

Chapter 1

Introduction

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This volume is a comparative exercise in representation. The Expert Seminar, from which its papers derive, was held in Sheffield on 19–21 April 2006. It brought together two communities of research practitioners in the humanities – archaeologists and historians. Both are engaged in interpreting the past. Yet, partly because they have traditionally concentrated on different kinds of evidence, they do not often sit round the same table. One of the advantages of applying the advanced methodologies of computer science and informatics to the humanities is that it helps to break down disciplinary boundaries. The two-dozen expert practitioners who came to Sheffield in April 2006 found that they had much to discuss, and to compare.

Computational science and informatics is concerned essentially with representation. Machines can only undertake calculations, handle data, search text or form analogue images if they are represented for them in (ultimately) numeric form. That process of representation involves language and selection – implying culture, thought and choice. Both archaeologists and historians are also confronted by the issue of representation: that of the past. And, when it comes to doing so in computer terms, the distinctiveness of their disciplinary approaches and documentation diminishes before the common problem of how we represent the historic Cartesian coordinates of space, time and place, or (in documentary terms), the material cultural remains of the past, its objects and traces, its texts and images.

For computer scientists, the dominant concern is: can we ‘represent’ problems sufficiently realistically to provide computational solutions to them? For archaeologists and historians, however, the issue of ‘representation’ and ‘realism’ is essentially problematic, as appears throughout this volume. Many historians now understand the past as a rich, confusing and ultimately unknowable landscape.¹ The historical accounts through which we try to reconstruct it are representations, framed by the window and obscured by the glass through which we try to view it. Both the window and the glass stand in the way of any realistic, let alone objective, picture that we are able to make of it. But the picture is, nevertheless, structured, capable of being understood, and full of meaning. And it is constrained in every pixel by the evidential remains of the past. Archaeologists equally see themselves as reconstructing the past into a believable story, necessarily partial and always subject to revision. They had to confront much sooner than historians (over two decades ago) the reality that realistic graphical representations of the past are as

¹ K. Jenkins, *Re-thinking History* (Routledge, 1991); cf. Richard J. Evans, *In Defence of History* (Granta, 1997).

problematic and conjectural as any other claims to objectivity.² In this volume, the issue is not the ‘realism’ or the ‘objectivity’ of the representation in question – it is the methodologies, tools and applications of advanced computing to assist us to make sense of the incomplete, contradictory or doctored evidence of the past. They can help us to see the patterns, and put together the pieces of the jigsaw, from the chaotic plethora of information that confronts us about parts of the past. By enabling us to represent (and document) more clearly our own preconceptions to ourselves and others, they help us the better to compare and to understand one another’s frames of reference. This volume documents the potential and the challenges, the frustrations and the achievements of trying to do just that.

So the objective of this volume is to evaluate critically the virtual representation of the past through digital media. The challenges that we face are philosophical (how much we can ever represent from the past?), methodological (what are the best ways of representing different perspectives of historic and pre-historic space, time and place?) and technical (how can we apply the latest tools and approaches – often developed in other disciplines – to bear on these problems?). This volume therefore is not just about digital *representation* of spatial and temporal analysis in historical and archaeological data, it is also about the digital *interrogation* of cultural objects, how best to record the various assumptions and circumstances that go into any virtual representation, and about the digital *reinterpretation* of the past through such cultural objects.

These are essentially interdisciplinary questions, something that was emphasized by Kate Devlin, Lorna Hughes, Seamus Ross, and Matthew Woollard, the *rapporteurs* for each of the workshop sessions. It was also a common theme for two of the papers that were presented to the workshop but did not find their way into this volume. In ‘Shared Spaces: Library and Archive Metadata, Encoded Documents and Research Needs’, Professor Susan Hockey reminded us that both archaeologists and historians rely upon library and archival repositories for a good deal of their structured knowledge of the past, and that their electronic forms of representing that knowledge (notably, the MACHine Readable Catalogue record (or MARC) for librarians, and the Encoded Archival Description (EAD) for archivists) are fundamental. She demonstrated through her analysis of the LEADERS project how these records could be integrated with the sources themselves.³ Similarly, in ‘Encoding and the Scholarly Community’, Professor Harold Short underlined the fact that digital editions of historical documents (and, by extension, cultural artefacts)

2 D. Spicer, ‘Computer Graphics and the Perception of Archaeological Information: Lies, Damned Statistics and ... Graphics!’, in C.L.N. Ruggles and S.P.Q. Rahtz (eds), *Computer Applications and Quantitative Methods in Archaeology 1987*, BAR International Series 393 (Oxford: Archaeopress, 1988), pp. 187–200; P. Reilly, ‘Towards a Virtual Archaeology’, in K. Lockyear and S. Rahtz (eds), *Computer Applications and Quantitative Methods in Archaeology 1990*, BAR International Series 565 (Oxford: Archaeopress, 1991), pp. 133–40; and P. Reilly, ‘Three-dimensional Modelling and Primary Archaeological Data’, in P. Reilly and S. Rahtz (eds), *Archaeology and the Information Age* (Routledge, 1992). The debate about realistic graphics, and attempts to define graphics continues for a further decade in the archaeological literature about ICT applications.

3 <<http://www.ucl.ac.uk/leaders-project/>> (accessed 8 January 2008).

are fundamentally collaborative, dependent upon a shared understanding and use of encoding systems. It would, indeed, be difficult to find a longer, larger, more internationally based and collaborative humanities project than the Text Encoding Initiative (TEI).⁴ It celebrated its twentieth anniversary as this volume went to press. Its achievement has been to bring many hundreds of scholars together from across the globe, providing a continuing forum for scholarly debate about the ways in which text is to be ‘represented’. A similar initiative for representing the implicit and explicit concepts and relationships used in cultural heritage documentation (the CIDOM-CRM) is now beyond its infancy.⁵ These are two fundamental points of departure for this volume. They point us towards how archaeologists and historians need to work more closely to develop digital resources whose functional representation of the past can be shared in the context of more ‘global’ libraries.

One of the documents circulated to seminar participants was a list of ongoing research projects in history and archaeology that are using advanced ICT Methods. As this information, like much on the internet, quickly dates, the editors have decided that the list not be included in the printed volume, but should instead live on a dedicated website, which will be updated regularly. The reader is therefore encouraged to view the list of projects available at http://www.arts-humanities.net/publications/virtual_representation_past as a companion website to the volume. Material on this site will be checked, updated and modified regularly.

4 <http://www.tei-c.org/index.xml> (accessed 8 January 2008).

5 <http://cidoc.ics.forth.gr/> (accessed 29 January 2008).