

CLAROS — bringing classical art to a global public

Donna Kurtz (Beazley Archive, Classics), **David Shotton** (Department of Zoology), **Florian Schroff** (Engineering Science), **Yorick Wilks** (Oxford Internet Institute), **Greg Parker** (Beazley Archive), **Graham Klyne** (Department of Zoology), and **Andrew Zisserman** (Engineering Science).

*Presented by Sebastian Rahtz
(Oxford University Computing Services).*

Oxford, December 12th 2009



Vision

CLAROS (Classical Art Research Online Services) is a collaborative initiative led by the University of Oxford, working in two areas of multi-disciplinary research:

- Classical antiquity
- Information and Communication Technologies

and with two aims:

- To enhance and disseminate the highest level of scholarship to the broadest global public
- To use datasets in Classics and Classical Art to exploit the potential of ICT for public service



Classical art



Sculpture



Pottery



Gems



The CLAROS programme

- 1 Development of a humanities dataweb combining leading classical art history and related databases
- 2 Demonstration interfaces to explore classical art
- 3 Innovative searching based on shape analysis
- 4 Large-scale RDF database providing a testbed for performance research
- 5 Changing the approach to data discovery by development of a conversational Companion



CLAROS: data resources

Target:

- data web integrating access to the world's scholarly information on classical art
- semantic integration of the distributed, heterogeneous and non-interoperable digital resources held by CLAROS partners

University of Oxford – Beazley Archive:

- Electronic documentation started 1979
- 150,000 Pottery records and 130,000 images
- 50,000 Engraved gem and cameo records and 30,000 images
- 900 Plaster casts records (classical sculpture) and 1000 images
- 900 Antiquarian photographs

University of Oxford - Lexicon of Greek Personal Names:

- Electronic documentation started 1975.
- 400,000 recorded individuals. Over 35,000 unique personal names.



CLAROS datasets (2)

University of Cologne – Research Sculpture Archive:

- Electronic documentation started 1972
- 250,000 Sculpture records, 490,000 images.

German Archaeological Institute:

- 1,500,000 photographs

University of Paris X - Lexicon Iconographicum Mythologiae Classicae:

- Created 1972.
- 100,000 records, 180,000 images of mythological and religious iconography from 2,000 museums and collections.

A total of 2 million records and images



Disparate technologies

Beazley Archive 'XDB' – XML data, SQL Server Database, ASP front end.

Cologne Research Archive and German Archaeological Institute
'Arachne' - MySQL database, PHP front end.

LIMC MySQL database, PHP front end.

LGPN Ingres relational database, also available as an eXist XML database serving TEI-XML data. XQuery front end.

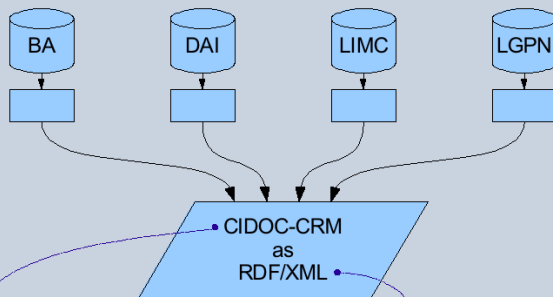


The CLAROS data web approach

- **No changes** to the databases of the individual sources
- **Semantic differences** between data sources are resolved by mapping selected metadata from each source to CIDOC-CRM
- **Syntactic differences** between data sources are resolved by converting the selected metadata to RDF, accessed from a single triple store using SPARQL



Combining data



Concepts ("Semantics")

E.g.:

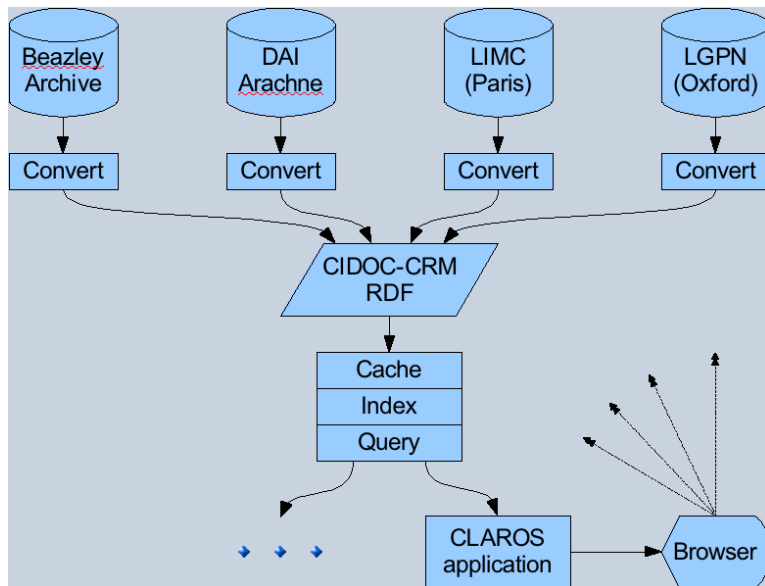
- *Objects (what?)*
- *Places (where?)*
- *People (who?)*
- *Times (when?)*

Format ("Syntax")

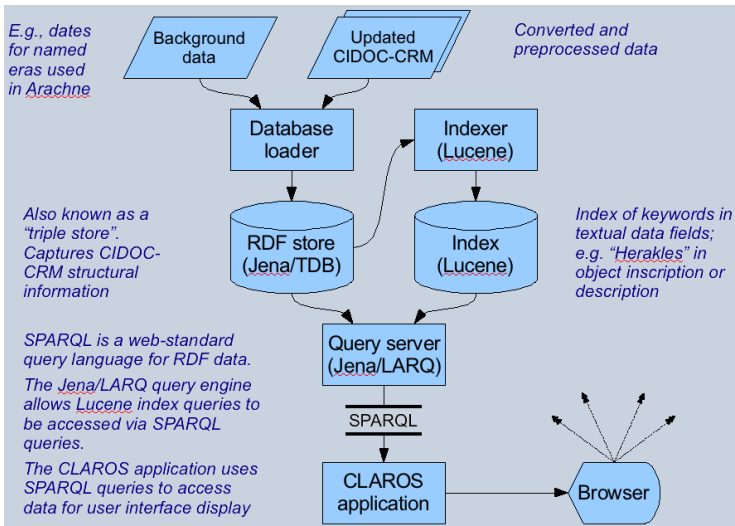
Patterns for computer representation and data transfer



System Components



Technicalities



CLAROS and CIDOC CRM

We have found CIDOC CRM to be extremely well suited for CLAROS data

- We focused initially on the CIDOC CRM Core terms, and employed additional terms as necessary
- CIDOC CRM Core can describe the complex provenance of artefacts and their relationships with key events, people, places and times
- The necessary complexity of the resulting RDF/XML is mostly invisible to developers, and entirely hidden from users
- The CIDOC CRM "E55.Type" system is particularly useful to permit faceted/drill-down queries, e.g. restricting results by the shape of a pot



RDF example

```

<E21.Person
  rdf:about="http://clas-lgpn2.classics.ox.ac.uk/id/V1-85238">
  <P131.is_identified_by xml:lang="el-grc">
    <E82.Actor_Appellation>
      <value>Παράμονος</value>
    </E82.Actor_Appellation>
  </P131.is_identified_by>
  <P131.is_identified_by xml:lang="el-grc-x-lgpn">
    <E82.Actor_Appellation>
      <value>Paramonos</value>
    </E82.Actor_Appellation>
  </P131.is_identified_by>
  <P98.was_born>
    <E67.Birth>
      <P4.has_time-span>
        <E52.Time-Span>
          <P79.at_some_time_within>
            <E61.Time_Primitive>
              <claros:not_before
                rdf:datatype="http://www.w3.org/2001/XMLSchema#gYear">-
0225</claros:not_before>
              <claros:not_after
                rdf:datatype="http://www.w3.org/2001/XMLSchema#gYear">-
0175</claros:not_after>
            </E61.Time_Primitive>
          </P79.at_some_time_within>
        </E52.Time-Span>
      </P4.has_time-span>
    <P7.took_place_at
      rdf:resource="http://clas-lgpn2.classics.ox.ac.uk/placeid/LGPN_11270"/>
    </E67.Birth>
  </P98.was_born>
</E21.Person>

```



CLAROS extensions to CIDOC CRM

A very few extensions were needed. e.g.

- some additional RDF vocabulary for time metadata relating to imprecise periods and eras i.e. `claros:not_before` and `claros:not_after`, applied to a `crm:E61.Time_Primitive` object

This allows us to capture partial or imprecise quantitative information that is not expressed by a `crm:has_PrimitiveTime` property

New properties have been introduced as OWL datatype properties on the primitive value objects



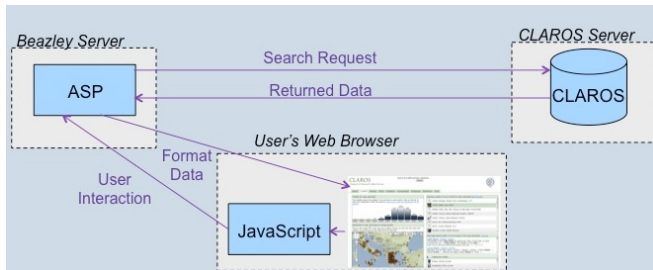
CLAROS dataweb delivery

CLAROS is simply a resource discovery service using minimal metadata — the user is ultimately directed back to the original data publisher's site for full information about an event, object, place or person of interest.



The CLAROS interface

- Each partner can integrate CLAROS data from the other partners using his own programming platform.
- As an example Beazley Archive set up a *CLAROS Explorer* show what is possible.



The CLAROS homepage

You are here: [Home](#)

CLAROS

Classical Art Research Online Services

Search



[Home](#) [CLAROS](#) [Pottery](#) [Gems](#) [Sculpture](#) [Iconography](#) [Antiquaria](#) [Dictionary](#) [Tools](#)

Virtual integration of digital assets on classical art

About us

Partner Institutions:
Beazley Archive, Oxford
German Archaeological Institute, Berlin
Lexicon Iconographicum Mythologiae Classicae - LIMC Basel
Lexicon Iconographicum Mythologiae Classicae - LIMC Paris
Research Archive for Ancient Sculpture, Cologne
Lexicon of Greek Personal Names



News

Beazley Archive / LGPN Pilot Project
Berlin, FIEC Conference, 29 August: proof of concept launch
Oxford Alumni Weekend, 25 September

[Site Map](#) | [Contact Us](#)

© Beazley Archive 1997-2009 | Last updated: 20 August, 2009

Internet | Protected Mode: Off | 105%



CLAROS faceted browser

CLAROS

Classical Art Research Online Services

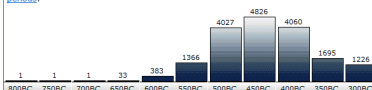
Search all CLAROS partners' databases



Home CLAROS Pottery Gems Sculpture Iconography Antiquaria Dictionary Tools

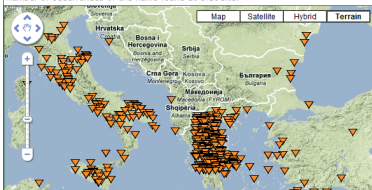
Timeline for calyx and krater

The timeline shows the number of occurrences in each period. Click on the bar to show the distribution within the period or [click here to view the distribution for all periods](#).



Distribution of calyx and krater for all time periods

Click on the marker on the map and a balloon will pop up with the site name and number of occurrences of the name found at that site.



Summary results 27 to 51 of 6445 for calyx and krater [Next](#) [Previous](#)

	214619, Bologna, Museo Civico Archeologico, 217
	217501, Berlin, lost, F2642
	206500, Rome, Mus. Naz. Etrusco di Villa Giulia, XXXX0.6500
	214605, Ferrara, Museo Nazionale di Spina, T66AVP
	214871, Athens, Agora Museum, P21535
	29128, Kiel, Antikensammlung, B795
	28435, Cyrene, Museum, 81.6
	9010393, London, British Museum

Web page search results 1 to 10 of about 13 for calyx and krater [Next page](#)

[Calyx-krater - Shapes - Pottery](#)

The handles of the **calyx-krater** are placed low down on the body, at what is termed the cul. ... **Calyx-krater**. The handles of the **calyx** ... <http://www.clarosnet.org/pottery/shapes/calyx.htm> - 8k - 2008-10-09

[Column-krater - Shapes - Pottery](#)

skip links. You are here: Home > Pottery > Shapes > Kraters > Column-krater. ... **Column-krater**. ... Athenian red-figure column-krater ht. 35cm. ...

Loading new results...

	Pottery 102155 records
	Rundplastik 37905 records



Image recognition

Visually defined query



What is this?

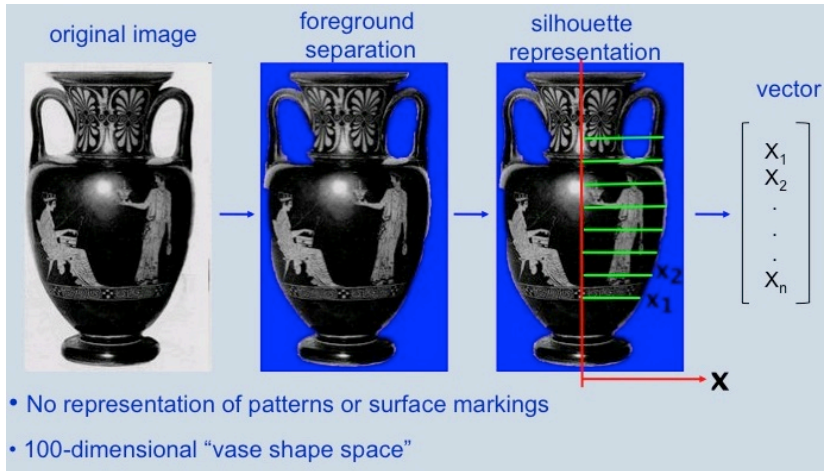


"It is an amphora

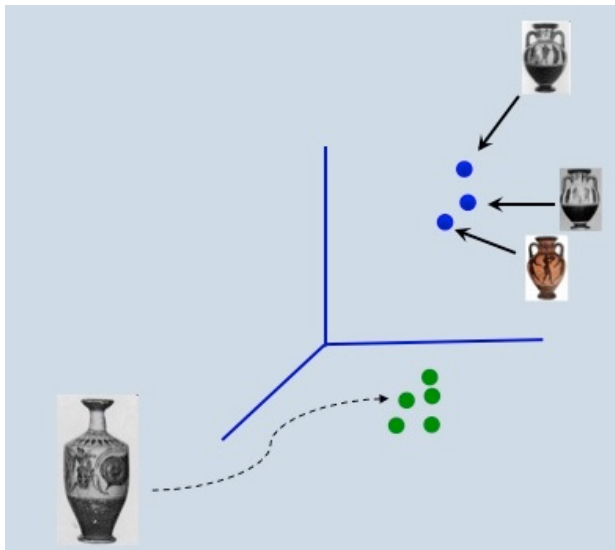
... and here are similar
objects in the archive"



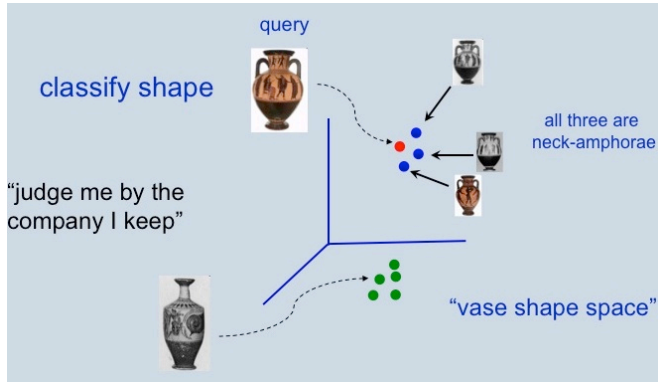
Shape representation



Vase shape space



Compute three nearest neighbours for each vase



Companions

- Take the interface up a level from text searching
- Provide a personalized avatar: an agent or 'presence' that stays with the user for long periods of time, developing a relationship and 'knowing' its owners preferences and wishes. It will communicate with the user primarily by using and understanding speech.

Part of larger EU **Companions** project:

<http://www.companions-project.org/>



The relevance of CLAROS

We believe that CLAROS is important because

- It is not designed to be a demonstrator, but to deliver real, complete, data
- We are testing an ontology, CIDOC CRM, on a proper scale
- There is a genuine collaboration between humanities, engineering and computer science
- We show the rest of humanities that the dataweb approach can work



The future of CLAROS

- Enhance performance to a level acceptable to the general public
- Bring in new partners with more classical art data
- Develop visual search and analysis interfaces
- Research dynamic aggregation
- Expand the humanities dataweb concepts chronologically and geographically

