

## **AHRC ICT Methods Network Expert Seminar**

# **VIRTUAL HISTORY AND ARCHAEOLOGY**

HUMANITIES RESEARCH INSTITUTE, UNIVERSITY OF SHEFFIELD, 19 – 21 APRIL 2006

### **A Better Understanding of the Past**

Historians and archaeologists have engaged in informed and advanced debates within their respective communities on the questions of how ICT can enable a better understanding of the past. Until now there has been little opportunity for cross-disciplinary exchange of ideas. This seminar was an important opportunity to address this issue, and a primary goal of the event was to encourage crossdisciplinary collaborations. The expert seminar took place over three days with an ambitious programme that covered a wide-ranging set of disciplines, tools and methods.

The programme focused on three subjects: the past and virtual representation of place and time; the past and virtual representation of texts; the past and representation of objects and events.

Each session brought together specialists in the application of ICT to the historical and archaeological domains; recognizing that the two disciplines have much in common, yet are frequently isolated from one another.

### **Debating Representation**

One of the central questions of this event was a 'post-modern' debate about how plausible it is to conceive of representation as objectivizing, a realization of the past, or if it is simply modelling or representing aspects of it in order to better understand it. Another theme related to this was how to model the past.

There were several sub-themes of this debate:

1. Modelling landscape and material culture - this discussion focused on questions of metadata standards and tools;
2. Representation in the form of ontologies and data mining – this issue lead to interesting areas of discussion for archaeologists;
3. Representation and reconstruction - participants at the event looked at the use of modelling to understand aspects of the past that do not survive, for example the restoration of historic manuscripts.

### **Enabling New Research**

The variety of ICT tools and methods displayed included data-mining, 3D modelling, visualization, text analysis, digital preservation, and cultural heritage digitization. Some particularly significant new research was demonstrated using the following tools:

- Armadillo - a data-mining tool developed by the Humanities Research Institute at Sheffield. This tool uses sophisticated search algorithms to find information about people 'on the margins' of historical records.
- Adobe Photoshop – this software is used at an advanced level to apply different lighting conditions for document restoration. The use of Photoshop to analyse images of objects in ways that were previously impossible has been a recent development.
- The London Charter – (see also *Making 3D Visual Research Outcomes Transparent* workshop <http://www.methodsnetwork.ac.uk/activities/act1.html>) – this document was new at the time of this expert seminar. It was a revelation to the archaeologists at the session who had been previously unaware of it.
- CIDOC-CRM cultural heritage metadata standards – these standards are incredibly important for creating ontological records for knowledge management and exchange. They enable collections to be linked as never before.

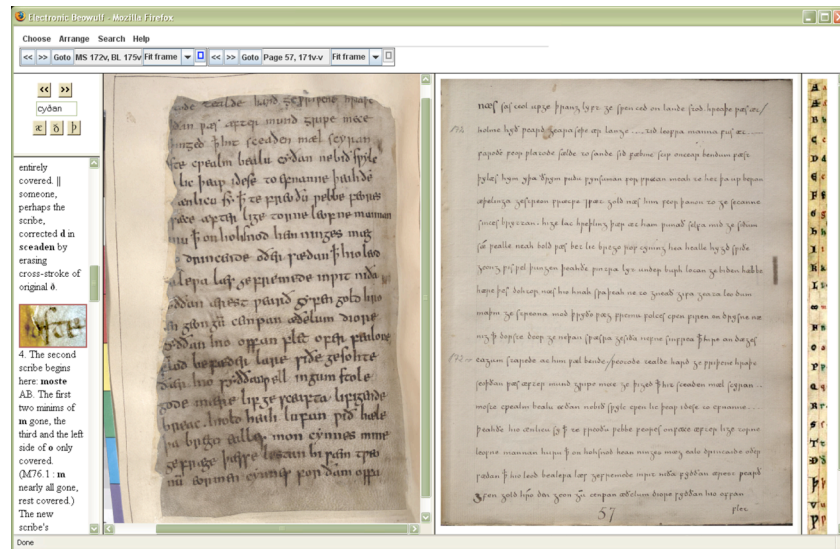
## Linking Up Over the Access Grid

One particularly interesting aspect of the seminar was the opportunity to use the facilities at Sheffield University to link up by Access Grid with some delegates at the Computer Applications in Archaeology Conference, Fargo.

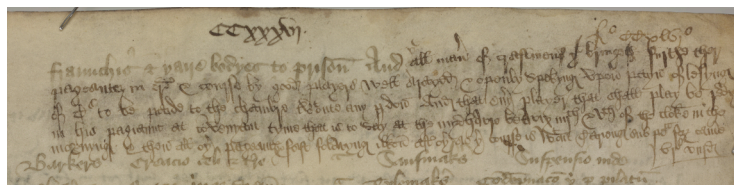
Participants in Sheffield and Fargo considered together the ICT tools that are currently available which most effectively assist archaeologists to undertake data analysis in ways that were not available in the past.

## Event Outcomes and Future Plans

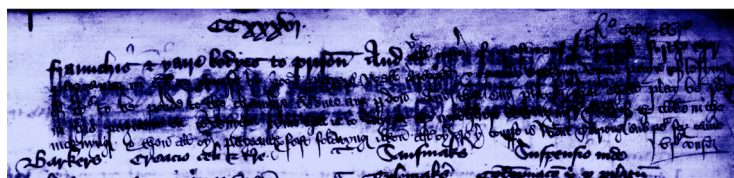
- Full text and audio of the presentations are available on the Methods Network website.
- A volume based on this event is to be published as part of the Digital Research in the Arts and Humanities series.
- The event brought together historians and archaeologists asking similar questions about the past and how ICT can enable a better understanding of that past. Before the event these communities had been working from their respective perspectives of humanities and sciences, and were not talking to one another.
- A successful £350,000 grant proposal that would not have happened had the seminar not taken place.



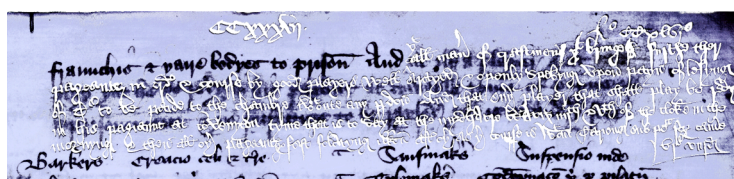
A sample facsimile from the Electronic Beowulf, edited by Kevin Kiernan, showing a folio from British Library. This historical document was presented by Andrew Prescott in his paper at the seminar.



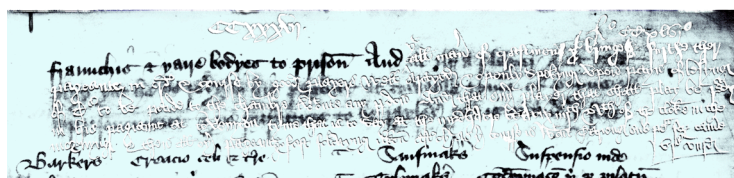
a. A/Y Memorandum Book, fol. 255r, top. Hand A erased and overwritten by Hand C



b. UV scan of the same area, slightly manipulated: Hand A beginning to emerge from erasure



c. UV further manipulated, and overlaid with inverse (in white) of Hand C



d. Underwriting copied using 'Select Color' procedure and pasted onto clean background

Meg Twycross' virtual restoration of erased and overwritten portions of a manuscript.  
(Images York City Archives A/Y Memorandum Book :255r. © Meg Twycross)

## The Programme

### Subject 1: The Past And The Virtual Representation Of Place And Time

AHRC ICT Methods Network, Centre for Computing in the Humanities, Kay House, 7 Arundel Street, London, WC2R 3DX.

This session examined questions of the representation of spatial and temporal analysis in historical and archaeological data. Concluding discussions questioned whether it is possible to develop and apply ICT tools that adequately recover the ways in which senses of time and space are historically and archaeologically understood and in ways cannot be effectively presented through traditional media.

### *Presenters and Presentations*

'Using GIS to Study Long-Term Population Change', Ian Gregory, Queens University Belfast, Northern Ireland.

'Which; What; When?', Manfred Thaller, University of Cologne, Germany.

'Visualization: Pretty Pictures or Enabling Technologies', Vince Gaffney, University of Birmingham, UK.

'Spatial Technologies in Archaeology in the Twenty-First Century', Paul Cripps, University of Southampton, UK.

Rapporteur Presentation by Kate Devlin, University of Bristol, UK.

### ***Subject 2: The Past And The Virtual Representation Of Texts***

This session critically assessed the degree to which ICT enables historians and archaeologists to interpret text in ways that have not conventionally been possible.

Papers addressed: the application of advanced mark-up in historical and archaeological environments; the limited experience and great potential for data mining in historical and archaeological environments; the challenges of building the appropriate ontologies; and data linkage.

### *Presenters and papers*

'Imaging of Historical Documents', Andrew Prescott, University of Sheffield, UK.

'Data, Structure and Analysis: XML Mark-up and its Application to Historical Data', Donald Spaeth, University of Glasgow, Scotland.

'Historical Documents and Encoding', Harold Short, King's College, London, UK.

'Finding Needles in Haystacks: Data-mining in Distributed Historical Data-sets', Mark Greengrass and Fabio Ciravegna, University of Sheffield, UK.

'Digital Searching and the Problem of the Ventriloquist's Dummy', Tim Hitchcock, University of Hertfordshire, UK.

'Using Computer-Assisted Qualitative Data Analysis Software (CAQDAS) in Historical Research: Some Methodological Issues from the Experience of the 'Health of the Cecils' Project', Caroline

Bowden, Royal Holloway, University of London, UK.

Rapporteur Presentation by Matthew Woollard, AHDS History

'Shared Spaces: Library and Archive Metadata, Encoded Documents and Research Needs', Susan Hockey, University College, London, UK.

'Attempts to Construct a Common Platform for Archaeological Reports', Julian D Richards, University of York, UK.

'Crossing an 'Information Divide': The OASIS Project and its Use of XML Schema', Catherine Hardman, University of York, UK.

Rapporteur Presentation by Seamus Ross, University of Glasgow.

### ***Subject 3: The Past And The Virtual Representation Of Objects And Events***

In this session, presenters covered aspects of the virtual representation of historical objects and how best to record the various assumptions and circumstances that are included in any virtual representation. The objective of this session was to consider whether virtual representation is really helping to answer major historical and archaeological questions. Though the community may, or even ought, to be skeptical about the research conclusions reached through virtual representation to date; however there are clearly large potential benefits of being able to study closely objects surviving in scattered locations, and of bringing a variety of skills to bear on them.

Overall, the presentations in this session were concerned with present and future scholarly cost-benefit from research carried out using these technologies.

#### ***Presenters and papers***

'Digital Artefacts: Possibilities and Purpose', David Arnold, University of Brighton, UK.

"'Oh, to make boards to speak! There is a task!' Towards a Poetics of Paradata", Richard Beacham, King's College, London, UK

'Constructing a Corpus of Material Objects: The Case of the Corpus of Romanesque Sculpture in Britain and Ireland', Anna Bentkowska-Kafel, Courtauld Institute of Art, London, UK.

'Virtual Restoration and Manuscript Archaeology: A Case Study', Meg Twycross, University of Lancaster, UK.

Rapporteur Presentation by Lorna Hughes, AHRC ICT Methods Network