E-everything

57 St Vincent Street is a solid edifice, but it seems quieter these days. It was for many years one of the largest academic bookshops in Scotland: John Smiths, founded in Glasgow in 1751. Its closure and reopening as one of Scotland's largest internet cafes was an easy metaphor for technology within scholarly communication. But the technology changes quickly. Wireless networks mean I don't need internet cafes any more, so visits to Glasgow no longer mean a trip to 57 St Vincent Street. I'm sure that's why it's quieter. Number 57's next makeover will likely come sooner not later. What's next for number 57? What's next for scholarly communication?

This issue of ADS news asks `what's next for researchers?' It explores emerging trends in the world of `E-science' and `E-research'. Some trends are obvious. Science-based research produces and analyses data sets so large that we need refined procedures for access, management and distribution of data. At an organisational level, policy has been piecemeal, but is now converging. Two recent developments at ADS follow these trends. There's an update on the `Big Data' Project and a report on work with the Natural Environment Research Council that will provide access to scientific datasets similar to those created through the Arts and Humanities Research Council.

E-research means we need to think about linking between datasets and between concepts. There's nothing new about referencing, but E-research requires a new language of citation. That's harder than it sounds because it involves heterogenous digital repositories with diverse data in different parts of the world. A new joint project StORe (see page 6), is exploring what archaeologists want from such links. One thing they are bound to want is confidence. Data sets need both technical and intellectual accreditation if the links are to be worthwhile. A second project, led by the Institute for Historical Research and funded by the Arts and Humanities Research Council is exploring the role and importance of peer review for electronic resources. Such resources are increasingly being used, and created, by students and researchers in the Arts and Humanities. Yet, there is no real equivalent of the peer review process used in print publication to indicate the value and validity of the resource. This research could lead to some profound changes to the way electronic resources are approached in the future.

57 St Vincent Street reminds me that competent architecture makes space for unknowable futures. Change is constant: if our processes and structures are resilient then we will be able to adapt. E-science and E-research will only be durable with E-archives.

William Kilbride

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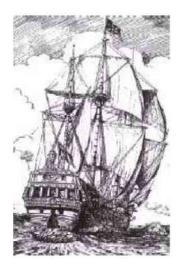
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ArchSearch News: the online catalogue of the ADS

New collections in the last few months underscore the diverse nature of archaeological research and the varied types of data that result. Highlights have included the archive from the famous Anglo-Saxon royal site at Sutton Hoo and our first fully underwater data from *The Hazardous*. These new collections have been supported by technical enhancements that, though invisible to the large majority of users, result in significant improvements in access.*The Hazardous* was originally built by the French in 1698, but was captured and re-commissioned into the English Navy before being wrecked in heavy seas off the coast of Sussex in 1706. The most recent of a number of study dives to the wreck site is recorded in an archive created by the Hampshire and Wight Trust for Maritime Archaeology.

An artist's impression of Hazardous at sea (Laurie Crisp)

The Anglo-Saxon princely burial ground at Sutton Hoo is one of the most famous archaeological sites in the UK, excavated most recently by Professor Martin Carver on behalf of the Sutton Hoo Research Committee. The publication of the 1980s excavations by the British Museum comes with a linked archive of images and text. As well as producing some of the most remarkable deposits ever excavated in England, this major research project was a test bed for archaeological research methods, including some of the earliest uses of computers for 3D modelling of deposits.

Other collections released recently include a new PhD thesis on the prehistory of the Peak District from William Bevan of Sheffield University, five more counties within the popular `Extensive Urban Surveys' archive from English Heritage, with more on the way. Our Grey Literature Library has expanded to a total of 458 reports. We have also recently released a new reference collection on `Stone in Archaeology', by Southampton University with funding from the Arts and Humanities Research Council, which also funded the archive of the `Early Hominins' project, which features another use of our web-gis. February saw the launch of the Leverhulme Trust funded `Analysis of Roman Silver Coins, Augustus to Nero (2 BC - AD 68)' archive. Imperial fiscal policies and financial problems can be detected through metallurgical analysis of imperial silver coinages. Roman emperors manipulated the silver content (fineness) of the coinage to solve short-term financial problems frequently caused by government overspending. The main analytical technique used for this project, based at the University of Liverpool, was atomic absorption spectroscopy (AAS), which enables detailed characterization of the alloys used for the coinage and this in turn has allowed the identification of changes in mint operation and location to be identified.

Finally, we have recently re-engineered our website, making more rigorous use of style sheets and updating pages to XHTML. Though largely invisible, these changes allow our website to comply more closely with trends in accessibility. This, in addition to a large memory upgrade, has improved response times for all our servers and allows us to cope better with many more concurrent users.

ArchSearch News is brought to you by the ADS Curatorial Team: Jo Gilham, Jen Mitcham, Kieron Niven, Stewart Waller and Keith Westcott.

ArchSearch is online at:**http://ads.ahds.ac.uk/catalogue**

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Resource Enhancement Grants: Stone in Archaeology Archive Released

The Arts and Humanities Research Council is currently reviewing all its funding programmes, especially those with a significant component of computing. This includes, in particular, the very popular `Resource Enhancement' competition which has supported a great many digitisation projects since its inception in 2000. Readers with a long memory will recall a project in Issue 10 of ADS News, describing the work of colleagues in Southampton University to create an archive of `Stone in Archaeology'. The release of the project archive in November 2005 marked both the end - and the start - of a significant contribution to research by the AHRC and the project team.

'Stone in Archaeology - towards a Digital Resource' was created by Kathryn Knowles and Professor David Peacock with technical expertise provided by Fiona Lewis. The project was funded by the Arts and Humanities Research Council (AHRC). The resource has been developed by Archaeology, School of Humanities, University of Southampton, in collaboration with the Archaeology Data Service (ADS), to create a unique multidisciplinary digital resource in the field of lithic archaeology.

The online version was released in November 2005 via the ADS and has already proved itself a very popular research tool, providing information regarding the use, quarry location / vicinity and distribution of the stone throughout various periods of history. The resource's ability to be manipulated in many different ways enables specific questions to be asked about trade and exchange, movement of materials and distribution.

A detail from the resource website showing a range of useful research information for Agglestone Grit, one of over 200 stone types available to search on the database.

Building on the large pre-existing collection of archaeologically relevant comparative rock samples held at Southampton, the project uses a searchable relational database designed to be accessible both to beginners and those with geological experience. The database allows the identification of stone samples by searching on the distinctive physical properties of a stone. The detailed results of each search can be backed up by macroscopic and thin-section photomicrographs of the sample and other geologically relevant information. The interface has been designed to allow the maximum flexibility for searching as well as providing useful links to associated information beyond the purely geological, such as the stone's various historical uses and detailed information on known quarry sites. The interface can also be customised to some degree allowing each user to specify various options on how the site should look and how it should react to commands such as downloading images.

Currently the database contains over 200 stones, 300 quarry locations and 500 usage examples. However, this is far from the end of the project. The resource will remain 'open' to receive further information from academics, local interest groups and the general public. Over time the quantity of information and the level of detail contained within the database will expand to increase further the utility of what is already a highly accessible and informative resource.

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Stone in Archaeology is available at: **http://ads.ahds.ac.uk/catalogue/resources.html?stones_ahrb_2005**

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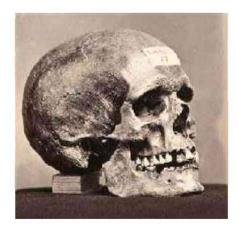Problems viewing this page? Here's a list of known or recurring problems and how to fix them

Science-based archaeology and a closer relationship with NERC

One of the more intellectually challenging, and hotly debated aspects of archaeology is the way that it straddles the humanities and sciences. It is not unusual for contract archaeologists to give forensic help in criminal investigations or to find archaeology departments within university science faculties. This reveals the significant contribution that scientific methods have made to the study of the past, and the impact that archaeology has had on the sciences. For ADS this has meant straddling agencies too. As well as being the archive for all digital data from research funded under the Arts and Humanities Research Council we have long been the data centre designated for science-based archaeology funded by NERC (the Natural Environment Research Council). Here, Catherine Hardman, describes recent work with NERC, pointing to a closer integration of policy.

During the past twelve months the ADS has been working towards a closer relationship with NERC and in particular one of its funded programmes, EFCHED: Environmental Factors in the Chronology of Human Evolution and Dispersal. The EFCHED programme awarded research grants to eleven research projects in different universities in November 2002. Each project has focused on a different aspect of human evolution and dispersal ranging from studies of the evolution of dietary changes in hominids to Neanderthal climate preferences and tolerances.

Society of Antiquaries of London Primeval Antiquities Collection No. 68.2 - Belas Knap Long Barrow, Gloucestershire.

The research undertaken by each of these various projects has produced digital data sets, though these are as diverse as the projects themselves. The ADS have been working with colleagues from NERC to assess the type and quantity of data created and is providing solutions for its long term archival care.

As the EFCHED projects reach a conclusion, the ADS will provide a home for the raw project data, allowing future generations of researchers to access the data which was produced and in this way to be able to assess the conclusions reached. Overarching EFCHED web pages may also provide a starting point for any researcher interested in the outcomes of the programme, providing links to other project websites and a means of searching and retrieving data from across different projects.

Similarly the ADS is undertaking a scoping study of other recently funded NERC projects to review the amount of digital data produced by science based archaeology in the past and their re-use value. We hope that this too will result in the deposition of more science-based archaeology archives, providing a more comprehensive archaeological resource for all our users.

Catherine Hardman,
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http://www.nerc.ac.uk/funding/thematics/efched/

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Big Data update

The Big Data project was first introduced in ADS News Issue 17, it centres on the fact that as our collective capacity to generate and process data grows so does the size of our data sets. The technologies associated with the preservation, storage and delivery of such data are problematic for any organisation which has a responsibility for archiving and making these data available for the future; and the ADS is most definitely one of those. A successful workshop was held in York during November of last year as part of the ongoing English Heritage funded *Preservation and Management Strategies for Exceptionally Large Data Formats* (or the Big Data project). The workshop was chaired by Professor Julian Richards. Participants included representatives from English Heritage, the case studies being assessed by the Big Data team and data centre personnel from the NERC National Geosciences Data Centre, the Bathymetric Data Centre of the UK Hydrographic Office, the Arts and Humanities Data Service (AHDS) and, of course, the ADS. During the workshop a number of major themes emerged, dealing with some fundamental issues. These themes are laid out below along with a brief explanation of the project's current position

What is Big Data?
A yet to be refined definition might be `*that which creates storage and transportability problems within a system, with a system defined as creators, users, data centres and the computing technology they have access to*'.

What are Big Data formats?
Within archaeology they seem to be associated with proprietary software packages supporting technologies such as lidar, laser scanning and marine surveying. They take the form of X,Y,Z coordinates plus other attributes.

3D Laser scan of Stone 3 from the Castlerigg Stone Circle, Cumbria. Michael Rainsbury and Margarita Díaz-Andreu, University of Durham

What sorts of data do they contain?
Three were defined; raw, intermediate and processed. Raw could be as collected during a survey. The raw data might go through a number of processing stages to its final processed version which is the archaeological outcome. The raw data and final outcome were seen as important in terms of reuse. As long as a process history is maintained intermediate stages can be recreated from the raw data. It was noted that data received from external organisations may have undergone pre-processing.

What about long term curation?
Many of the software packages producing `Big Data' can export as both binary and ASCII text. The latter was seen by most as the only stable long term preservation format.

What media are used?
It was generally agreed that hard disks were the best long term storage media whether standalone or as part of a larger system such as a Storage Area Network (SAN). Dissemination is more problematic.

Want to know more?
http://ads.ahds.ac.uk/project/bigdata/workshop.html

Contribute to the project by completing a short questionnaire!
http://ads.ahds.ac.uk/project/bigdata/question.cfm

Tony Austin and Jen Mitcham
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What's in StORe?

The Source-to-Output Repositories (StORe) Project is a JISC-managed initiative which aims to discover ways of linking source and output repositories for researchers. Such a development has the potential to enhance significantly the research process, by speeding up access to both primary data archives as well as the publications which have resulted from such data held in institutional and commercial repositories. It also enables more careful scrutiny of research findings. In all, seven different disciplines are being surveyed in order to assess current usage of repositories, and to design the best ways of facilitating source to output linkage.

The archaeology component of the StORe project is being carried out by Dan Hull of the University of York, on behalf of the White Rose Consortium. He is researching ways of linking datasets held within the main archaeological data repository, the Archaeology Data Service (ADS), with publications held in the White Rose ePrints Repository. Dan has carried out a series of preliminary interviews with archaeology academic staff, and then used this information to structure an online questionnaire asking archaeologists about their use of online repositories, any technical problems they regularly face and the way in which they would like to see source to output linkage develop in the future. This questionnaire was issued on 15th March, and has been live now for several weeks with a promising numbers of respondents.

The sampling strategy adopted was to send an email containing a link to the questionnaire to all Higher Education archaeology departments throughout the UK. A sub-sample of commercial archaeological companies, HERs, museums and PAS staff were also included, in order to form a comparison with HE repository awareness and needs. Later, these questionnaires will be augmented by a series of in-depth interviews and group discussions at Sheffield, Leeds and York, before reporting back to JISC on the findings in June. `Middleware' will then be developed, and a pilot project launched in early 2007, this is likely to include a `dataset knowledgebase' a central facility which holds information on which archives link to which publications. This should ensure that links will be reliable and remain `live', overcoming one of the most frequent and frustrating issues with URL linking whereby links to relevant material `die' as that material is moved to a new directory or server. The knowledgebase will allow these links to be updated in a single location rather than in each and every document that contains the original.

Dan comes from an archaeology background, having just completed a PhD at the University of York on Byzantine monasticism in Syria. He has also worked in both higher education and the commercial sector in the UK. He is based at the JBM library in York and the ADS.

The JISC - StORe website is at:
http://www.jisc.ac.uk/index.cfm?name=project_store

Dan Hull can be contacted on djh121@york.ac.uk

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A New Look for ADS News?

The Archaeology Data Service is always trying to keep its services and resources up to date, relevant and as easy to use as possible and that includes this newsletter. We are currently looking for new ways to present our news and latest information to you. With this in mind we would like to invite comments and suggestions on the format, tone and content of ADS News from our readers. We would very much welcome comments on any

aspect of the newsletter as well as suggestions on what you would like to see included in the future and how you would like to see it presented. If you would like to help shape the new look ADS Newsletter by making a suggestion please email us at sj523@york.ac.uk

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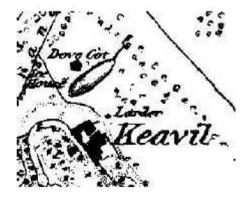The ADS hosts AHDS Archaeology

Staff News

William Kilbride has been with the ADS for over six years, first as User Services Manager and subsequently as Assistant Director. Over this time he has made an invaluable contribution to the service and made many friends in York and around the country. William was recently offered a new and exciting position as Research Manager - Human History with Glasgow City's Museum Service. Everybody at the ADS wishes William all the very best in his new post.

Stuart Jeffrey, who joined the ADS as User Services Manager in February.

William's replacement as User Services Manager, Stuart Jeffrey, was appointed in mid-February. Stuart joins us from the West of Scotland Archaeology Service based in Glasgow where for the last three years he has been responsible for, amongst other things, the West of Scotland Sites and Monuments Record. Stuart studied both Archaeology and Computer Science at the University of Glasgow and completed a PhD in Three-Dimensional Modelling and Virtual Reality in archaeological contexts in 2003. Stuart maintains a strong research interest in emerging recording and presentation technologies and hopes this will contribute to his new role, "this post offers an opportunity to utilise experience gained in both the academic and commercial fields, it's an exciting time for me and I'm keen to help fulfil our core role of providing quality resources and advice to the Higher Education sector as well as continuing to develop our excellent relationship with the broader archaeological community".

Keavil Dovecot is One in a Million!

The Keavil Dovecot as shown on the OS 1st Edition map of 1856, it was demolished in the 1960s.

It may not be the United Kingdom's most well known archaeological site, but for the ADS it represents a significant landmark. Keavil Dovecot in Fife is the subject of the one millionth record to be made available via the ADS Online Catalogue - ArchSearch. The record derives from the Royal Commission on Ancient and Historical Monuments of Scotland database and the ArchSearch record links directly through to the RCAHMS Canmore record on-line (unfortunately the dovecot itself was demolished in the 1960s).

The ADS Catalogue represents one of British archaeology's most powerful online research tools and is constantly growing both with the addition of new collections and searchable metadata for external collections such as HERs, SMRs and National Monument Records. In the last year alone it has grown by more than 50,000 records. A refresh of all the RCAHMS records searchable via ArchSearch was completed in March and this brought the total number of records, which includes the ADS Catalogue holdings to 1,007,460.

To look at the record for the Dovecot, and over a million others, go to:
http://ads.ahds.ac.uk/catalogue/

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Digital Preservation Training Programme: York, 24 -28th July 2006

The **Digital Preservation Training Programme** (DPTP)offers practical training and support to all staff involved in managing digital information within their institutions. The training programme will be geared towards Higher Education and Further Education institutions but the content will also be broadly applicable. Managing digital material requires a range of skills from different individuals working within an institution, from managers to operational staff, and includes legal, policy and economic considerations as well as technical strategies. The DPTP is being led by the **University of London Computer Centre**, in association with the **Digital Preservation Coalition, AHDS, King's College Digital Consultancy Service** and in partnership with **Cornell University**. The modular structure of the course will encourage individuals to apply their new found skills on return to their host institution.

DPTP
DIGITAL PRESERVATION
TRAINING PROGRAMME

A residential DPTP takes place at the National Science Learning Centre (NSLC),University of York, **24th-28th July.** Places are limited. If you are interested in attending, then we recommend that you register your interest as soon as possible.

To register your interest in attending the DPTP visit the programme website at:
http://www.ulcc.ac.uk/dptp/

AHDS Digitisation Workshops

The Arts and Humanities Data Service is running a series of workshops designed to introduce projects to the key issues in digitisation. These are updated versions of previous workshops run by the AHDS.

* Birbeck College, London 3rd May **(Fully Booked)**

* Birbeck College, London 4th May

* University of Manchester 10th May

Many projects applying for funding or commencing digitisation are unsure of how to manage or deal with the various elements involved in the creation of digital data. The AHDS Digitisation Workshops aim to cover each of the relevant themes, giving delegates a coherent idea of how they should be organising their projects.

The workshops are open to any institution or individual who is planning or running a digitisation project, but they may be of special interest to those who are preparing an application for one of the funding schemes organised by the Arts and Humanities Research Council, the Joint Information Systems Committee or the British Academy.

For more information: **http://ahds.ac.uk/news/events/workshops-spring-2006/**

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Credits ...

The Archaeology Data Service (ADS) hosts **AHDS Archaeology,** and resides at the **University of York**. We support research, learning and teaching with high quality and dependable digital resources. We do this by preserving digital data in the long term, and by promoting and disseminating a broad range of data in archaeology. We promote good practice in the use of digital data in archaeology, provide technical advice to the research community, and support the deployment of digital technologies. AHDS Archaeology is jointly funded by the **Joint Information Systems Committee** and the **Arts and Humanities Research Council**.

This issue of ADS NEWS and ADS ONLINE was edited by Stuart Jeffrey, email.Printed at the University of York. If you have any ideas about articles or features for the next issue in Autumn 2006, this will be our 10th anniversary issue, then write to us at the email address given. Copyright the Authors and Archaeology Data Service 2006.

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