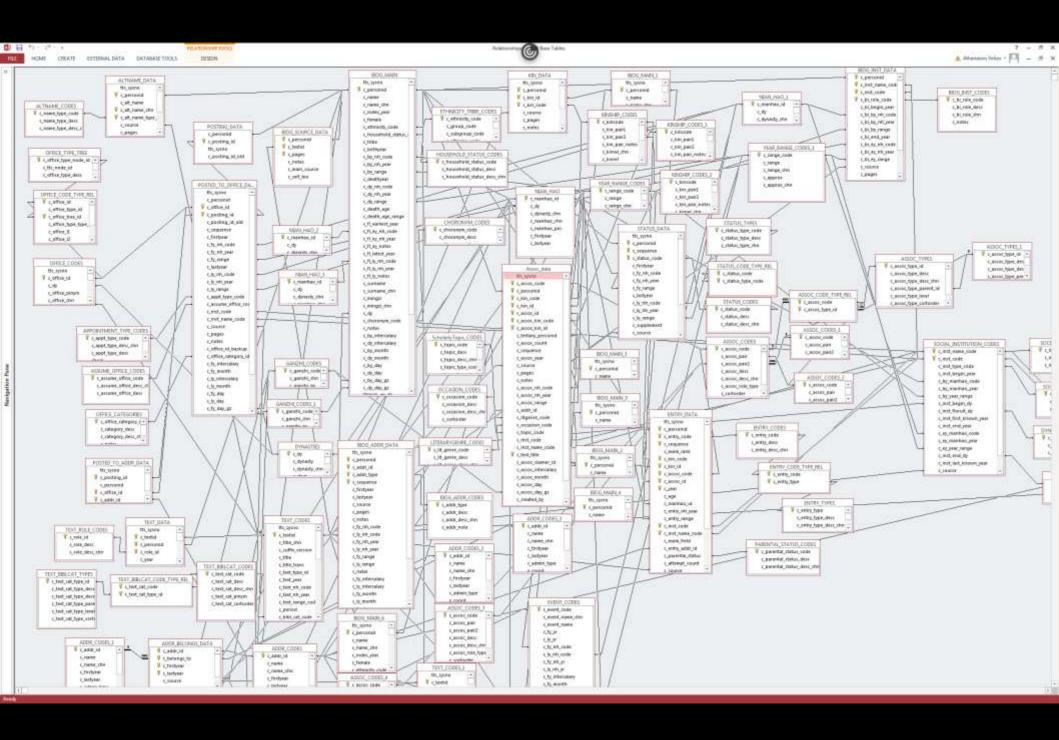


## Establishing unknown links



### **CBDB** links

Complex db



### **CBDB** links

- Complex db
- Places
  - Existing mapping for Pelagios
  - Part of the dataset



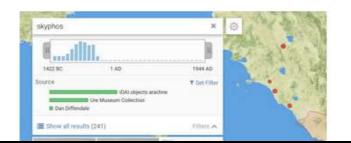
#### Linking the places of our past





#### How can Pelagios Commons help me?







Log in Register Search the site: Q



#### Linking the places of our past

About

Link Data

**Explore Data** 

**Pelagios Commons** 

**Community Activity** 



#### Announcement: China Historical GIS Data in Recogito

💄 rebeccakahn 🛮 📾 Community, Gazetteer, GIS, Recogito, Resources 🖾 September 14, 2017 💮 No Comments »



The South China Sea on the Selden Map (annotations by Robert Batchelor).

We're excited to announce that The China Historical Geographic Information System, (CHGIS) data is now part of the public instance of Recogito!

The CHGIS is a database of populated places and historical administrative units for the period of Chinese history between 221

#### Categories

- Community (128)
- Best Practice (45)
- Event (19)
- Newsletter (2)
- Users (21)
- Data (101)
- Geodata (28)
- GIS (4)
- Linked Open Data (74)
- Visualisation (33)
- Recogito (2)
- Resources (65)
- Mapping tiles (4)
- Peripleo (4)
- RDG\_2017 (8)
- Recogito (23)
- Widgets (12)
- SIGs (68)
- Ancient Greek (21)
- Archaeology (14)
- East Asian (3)
- Gazetteer (22)
- Linked Pasts (24)
- Maritime (4)
- Medieval, Byzantine & Islamic (13)



ID				LON	LAT		CHGIS_ID	
367	Suzhou	蘇州	Shixiaqu			江蘇省		
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	中都留守司	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	中都留守司	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	中都留守司	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	應天巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	應天巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	應天巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	應天巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	應天巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	應天巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	南畿浙西巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	南畿浙西巡撫	32432	蘇州; 吳郡
4592	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	南畿浙西巡撫	32432	蘇州; 吳郡
7538	Suzhou Fu	蘇州府	Fu	120.61862	31.31271	江蘇省	32432	蘇州府
17967	Suzhou Lu	肅州路	Lu	98.51125	39.74494	甘肅行中書省	9531	
864	Suzhou Shi	宿州市	Shi			宿縣地區		
1492	Suzhou Shixiaqu	蘇州市轄區	Shixiaqu			蘇州		
5319	Suzhou Wei	肅州衛	Wei	0	0	陝西行都指揮使司		
5319	Suzhou Wei	肅州衛	Wei	0	0	陝西行都指揮使司		
5319	Suzhou Wei	肅州衛	Wei	0	0	陝西行都指揮使司		
5319	Suzhou Wei	肅州衛	Wei	0	0	陝西行都指揮使司		

Example Records +



Home / Sparql

```
>>
```

Queries

```
1 PREFIX rdfs: <a href="http://www.w3.org/2000/01/rdf-schema">http://www.w3.org/2000/01/rdf-schema">
      PREFIX crm: <http://www.cidoc-crm.org/cidoc-crm/>
   3 ▼ SELECT ?subject WHERE {
         GRAPH <http://projects.iq.harvard.edu/cbdb/> {
   4 ₹
            ?subject a crm:E53 Place .
   5
            ?subject rdfs:label ?l .
   6
            FILTER REGEX(?l, "Suzhou", "i")
   8
   9
      }
Repository:
             (from context) -
                                   Execute
                                              Save
  Raw Response
                    Table
                             <u>*</u>
                                  </>
 Filter Results
                                                                                                                                             Fetch Labels: OFF
  subject
  http://projects.iq.harvard.edu/cbdb/places/116.96302-33.64094
  http://projects.ig.harvard.edu/cbdb/places/120.303009033203-31.1192073822021
  http://projects.iq.harvard.edu/cbdb/places/98.5112533569336-39.7449417114258
  http://projects.iq.harvard.edu/cbdb/places/99.8202819824219-39.381217956543
  http://projects.iq.harvard.edu/cbdb/places/120.39973449707-31.0904312133789
  http://projects.ig.harvard.edu/cbdb/places/120.39988-31.23863
  http://projects.iq.harvard.edu/cbdb/places/120.59098-31.86945
  http://projects.ig.harvard.edu/cbdb/places/120.60842-31.29645
```

### **CBDB** links

- Complex db
- Places
  - Existing mapping for Pelagios
  - Part of the dataset
- People
  - names not enough
  - date of births
  - places of birth
  - etc.

	SOURCE		TARGET				
D		/dbo_tObjectPersonREL		E21_Person			
Р	1	/label	1	P1_is_identified_by			
R		/label		E41_Appellation			
			1	P98i_was_born			
				E67_Birth @ [b]			
Р	1	/DateOfBirth	1	P4_has_time-span			
				E52_Time-Span			
			1	P82a_begin_of_the_begin			
R		/DateOfBirth		rdf-schema#Literal			
			ļ	P98i_was_born			
Р	1	/CountryOfBirth		E67_Birth (6) [b]			
			1	P7_took_place_at			
R		/CountryOfBirth		E53_Place			
			1	P98i_was_born			
Р	1	/PlaceOfBirth		E67_Birth @ [b]			
			1	P7_took_place_at			
R		/PlaceOfBirth		E53_Place			
			+	P100i_died_in			
				E69_Death M [d]			
Ρ	1	/DateOfDeath	1	P4_has_time-span			
				E52_Time-Span			
			1	P82b_end_of_the_end			
R		/DateOfDeath		rdf-schema#Literal			
			Į.	P100i_died_in			
Р	1	/CountryOfDeath		E69_Death @ [d]			
			1	P7_took_place_at			
R		/CountryOfDeath		E53_Place			
			ţ	P100i_died_in			
Р	Į.	/PlaceOfDeath		E69_Death @ [d]			
			1	P7_took_place_at			
R		/PlaceOfDeath		E53_Place			

## Summary for questions

- Incremental linking
- References to external authorities
  - better if already published as Linked Data
- Improving integration means improving data
- Integration through SPARQL



# Next Open Workshop

12 June 2018 - OeRC

