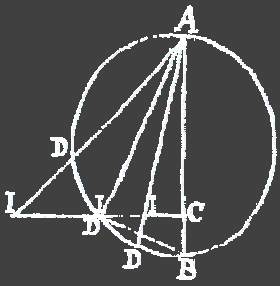


# State of the Problem: Towards a Virtual Observatory for Culture

Jürgen Renn

Contribution to the 4th Open Access Conference

March 29, 2006

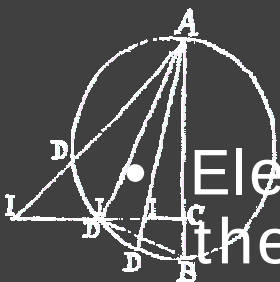


# Towards a Virtual Observatory for Culture

- The apparently marginal role of humanities
- Towards a paradigm shift in the humanities
- Future perspectives

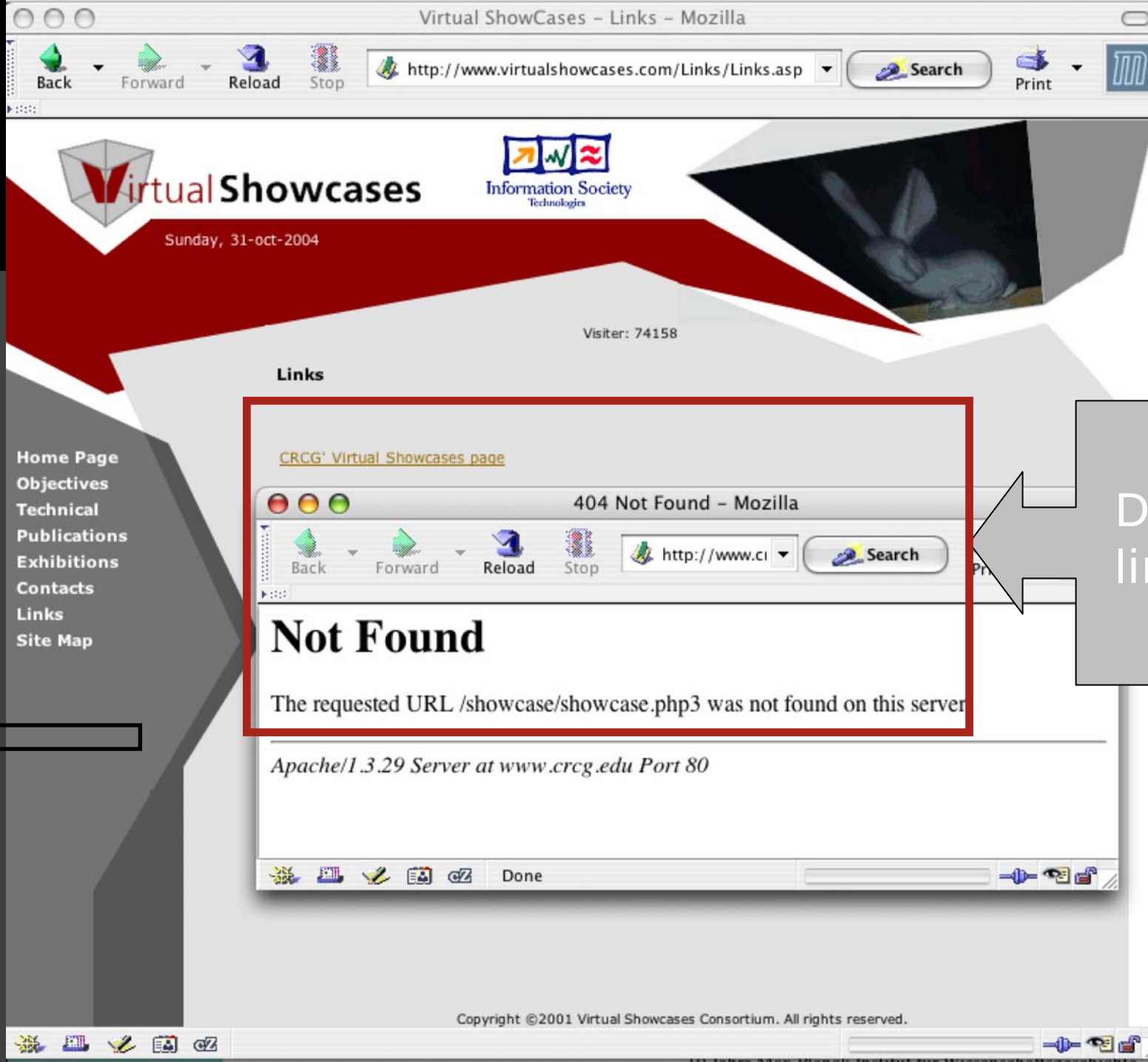


Jürgen Renn, Max Planck Institute for the History of Science, March 29, 2006

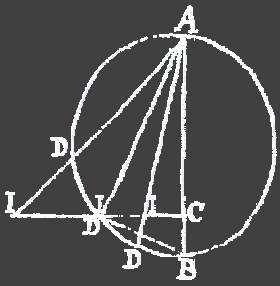


Electronic journals play only a marginal role in the humanities

- Careers in the humanities are largely based on the traditional publication of books and monographs
- Data sets relevant to the humanities are heterogeneous, fragmented, and widely distributed
- Holders of data often have different interests from scholars, including commercial interests
- There is no self-sustaining dynamics tending to open-access, only scout solutions, exploring but not settling a new territory and the activities of the big players, aiming at conquest rather than at sustainable infrastructures.

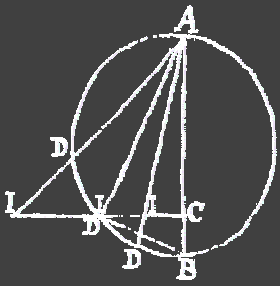


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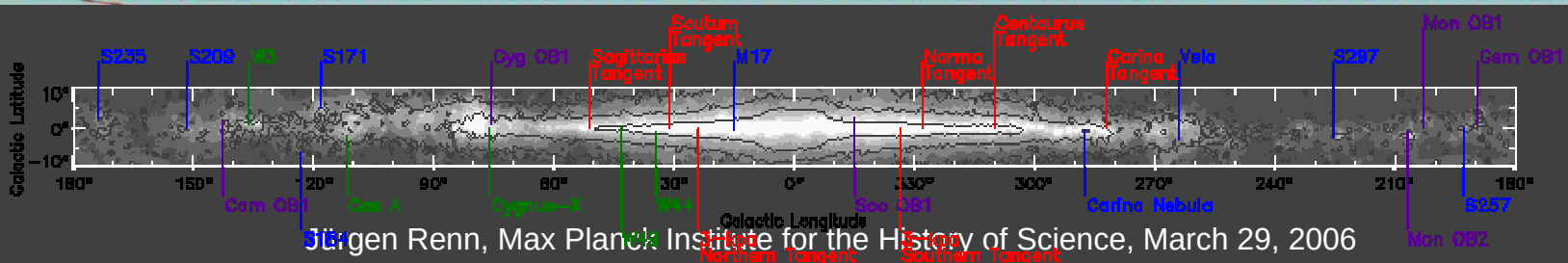
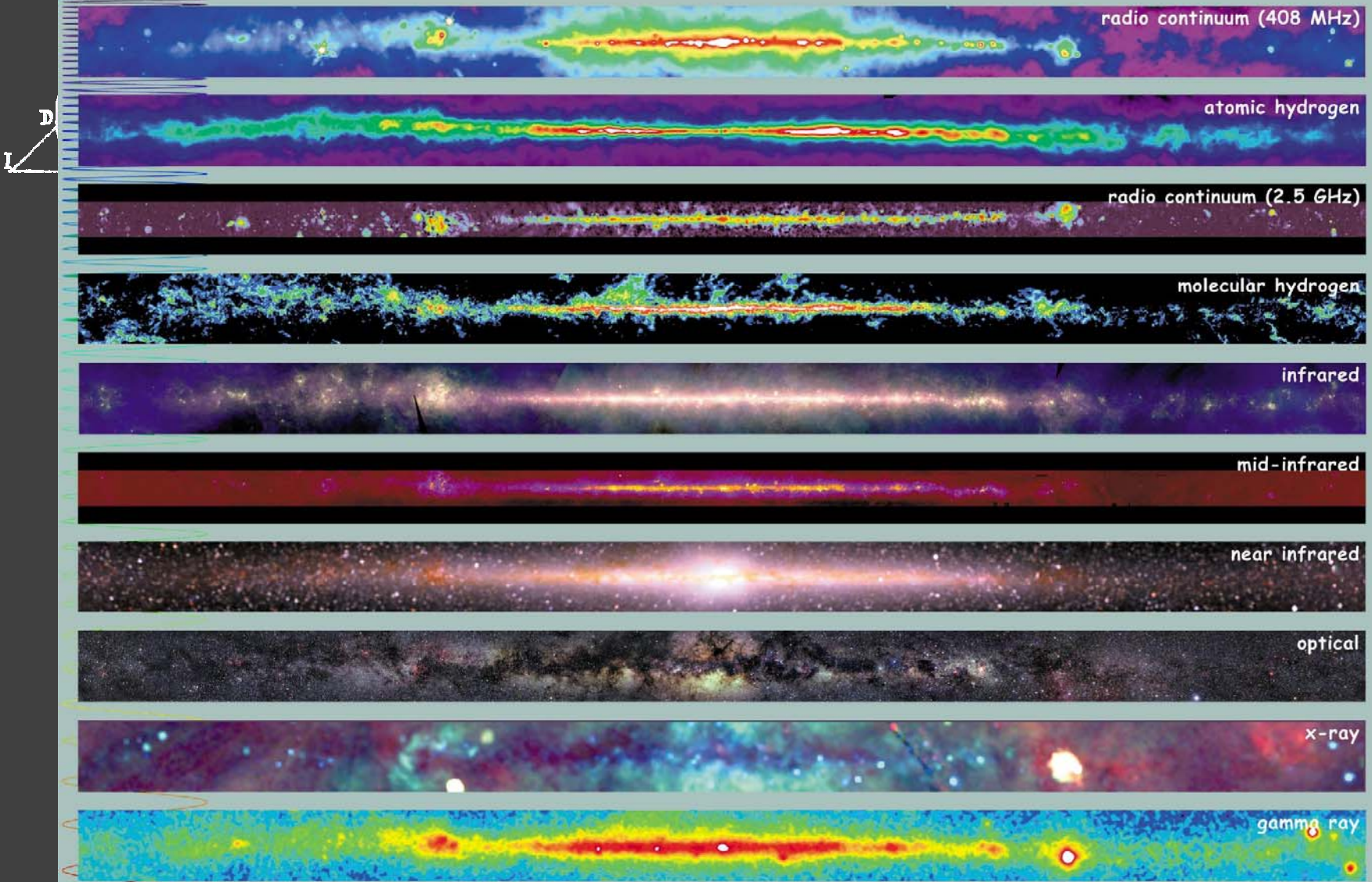
# Towards a Virtual Observatory for Culture

- The apparently marginal role of humanities
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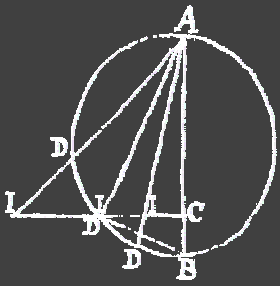


- In both cases we are dealing with the acquisition of fragmented, distributed data sets for which longevity is critical.
- In both cases we are dealing with data that are artificially separated by the methods with which they have been acquired.

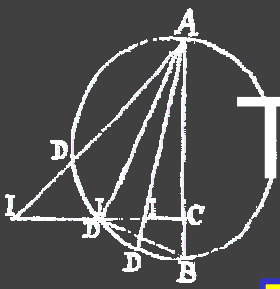








- In both cases we are dealing with the acquisition of fragmented, distributed data sets for which longevity is critical.
- In both cases we are dealing with data that are artificially separated by the methods with which they have been acquired.



# The Virtual Observatory

**Astronomer**

**User Interface**

There are 125 galaxies with the following coordinates. Thank you for using the VO today.

Find all old radio galaxies in the range of  $0.4 < z < 0.7$  that lie within  $2'$  of an extended x-ray source.

**Middleware Layer  
"Virtual Telescope"**

**Data Access Layer**

**Metadata Services**

**Archive Information Services**

**Compute Services**

**Metadata Services**

**Other Services**

**Archive Information Services**

**Compute Services**

**Metadata Services**

**Other Services**

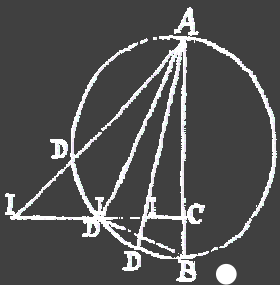
**Tele-  
scopes**

**Simu-  
lations**

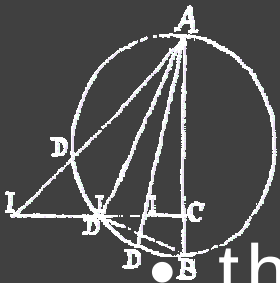
**Satel-  
lites**

**Anten-  
nas**

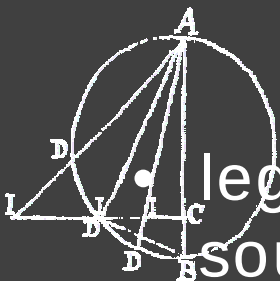
**Data**



- the role of standards
- the role of a sustainable, interactive infrastructure for data, tools, and research results
- the role of open-access of high-quality data as a condition for federating data
- build seed collections around objects and themes, not institutions or disciplines
- meta-data without data are empty, data without metadata are lost

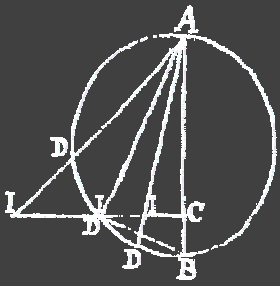


- the need to avoid reinventing the wheel
- the agora principle: co-development of data, tools, and research in a growing universal working environment
- the 90-10 rule: build 10 percent of the services that are used by 90 percent, let the users build the rest from the components
- the possibility of making discoveries at the borderlines



legal issues are central because holders of source data are not necessarily part of the scientific community

- language technology largely plays the role of algorithms as a glue of the virtual observatory
- the need to create web-weavers for processing data according to content
- the need for handling enriched (scholarly) metadata and creating dynamic ontologies
- the potential of turning research results into data structures
- the potential of turning global link structures into meaningful relations



- Status quo in the humanities:  
learning from existing agora communities  
and building up overarching  
infrastructures

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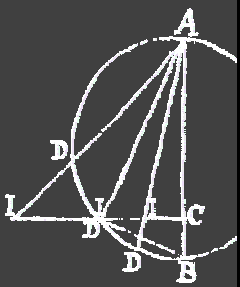


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Period Date Ur III, ca. 2100-2000 B.C.  
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Vorderasiatisches Museum, Berlin,  
<http://tarantula.smb.spk-berlin.de/vam/>

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- [2004/4: Veldhuis, N., HI-\(še<sub>3</sub>\) la<sub>2</sub> \(2004/12/20\)](#)
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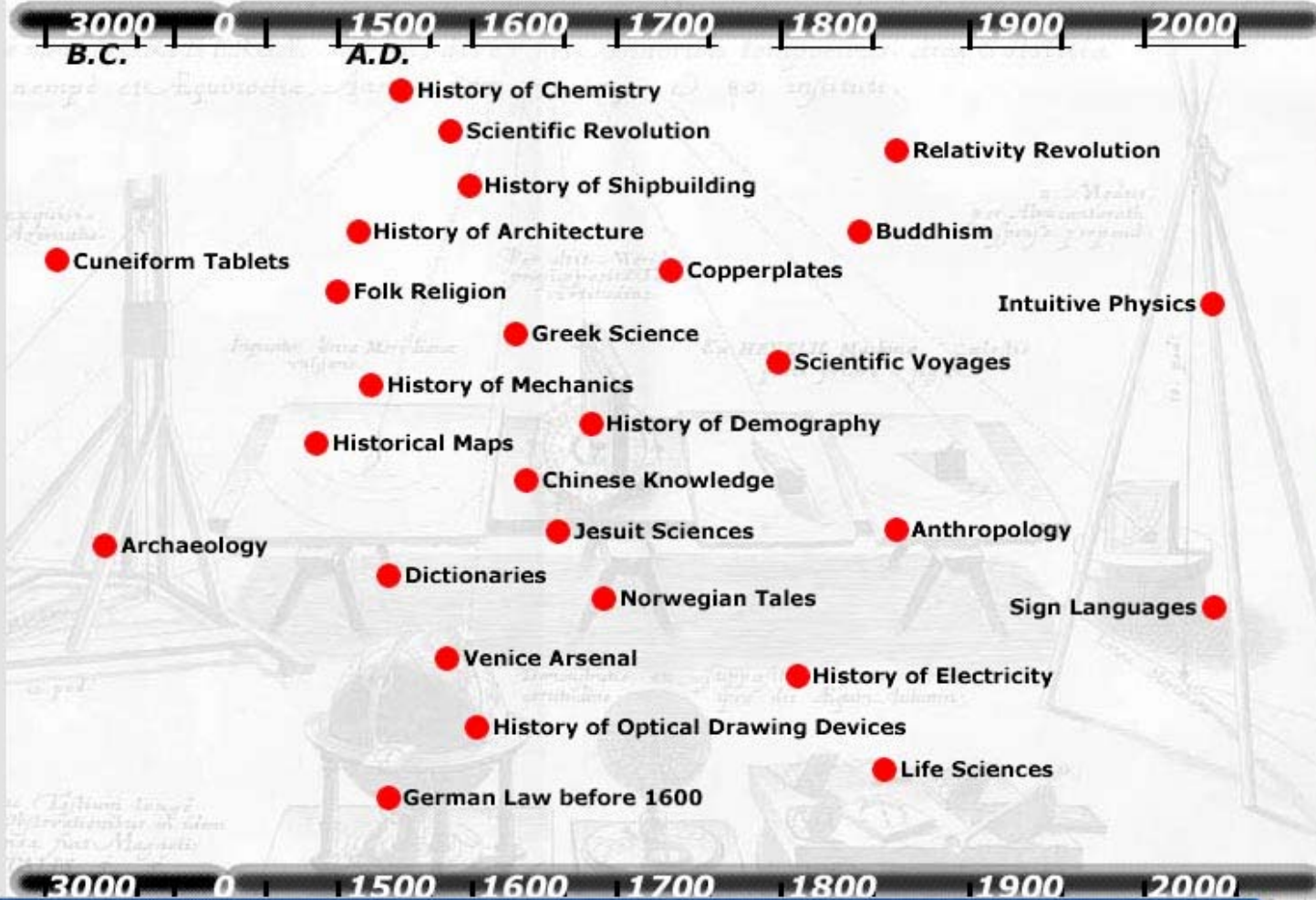
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History of Mechanics

History of Optical Drawing Instruments

History of Shipbuilding

Intuitive Physics





Dictionary entries possibly relevant to **metimur**:

|        |                 |                                                               |
|--------|-----------------|---------------------------------------------------------------|
| metior | Lewis and Short | <a href="#">Latin Lexicon</a>                                 |
| metior | Thomas Cooper   | <a href="#">Thesaurus Linguae Romanae et Britannicae</a> 1584 |
| meto#2 | Thomas Cooper   | <a href="#">Thesaurus Linguae Romanae et Britannicae</a> 1584 |

## Monte, Guidobaldo del *Mechanicorum liber* 1577

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### VRBINATVM

### AMPLISSIMVM DVCEM

### GVIDIVBALDI

### E MARCHIONIBVS

### MONTIS

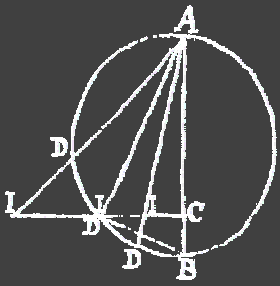
### PRAEFATIO.

DVAE res (AMPLISSIME PRINCEPS) quæ ad conciliandas hominibus facultates, vtilitas nempe, & nobilitas, plurimum valere consueuerunt. illæ ad exornandam mechanicam facultatem, & eam præ omnibus alijs appetibilem reddendam conspirasse mihi videntur: nam si nobilitatem (quod plerique modo faciunt) ortu ipso metimur, occurret hinc Geometria, illinc verò Physica, quorum geminata complexu nobilissima artium prodit mechanica. si enim nobilitatem magis, tum stratæ materiæ,

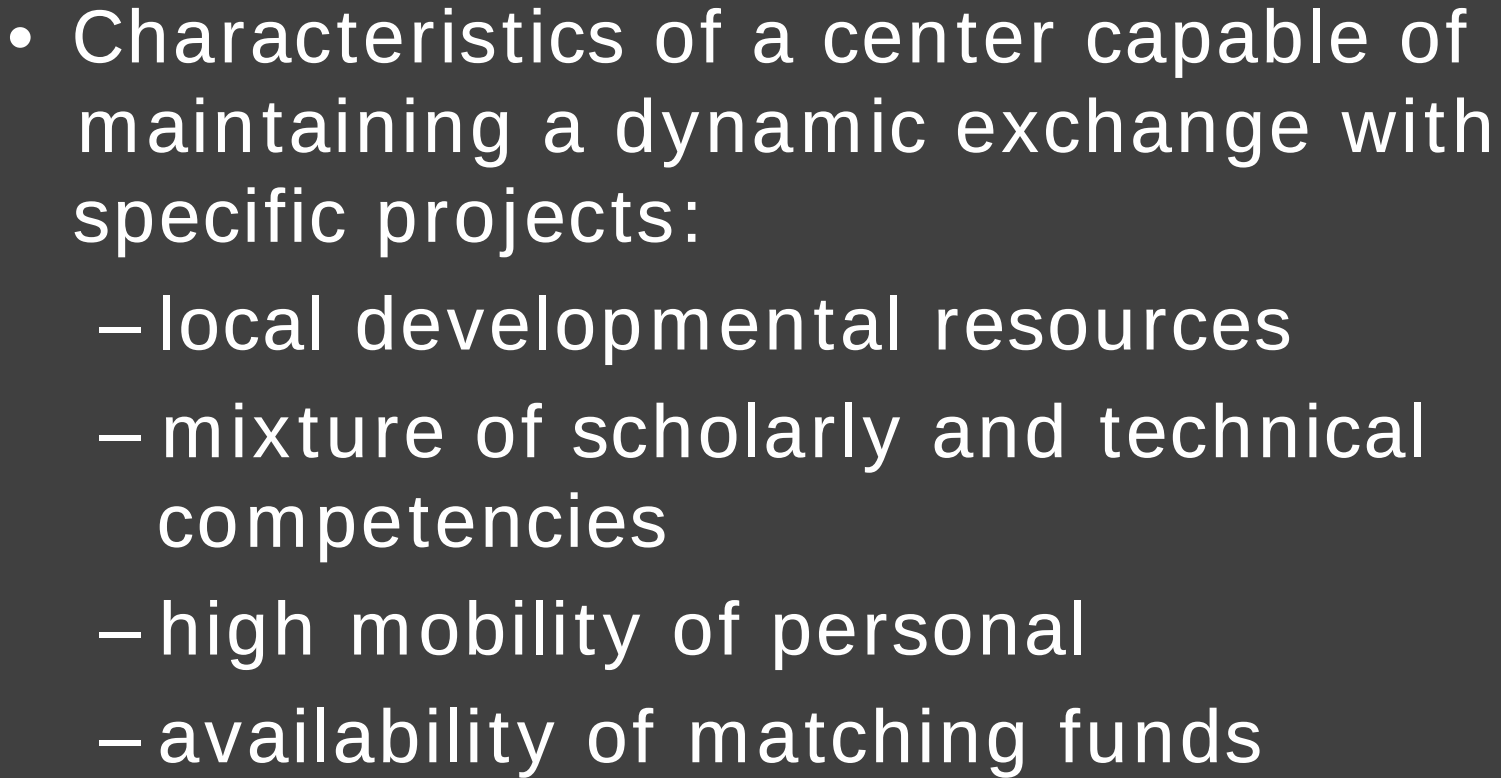
Thomas Cooper  
*Thesaurus Linguae Romanae et Britannicae*

**Metior**, metiri., pen. prod. mensus sum, metiri. Cic.

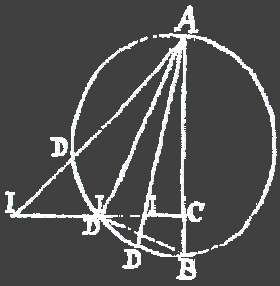
To meate or measure: to passe or go ouer: to esteeme: to indge. *Interuallis æqualibus aliquid metiri.* Cic. To draw out with equall spaces betweene. *Agrum aliquem metiri.* Cic. *Frumentum metiri.* Cic. *Parcè & paulatim metiri frumentum.* Cæsar. To serue out corne sparingly by litle and litle. *Mundi magnitudinem metiri.* Cic. *Stipendium.* Curt. In hasta. metiri se. Stat. *Aunum metiri sol dicitur.* Ouid. *Æternitas nulla temporis circumscriptione metitur.* Cicer. 'Euerlastingnesse hath no boundes or limits of time. *Oculo*



- There is a constant exchange between specific projects such as CDLI and overarching infrastructures such as ECHO



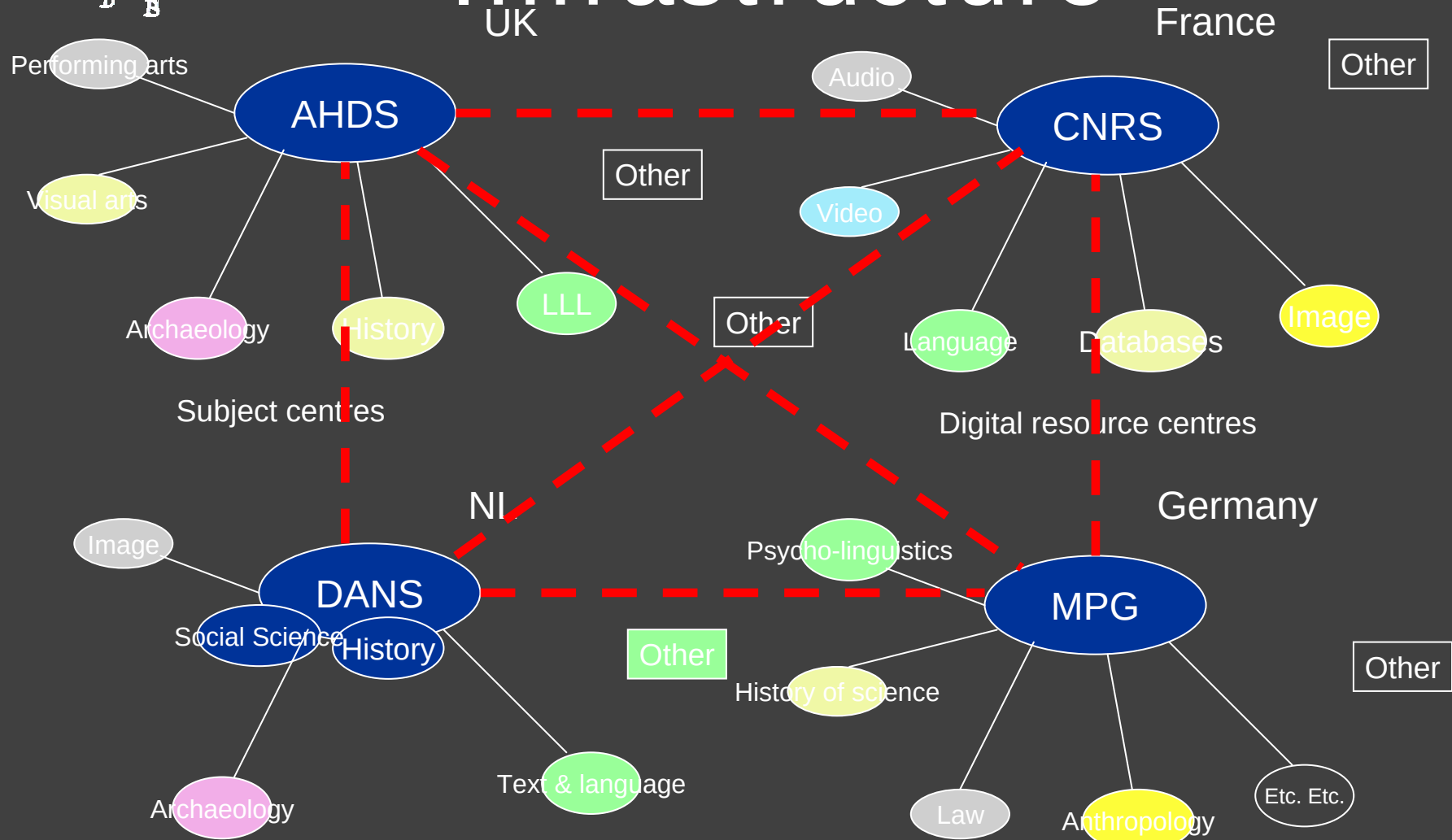
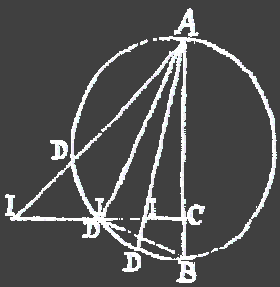




# Towards a Virtual Observatory for Culture

- The apparently marginal role of humanities
- Towards a paradigm shift in the humanities
- Future perspectives

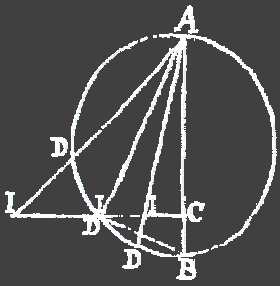
# Coalition towards Infrastructure



Local Data Centres

Max Planck Institutes

Jürgen Renn, Max Planck Institute for the History of Science, March 29, 2006



- The major obstacle to bring cultural heritage to the Internet is the lack of an infrastructure adequate to the scholarly needs of the humanities and of cultural heritage as a whole.