Archaeology Data Service Online

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Director's Welcome

byJulian D. Richards

One of the greatest challenges facing the ADS is not how to archive digital data but how to encourage researchers and teachers to reuse them. That is why we have been particularly pleased to launch our Survey of User Needs, with funding from a range of bodies which cover the entire British Isles. This is your chance to tell us which data you would like to access digitally and Dr Frances Condron, who has joined the ADS as Project Officer for the Survey, says more about it and our User Workshop below. Inside you will also find information about a variety of services sponsored by the Joint Information Systems Committee (JISC) to encourage discovery and reuse of digital datasets.

Figure 1: The ADS catalogue interface will allow you to search for data from any part of the UK or Ireland. Other interfaces will allow you to access data from other parts of Europe, and beyond!

Amongst those digital resources with the greatest potential for research access are the National Monuments Records and regional and county Sites and Monuments Records. Initially developed as vast indices of management data they offer tremendous scope for period or geographically based academic research and public enquiry. The Accessing Scotland's Past project has provided web access to the NMRS and Diana Murray writes about what has been achieved to date in this newsletter, and a user's perspective on this service is offered.

In Phase 2 of ASP the ADS gateway will be providing pilot access to basic records of the regional SMRs for Fife, Shetland and the West of Scotland. Additionally the ADS, ALGAO, Northamptonshire County Council, RCHME and the University of York are pleased to be able to offer a three-year research scholarship into the future of SMRs as research tools.

Finally, we are preparing to launch the AHDS integrated catalogue, providing the one-stop shop for the humanities researcher. Amongst the first offerings from the ADS gateway will be 60,000 basic records from the NMRS, the CBA Radiocarbon Index, the RCHME Excavation Index, and the library catalogue of the Society of Antiquaries of London. Watch this space!

Bulletin Board

by Alicia Wise

Archaeological Geophysics: to solve all your problems?	**A residential course from 28-30 April organised by the Department of Archaeological Sciences at Bradford University. Discussion topics include digital preservation of geophysical survey data.**
User Needs Workshop	**The Archaeology Data Service has organised a workshop to focus on what archaeologists need in the way of support and training to make use of digital data. All are welcome to attend. The workshop will be held on May 27 in York.**
Thinking about archiving data with the ADS? Guidelines for Depositors are now available on the web.	

Reference Information for Archaeologists: Art Abstracts and Periodicals Contents Index from EDINA

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The Edinburgh Data and INformation Access project (EDINA), based at Edinburgh University Data Library, offers a number of online services. Two of these are of particular relevance to Archaeologists: Art Abstracts and the Periodicals Contents Index. Between them, the two resources provide access to two centuries of literature in archaeology and ancient history.

Both services have an easy-to-use Web interface, are available 24 hours a day 7 days a week, and are free to members of subscribing institutions. (Some organisations that are not part of UK higher education may be eligible. If you think Art Abstracts or PCI might be just what you need to help you with your research, contact us about a free 30-day trial.)

Despite its name, the scope of ***Art Abstracts*** goes well beyond art. It comprises the bibliographic contents of some 280 leading periodicals - journals, museum bulletins and yearbooks - in a wide range of subjects, from archaeology, architectural history and art history to pottery, sculpture and video.

The database contains a wealth of reference information, providing details of articles ranging from excavations to methodology, and from ethnoarchaeology to paleobotany. It indexes articles, reviews, exhibition listings, interviews and many other types of material, and includes reproductions of illustrations that appear in the periodicals.

Coverage is from 1984 as an index, with added abstracts from 1994 to the present. All abstracts are in English, regardless of the language in which the article is written. The database has nearly 400,000 records, and, with monthly updates, is growing steadily.

Art Abstracts helps you to discover up-to-the-minute publications, whether you are interested in Otzi, the 5000 year old iceman found in the Alps seven years ago, ancient Egyptian art or the latest breakthrough in molecular archaeology.

Periodicals Contents Index(PCI) offers online access to the table of contents of thousands of journals. Covering many of the journals indexed in Art Abstracts, the database is particularly strong on UK and European publications. Indexing work on PCI is ongoing, and the publishers, Chadwyck Healey, expect the final third of the database to be added within the next two years.

PCI opens up a new, easy way of discovering articles that previously were difficult to identify even through printed indices. Thus, from PCI you can retrieve references to original articles, such as the earliest reports from the 1890s on the "Fayum portraits" painted on ancient mummies.

Effective, sustainable spatial data sets: the KINDS Project

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The JISC funded **K**nowledge-based **I**nterface to **N**ational **D**ata **S**ets (**KINDS**) Project enables access to strategic spatial data sets held for the academic community by Manchester Information Data Sets (MIDAS).

Of particular interest to archaeologists are Bartholomew's digital maps and SPOT and Landsat satellite imagery. MIDAS also disseminates census data and associated high quality digital boundary data sets.

Spatial data sets tend to be large, complex and difficult to use and therefore effectively restricted to highly skilled experts. KINDS aims not only to extend the numbers of data sets users can access but also to increase the ease and effectiveness with which the data can be used. This article will provide a brief overview of the project and concentrate upon upcoming developments to increase the use of data.

Last year 78 researchers were surveyed to identify their requirements for spatial data and any problems they had using and accessing it. Three problems were identified. Low awareness of data sets and their potential uses. Problems accessing data that was accessed via complex data manipulation packages. Poor data set usability, as many users lacked the appropriate skills and knowledge to use them.

Figure 2: the KINDS interface

In response a prototype web service was launched to provide a set of tools allowing relatively inexperienced users to explore and work with spatial data sets. These tools included map and free text based search and browse engines pointing to descriptions and 'quick-looks' of data. In addition mapping systems were created to enable users to make complex maps very rapidly online (Figure 2). This first phase of the project was released in early 1997. During March 1998 the WWW service will be upgraded to offer more advanced tools. There are three key developments:

- An advanced spatial search engine to help you find spatial data. All spatial data describing a given area can be located in one simple step. For example if asked to look for data about *Manchester*, the system would respond with information about a SPOT satellite image, census areas, and data from any of the other data sets held on the system.
- Having identified suitable data you can then decide to prepare a map or download the data. The download service will automatically extract and prepare information in the format required by your machine.
- A Java™ based help system will enable you to consult a dictionary of spatial data terms.

Digging around in BIDS - a service for Archaeologists

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Bath **I**nformation and **D**ata **S**ervices (BIDS) is best known for providing access to the bibliographic citation databases produced by the Institute for Scientific Information (ISI). But BIDS also has a number of other databases which can provide a wealth of useful references for archaeologists. In addition, since 1995, BIDS has also been operating a service known as *JournalsOnline* that allows searchers to access the full text of articles that have been published in leading journals. Recently these two services have been linked so that bibliographic database search results show when the full text of the referenced article is available for immediate on-screen viewing.

JournalsOnline reveals information about several relevant journals including *Journal of Archaeological Science*, *The International Journal of Nautical Archaeology*, *Journal of anthropological archaeology*, *Oxford Journal of Archaeology*, and *Internet Archaeology*.

Other BIDS databases produce a large number of results for simple searches on the words *archaeology* or *archeology*.

Database	Year Range Used	No. of Hits
ISI - Science Citation Index	1994-98	279
ISI - Social Sciences Citation Index	1994-98	1223
ISI - Arts & Humanities Citation Index	1994-98	1585
IBSS - Social Sciences Database	1994-98	1500
ERIC - Education Database	1984-97	286

EMBASE - Medical Database	1996-97	156
Engineering Information - Compendex	1994-98	84
CAB Health	1994-98	21
JournalsOnline (Full text)	1995-98	40

Access to all BIDS services requires a username and password, and requires that your institution has taken out a site licence. The great majority of higher education institutions in the UK have access to ISI and IBSS. Access to the full text depends on site subscriptions to the electronic versions of journals. Because of the Pilot Site Licence Initiative, material in JournalsOnline is available to most HE institutions in the UK.

More information about BIDS services, as well as access to the services themselves, is available on the BIDS web site. Enquire locally at your computing service or library helpdesk if you don't already have an ATHENS username for accessing BIDS.

Accessing Scotland's Past

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Accessing Scotland's Past is an initiative to make archaeological and architectural information, drawn from a variety of sources, available over the internet. ASP was launched at the National Monuments Record of Scotland on March 30, 1998!

ASP is sponsored by SCRAN (Scottish Cultural Resources Access Network) and by ORACLE UK and is being developed jointly by the Archaeology Data Service, RCAHMS, and three representative Scottish Sites and Monuments Records - West of Scotland Archaeology Service (WOSAS), Shetland and Fife.

It has always been the aim of RCAHMS, in conjunction with Historic Scotland and ARIA (the Association of Regional and Island Archaeologists), to avoid unnecessary duplication in the collection and curation of records, and attempts have been made to achieve this aim on a Scottish-wide basis.

The NMRS has worked towards making information more accessible to users. The first steps toward computerisation led to more flexible retrieval systems and more efficient data-capture and cross-referencing, but made the information itself less friendly to visitors and less directly accessible. The data always required a member of staff to interpret the visitor's enquiry and operate the technology.

Since 1996, RCAHMS has developed two applications for making public access simpler. One of these (CANMORE - the Computer Application for National Monument Record Enquiries) is intended for visitors to RCAHMS premises in Edinburgh, and the other (CANMORE-Web) is designed to allow access to the NMRS over the Internet.

CANMORE gives visitors the opportunity to sit in front of a computer screen themselves and, using an interface designed to be user-friendly, gain direct access to the NMRS Oracle database. Users can carry out their own interrogations, copy data to disk, print information, and make lists of archive material which can be brought out from the NMRS Collections. The available data comprises locational information, statutory data (linked directly to Historic Scotland's database), descriptions of the site taken from OS cards, RCAHMS field reports, summary reports from key journals such as *Discovery and Excavation in Scotland*, and a catalogue of the collections held

by NMRS. These collections include aerial photographs, archaeological documentary archives, architects' plans and drawings, and bibliographical references.

More than 12,000 enquiries are dealt with annually by the NMRS. Many come from overseas, particularly from those in Canada, USA, Australia and New Zealand in search of their 'roots'. Closer to home, difficulties of topography in Scotland mean that access to visitors from the Outer and Northern Isles and the Highlands of Scotland is restricted. Distance learning is taking off in a big way in Scotland and it is hoped that the RCAHMS will contribute some of the raw material for education and research over a much larger constituency than has hitherto been possible.

With this in mind, CANMORE-Web was developed in partnership with ORACLE UK Ltd and Internet access for the NMRS was arranged via a joint project between ADS, SCRAN and RCAHMS named *Accessing Scotland's Past*.

The CANMORE-Web interface allows the user to enter a query which can be based on location, type of site or key words. The query is then sent over the Internet to the NMRS database located in Edinburgh. The scope of the information available is more restricted than that available via CANMORE in the NMRS library. The available data comprises locational information, statutory data (linked directly to Historic Scotland's database), descriptions of the site taken from OS cards, RCAHMS field reports, entries from journals (*Discovery and Excavation in Scotland*, *Proceedings of the Society of Antiquaries of Scotland,* etc), an indication of presence or absence of items held in the NMRS collections, and bibliographical references.

CANMORE-Web is intended to be a research tool, and restrictions are in place to avoid extensive commercial use. The service is free at present, but a charging mechanism may be introduced in due course for some functions.

Up to 100 sites can be retrieved, and they may be selected to be viewed individually. National Grid references are available up to 6 figure accuracy; access is restricted to the catalogue of collections because of issues of interpretation of information much of which has been designed in the past more for internal retrieval purposes than for elucidation of content.

Warnings are in place relating to responsible use and access to archaeological sites. RCAHMS policy is that information should be made available and takes the view that irresponsible and anti-social behaviour relating to sites on the ground is not prevented by restricting information.

The next phase of *Accessing Scotland's Past* involves setting up metadata which will allow access to the NMRS via the ADS and SCRAN. This same mechanism will allow access, in the first instance, to three SMRs in Scotland - WOSAS, Shetland, and Fife.

By linking these data sources together using the infrastructure of the Internet and the mechanism of metadata, users will have the opportunity to explore data held by national and local organisations.

CANMORE-Web is now available at http://www.rcahms.gov.uk/. We would welcome comments on this service.

A User's Perspective: Really *Accessing Scotland's Past*?

Alicia Wise, ADS Data Coordinator

The ADS is always interested in user's perspectives on digital data. Feel a rant coming on - why not write to us?

So... what difference does it *really* make to have Internet access to the National Monuments Record of Scotland? According to Raymond Lamb, lecturer at Thurso College (part of the new

University of the Highlands and Islands) it is "the most wonderful initiative".

Dr Lamb describes the NMRS online as "an essential reference tool" for his students because access to archaeological information is otherwise extremely challenging. He praises the regional archaeologist, John Wood, for being friendly and approachable but notes that the SMR itself is over 100 miles away from the College. This distance is too great a barrier for many students, many of whom are doing research that involves archaeological evidence from outside the Highland Region in any case. The NMRS in Edinburgh is a better first-stop for many of them. "Quality of the RCAHMS facilities is fabulous, but it's just too expensive to go there. It's an 8-and-a-half hour trip, so one has to stay overnight. For students this just isn't possible," Lamb says.

Students on the new Environment and Heritage degree aim to become planning and tourism professionals in the future. It is hoped that many will remain in the local area and will bring their talents to bear in integrating the diverse environmental data available in this interesting, but remote, part of Britain. Luckily students take to CANMORE-Web very readily. This is partly because they have access to good computing facilities at Thurso College. The new University of the Highlands and Islands relies heavily on the Internet to connect students and teachers scattered throughout a large area. Central facilities like libraries are not provided as they would not be easily accessible to many.

Lamb finds the NMRS online useful for his own research too. "It's a well-organised web site. There is a lot of real information on it - it's not just an advertisement for the RCAHMS." He reports that it is helpful to have some experience in searching for archaeological information to make the most of the NMRS online. He has an easier time retrieving information, for example, than his students do because a bit of archaeological background is helpful in sifting through information collected over decades. Some novice users might think that there are technical quirks, but he knows that difficulties finding information usually have more to do with the quirkiness of archaeology and archaeologists than with computers!

Digital Data and User Needs

Frances Condron, ADS Project Officer

Computers are a tool increasingly used in archaeology; significant and increasing amounts of information are being created in digital format. Advances in communication technology are making it simpler to exchange information in digital formats. However, with frequent changes in hardware and software, simply maintaining the usability of digital sources of information is a complex and time-consuming task. These factors have led to increasing concern about, and research into, the long-term preservation of digital data. To ensure that the ADS develops its services to meet current and future needs of British archaeologists, we are undertaking a survey of the archaeological community in the British Isles. Support has been provided by a number of national organisations: the Arts and Humanities Data Service, Cadw, Department of Environment for Northern Ireland, English Heritage, the Heritage Council (Ireland), Historic Scotland, RCAHMS, RCAHMW, and RCHME.

The survey has four main aims:

- to inform the development of good digital archiving practices
- to determine the information to which archaeologists need or want continuing digital access
- to define the current extent and quantity of digital data, and the relationships between artefact, digital, fiche, paper and photographic records
- to develop a community vision for the best ways to facilitate access to, and re-use of, digital information.

If you would like to participate, but have not yet received a questionnaire, please contact the ADS.

The ADS is also holding a workshop on May 27 in York on issues surrounding re-use of digital data in archaeology. The workshop will provide an important forum for discussion and will focus on:

* Increasing awareness of digital data available to archaeologists
* Why some archaeologists are not using available resources
* Training and support needs of users and potential users

Anyone interested is welcome to attend, but places are limited. The registration fee is £12, which includes coffee/tea and lunch. **Registration deadline is 30th April 1998**. For further details contact Frances Condron at (01904) 433 975 or email. Information is also available on the ADS website.

Considerations on Creating an Archaeological Image Database

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Thinking of setting up a database containing heritage information? This article covers some of the important issues you will need to consider -- including whether to provide access via CD-Rom or the Internet and whether or not to use terminology control resources!

The Cultural Property Advisory Committee (CPAC) at the United States Information Agency implements legislation in the U.S. in support of the United Nations Educational, Scientific and Cultural Organization (UNESCO) Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. In practical terms this means that CPAC receives and evaluates requests for restrictions on import of artifacts from countries that have signed the Convention. When a country's heritage is accorded protection by CPAC, a designated list of artifacts (including descriptions and illustrations) is sent to U.S. Customs so that customs agents at airports and other ports of entry will be able to identify and seize artifacts subject to import restrictions.

The high cost of reproducing color prints, the low quality of black & white photocopies, and the difficulty of searching through these types of information made an image database the logical way of distributing illustrations of archaeological artifacts to U.S. Customs agents.

In the summer of 1997, I began a pilot project to construct such a database using photographs and slides provided by Guatemala and Peru, two countries with whom agreements had recently been signed.

A number of considerations affected the database design including quality of intellectual access, and the type of delivery mechanisms. Foremost among these issues were purpose, audience, quality of existing illustrations and information, technical capabilities of the agencies involved, and last but not least, budget. Here I will first briefly describe the database and then discuss how we reached decisions on access and delivery mechanisms in light of these considerations.

Purpose

The database is intended to illustrate broad classes of artifacts subject to import restrictions by providing multiple visual examples as well as description of the range of attributes shown by those types. Representative images of artifacts from each country with whom an agreement has been reached will compose one "volume" in a set of databases identical in structure and as consistent in organization and terminology as possible given the diversity of cultures and time periods involved. Each image is accompanied by the following information, essentially a modified set of the "core" documentation standard for the identification of cultural objects as published by Robin Thornes in Protecting Cultural Objects in the Global Information Society:

- **Type of Object** - Short descriptive term or phrase that identifies the broad class of artifact.
- **Measurements** - Range of sizes in centimeters typical of objects in the class described.
- **Date or Period** - Range of absolute dates or cultural period during which the type of object was produced.
- **Maker** - Individual or cultural group who produced the artifact.
- **Material** - Material or substance out of which the object is created or manufactured, in specific terms where identifiable and general terms where the specific material is unknown.
- **Title** - Short descriptive term or phrase that identifies the specific type of object by culture, material, and shape or functional designation.
- **Designated List Section** - Section number in the Federal Register announcement where artifact occurs.
- **Photo ID No.** - CPAC identification number for the image
- **Photograph** - Source of the original image.
- **Copyright** - Copyright holder and any restrictions associated with the use of the image.
- **Description** - A series of sentences or phrases that describe the material, range of shapes, components, decorative techniques, colors, subject matter, and possible uses of the object.
- **Country** - Country which submitted the artifact.
- **Geographical Region** - Geographical unit to which the country belongs, i.e., South America, Central America, Middle East.

Audience

Use of controlled vocabulary is highly desirable to facilitate searching across collections. However, **controlled vocabularies are created by and for specialists and our primary audience (U.S. Customs agents) are educated non-specialists**. Having looked carefully at a range of archaeological thesauri, we decided that terms in common use rather than the specialized vocabulary in these thesauri would be more likely to achieve results for our primary user. Therefore in object type, material, and description fields, we made an effort to use terms that would be widely understood. We did, however, maintain archaeological terminology specific to the region, culture, or period in the maker, title, and date fields. The success of this compromise will undoubtedly become clear when both specialists and non-specialists test the database later this spring.

Use of Existing Illustrations and Information

CPAC depends on the country submitting a request for protection to provide appropriate illustrations for artifacts in jeopardy of looting. Since the image database was very recently conceived, the illustrations used for the first two data sets were submitted without the knowledge that they would be digitized and distributed in the form of a database. Therefore very little information was provided about ownership of the illustrations. Where we could identify the owner, we have negotiated licensing agreements to distribute the images for law enforcement and educational purposes. Where we could not identify the source of the photograph, or where the cost of the license was prohibitive, we have left the image out of the distributed database. Institutions, agencies, and individuals in the countries concerned have been very cooperative, but it has taken a tremendous amount of time and legwork to identify copyright holders and to

reach satisfactory agreements. For future data sets we will negotiate licensing agreements in advance.

Technical Capabilities and Budget

The decision about how to deliver the database to customs agents and ultimately to the general public was made on the basis of the technical capabilities of U.S. Customs and the United States Information Agency. U.S. Customs does not currently provide Internet access for all its agents, but it does use CD-ROM technology with a proprietary text-base software to regularly distribute information on rules and regulations to all offices and ports of entry. The text-base software can handle images, although not as well as specialized software would. We thus had two choices for providing the database to U. S. Customs: we could provide a stand alone CD-ROM with software designed to view and search images or we could organizes the images and their accompanying information to accomodate the text-base software. We chose the latter because it was more cost-effective for us to adapt to an existing system of production and distribution than to develop a new system. It also had the added advantage of being familiar to custom agents so we did not have to provide extensive training materials.

We also want to provide the image database to archaeologists, scholars, collectors, and the general public. At first we considered distribution on CD-ROM using proprietary image-base software. Per unit cost of production, inability to recover costs because of licensing agreements, and the considerable administrative burden involved in distribution led us to the conclusion that centralized distribution via the Internet was the only financially and administratively viable way to reach this audience. The ease with which a single centralized database can be updated was also a argument in favor of distribution via the World Wide Web.

The database of archaeological images is still under development. We hope to deliver the first file to U.S. Customs within a few weeks, but it will need to be integrated into their software and tested before distribution. As for the Internet version, the database and image files are ready to go and our next challenge is to make them work with an existing search engine at USIA. The next installment of this story...

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