UNIVERSITY *of* York

This is a repository copy of *Stepping back from the trench edge: an archaeological perspective on the devleopment of standards for recording and publication*.

White Rose Research Online URL for this paper:
https://eprints.whiterose.ac.uk/id/eprint/7795/

**Book Section:**
Richards, J.D. orcid.org/0000-0003-3938-899X and Hardman, C.S. (2008) Stepping back from the trench edge: an archaeological perspective on the devleopment of standards for recording and publication. In: Greengrass, Mark and Hughes, Lorna, (eds.) The Virtual Representation of the Past. Ashgate, Farnham, Surrey and Burlington, USA, pp. 101-112.

**Book chapter**
Richards, J.D. and Hardman, C. (2008) *Stepping back from the trench edge: an archaeological perspective on the devleopment of standards for recording and publication.* In: Greengass, M. & Hughes, L. (eds) The Virtual Representation of the Past. Ashgate Publishing Company , Farnham, Surrey and Burlington, USA, pp. 101-112.

Chapter Eight

# Stepping Back from the Trench Edge.  An Archaeological Perspective on the Development of Standards for Recording and Publication

Julian D. Richards and Catherine Hardman

The development of recording and publication standards in archaeology has never been regarded as either at the cutting edge or exciting.[1]  It has been seen as a worthy but dull activity.  Post-modernists have been rather suspicious of it since it seemed to imply a fundamental belief in data

---

[1] .        We are grateful to Mark Greengrass for the invitation to participate in the Virtual History and Archaeology seminar and to the other participants for two days of stimulating discussion. This paper originated as two contributions; the first on attempts to develop a common platform for archaeological publications (JDR), and the second on the OASIS online access to grey literature project (CSH). Both were delivered in a session linked by the GRID to the 2006 Computer Applications in Archaeology Conference, held in Fargo, North Dakota. In preparing and delivering these papers it became clear to us that what was of particular interest to an interdisciplinary audience was the relative success with which data standards had been developed in archaeology, and the question was posed as to whether this represented a fundamental difference between archaeologists and historians. This written amalgam of both papers has therefore taken the opportunity to explore this issue further.

as fact.[2]  Indeed, over twenty years ago one of us spoke out against the rigid imposition of

standards as potentially stultifying intellectual enquiry.[3]  However, the development of online

digital resources provides the single most important reason why standards should be supported.

Standards are fundamental to cross-searching and analysis of multiple data sources.

Archaeological archives, if they existed at all, used to be seen as independent, self-contained

entities.  They were generally the by-product of a specific research project and were 'a means to

an end', usually of an individual researcher.  In that case the individualistic nature of recording

systems and terms was not really a problem.  Only in large urban centres, where the combination

of results from successive small-scale excavations could throw light on larger questions, was

there a sense of interrogation of an integrated knowledge base which was greater than the sum of

the individual parts, usually through an offline database.[4]

      With the growth in use of the internet for the dissemination of data and results all that has

changed.  The potential for online delivery and re-use of datasets has been recognised and

---

[2] .     A. Baines and K. Brophy, 'What's another word for thesaurus?  Data standards and classifying the past', in

P. Daly and T. L. Evans (eds) *Digital Achaeology: bridging method and theory* (Routledge, 2006), p. 237.

[3] .     J. D. Richards, 'Standardising the record' in M.A. Cooper and J. D. Richards (eds) *Current issues in

archaeological computing.*  British Archaeological Reports International Series, No. 271. (Oxford, 1985), pp. 93-

112.

[4] .     J. Schofield and P. Tyers, 'Towards a computerised archaeological research archive' in Cooper and

Richards (*op.cit*)., pp. 5-16.

encouraged by the funding councils.[5]  Moreover, rather than treating each resource as a self-contained entity with its own data structure and vocabulary it becomes possible to amalgamate resources and to undertake cross-searching.  What is described as the semantic interoperability of data sets has become important, whether these are multiple data sets held on a single server or whether they are distributed across multiple physical hosts.[6]  In the United States, the National Science Foundation has promoted the concept of 'cyberinfrastructure' to describe new research environments that support data storage, management, integration, mining, and visualization over the Internet.  Early take up has been supported in the ecological sciences and the geosciences, through the GEONGRID.[7]  There has been an exploratory workshop in Archaeology but, so far, the emphasis is upon opportunity rather than delivery.[8]  Elsewhere the infrastructure to support the shared analysis of research data is also described by the umbrella term *eScience*, although the best example in Archaeology is provided by the 'Virtual Research Environment' (VRE)

---

[5] .  J. D. Richards, 'Digital preservation and access' in *European Journal of Achaeology* 5 (2002), 343-366; *AHRC Research Funding Guide, 2006/7* – http://www.ahrc.ac.uk (accessed 24 August 2007).

[6] .  A. Austin, F. Pinto, J.D. Richards and N. Ryan, 'Joined-up Writing: an Internet portal for research into the Historic Environment' in G. Burenhult (ed.), *C[omputer] A[pplications] in A[rchaeology]* [henceforth 'CAA']2001. *Archaeological Informatics: Pushing the Envelope.*  British Archaeological Reports, International Series, No. 1016 (Oxford, 2002), pp. 243-251; W. Kilbride, 'The Danube in prehistory in the digital age: towards a common information environment for European archaeology' in *Archeologia e Calcolatori* 15 (2004), 129-144.

[7] .  http://seek.ecoinformatics.org/; http://www.geongrid.org/ - (both accessed on 24 August 2007).

[8] .  K. Kintigh, *The promise and challenge of archaeological data integration.*  Final Report of the Workshop, Santa Barbara, California.  Unpublished report  (2005); D.R. Snow, M. Gahegan, C.L. Giles, K.G. Hirth, G.R. Milner, P. Mitra, and J.Z. Wang, 'Cybertools and Archaeology' in *Science* 311 (2006), 958-959.

developed for the Silchester research project (Clarke, Fulford and Rains 2003), which is focussed upon a single site.[9]  It is the sharing of data between projects that requires the development of shared standards.  During the course of the Sheffield workshop at which the papers in this volume were discussed, it became apparent that these were relatively well developed for some aspects of archaeology.  Yet historians present found it difficult to find comparable examples from their subject area.  This paper will explore some of the reasons for this.  If both disciplines are to exploit the full potential of the digital age a more general acceptance of data standards is essential.

*    *    *    *    *    *

We should make it clear that by 'standards' we are referring to agreed data structures and terminologies, properly collectively referred to as 'data standards', not to benchmarks for the quality of research work undertaken.  Terminological standards and controlled vocabularies often develop out of typologies and classifications, of which there is a long tradition in archaeology.  In this sense the nineteenth-century adoption of the Three Age System, classifying the past into three eras of Stone, Bronze and Iron, represents a fundamental data standard which underpins much later work.  Most questions asked of archaeological data can be readily broken down into a

---

[9] .      A. Clarke, M. Fulford, and M. Rains, 'Nothing to hide – online database publication and the Silchester Town Life Project', in M. Doerr and A. Sarris (eds), *CAA2002: The Digital Heritage of Archaeology.  Computer Applications and Quantitative Methods in Archaeology, 2002* (Hellenic Ministry of Culture, 2003), pp. 401-410.

combination of 'When?', 'Where?' and 'What?'.  A standard for the description of

archaeological time is therefore crucial to the interoperability of data sets.  The MIDAS data

standard, developed by English Heritage and its partners, provides an agreed set of period terms

for the description of English sites and monuments and has been adopted by most regional and

county Historic Environment Records.[10]  However, as soon as one leaves the borders of England

it becomes apparent that archaeological periodicity is, in reality, culturally determined, and

relative date ranges are spatially dependent.  Thus, for example, most of Scotland does not have

a 'Roman period', and the 'Iron Age' continues until the 'Viking period', which in Scotland is

often called 'Norse'.  When one leaves the British Isles the problems are magnified, and new

terms such as 'Minoan', 'Mycenean' or 'Hellenic' are soon encountered.  The ARENA project,

which developed a prototype portal for the cross-searching of six European national or regional

sites and monuments databases, found that the only solution was to attempt to map each national

terminology to an absolute time scale.[11]  Unfortunately, this reduced each data-set to a lowest

common denominator.  Searches for 'Iron Age', for example, might recover sites dated to

anywhere between 1000 BC and AD 1000, depending upon the country in question.  There are

similar problems if one attempts to search across disciplines within one country.  The term 'early

medieval' for instance means something different for the historian from what it does to an

---

[10] .      E. Lee, *MIDAS.  A manual and data standard for monument inventories*.  Third Edition.  (Swindon:

English Heritage, 2003).

[11] .      J. Kenny and J.D. Richards, 'Pathways to a shared European information infrastructure for cultural

heritage' in *Internet Archaeology* 18, section 4.2 – http://intarch.ac.uk/journal/issue18/kenny_index.html (accessed

24 August 2007).

archaeologist.  A building referred to by an archaeologist as 'post-medieval' might be described by an art historian as 'Georgian', or 'Neo-Classical', for instance.  Nonetheless, the results from mappings between national or discipline-based terminologies will still be more useful than if there were no agreed terminologies at all.

The 'Where' question is, in principle, more easily dealt with as there are international cross-disciplinary systems for describing space, notably the use of latitude and longitude, to which national grid references can be converted.  There are, however, some specific difficulties confronting projects which seek to combine data-sets collected using different coordinate systems.[12] (Scollar 1989).  Nonetheless, the combination of data sets using a map-based search system is one of the easiest and most visual ways of combining a number of resources, so long as they are spatially geo-referenced.  The tools provided by GIS can then be used to investigate the linkages between the different data layers.  However, if location has not been precisely geo-referenced then one is left with the problem of dealing with fuzzily-defined polygons designed to correspond to, as it might be, a parish or township area.

The 'What' question is the hardest to confront.  There is no single subject thesaurus for Archaeology, and as soon as one leaves one discipline one encounters a host of competing standards.  Whilst generic library systems such as Library of Congress and Dewey Decimal subject classifications are helpful at a very general level they are rarely specific enough for detailed searches, and they rapidly break down when they reach into specialist research areas.

---

[12] .      I. Scollar, 'Geodetic and cartographic problems in archaeological data bases at and within the boundaries of some countries' in S. Rahtz and J.D. Richards (eds), *Computer Applications and Quantitative Methods in Archaeology.*  British Archaeological Reports, International Series S548 (Oxford, 1989), pp. 251-273.

For categories of sites and monuments there is a well-defined standard known as the Thesaurus of Monument Types (TMT). This provides a controlled vocabulary which has been adopted by county-based records as well as the English Heritage national archaeological inventory; and it has also been adopted with slight modification for Scotland. The thesaurus has 18 top-level terms which define general functional categories of monument, such as 'defence', 'domestic' or 'industrial', and these overlie a hierarchy of approved terms, and their equivalences. These are non-exclusive terms, such that any one monument may be classified within many categories. For artefact finds there is an equivalent 'Archaeological Objects Thesaurus' developed by the Museum Documentation Association (MDA). These remain, however independent of one another, and there is currently no over-arching archaeological subject thesaurus.

Thesauri of guidelines for the use of controlled vocabularies provide one of the essential buildings blocks by which it is possible sensibly to combine data sets. However, by themselves, they are not sufficient to allow cross-searching. It is also necessary to understand how the database fields have been defined, and here there is much more room for individual variability. Again archaeologists have agreed standards covering the compilation and organisation of 'inventories' of the archaeological and architectural heritage of England. MIDAS, the Monument Inventory Data Standard, is a content standard that sets out what sort of information should be recorded, for instance to describe the character or location of a monument.[13] Adherence to MIDAS, and to the specific underlying wordlists, should mean that it is possible to combine the monument inventories across counties or regions and thereby to allow users to

---

[13] . E. Lee, *MIDAS […], op.cit.*

cross-search for particular categories of site.  It should also allow the transfer of data between information providers and, indeed, a specific XML schema (MIDAS XML), has been developed to facilitate this.  This data standard indicates an appropriate mapping between database fields and the vocabulary which has been used within those fields.

The Archaeology Data Service (ADS) online catalogue, ArchSearch combines a large number of data sources, drawn from local and national inventories, and allows uses to cross-search over one million index records.[14]  It works because the data sets which have been combined are each MIDAS compliant.  ArchSearch does not include all the MIDAS fields but it uses a number of index fields which cover the 'When', 'What' and 'Where' questions.  These fields have also been mapped to the Dublin Core metadata standard.[15]  These core fields underlie the ADS catalogue and mean that it should also be interoperable with other Dublin Core metadata sets.  So the metadata can be harvested using the Open Archives Initiative (OAI)

---

[14] .        ADS ArchSearch - http://ads.ahds.ac.uk/catalogue/ (accessed 24 August 2007).

[15] .        A.P. Miller, 'Metadata for the masses: what is it, how can it help me, and how can I use it?' in *Ariadne* 5 – http://wwwukoln.ac.uk/ariadne/issue5/metadata-masses/ (accessed 24 August 2007); also 'The Importance of Metadata in Archaeology' in L. Dingwall, S. Exxon, V. Gaffney, S. Laflin and M. Van Leusen (eds), *CAA97. Archaeology in the Age of the Internet: Computer Applications and Quantitative Methods in Archaeology*.  British Archaeological Reports, International Series S750 (Oxford, Tempus Reparatum, 1999), pp. 133-136; A.P. Miller and D.; Greenstein (eds), *Discovering Online Resources: A Practical Implementation of Dublin Core* (Bath: UKOLN/AHDS, 1997); A. Wise and P. Miller, 'Why metadata matters in archaeology' in *Internet Archaeology* 2 (1997), section 8.1 – http://intarch.ac.uk/journal/issue2/wise_index.html (accessed 24 August 2007).

protocol to allow cross-searching with resources drawn from other subject areas.[16]  At this level, however, full semantic interoperability breaks down.  Although information providers might agree on a Dublin Core 'subject' field, for example, different disciplines will often have qualified their usage of the Dublin Core according to discipline-specific vocabulary.  That said, in general, the standards for the description of archaeological field monuments are relatively well-defined and have a long pedigree, which ultimately goes back to the field surveyors trained by the Ordnance Survey to plot antiquities on maps.

*    *    *    *    *    *

The summary recording of archaeological interventions - field surveys, watching briefs and excavations, etc - also follows quite well established practice.  The OASIS project has developed an on-line recording form to be completed by archaeological contractors and researchers on the completion of a piece of fieldwork.[17]  This records summary information which deals with the 'When', 'Where' and 'What' questions in accordance with a controlled vocabulary.  The development and adoption of the OASIS form, which is now required by the majority of archaeologists responsible for fieldwork specifications in England, provides an

---

[16] .     M. Day, 'E-print Services and Long-term Access to the Record of Scholarly and Scientific Research' in *Ariadne* 28 – http://www.ariadne.ac.uk/issue28/metadata/ (accessed 24 August 2007).

[17] .     C. Hardman and J.D. Richards, 'OASIS: dealing with a digital revolution' in M. Doerr and N. Crofts (eds), *CAA2002: The Digital Heritage of Archaeology*, *op;.cit*., pp. 325-328.

interesting case-study in the take-up and development of a national standard, with a combination of top-down and bottom-up carrots and sticks.  Again the standard has been consolidated by the development of a specific OASIS XML schema.  Completed OASIS records are validated by the local archaeological authority (in the HER), and by the English Heritage National Monuments Record.  They are then imported into the HER database and into the English Heritage Excavation Index, which is mapped to Dublin Core and made available by the ADS.  OASIS was initially funded by the Research Support Libraries Programme, taken up by English Heritage, and is now being further developed with support from Historic Scotland and the RCAHMS.

However, although the OASIS record provides a minimum level of metadata required to record any archaeological intervention it does not prescribe what should be recorded beyond that. Indeed, although the AHDS Guides to Good Practice are widely regarded as providing valuable data standards for digital data recording, they do not dictate what to record, but instead suggest what metadata should be recorded in order to permit data preservation and re-use.[18]  In fact, despite countless attempts to establish a single, agreed recording system for archaeological fieldwork, it currently does not exist.  Most excavators use fairly standardised pro-forma to record each excavated layer and feature ('single-context recording forms') and, although most have a shared origin in the systems employed either by the former Department of Urban Archaeology (DUA) at the Museum of London, or by the former Central Excavation Unit (CEU) of English Heritage, each contracting unit has, in reality, developed its own variant.  Although

---

[18] .      J.D. Richards and D.J. Robinson, *Digital Archives from Excavations and Fieldwork.  A Guide to Good Practice* (York: Archaeology Data Service and Oxbow Books, 2000); A. Schmidt, *Geophysical Data in Archaeology: A Guide to Good Practice* (York: Archaeology Data Service and Oxbow Books, 2002).

there is a common denominator to the fields used on most of these forms, and also overlapping

vocabularies, most excavators have stuck to their own systems.

Why has this been so?  Part of the reason must be that there has been no good research

reason for primary records from more than one site to be combined.  There is limited utility, for

example, in searching for all layers of silty clay loam with charcoal flecks across two or more

excavations.  However, it is possible to envisage legitimate research enquiries which are not

supported by the current fragmented systems.  There might be value, for example, in finding all

hearths, or all storage pits.  This is rarely possible at present.  In the case of the digital archive

derived from the Channel Tunnel infrastructure project, for example, there are currently

individual archives for no fewer than 122 interventions.[19]  The individual archives are the result

of the recording systems employed by the contracting unit working on a specific site, whether

Oxford Archaeology, Wessex Archaeology, or the Museum of London Archaeological Service.

Even limited cross-searching of the combined archives was made possible only by a large

investment in the creation of metadata following the deposition of the archive with the ADS.  In

one major infrastructure project, however, an attempt has been made to create a single

homogenous archive.  In archaeological fieldwork undertaken at Heathrow and Stansted Airports

by the consortium of contracting units known as Framework Archaeology on behalf of British

Airports Authority, a single shared recording system was devised..[20]

---

[19] .      http://ads.ahds.ac.uk/catalogue/resources.html?ctrl_2003 (accessed 24 August 2007).

[20] .      A. Beck, 'Intellectual excavation and dynamic management systems; in G. Lock and K. Brown (eds), *On the Theory and Practice of Archaeological Computing* (Oxford: Oxford University Committee for Archaeology Monographs, No 51, 2000), pp. 73-88..

\*    \*    \*    \*    \*    \*

What then of standardisation in the publication of archaeological excavation reports? There has, in reality, been little progress here, despite a succession of working parties and user surveys which have sought to address the perceived publication crisis in British archaeology.[21] In reality, the crisis has partly come about because of two long-established but contradictory theoretical positions regarding the role of fieldwork publication.  An empiricist tradition sees field data as a factual record, making the full and complete publication of site and archive a professional duty.  Another view regards the report as just one possible set of recorded observations, and argues that what is important is the 'story', or interpretative synthesis, rather than the data.  The idea of excavation report as the factual and complete record of a site goes back at least as far as the nineteenth-century pioneer excavator, General Augustus Henry Lane-Fox Pitt-Rivers (1827-1900).  For Pitt Rivers, publication provided an objective record of what had been excavated (and thereby destroyed) and it was the archaeologist's professional responsibility to publish in full.  He practised what he preached in his own four massive reports

---

[21] .      See, for a recent survey and summary, S. Jones, A. MacSween, S. Jeffrey, R. Morris and M. Heyworth, 'From the Ground Up.  The Publication of Archaeological Reports: a user-needs survey.  A summary', produced for the Council for British Archaeology, York and available in *Internet Archaeology* 14 (2003) – http://interarch.ac.uk/journal/issue14/puns_index.html (accessed 24 August 2007).

on the excavations he conducted on his estate in Dorset.[22]  On the other hand, the distinguished

Egyptologist (Sir William Matthew) Flinders Petrie (1853-1942) argued that the contents of

notebooks and listings of data were not publication, and that such observations must necessarily

lead to conclusions and generalisations which alone were the suitable material for the public

domain.[23]  Notwithstanding this early plea for synthetic publication, it was Pitt-Rivers who was

to have the greater influence on publication trends even though the resulting tension between

brief synthetic publication and full data presentation has periodically re-emerged.  Throughout

the first half of the twentieth century, publication was seen as an integral part of the excavation

process.  In much of the literature there was little mention of the archiving of such reports.  The

only effective record was full publication - the published report and the archive being regarded

as one and the same thing.[24]

During the 1960s and 70s, archaeology had to acknowledge a growing publication crisis.

Against a background of large scale building development in the UK, there was increased

archaeological activity and a great deal of rescue excavation, but soaring publication costs also

contributed to a resulting post-excavation and publication backlog.  The Frere Report (1975)

attempted to address the problem.  It endorsed the traditional view that archaeologists were under

an obligation to produce a full record; but it accepted that full publication was no longer

---

[22] .      A. L-F. Pitt-Rivers, *Excavations in Cranbourne Chase*.  4 vols  (Privately printed, 1887-89).

[23] .      W.M.F. Petrie, *Methods and Aims in Archaeology* (Macmillan, 1904).

[24] .      See S. Jones *et al.,* 'From the Ground Up [...]', *op.cit*., Section 2.

practicable.[25]  The report advocated a rationalisation of recording and publication.  Four levels of

recording were held to characterise the successful completion of an excavation[26]

- Level I - the site itself and the excavated finds

- Level II - the site notebooks, on-site recording forms, drawings, finds records, photographs etc

- Level III - the processed complete archive: full illustration and description of structural, stratigraphic and artefactual/ environmental data

- Level IV - a synthetic description with supporting illustrations

Hitherto, full Level III publication had been the norm, at least in theory.  Now refined

publication at Level IV was recommended, on condition that a Level III report was produced for

archiving, a report which would be readily available on request.  In essence, the Frere Report

responded to the publication crisis by recommending a reduction in the amount of material that

would go into print, coupled with an improvement in archival organisation and curation.  The

Frere Report was the first attempt by a state heritage body to address systematically standards of

publication.  With hindsight it can be argued that this did not constitute a radical departure from

traditional practices.  All that it advocated was an uncoupling of an accepted record (known as

---

[25] .    S. S. Frere, *Principles of publication in rescue archaeology: report by a working party of the Ancient Monuments Board for England* (Committee for Rescue Archaeology, 1975), p. 2.

[26] .    *Ibid*., p. 3.

the Level III report) from the process of formal publication (Level IV).  It was a pragmatic

response to the costs of formal publication and the pressures on publication outlets.[27]

Although Frere's recommendations were very influential on archaeological practice, it is

a moot point whether they had much impact upon the backlog brought about by increasing

numbers of large projects.  Indeed, the high standard of preparation required by Level III

reporting meant that in many cases *more* time was required for post-excavation work than had

been allocated beforehand.  A joint working party of the Council for British Archaeology and the

Department the Environment, under the chairmanship of Barry Cunliffe, was convened to

attempt to address the continuing problem. With an emphasis on the importance of an accessible

archive, and on targeted research and publication, the Cunliffe Report marked a departure, both

from the traditional model (with its ideal of full excavation and publication), and the Frere

compromise (which had confined publication to a Level III report).[28]  The detailed description of

the evidence was to be reduced to a summary, with detail confined to microfiche.  The report had

considerable impact but its implementation was problematic and, indeed, it was rejected by the

CBA's own Council.  With the benefit of hindsight it seems that one of the main problems was

practical and stemmed from difficulties with the technology of the 1980s.  No archive could be

truly accessible, and the use of microfiche was universally loathed.  Another difficulty was

increasing theoretical debate about whether the full report actually represented a complete factual

account of the site.  John Barrett argued that the publication crisis extended beyond report

---

[27] .      S. Jones *et al.,* 'From the Ground Up [...]', *op.cit*.

[28] .      B.W. Cunliffe, *The Publication of archaeological excavations: report of a joint working party of the*
*Council for British Archaeology and the Department of the Environment* (Department of the Environment, 1983).

production to the ways in which archives and reports could be used and re-used.[29] Although it may be impossible to judge an excavator's general competence from a published report, it is possible:

> for the reader to undertake a critical analysis of the internal logic of the report, examining the linkages between the assumptions employed, the stated record of observations, and the interpretative account (1987, 410).

Ian Hodder regretted that reports had become impersonal objective accounts of data.[30] He argued that since the excavation process is interpretative from start to finish, personal factors which lead to that interpretation should, as far as possible, be written into the report rather than kept out of it. In other words, there should be *greater* integration between description and interpretation. Another perspective, criticising the use of synthetic reports as the main format of dissemination of archaeological knowledge, was provided by Michael Shanks and Christopher Tilley.[31] They argued that such reports represented exercises in 'domination and control' by individuals seeking to impose their view of the past on their readers. It was therefore crucial to find ways to make data available to give a wider audience the opportunity to create their own interpretations.

---

[29] . J. Barrett, 'The Glastonbury Lake Village: models and source criticism'. *Archaeological Journal* 144 (1987), 409-423.

[30] . I. Hodder, 'Writing archaeology: site reports in context', in *Antiquity* 63 (1989), 268-274.

[31] . M. Shanks and C. Tilley, *Social Theory and Archaeology* (Oxford: Polity Press, 1987).

One further Committee tried to address the publication/ archives problem.  The 1992 report, *Archaeological publication, archives and collections: towards a national policy* was written in the context of the introduction of developer-funding for archaeological excavation.[32] It also took account of those developments in theoretical thinking which reflected a move away from 'preservation by record':[33]

> since the record is selective and therefore incomplete and post-excavation analysis must also, of necessity, be selective, the excavation report can only be a contemporary statement reflecting on aspects of the site: it cannot be an immutable and complete truth.

The Committee took the Cunliffe Report one stage further and recommended that dissemination should normally be in the form of a published summary report and an accessible site archive. Once more, however, the technology lagged behind and lacked the means of providing access to an archive with links between it and the summary publication.  The report was effectively shelved.

In 1998 the Council of British Archaeology (CBA) was commissioned to carry out a survey of publication user needs.  Its recommendations reflected the fact that, by then, technology had moved on.  Whilst their survey once more focused on reducing the scale of

---

[32] .    M. Carver, H. Chapman, B. Cunliffe, T. Hassall, M. Debditch, A. Lawson, I. Longworth, R. Morris, D. Phillipson, J. Schofield and G. Wainwright, *Archaeological publication, archives and collections.  Towards a national policy*. Prepared for the Society of Antiquaries and the Museums Association (British Archaeological News 7(2), Supplement (York: Council for British Archaeology, 1992).

[33] .    *Ibid*., 2.2.1.

conventional publication, the 'PUNS Report' recommended alternative means of electronic

publication and the dissemination of archival and specialist material in electronic format as a

means round the practical problems.  The introduction of digital technology provided an

opportunity to shift away from pure synthesis towards making archaeological data accessible

digitally.[34]  The report recognised that there are separate user groups for different aspects of a

report and suggests that multiple forms and media of dissemination should be used, as

appropriate to a given project.  These might include a summary account produced during the

project or immediately after, a synthetic journal article or monograph; internet publication either

alongside or instead of the above; and electronic availability of detailed and well-indexed

structural and specialist reports.  The report also concluded that all project archives should be

placed on the Internet.[35]  The growth of electronic dissemination has also allowed some blurring

of the distinction between publication and archive, with a seamless interface between the two.[36]

Although the majority of archaeological fieldwork reports follow an accepted format and

implicit structure, archaeologists have resisted attempts to impose a common platform upon

them.  In 1999, the University of California at Los Angeles undertook a doomed attempt to

---

[34] .      V. Gaffney and S. Exon, 'From order to chaos: publication, synthesis, and the dissemination of data in a

digital age' in *Internet Archaeology* 6 (1999) – http://intarch.ac.uk/journal/issue6/gaffney_index.html (accessed 24

August 2007).

[35] .      S. Jones *et al.,* 'From the Ground Up [...]', *op.cit*.

[36] .      J.D. Richards, 'Electronic publication in archaeology' in P. Daly and T. L. Evans (eds), *Digital Achaeology*

*[…]*, *op.cit*., pp. 213-225.

introduce a digital imprint template in the United States.[37]  Despite significant funding, they

found it difficult to locate authors with suitable data for the project.  In the USA and UK, most

basic fieldwork reports are no longer published.  They become instead part of the grey literature

of the discipline, with one or two copies lodged in the office of the state or county archaeologist.

The potential offered by the Internet for the online dissemination of these reports, through

projects such as OASIS, now provides – for the first time - an incentive for the standardisation of

their structure and format.  Gray and Walford advocated an XML-based approach to creating

standard site descriptions in 1999.[38]  They were followed by more recent investigations of the

appropriate XML-tagging for grey literature.[39]  In one of these, Gail Falkingham demonstrates

that, if contractors were provided with an appropriately developed XML template, then the same

report might be easily published online for different audiences.

The use of XML mark-up begins to illustrate the potential for the semantic web for

archaeology.[40]  If we can agree standards for the XML encoding of reports then it will be

possible to harvest structured content.  In Norway, for example, the Museum Documentation

---

[37] .  http://www.sscnet.ucla.edu/ioa/labs/digital/imprint/imprint.html (accessed 24 August 2007).

[38] .  J. Gray and K. Walford, 'One good site deserves another: electronic publishing in field archaeology',
*Internet Archaeology* 7 (1999) – http://interach.ac.uk/journal/issue7/gray_index.html.

[39] .  C. Meckseper and C. Warwick, 'The publication of archaeological excavation reports using XML' in
*Literary and Linguistic Computing* 18(1) (2003), 63-75; G. Falkingham, 'A whiter shade of grey: a new approach to
archaeological grey literature using the XML version of the TEI guidelines', *Internet Archaeology* 17 (2005) –
http://intarch.ac.uk/journal/issue7/falkingham_index.html (accessed 24 August 2007).

[40] .  J.D. Richards, 'Archaeology, e-publication and the semantic web' in *Antiquity* 80 (2006), 970-979.

project has undertaken TEI mark-up of antiquarian accounts by hand for many years.[41]  Such

manual encoding can be time-consuming and expensive but research on data mining using

natural language processing, as suggested elsewhere in this volume, demonstrates the potential

for automated mark-up of text documents.[42]  Most archaeological data collected in the field is

highly structured.  But it would require detailed semantic mapping in order to render it truly

interoperable on a cross-project basis.  Imagine, for example, that each reference to each specific

category of artefact was tagged.  This would mean that future research could cross-search any

number of integrated excavation archives looking for occurrences of pottery type X or brooch

type Y.  For some themes - including artefact classification - archaeology probably has

sufficiently standardised typologies to provide the level of detailed ontology required for the

semantic web.  It is not surprising that the US cyber-infrastructure for archaeology workshop

concluded that artefacts and animal bones offered the most promising case studies.[43]  However,

as noted above, it is not sufficient to have an agreed classification in order to implement

meaningful cross-searching.  One also needs to take account of higher level data structures. Here

the ISO draft standard for a 'Conceptual Reference Model' developed by CIDOC – the CIDOC

---

[41] .      J. Holman, C-E. Ore, and O. Eide, 'Documenting two histories at once: digging into archaeology', in K.F.

Ausserer, W. Börner, M. Goriany, and L. Karlhuber-Vöckl (eds), *CAA 2003.  Enter the Past.  The E-way into the*

*four Dimensions of Cultural Heritage.*  British Archaeological Reports International Series, No. 1227 (Oxford,

Archaeopress, 2004), pp. 221-224.

[42] .      See above, section 2, ch. 4 (Ciravegna and Greengrass).

[43] .      K. Kintigh, *The promise and challenge of archaeological data integration*, *op.cit.*

CRM – is seen by many as providing a way of mapping higher level reasoning and relationships:[44]

> The primary role of the CRM is to serve as a basis for mediation of cultural heritage information and thereby provide the semantic 'glue' needed to transform today's disparate, localised information sources into a coherent and valuable global resource.

<div align="center">

∗   ∗   ∗   ∗   ∗   ∗

</div>

To summarise, it is apparent that standards in Archaeology actually have a mixed history.  In some areas, such as monument inventories, they are now quite well evolved.  In others, such as excavation recording or publication formats, they have so far not been pursued with any sustained enthusiasm and have even, in some cases, been positively resisted.  The situation really seems to depend upon user need.  As research questions about distributions of particular types of sites of specific periods may span the boundaries of several administrative areas there are

---

[44] .      Cited from M. Doerr and N. Crofts, 'Electronic Esperanto: The role of the object-orientated CIDOC Reference Model' in DS. Bearman and J. Trant (eds), *Cultural Heritage Informatics 1999. Selected papers from ichim99* (1999) and also available at http://cidoc.ics.forth.gr/docs/doerr_crofts_ichim99_new.pdf (accessed 24 August 2007).  Cf T. Gill, 'Building semantic bridges between museums, libraries and archives: the CIDOC Conceptual Reference Model' in *First Monday* 9(5) (2004) – http://firstmonday.org/issue9_5/gill/index.html (accessed 24 August 2007); and S. Ross, 'Position paper', in *Towards a Semantic Web for heritage resources.* DigiCULT Thematic Issue 3 (2003), 7-11, also available at: http://digicult.info/downloads/ti3_high.pdf (accessed 24 August 2007).

powerful research imperatives to develop standardisation which will aid cross-searching.  But there are also political reasons to facilitate the transfer of monument data between local and national bodies and vice versa.  When one studies the evolution of data standards in these areas, they have been hard-fought for over many years, with a lot of investment in committee work, before the emergence of an approved thesaurus.  There has also been a combination of take-up at the grass roots level in exchange for the obvious benefits of being able to access standard software applications, with pressure from the top to fall in line.  In other areas, such as excavation recording or artefact studies, there have been neither the political pressures, not the user needs, to drive the development of standards.  It is maybe only now, with the obvious advantages to be derived from cross-searching multiple project archives online, that the pressures for standardisation will begin to achieve tangible results.

Similarly, looking at the study of History from the outside, it seems apparent that most computer-based projects have developed in relative isolation, and digitisation has frequently been undertaken with the aims of a specific research project in mind.  It is only in recent years, perhaps partly prompted by pressures from the AHRC for the re-use of data, but also by the growing demand from users to integrate data sets, that an awareness of the need for ontologies, controlled vocabularies and agreed data structures has emerged.  There is little doubt that such goals will not be easily accomplished, but they are an aim worth aspiring to.