Visualisation in Archaeology: Connecting Research and Practice.

Garry Gibbons

Visualisation in Archaeology, 3's Company (Consultancy) Limited, Reino Unido

Resumen

La visualización en la arqueología (www.viarch.org.uk) es un proyecto de investigación que dura tres años, y lo financia 'English Heritage' (Patrimonio Ingles). Establecida en el mes de diciembre 2007, la visualización en arqueología (VÍA) tiene como su misión principal el deseo de proporcionar un foro en el cual la gente quien practica la arqueología, y también los que la investigan – tomen las resultas de investigaciones arqueologicas para contribuir a un gravamen crítico de datos de visualización. Esta ponencia presentará una descripción del VÍA, las finalidades y los objetivos de investigación, su metodología, y sus direcciones propuestas en el futuro.

Palabras Clave: *VISUALIZACIÓN, CONSTRUCCIÓN DEL CONOCIMIENTO, TRANSDISCIPLINA, DIFUSIÓN.*

Abstract

Visualisation in Archaeology (www.viarch.org.uk) is a three-year research project funded by English Heritage. Established in December 2007, Visualisation in Archaeology (VIA) has as its principal mission a commitment to providing a forum in which practitioners and researchers can contribute towards a critical (re)assessment of visualising data resulting from archaeological research. This paper will present an overview of the VIA's research aims and objectives, its methodology, and its proposed future directions.

Key words: *VISUALISATION, KNOWLEDGE FORMATION, CROSS-DISCIPLINE, DISSEMINATION.*

1. Background

Images are intimately linked to the theory and practice of archaeology. The epistemological nature of their deployment within the profession has typically revolved around their supportive means of effectively picturing, ordering and understanding the explosive mass and complexity of archaeological data. Traditionally, archaeological illustration has provided a two-dimensional form of data recording within the archaeological process. Whether contributing at the primary/secondary level of a project's archive, or at the visual representation of data at publication, the language of archaeological illustration has persisted in a broadly recognisable form since the nineteenth century. In contrast, representation within science is a topic that has generated a considerable body of literature since the mid-1970s, ranging from Rudwick's (1976) seminal work on the emergence of a visual language in geology, to an expansive area of study investigating visual representations as 'scientific' resources (Lynch & Woolgar, 1990; Baigrie, 1996). Within science, the epistemological nature of scientific illustration has shifted from being taken-for-granted and unproblematic to a fruitful area of study from which numerous critical issues have been identified.

How the past is 'thought' within the archaeological profession has been widely studied and documented, providing a critical analysis of the development of archaeological theory and the resulting shifts of intellectual engagement between archaeologists and material culture. Whilst fundamental paradigm shifts have been described and acknowledged within archaeology, the practice of visually representing archaeological data continues as a familiar and comfortable enterprise. Recently, researchers have reflected upon the process of image production and the problematic relationship between images and knowledge creation. Visual studies within archaeology have focused on the history of pictorial reconstructions of ancient life (Moser, 1998) challenging familiar assumptions about our understanding of humans in the deep past. Attention has also been turned to other themes concerning imagery in archaeology (Molyneaux, 1997; Smiles & Moser, 2005) marking a burgeoning concern with the relationship between visual representations and our perceptions and expectations of the past.

Building on this growing body of work, an understanding of visual representation cannot be considered in isolation from the medium in which images combine with text to both facilitate research and to disseminate knowledge. Traditionally, that medium has been the printed page. Today, the digital revolution presents archaeology with the opportunity of increased integration and interrogation of data by combining description, interpretation and synthesis in a number of multimedia formats. As has recently been identified (Jones et al, 2003), the point has been reached at which 'publication' and 'dissemination' must be seen as different things.

2. Structure and Aims

2.1. Structure

The Visualisation in Archaeology project was initiated by its co-directors Garry Gibbons (3's Company (Consultancy) Limited) and Professor Stephanie Moser (Archaeology, University of Southampton), with the support of a cross-discipline project team comprising Dr Simon James (Archaeology, University of Leicester), Professor Sam Smiles (Art History, University of Plymouth), Professor Steve Woolgar (Sociology and Marketing, Saïd Business School, University of Oxford), Sara Perry (PhD candidate, University of Southampton), Rob Read (Chair, Illustration and Survey Special Interest Group established by Institute of Field Archaeologists / Association of Archaeological Illustrators & Surveyors), and Steve Cheshire (web manager).

2.2. Funding

The VIA project has been awarded a three-year grant by the British Government's statutory adviser on the historic environment, English Heritage, for the period December 2007 – November 2010. English Heritage funding is awarded in line with its five-year research strategy 2005-2010 designed to inform policy-making relating directly to an enhanced understanding and management of the historic environment. The operational, research, and knowledge transfer impact of the VIA project will largely be evaluated through its research output principally disseminated through the project website in the form of interim reports, research resources and educational aids. However, a separate VIA funding application is planned for 2010 to facilitate a fully co-ordinated programme of publication and dissemination.

2.3. Support Organisations

Support from the archaeology sector's leading organisations operating within England was, from the outset, recognised as essential in successfully realising many of the VIA project's objectives. As its funding body, English Heritage has implicitly shaped the project's aims and objectives, has provided strategic-level support, and provides policy-focused advice across all levels of project activities. To assist cooperation among the sector's practitioners, the project's directors have sought and received direct support from the Institute of Field Archaeologists (IFA), Britain's principal professional organisation for all archaeologists and other specialists involved in protecting and understanding the historic environment. The Council for British Archaeology (CBA), representing both the professional and non-professional community within British archaeology, has similarly indicated its willingness to participate and contribute to the VIA project. The Association of Archaeological Illustrators & Surveyors (AAI&S), an international professional organisation dedicated to the setting and promotion of standards among its specialist membership, has undertaken to work in areas of common interest with the VIA. Finally, a Special Interest Group (SIG) for illustration and survey was recently established by the IFA and AAI&S in order to improve standards, training and employment for those engaged in visualising practices within archaeology; both the

VIA and SIG have committed to cooperate in those areas of applied research where their strategic objectives overlap.

2.4. Aims

The VIA project's mission explicitly seeks to define itself in terms of practice and research in order to clearly identify work currently being carried out within these two distinct arenas and then provide a dedicated forum in which connections can be fostered in order to fruitfully cross the theory/practice divide.

To this end, the VIA project's aims are:

Aims: theory

a	contribute to a historical overview of archaeological imaging;
b	explore relationships between visualisation and knowledge formation;
c	adopt an inter-discipline, international approach to the project.

Aims: practice

d	develop a statement of visualising practices, today;
e	showcase current examples of 'best practice' in knowledge dissemination;
f	assess the future role of visualising practices in light of developing and emerging technologies.

Over a period of three years, this project will significantly contribute to the foundation of a theory and practice of archaeological illustration relating to the visualisation of archaeological data defined, for the purposes of this project, as that diverse range of illustrative media employed by archaeologists in order to disseminate and communicate the results of archaeological investigations (eg. section drawings, artefact illustration, schematic diagrams, photography, traditional and VR reconstructions, etc.).

Overall, this project will provide an evolving reference for project managers, academics, illustrators, surveyors, publishers and students active in the archaeological sector. It will also attract those engaged in the areas of Science and Technology Studies, History and Philosophy of Science, Art History, and Sociology of Scientific Knowledge studies.

3. Methodology

The VIA's mission has largely influenced all aspects of the project's methodology with particular focus paid to the inter-related nature of information-sharing which intends to effectively produce a meaningful, practical dimension to the results of the project's applied research, and thereby promoting a direct and tangible link between the professional and academic constituencies within archaeology. Such practical objectives will be informed by the project's research objectives -- designed to

delineate practical guidelines and inform professional standards through a broad understanding of the historic development and deployment of archaeological visualisations. To this end, a network of VIA activities have been formulated to fill the boundaries of the project's research 'space', and to promote the VIA's vision of constructing a critical intellectual framework for visualisation in archaeology.

3.1. Annual Workshops

Three themed annual Workshops will provide an intellectual hub to the project. Embedded into each year of the VIA's three-year tenure, the Workshops serve to focus knowledge from specialist -- but disparate -- fields of research, encourage a fertile environment of cross-discipline debate, and inform future critical engagement with visualising practices.

The VIA's first Workshop was hosted by the Department of Archaeology, University of Southampton, 23-24 October 2008 around the overarching topic of Visualisation and Knowledge

Formation. This first Workshop was divided into four sessions whose sub-themes comprised:

- Session 1:   Where is visualisation in
                  archaeology today?
                  (Chair: Prof Stephanie Moser)

- Session 2:   How did visualisation in
                  archaeology develop?
                  (Chair: Prof Sam Smiles)

- Session 3:   How does visualisation
                  communicate?
                  (Chair: Prof Steve Woolgar)

- Session 4:   Seeing a way forward?
                  (Chair: Dr Simon James)

Within these sub-themes, practitioners and researchers were invited to submit papers resulting from original work from within archaeology. In addition, contributions from other disciplines were encouraged that addressed and informed key issues relating to the Workshop topic. The 2008 Workshop attracted 23 participants from North America, Europe and Australia for two days of discussion and analysis. Output resulting from the Workshop will include an interim Workshop report and selected downloadable video presentations available through the VIA project website.

3.2. Strategic Report

At a time when the production and deployment of images in either physical or virtual forms promise to profoundly demand that we rethink notions of 'publication' and 'dissemination', it is perhaps timely that the VIA generated Strategic Report offers an opportunity to reflect on the wider processes and techniques of image production. Whilst visualisations in archaeology are generated for a range of products and audiences, this Report will limit its focus to visualisations commissioned and produced specifically by and for archaeological practitioners. In part, the rationale for turning our gaze inward on the profession allows the results of this research to compliment previously published surveys generating labour market intelligence in the archaeology

sector. It is also recognised that for reasons of scale and complexity it is necessary to restrict the range of this research in line with the VIA project's financial limits.

At its heart, the Report will present the results and analysis of a survey-based audit of illustration practitioners operating in the academic and commercial archaeology sector. Planned for Summer 2009, the survey will take a snapshot of visualising activity on a single, pre-arranged day whose respondents will be drawn from a mailing list of practitioners operating in England specifically compiled to address the Report's areas of investigation. A managerial-level follow-up interview survey will inform recommendations towards issues of professional development, standards, and values relating to practitioners through a structured questionnaire designed to elicit attitudinal responses relating to the role and position of image producers within archaeology. In addition, the Report will articulate shifts in operating practice across different work environments over the past 5-10 years, whilst also identifying perceived future trends in the medium term. The contemporary and future roles of visualising practices resulting from the survey will be situated and placed into context by a historic overview charting the development, deployment and impact of imaging over the period when archaeology emerged and established itself as a discipline.
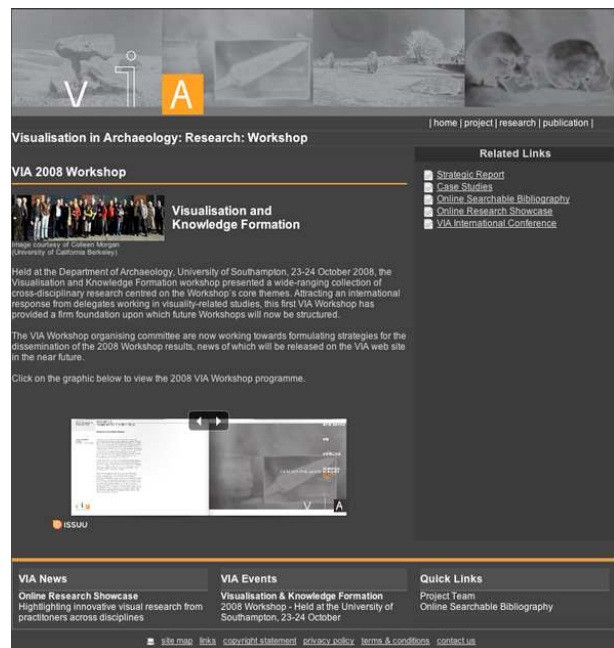

Figure 1: VIA website -- 2008 Workshop

In its draft form, programmed for Summer 2010, a working copy of the Report will be disseminated to representative constituencies within the archaeological and heritage sector, allowing a period of 12 months in which feedback and comment will be actively sought, collated and assessed prior to the production of a final Report in the VIA's publication phase post-2010.

3.3. Dissemination: Best Practice

This component of the VIA project is designed to identify the key themes of best practice and innovation in the planning, management and delivery of innovative dissemination models as a result of, but not exclusively from, archaeological investigations. By turning our attention away from traditional models of dissemination (paper-based publication), VIA acknowledges the many opportunities and challenges offered by 'new' technologies in the dissemination of archaeological knowledge and understanding. This archive of case studies will pull together strands from a number of knowledge communities to provide a compendium of inter-related best practice resources from 'a total project' perspective.

Designed to critically showcase current non-traditional dissemination practices, these case studies should not be construed as a series of 'must' or 'should' be followed guidelines. They will, however, provide an indication of current trends with which to inform a wider review of visualisation and dissemination practices aimed at both professional and non-professional constituencies.

3.4. Online Academic Resource

Contributing to the building of a cross-discipline community of researchers and practitioners working on visuality-related themes, the VIA online academic resource is designed as a one-stop, wide-ranging forum through which to channel and circulate dialogue, analysis and information exchange. The resource will continue to expand in line with contributions and input specifically relating to original work that will stimulate, inform and foster visualisation-orientated research.
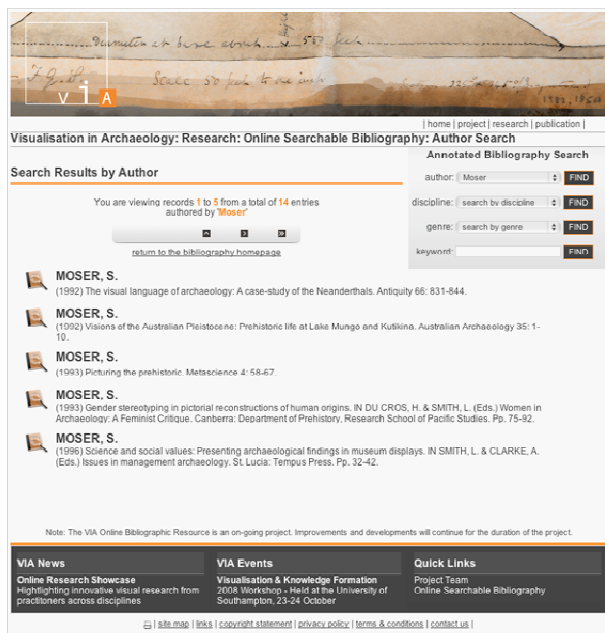

Figure 2: VIA website -- Online Searchable Bibliography

3.4.1. Online Searchable Bibliography

Building over the next three years, this resource will comprise publications pertaining to visual representation in the sciences, social sciences, humanities and arts. The bibliography seeks to connect users with cross-disciplinary literature, enabling archaeologists and others to learn from and build upon the published findings of practitioners working on visual issues from a wide variety of fields.

3.4.2. Online Research Showcase

Centred on the visualisation of data in both archaeology and the wider fields of the social sciences, arts, and science and technology studies. Like the bibliography, these summaries aim to link practitioners across disciplines, highlight innovative visual projects, and offer a platform for future planning and discussion of best practice around archaeological visual method and theory.
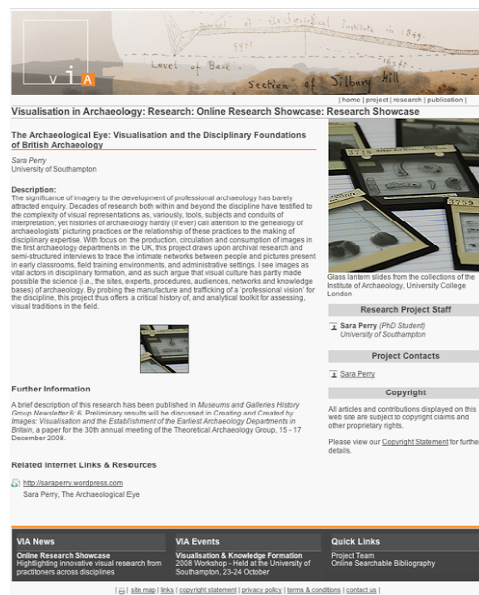

Figure 3: VIA website -- Online Research Showcase (Photograph courtesy of Sara Perry, University of Southampton)

3.5. International Conference

The three annual VIA Workshops will culminate in a wide-ranging international conference programmed to be hosted at the University of Southampton in late 2010 and designed to bring together all aspects of inter-related research concerned with the visual representation of data. Publication calibre papers will be invited offering perspectives on visuality-related work from across disciplines.

4. Research Applications

During the project's period of operation, these research results targeted at English Heritage will principally be disseminated via the project website and/or fed through to English Heritage in the form of summaries, interim reports, and recommendations with the specific aim of informing English Heritage policies. Principally, the VIA project will seek to substantially:

a   contribute towards future English Heritage publication and dissemination strategies;

b   provide sector-wide intelligence into future academic and skills provision directly relating to image producers;

c   create an audit and profile of professional and non-professional image producers currently operating in archaeology today;

d   identify digital-based modes of dissemination currently being developed and deployed by the sector.

The VIA project will open up a research space to stimulate conceptual reflection, encourage community building, and create a network of dialogue intended to construct a critical intellectual framework for visualisation in archaeology. In order to underpin and broaden these aims, the VIA will create a forum in which practitioners and researchers might showcase their work to stimulate knowledge transfer and to foster cross-discipline co-operation. The application of multi-/inter-disciplinary research resulting in novel methodologies will be of particular interest to the VIA as potential models for disseminating its own research results thereby creating a working showcase of technical innovation, usability and impact in the application domain. Finally, research papers presented at the annual Workshops will be presented on the project website in video form to offer first-hand, inclusive insights into visualisation discourse across different domains and to encourage feedback in order to facilitate a wider analysis of VIA events.

This paper charts the first year of a project that is, in many ways, still effectively defining its boundaries; this is very much a story based on work in progress. The focus of our second year will focus on data collection through a wide-ranging series of surveys among the archaeological community of image producers operating in England. Planning will soon be underway for the second annual Workshop due to take place in October 2009 that will explicitly seek to bring practitioners and researchers together to map intersections emerging from research as practice, and research as conceptual reflection.

.

References

AITCHISON, K. & R. EDWARDS. (2008). *Archaeology Labour Market Intelligence: Profiling the Profession 2007-08*. Institute of Field Archaeologists. Reading

BAIGRIE, B. (ed.) (1996): *Picturing Knowledge: Historical and Philosophical Problems Concerning the Use of Art in Science*. Toronto. University of Toronto Press

JONES, S. et al. (2003): *From the Ground Up*. York. CBA.

LYNCH, M. & S. WOOLGAR. (eds.) (1990): *Representation in Scientific Practice*. Cambridge, MA. The MIT Press

MOLYNEAUX, B. (ed.) (1997): *The Cultural Life of Images*. London. Routledge.

MOSER, S. (1998): *Ancestral Images*. Thrupp. Sutton.

RUDWICK, M. (1976): The emergence of a visual language for geological science 1760-1840, in *The History of Science* nº 14, pp.149-195.

SMILES, S. & S. MOSER. (2005): *Envisioning the Past: Archaeology and the Image*. Oxford. Blackwell Publishing.