

12 MUSEUMS, INFORMATION AND MULTIMEDIA

John Burnett
National Museums of Scotland
and
Ian Morrison
National Museums of Scotland

This paper is written in the belief that the museum community has not yet fully recognised the importance of information, and has become enthusiastic about a particular set of techniques for handling it, we mean multimedia, without studying the relationships between that technique and the general question of the place of information in museums.

First, we wish to reaffirm that the primary role of the museum is to collect, preserve and make accessible our history and natural history, as they are represented by objects.

Curators, however, spend far more of their time processing information about objects than handling the objects themselves. The manipulation of information is central to the practice of curation, and to the management of curation. Yet it is rarely seen as one of the most important issues which lie before the museum profession.

Multimedia techniques are usually regarded as being ways of manipulating and delivering information of various kinds so that it appears on a computer screen, where a user can interact with it. In the museum context, however, a broader view can be taken, embracing the whole experience of visiting the museum. The whole museum can be seen as a multimedia presentation, and the most novel 'multimedia' computer applications as new techniques which are being added to methods of communication which have developed over centuries.

Indeed, it is difficult to think of a more rewarding experience than to visit a museum of the kind which was first assembled in northern Italy in the 16th century. Objects such as exotic animals were collected because they showed the strangeness of the natural world; medals and coins because they represented the glories of classical civilisation, or great men who were thought worthy of admiration. In the present context it is particularly important that collectors issued catalogues of these cabinets of curiosities, and that these catalogues were usually well illustrated (Olm, 1985). A visit to a cabinet therefore might include several elements: study of the objects themselves, discussion with the proud owner or his well-informed librarian, examination of a collection of books associated with the objects, and both on the premises and later, reading a substantial printed catalogue. Many media were involved.

The development of information technology from originally being limited to handling numbers and words to the present, where it can store and manipulate still and moving images and sound with a remarkable flexibility, is a change which creates possibilities for many exciting applications. This will not be the end, however: technology is moving forward rapidly. There is a need to distinguish between information issues which are

timeless, and will last as long as museums exist, and those which have a shorter lifetime. As far as objects are concerned, the first category consists of their descriptions and provenances, and related information: it is completely independent of hardware, software and any issues to do with delivering information or objects to the public. The second category of issues is larger and more various. It includes most collections management and display information, and hardware and software loom large.

The issue, in the long term, is not the handling of multimedia, but the use of information in museums.

Information: quality and quantity

Information about objects, particularly in larger and older museums, is often defective in a number of ways. The deficiencies are not always obvious. When preparing a new gallery or publication the experienced curator can overcome the shortcomings of the data by using his or her accumulated knowledge. One reason why weak data can be circumvented is that the projects being executed are often quite small, involving, say two hundred objects in a gallery. There is no hiding place with a large multimedia application, which will include far more entities (objects, techniques, sites, people, etc.) than a gallery. Information is needed to select and present the entities which will make up the application. In addition, it raises an issue which was identified in the earlier days of collections automation, but which has not yet been of much importance in practice. This is the collecting of the curators' knowledge so that it can be passed from one generation of staff to the next. Because knowledge has not been accumulated in the past much has been lost.

It is worth considering in some detail the various qualities of the information. The following remarks are based on experience in the National Museums of Scotland (NMS), an institution whose oldest component dates from 1781, and which now has nearly 4 million objects and a growing collections database which contains 380,000 records (Burnett, 1991). Our intention is to illustrate the difficulties which a large multimedia application may encounter.

Accuracy

Records, even elderly records, are usually quite accurate in that the statements they make are true. In some subjects, such as archaeology and biology, there may be difficulties with terminology which is now outmoded, but the specialist is able to work with old terminology. Often it is a guide for choosing new names. Perhaps the largest single problem with older records, and sometimes newer ones also, is that they are frequently less complete than one would wish. In some instances, an incomplete record can be so misleading that it is in effect inaccurate. If the record for an object once owned by Robert Burns does not record the association, then the record is concealing the interest and importance of the object. In NMS, between c.1920 and c.1960 some departments adopted the practice of omitting information on ownership and use from index cards and so their records for their collections are being upgraded using information from other sources.

Completeness

Many records are incomplete: they do not record information which is likely to be of use in finding the object or assessing whether it will be useful for some practical activity such as an exhibition or loan, or multimedia application. Incompleteness can exist on a very large scale. To take a simple example, many NMS records for artefacts do not contain the

date when the object was made. The proportion which do include dates varies significantly between different collections. For example:

| | Number of records | with date |
|-----------------------------------|-------------------|-----------|
| Scottish decorative arts | 26k | 14% |
| Scottish coins | 12k | 100% |
| Armed Forces History | 30k | 52% |
| History of Science and Technology | 26k | 15% |

Some museums have a tradition of preparing records which are descriptions of the objects, but which do not contain any facts which are uncertain in the least. Dates are one example. Another is the attribution of pieces of decorative art to a particular school or maker.

Intelligibility

Records were often written on the assumption that they had to be understood only by the curator of the collection. In the extreme, they may not make sense to anyone else: 'Burroughs portable 8-1195861', or simply 'Delta'.

A more important issue is whether the records are intelligible to the computer. Much information is implicit in records, and only becomes completely useful if made explicit. A record may say 'Thermometer by Wilson'. The specialist knows that Alexander Wilson worked in Glasgow from 1739 to 1786. The record, though, will not be found by someone searching for objects from Glasgow. What is implicit to the specialist needs to be made explicit.

Consistency

Effective use of data requires that it be standardised, or rather that the expression of the information in a number of key fields be standardised. Sometimes this is fairly straightforward though extremely laborious, as with place names. Standardising the names of objects, however, is an intellectually difficult task, as well as a large one. Multimedia applications often consider many different aspects of objects, and therefore there is a questions of standardising the data in a significant number of fields.

Accessibility

If information is to play a part in shaping a multimedia application, it has to be easy to access and manipulate. For large numbers of objects, this may pose difficulties which outrun the retrieval which can be performed using data which describe and name the objects. The Museum Documentation Association's 1988 conference on terminology for museums (Roberts, 1990) revealed that the museum community is not at all sure how to approach issues of terminology. In NMS our ideas are turning towards the benefits of high-level classification, rather than detailed work on terminology, as the practical approach for the next decade (McCorry, 1993).

The idea of using a high-level classification is daunting since it is not at present clear whether a scheme which is suitable for one museum - or even one purpose in one museum - would be the best for another. The commercial world at present feels that different purposes require different classification schemes:

"How do the Reuters categories relate to the Library of Congress Subject Headings, or to the sets of index terms used by Nexis, ABI/Inform, and the

countless other compendia you might consult ...? They don't. A bird's-eye view of the world's electronic databases reveals an archipelago, each island having its own passport and dialect. No standard vocabulary is viable, and none seems likely to emerge anytime soon" (Udell 1993).

This is despite the substantial overlaps between the subject matter covered by these schemes.

Computer input

Perhaps the biggest challenge in museum documentation is the input of data and the completion of databases. Many museums have started, but how few have finished?

Change

Information about museum objects changes rapidly, usually as objects are better understood (Sarasan and Neuner, 1983). This is partly a symptom of the weakness of the information, and the change is mostly improvement.

To summarise: information about museum collections is inaccurate, incomplete, not always intelligible or consistent, not fully accessible, and liable to change. We should therefore be aware of how much work may be required to create the factual basis for a multimedia application. Micro Gallery covers quite a small number of paintings, about 2000, and they are mostly very well known and well documented. Nevertheless, the cost of generating and checking the information ran well into six figures. Applications which examine objects whose published literature is less rich, and whose subject matter is less coherent, may find that the factual research is extremely expensive.

Applying information

Multimedia applications are applications in two senses - software applications, and applications of information about the objects. Other information applications may be produced to serve other purposes, such as other multimedia applications, simpler computer applications for the public, general collections management, and general curation. All of these ends can be served more efficiently if there is a central database from which each application can be derived.

The task of building databases at NMS has been an exercise in collecting information from a range of sources - ledgers, card indexes, pillar binders, exhibition labels - and bringing them together in a single large database which serves the whole institution. The motto of the Documentation Unit might have been that of the United States of America: E Pluribus Unum. There are many advantages in having a central database. Standardisation can be applied across all of the data, improving the quality of the results of searches. Enhancements to data can be made once but used many times. With a single information resource there is flexibility in creating subsets of the data which can be the basis for a range of applications using different software for different purposes.

Responsibility for intellectual content of records has to be decentralised, in the hands of the curatorial staff, who understand their own subject areas. Another value of a central database is that their knowledge can be applied more effectively than before. The curator of the military collections can learn of a snuffbox with a painted battle scene in the decorative arts collections, and suggest a date for it and perhaps add more information.

The information in a central database can also be related more clearly to information in other databases. When the NMS collects information from other museums about their collections, or site information from the National Monuments Record, that information is

up to date. These outside databases are just as dynamic as our own one, and we have to be quite clear about the date the information was collected and the possibility that it might be out of date. With a single database it is possible to maintain an understanding of the situation: if there were several data sources in the museum there would be confusion and additional work.

What is it all for?

The variety of different kinds of museum shows that there is no one answer to the question - what are museums for? The question which can be answered more coherently is - what is *this* museum for? Even then, the answer will vary, quite reasonably, as time passes and society changes and as resources ebb and flow. Consequently the purposes of computer applications for the public which can be placed in a museum are diverse. So are the purposes of printed text.

The successful multimedia applications which are running in museums in Britain are shaped so that they contribute to the aims of the museums. Thus some differ greatly from others. The Micro Gallery in the National Gallery, London, presents a large amount of information on painting and iconography, but it does so by concentrating almost entirely on the Gallery's own collections, and it guides visitors to paintings they have selected by showing plans of the Gallery on screen or on printout which can be carried away. The Natural History Centre at the National Museums and Galleries on Merseyside is conceptually similar, relating to a comparatively small number of specimens which can be handled (Greenwood, Phillips and Wallace, 1989). The British Golf Museum at St Andrews uses multimedia in a different way. The objects in a golf museum are mostly clubs, balls, trophies and medals, and CD-I (Compact Disc - Interactive) has been used to provide information about famous individuals and matches which gives a human interest to a subject which might initially seem tedious to many visitors (Lewis).

Despite the success of the applications which have been mentioned, the profession does not yet understand how to integrate multimedia techniques of communication into a gallery or museum: a basis of experience has not been established.

Multimedia in the Hebrides

The Western Isles National Database Evaluation Exercise (WINDEE) is intended to test various ideas which may be implemented in the Scottish National Database (Burnett and Morrison, 1991). In particular we need to establish if access to museum data is popular with a general audience. There is little doubt that museum professionals would like to be able to interrogate each others' databases.

The Western Isles was chosen for the first pilot project for a number of reasons. It is an area that is easy to define, yet composed of discrete units. The resident population is almost universally interested in its own culture. Many people are concerned about the evidence of their culture that has vanished from the area, often to museums on the UK mainland. There is high awareness of information technology, and people on the islands are pioneering various ideas such as the 'telecottage' (an advanced data communications network which can reach every household), speaking Gaelic dictionaries, a networked information service to schools and routine communications with far-flung parts of the Gaelic world, such as Nova Scotia and New Zealand. The proposed museum database project was felt to fit in very well with these developments.

The WINDEE project consists of several discrete parts. The Scottish Museums Documentation Officer (Ian Morrison), based at the National Museums of Scotland has

developed the initial application. This allows museum visitors to access data relating to collections. He has also been responsible for converting records from disparate sources into a common format. A crucial part of the application involves collecting statistics on usage, which he has analysed.

The Western Isles Museum Service (Museum nan Eilean) has played an equal part in the project, though different in nature. Their concern has been to gather as much data as possible from museums *in situ*. This involves an employee travelling round the museums, and other collections, and recording basic details on a portable computer. It is intended to extend this work to mainland collections with Western Isles material. The resource that is built up will be immensely useful, not only for research purposes but also for collections management by the various organisations themselves.

It has been remarkably easy to raise funds for this project. The NMS is providing staff time, travel, subsistence and other resources. Museum nan Eilean is providing administrative support and organising data collection and Gaelic translation facilities. Western Isles Enterprise (Iomairt nan Eilean Siar) is providing funding towards data collection. The Gaelic *Leader* project, whose funding derives from the EC, is providing almost half the total funding. The Scottish Museums Council is providing grant-aid. Hewlett-Packard have provided a computer. Most of this assistance has derived from a single meeting in Stornoway last November, where a prototype of WINDEE was demonstrated.

The public access application has been developed in *Object Vision*. This software was chosen for its ability to access data in a variety of formats, ease of use and low cost. Its limitations are acceptable for our purposes and its ease of use compensates for most of the shortcomings. A variety of other software has been evaluated, including *Visual Basic*, *Guide*, *Microsoft Access*, *Superbase* and *Paradox for Windows*. All had problems which would have meant delaying implementation of the pilot for at least six months, thus missing the brief tourist season in the Western Isles.

The application is based on the theory that most queries will be place orientated. Using a map of the Western Isles, the user selects a geographical area of interest, then chooses between viewing a list of objects from that area, doing a quiz or obtaining information about historical sites etc. The results of the evaluation show the relative balance of interest from users of different backgrounds. As much as possible is bilingual, and language options other than English or Gaelic may be implemented in the future. All place names are in the Gaelic form, in line with Western Isles Council policy.

Initially, data from thirteen museums have been used, amounting to around 5000 records in all. The museums include the British Museum, the National Museums of Scotland, Glasgow Art Galleries & Museums, the Highland Folk Museum and museums throughout the Western Isles. **The main limitation has been the lack of machine-readable records in museums.** Data was converted to a standard format, including fields for identity number, simple name, place of origin and general description. This standardised data is held in dBase-compatible files for ease of manipulation in the future. Some data was very much simpler to use, for example the 4080 NMS *Quixis* records, and that which had been received from museums using my basic *Museum Inventory System*. Difficulties occurred with data from systems where the structure had been determined on a record by record basis. **A consistent basic data structure was the major factor determining ease of conversion.**

It was intended to use as many images of objects as could be obtained in the time available. This has proved much more difficult than collecting data or arranging finance. Museums recording their collections, quite properly, are concentrating on documentation for collections management purposes. The sheer quantity of work to be done here has

precluded much thought of recording images. This is probably a good thing in general terms, **as the imaging technology has yet to settle down and provide acceptable results at prices which the average museum can afford.** Most museums have higher priorities. WINDEE has shown us some of the problems with conflicting standards for image storage. Even in this limited application, the difficulties of converting GIF, TIFF, PCX and BMP files derived from different sources, has proved almost insurmountable. We have had to resort to using a very wide variety of software to convert images from one type to another, and so on down the chain, usually losing a little resolution at each step. In this field it seems that it does not matter which technology you use, there will be difficulties. Perhaps it is best to contract out this work and let others handle the frustrations. Maybe we shall just have to wait to have genuinely interactive multimedia applications which relate to our collections.

Nobody knows how much our visitors want in the way of interactive multimedia. We believe that most people come to museums to see real objects, not to interact with the latest technology. WINDEE shows people where their material culture has gone. It is then up to them to seek it out. Surely that is real interaction?