CARARE and EDM

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Background

- CARARE developed its metadata schema to support harvesting of archaeology and architecture content for Europeana

- The schema is based on:
  - MIDAS heritage
  - LIDO
  - CIDOC data standards
  - Europeana Data Model

- Mapping it to Europeana Data Model (EDM) underpins an XSLT, which enables automatic transformation of CARARE records to EDM format

The CARARE schema provides

- Familiar concepts
- Rich where the domain calls for it, e.g.:
    - Time – from earliest prehistory to modern dates
    - Space – place names, coordinates, bounding boxes and polygons
    - Monument character
- Includes events and collection information

Supports interoperability

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Documenting a heritage object using the CARARE 2.0 schema

- a quick guide!

CARARE 2.0 approach

- Distinguishes "heritage assets" – a painting, book, drawing, image, film, 3D reconstruction or real- from world archaeological monument/ historic building

- Digital representations (or digital resources) of the heritage asset which can be found online

- Allows for events (historical, field activities, laboratory work) to be related to heritage assets or digital resources

- Includes collection and other contextual information

- Allows one heritage asset to be related to another (whole/part, parent/ child, predecessor/successor, version) allowing for alternate interpretations to be offered.

Heritage asset

Castle of Kavala
Cultural and Educational
Technology Research
Institute

Core details:

- Title

- Description

- General type

- Character (subject, time period, etc)

- Spatial location (place name coordinates)

- Rights

- Provenance

- Actors

- Relation to digital resource

Digital Resource

There can be more than one digital resource linked to a heritage asset

Core details:

- Title

- Description

- Type and format

- Location of the resource online (URL, URI)

- Rights

- Relation to heritage asset

Activity

Core details:

- Title

- Description

- Date

- Actors

- Type of event (data acquisition, etc)

- Event methods and techniques

- General and specific purpose

- Relations to heritage asset and digital resource

Developments

- The version 2.0 of the CARARE schema was developed during 3D-Icons project to take on board:

  - ✓ Lessons learned during the CARARE project
  - ✓ Developments in EDM;
  - ✓ and to support the provenance and paradata required for quality assurance of 3D models

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The main changes

- **Heritage Asset**
  - Scope has been broadened to include printed materials, archives and born-digital objects relating to the archaeological and architectural heritage
  - Becomes mandatory; there must be ONE in each CARARE object
  - The references section has been simplified
  - Provenance has been added
- **Digital Resource**
  - Has been simplified to focus on the type, format and location of the online resource.
  - It remains mandatory; there must be at least one in each CARARE object.
- *Record information* has been simplified.
- *Rights statements* have been simplified and metadata rights clarified.
- *Spatial information* has been updated.
- Elements for *types of relations* from heritage assets, digital resource activities have been specified for clarity

Achieving interoperability between the CARARE schema for monuments and sites and the Europeana Data Model

A quick overview then some detail

For individual monuments we generally have a series of resourc
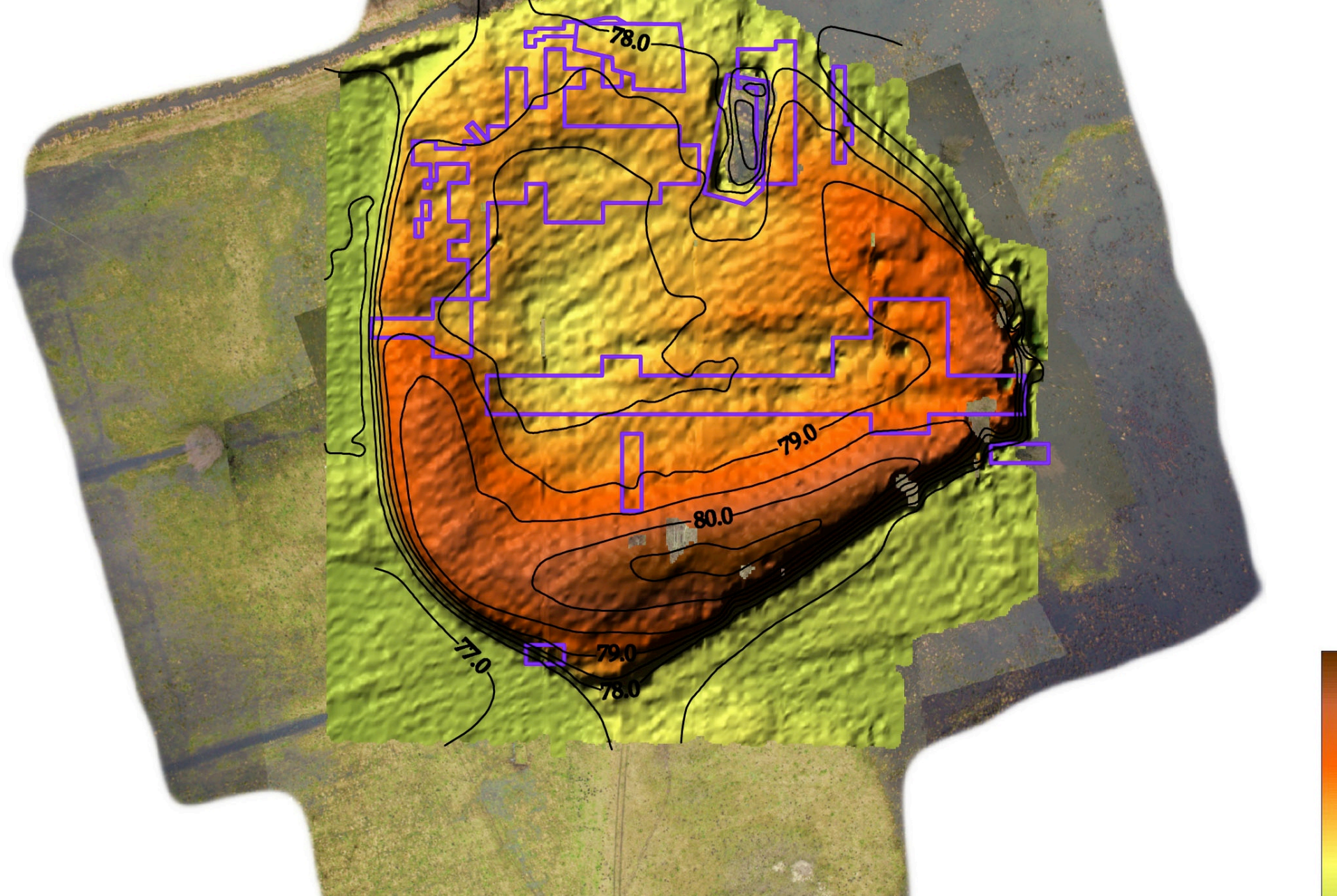
This is a photo of part of a monume

We can see more of the monument from the air

but what's going on beneath the surface?

lots of different sources of information

help build up the picture of the monument
and our understanding
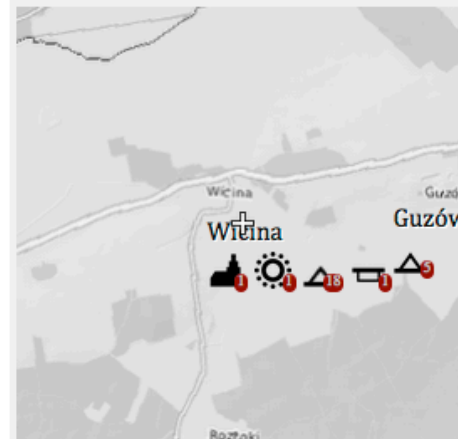
And make this available online

Achieving interoperability with Europeana

- We made a mapping between EDM and the CARARE metadata schema: finding correspondences between the elements of both models

- Helps users of the CARARE schema to send good metadata to Europeana

- Why is it important to report on this?

  - Mapping is rarely an easy issue

  - Models are complex, with subtle differences in world views

  - Both CARARE and Europeana benefits from "mapping meditation"

    One of the hardest (confronting) metadata exercises!

    Sharing concrete experiences benefits all Europeana partners

How does this look in Europeana?

Mapping CARARE 2.0 to EDM

The basic approach for mapping a CARARE 2.0 record to EDM is the following:

- Elements of a Heritage Asset is mapped to the providedCHO of EDM

- Elements of one or more Digital Resources are mapped to the WebResource of EDM

- Elements of one or more Activities are mapped to the Event of EDM

- Spatial information of Heritage Asset is mapped to the Place of EDM

- Elements of a Heritage Asset and Digital Resources are mapped to ore:aggregation

Mandatory and recommended elements of EDM

☐ = **Mandatory property**
→ Blue = one of the blue properties is mandatory
⊙ Red = one of the red properties is mandatory
+ = recommended property

Core Classes

Properties for edmProvidedCHO	
⊙ dc:subject	+ dcterms:issued
⊙ dc:coverage	+ dc:date
⊙ dc:type	+ dc:identifier
⊙ dcterms:spatial	+ dc:publisher
→ dc:description	+ dc:source
→ dc:title	+ dcterms:alternative
✔ **dc:language** (if edm:type = TEXT)	+ dcterms:created
✔ **edm:type**	+ dcterms:isPartOf
+ dc:contributor	+ dcterms:temporal
+ dc:creator	+ edm:isNextInSequence

Properties for ore:Aggregation	
✔ **edm:aggregatedCHO**	→ edm:isShownAt
✔ **edm:dataProvider**	→ edm:isShownBy
✔ **edm:provider**	+ edm:object
✔ **edm:rights**	

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cip competitiveness and innovation framework programme 2007–2013

```xml
<car:carareWrap xmlns:car="http://www.carare.eu/carareSchema" xmlns:xalan="http://xml.apache.org/xalan">
▼<car:carare id="HA22">
  ▼<car:collectionInformation>
      <car:id>10.5284/1011330</car:id>
      <car:title>The Virtual Amarna Project</car:title>
    ▼<car:source>
       http://archaeologydataservice.ac.uk/archives/view/amarna_leap_2011
      </car:source>
    ▼<car:statement>
       The pieces in the Virtual Amarna Museum come from the site of Tell el-Amarna in Egypt, the city built around 1350 BC by
       Pharaoh Akhenaten, as a place where he could centre his austere view of the cult of the sun, the Aten. The pieces
       illustrate not Akhenaten's own concerns, but the spiritual interests of the many thousands of people who came to live
       in the city. Although we can count Akhenaten as a monotheist, he seems not to have attempted an intolerant suppression
       of the beliefs and practices of most of his people. They continued to follow what was familiar to them, though we
       should not count this necessarily as a rejection of Akhenaten's ideas. Imposed conformity of belief belongs to much
       later periods of history, in Egypt and elsewhere. During the spring of 2008 and 2009, staff from the University of
       Arkansas, Center for Advanced Spatial Technologies (Katie Simon and Christopher Goodmaster) joined the British
       archaeological mission to Tell el-Amarna (directed by Barry Kemp), bringing with them a 3D laser scanner. A series of
       objects housed in the site antiquities magazine (that is maintained under the supervision of the Supreme Council of
       Antiquities of Egypt) was selected for scanning, as an experiment in this form of recording. The selection was done by
       archaeologist Anna Stevens and was intended to illustrate the theme of personal religion at Amarna. It reflected a
       piece of research, 'Investing in religion in Akhenaten's Amarna', that had been funded by the Templeton Foundation
       through the University of Cambridge and had been conducted by Barry Kemp and Anna Stevens between 2006 and 2008. A
       series of significant objects form the Egyptian site of Amarna were digitized using a Konica Minolts Vivid 9i
       triangulation laser scanner. The digital objects are part of the Virtual Amarna Museum – a web based "museum" providing
       public access to these objects as part of the Amarna Project's web materials. A range of objects were involved –
       including stone stele, ceramics, pendants, moulds and selected architectural elements. A portion of the scanned objects
       were used a part of the LEAP II project and were placed in the ADS archive as part of that effort. The LEAP II project
       produced an article in Internet Archaeology that can be accessed at
       http://intarch.ac.uk/journal/issue30/limp_index.html. The article addresses the application of high-precision 3-D
       recording methods to heritage materials (portable objects), the technical processes involved, the various digital
       products and the role of 3-D recording in larger questions of scholarship and public interpretation.
      </car:statement>
      <car:keywords>Artefact</car:keywords>
      <car:keywords>Building</car:keywords>
      <car:keywords>Figurine</car:keywords>
      <car:keywords>Laser Scanning Survey</car:keywords>
      <car:keywords>Mould</car:keywords>
      <car:keywords>Pendant</car:keywords>
      <car:keywords>Pot</car:keywords>
      <car:keywords>Spindle Whorl</car:keywords>
      <car:dcRelation>http://www.amarnaproject.com/</car:dcRelation>
    ▼<car:dcRelation>
       http://intarch.ac.uk/journal/issue30/limp_index.html
      </car:dcRelation>
    </car:collectionInformation>
```

Collection information

elements of this class are not mapped to a class of EDM, yet

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```
<car:heritageAssetIdentification>
  ▼<car:recordInformation>
      <car:id>22</car:id>
      <car:source lang="en">Archaeology Data Service</car:source>
      <car:country>United Kingdom</car:country>
      <car:language>en</car:language>
  </car:recordInformation>
  ▼<car:appellation>
      <car:name lang="en">Large offering table</car:name>
      <car:id>22</car:id>
  </car:appellation>
      <car:description lang="en">Large offering table</car:description>
      <car:generalType>Artefact</car:generalType>
  ▼<car:actors>
      <car:name lang="en">Barry Kemp</car:name>
      <car:roles namespace="en">creator</car:roles>
  </car:actors>
      <car:provenance lang="en">The Virtual Amarna Project</car:provenance>
  ▼<car:characters>
      <car:heritageAssetType>Artefact</car:heritageAssetType>
      <car:heritageAssetType>Building</car:heritageAssetType>
      <car:heritageAssetType>Figurine</car:heritageAssetType>
      <car:heritageAssetType>Laser Scanning Survey</car:heritageAssetType>
      <car:heritageAssetType>Mould</car:heritageAssetType>
      <car:heritageAssetType>Pendant</car:heritageAssetType>
      <car:heritageAssetType>Pot</car:heritageAssetType>
      <car:heritageAssetType>Spindle Whorl</car:heritageAssetType>
    ▼<car:temporal>
        <car:periodName lang="en">Amarna</car:periodName>
        <car:displayDate lang="en">c. 1350-1332 BC</car:displayDate>
    </car:temporal>
  </car:characters>
  ▼<car:spatial>
    ▼<car:locationSet>
        <car:namedLocation lang="en">Amarna, Egypt</car:namedLocation>
    </car:locationSet>
  </car:spatial>
  ▼<car:publicationStatement>
      <car:publisher>Archaeology Data Service</car:publisher>
  </car:publicationStatement>
  ▼<car:rights>
      <car:copyrightCreditLine>Barry Kemp</car:copyrightCreditLine>
    ▼<car:licence>
        http://archaeologydataservice.ac.uk/advice/termsOfUseAndAccess
    </car:licence>
      <car:europeanaRights>Rights Reserved - Free Access</car:europeanaRights>
  </car:rights>
  ▼<car:dcRelation>
      http://intarch.ac.uk/journal/issue30/limp_index.html
  </car:dcRelation>
      <car:dcRelation>http://www.amarnaproject.com/</car:dcRelation>
</car:heritageAssetIdentification>
```

Heritage Asset Identification

- recordInformation/id → edm:ProvidedCHO rdf:about
- appelation/id → dc:identifier
- generalType → dc:type AND edm:type
- provenance → dcterms:provenance
- characters/heritageAssetType → dc:subject
- temporal → dcterms:temporal
- spatial → dcterms:spatial AND edm:Place
- publicationStatement/publisher → dc:publisher
- rights/copyrightCreditLine → dc:rights
- dcRelation → dc:relation

CARARE 2.0 record (3/3)

```
▼<car:digitalResource>
  ▼<car:recordInformation>
     <car:id>22</car:id>
  </car:recordInformation>
  ▼<car:appellation>
     <car:name lang="EN">Large offering table</car:name>
     <car:id>22</car:id>
  </car:appellation>
  <car:type>3D</car:type>
  <car:format lang="en">pdf</car:format>
  ▼<car:link>
     http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-1077-1/dissemination/pdf/22/22.pdf
  </car:link>
  ▼<car:object>
     http://archaeologydataservice.ac.uk/archives/view/amarna_leap_2011/images/thumbs/22/22_Images/22_01.JPG
  </car:object>
  ▼<car:isShownAt>
     http://archaeologydataservice.ac.uk/archives/view/amarna_leap_2011/downloads.cfm?obj=yes&obj_id=22
  </car:isShownAt>
  ▼<car:rights>
     <car:europeanaRights>Rights Reserved – Free Access</car:europeanaRights>
  </car:rights>
</car:digitalResource>
</car:carare>
</car:carareWrap>
```

Digital Resource

- Link OR isShownAt→ edm:webResource rdf:about
- description → dc:description
- format→ dc:format
- rights/copyrightCreditLine → dc:rights
- recordInformation/source→ dc:source
- extent → dcterms:extent
- Rights/europeanaRights→ edm:rights
- link OR isShownAt (more than one DR's) → edm:hasView
- isShownAt (1st DR)→ edm:isShownAt
- link(1st DR)→ edm:isShownBy
- object (1st DR) → edm:object

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EDM record (1/2)

```xml
'<rdf:RDF xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:carare="http://www.carare.eu/carareSchema"
xmlns:edm="http://www.europeana.eu/schemas/edm/" xmlns:dc="http://purl.org/dc/elements/1.1/"
xmlns:dcterms="http://purl.org/dc/terms/" xmlns:dpla="http://dp.la/about/map/" xmlns:ore="http://www.openarchives.org/ore/terms/"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:wgs84_pos="http://www.w3.org/2003/01/geo/wgs84_pos#"
xmlns:skos="http://www.w3.org/2004/02/skos/core#" xmlns:owl="http://www.w3.org/2002/07/owl#">
  ▼<edm:ProvidedCHO rdf:about="22">
      <dc:description xml:lang="en">Large offering table</dc:description>
      <dc:identifier>22</dc:identifier>
      <dc:language>en</dc:language>
      <dc:publisher>Archaeology Data Service</dc:publisher>
      <dc:relation rdf:resource="http://intarch.ac.uk/journal/issue30/limp_index.html"/>
      <dc:relation rdf:resource="http://www.amarnaproject.com/"/>
      <dc:rights>Barry Kemp</dc:rights>
      <dc:source xml:lang="en">Archaeology Data Service</dc:source>
      <dc:subject>Artefact</dc:subject>
      <dc:subject>Building</dc:subject>
      <dc:subject>Figurine</dc:subject>
      <dc:subject>Laser Scanning Survey</dc:subject>
      <dc:subject>Mould</dc:subject>
      <dc:subject>Pendant</dc:subject>
      <dc:subject>Pot</dc:subject>
      <dc:subject>Spindle Whorl</dc:subject>
      <dc:title xml:lang="en">Large offering table</dc:title>
      <dc:type>Artefact</dc:type>
      <dcterms:provenance xml:lang="en">The Virtual Amarna Project</dcterms:provenance>
      <dcterms:spatial rdf:resource="22/SP.1"/>
      <dcterms:temporal xml:lang="en">Amarna</dcterms:temporal>
      <edm:type>TEXT</edm:type>
  </edm:ProvidedCHO>
```

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```
▼<edm:WebResource rdf:about="http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-1077-1/dissemination/pdf/22/22.pdf">
    <dc:format xml:lang="en">pdf</dc:format>
    <edm:rights rdf:resource="http://www.europeana.eu/rights/rr-f/"/>
  </edm:WebResource>
  <edm:Place rdf:about="22/SP.1"/>
▼<ore:Aggregation rdf:about="22#aggregation">
    <edm:aggregatedCHO rdf:resource="22"/>
    <edm:dataProvider>Archaeology Data Service</edm:dataProvider>
    <edm:isShownAt rdf:resource="http://archaeologydataservice.ac.uk/archives/view/amarna_leap_2011/downloads.cfm?
    obj=yes&obj_id=22"/>
    <edm:isShownBy rdf:resource="http://archaeologydataservice.ac.uk/catalogue/adsdata/arch-1077-1/dissemination/pdf/22/22.pdf"/>
    <edm:object
    rdf:resource="http://archaeologydataservice.ac.uk/archives/view/amarna_leap_2011/images/thumbs/22/22_Images/22_01.JPG"/>
    <edm:provider>LoCloud</edm:provider>
    <edm:rights rdf:resource="http://www.europeana.eu/rights/rr-f/"/>
  </ore:Aggregation>
</rdf:RDF>
```
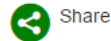
Europeana preview

Any questions?

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