

Managing the Resource: Urban Archaeological Databases

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The diverse range of information about urban archaeology includes data from excavations and watching briefs, historic building data, historic maps and air photographs and so on. The information is currently held in a number of locations and in different formats that make access to the combined resource difficult, both for research purposes and as a development control tool. A vital role of this information is to allow informed decision-making on the management of the archaeological resource in the face of the threat from development (a critical concern in an urban environment). It should be remembered that the data is also an important resource for research, education and outreach, however.

To effectively manage the resource, via development control within the planning process, it is first necessary to manage the data about the resource in a structured and retrievable way. During the development of the regional Sites and Monuments Records in England, over the 1970s and 80s, it became clear that data about urban archaeology was different from that in rural areas in two important ways. It tends to be concentrated in a small area and tends to overlap a lot. And there is usually substantially more historical, cartographic and documentary information about it.

These factors effect how the resulting information can be efficiently managed, and over the last 10 years, a joint EH-RCHME initiative created a series of Urban Archaeological Databases (UADs) to cover historic towns, such as Chester, Winchester and Colchester. Many of these towns were unitary/burgh councils, and had already developed concentrated SMRs, or proto-UADs. In other areas, the regional SMRs had also gone some way to developing different recording systems for their historic towns – if only employing 1:2,500 scale base maps rather than the usual 1:10k for rural areas. It would be fair to say that our ability to deal with urban data has really been made possible through the employment of Geographical Information Systems (or GIS). GIS is at the core of the English UADs and the experience there has shown that properly managed data, using the appropriate digital technology, can benefit not only the management of the resource, but also the research potential of such records.

GIS software are powerful programmes for managing geographical information, allowing it to be combined with other geographical information, and interrogated either from a textual or graphic basis. So, for example, we could ask a GIS to display all Roman forts (searching for Roman forts textually), or draw a line and say show me all the archaeological sites within 100m of the line (a graphical query), or we could ask for just the Roman forts within a 100m of the line (a combined graphical and textual query). It allows the combination of vector (i.e. lines/dots) and raster graphics (i.e. rectified scanned images), and is therefore an important mapping tool for evidence from aerial photographs or historic maps.

One of the main issues surrounding the development of GIS-based UADs is data Standards – effectively **what** information should be recorded, and **how** it should be recorded. A well-structured database is essential for consistency of information held, and more importantly for retrieval of the information you want. An increasingly accepted model for database structure is called the Event Monument Source model, adopted in the early 1990s by RCHME, flagship SMRs and by EH as their data standard in UADs. In summary, this system acknowledges that information about the an archaeological site can be divided into three groups:

Monument: information about the nature of the site itself, i.e. mound.

Event: information about activities that have occurred at a monument, ie a dig.

Sources: archive information, whether about a monument, and event or both, i.e. excavation report.

Other important issues for UADs include data standards for graphical information, and the need for consistent meta-data (data about data) which informs users of nature of the data they're using and issues any restrictions about how that data should be viewed (for example, to what scale the data is accurate).

By far the main strength of GIS-based UADs, however, are their capacity to combine archaeological data with non-archaeological data. Information about bore hole survey, cellar surveys, planning applications, development plan area, contaminated land information etc can all be added and viewed along side archaeological data to allowed informed and considered judgement about the potential impact of any activity on the resource. An integral part of the creation of UADs in England has been the final stage of the preparation of a management strategy, which itself feeds back into the information pot by supplying constraint maps. A final consideration should also address the potential for UAD/SMR information to be used by the local population for private research, as much of this information will compliment that currently held by museums or by local studies/library archives.

Managing Urban Data

Russel Coleman

This short paper describes a survey Headland Archaeology has been carrying out for Historic Scotland. The survey focuses purely on the urban component of local authority Sites and Monuments Records and the National Monuments Record of Scotland and all the various groups of people who use these databases.

The survey was prompted by a number of issues:

Current archaeological databases do not handle well the vast quantity of data available for towns and that generated by excavations in towns. There has also been a problem of unpublished and unarchived backlog material but there have been huge improvements in this area in recent years. A recent review of the Scottish Burgh Survey Series also highlighted that much of the original research in the Burgh Surveys, particularly the history, was also not getting into the SMRs and the NMRS.

A study of SMR's in Scotland commissioned by the Royal Commission in 1998/9 also highlighted areas where improvements could be made the most relevant to our study being the use of GIS systems and better exchange of data between the SMRs and NMRS. All of these issues impede genuine research but also hinder planning archaeologists doing their job: managing the archaeology of Scotland's towns.

It is worth briefly reviewing the situation in England. English Heritage acknowledged back in the early 1990s that their information systems were not up to the task that lay ahead – there was steadily increasing development pressures and the information available to make decisions with was poor. In partnership with local authorities they have been funding a programme of intensive and extensive surveys. Intensive surveys being studies of 38 individually selected towns and extensive surveys being studies of the remaining smaller towns on a county by county basis.

Each project has 3 stages: setting up a database, assessment and strategy. The first stage involves compiling information from a variety of sources. A key feature is the use of GIS which allows many different layers of information to be held. The second stage is to assess the information gathered and to produce an assessment of the historical and archaeological character of each town which is period-based and divides the town into discrete plan-form blocks – castle, market-place etc. These reports are published by English Heritage. The third and final part is the preparation of a strategy for the future management of each town. These strategies include defining areas of archaeological importance, monuments for scheduling, the presentation and interpretation of the archaeological heritage as an asset of the community and as a contributor to the quality of the environment rather than as planning constraint.

Scotland and the development of its SMRs has a very different history, from England and our survey obviously has to take this into account. Historic Scotland therefore commissioned this survey in order to gauge opinions and views of both SMR and NMRS managers but also various user groups such as architects, planners, researchers, local societies and commercial archaeological contractors amongst many others.

The main objectives of our survey are to

- Report on the current state of the urban component of SMRs and the NMRS including their content, scope, maintenance and use.
- Report on their potential for development to take better account of urban data
- Report on the views of all the various groups - SMR and NMRS managers and user groups – on possible ways forward
- Produce a series of outline recommendations for consideration by Historic Scotland and the SMR Forum.

The survey comprises a series of questionnaires in consultation with a Steering Group set up by Historic Scotland with representatives from the SMR and NMRS managers, the Royal Town Planning Institute, Institute of Field Archaeologists, Royal Institute of Architects, Council for Scottish Archaeology and the Society of Antiquaries of Scotland.

There are 4 questionnaires. One for SMRs which is backed up with a site visit during which a predetermined test is run on their database system. This test looks at the range, depth and quality of information currently held. A similar questionnaire has gone to the NMRS. Both of these questionnaires look at resources and technical aspects to gauge where everyone currently is so that we can work out what it is going to take to get where we would like be if necessary. Other issues covered in the questionnaires include public access and funding as well as gauging views and opinions on possible ways forward that could improve current systems.

A third questionnaire has gone to pre-selected user groups such as architects, planners, academic researchers and universities, Historic Scotland, commercial archaeological contractors, museums services and local societies. This questionnaire concentrates on what sort of information they would like to see and how it should be made available. A fourth questionnaire has been made available in SMRs, the NMRS and on Canmore (web version of the NMRS) - a large but particularly anonymous group - to help us profile users and understand the nature, purpose and success rate of individual enquiries.

The key questions for this survey are;

- How could current systems be improved.
- What sort of information do we want to see made available and can we design a system that is sustainable in the long term.
- How should the information be made available – GIS, web-based.
- How can we improve public access.
- What would the benefits of an improved system and better access be.
- Which towns do we select and are there any particular towns which need special treatment.

Urban data is essentially no different to other types of archaeological data. All we are really doing is drawing a line around an area on a map which happens to be a town or city. The reason that towns have been selected for enhancement is that there is a huge quantity of data within that area – maps, plans, drawings, paintings, finds, ecofacts, excavation records, architectural and historical studies etc. There is also real pressure on towns as an archaeological resource which means Council archaeologists having to make informed decisions which can only be achieved by having sound information to hand.

The results of the survey are currently being assessed and will be submitted to Historic Scotland in June 2002.