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Digitising museum collections

By some fortuitous coincidence the origins of 'Artefacts' (in the mid-1990s) were accompanied by two technical advances that seem destined to change for ever the relationship between museums and the Internet. One was a substantial increase in computer storage capabilities; the other was widespread use of the digital camera. Many museums were already well advanced in converting catalogue cards into digital form. But this was generally for internal use and seldom with pictures. Now it became possible to envision catalogues and exhibits and associated programmes that – complete with images – could extend a museum's reach around the globe.

Let us consider three areas of importance to museums.

Exhibitions

Even making assumptions about dramatic improvements in computer technology, I find it hard to believe that virtual exhibits will have anything but a positive impact on museum visitation. There are some things that a screen (or a book or a movie) can do much more effectively than an exhibit. It can provide views of internal mechanisms, animations, detailed references, and links to further information. What it can't do is put the visitor in the presence of real things (the core qualification of most definitions of the term 'museum') that are physical remnants of the past. The consequence can be a significant emotional impact, a feeling of direct contact with historical events. Real objects provide a sense of scale and a range of visual clues that may have escaped the camera. They are 'authentic' in ways that photographic representations can never be.

In fact, the two media complement each other quite nicely. The more that is learned from one, the greater is the incentive to learn from the other. People who read about James Watt, who have seen pictures of his machines, are given an incentive to see the real ones. And seeing them is a more meaningful experience for those people than for those who do not have any background information.

All three of the series editors' museums have posted versions of exhibits on their Websites, though at this point the Smithsonian has explored this opportunity more than the other two. These on-line exhibits range from brief synopses to full-text – and full-image – recreations, or even extended versions with substantial additional reference material. Elsewhere one can even find 'virtual tours' of exhibition galleries (the Museo di Storia della Scienza in Florence

comes particularly to mind). A perusal of all of these sites provides confirmation of the strengths and weaknesses mentioned above. Virtual exhibits are not substitutes for exhibits in museums. They are opportunities for people who have seen the real exhibits to revisit them electronically and learn more. Or they may be primary sources – providing information to viewers while at the same time supplying an incentive to see the real thing. Increased sophistication of Web technology will undoubtedly make these digital displays more effective and informative, but my own judgement is that they will in the process become better companions of rather than substitutes for their museum counterparts.

There is one special advantage that (at least potentially) digital exhibits have in common with printed catalogues, which is permanence. I can easily imagine that within another decade or so it will be possible to go to a museum Website and review all of the exhibitions it has ever mounted – or at least all of its twenty-first-century exhibitions and as many earlier examples as could be retrieved. This is of value to our regular visitors. But it also could be an enormous boon to the growing number of historians who see museum exhibits as reflections of cultural history, as well as to curators who may want to see what has already been done before embarking on a project.

Collections

More important for scholarly research, and arguably more important for museums that feel the need to justify their collecting activity, is the conversion of information about objects, including photographs, from paper records to electronic data files. We have already seen the impact that the new technology has had on the effectiveness with which historians can use libraries and archives. For museums, where hard-copy catalogues are generally much less convenient or informative, the effect is going to be significantly greater. Historians will be able to ask questions that heretofore have been unthinkable, and the answers in many cases are going to be completely unanticipated. Rather than becoming obsolete, the objects will become more valuable. In many cases the catalogue entries, accessible via the Internet, will be sufficient. But in many other cases they will simply provide clues, suggesting which objects have to be examined first-hand. The parallel with libraries and archives seems too obvious to belabour. It should be noted that the impact on exhibitions (especially scholarly exhibitions) is also likely to be of considerable importance. An expanded field of choices makes possible a wider range of topics, some of them only apparent when the range of material can be easily surveyed.

The conversion of catalogue data to an electronic format is a daunting task. Unlike libraries, museums – and museums of technology in particular – have not settled on a standard format for entries. Even

within a single museum there are likely to be several practices. This frequently means that before conversion can be made the catalogued information has to be checked against the object itself. Nevertheless, our three museums, in a manner that is probably typical of the field, began exploring this question seriously as early as the 1960s. The Science Museum started with punch cards in 1967 and began moving data to a central computer in 1982. After similar early explorations, the Smithsonian began an Institution-wide programme for an electronic catalogue in 1978, and the Deutsches Museum started to develop its digital system in 1988. All three stumbled through some learning experiences before settling on what seemed to be acceptable programmes in the mid-1990s. About that same time, as mentioned above, digital cameras and greatly expanded computer storage capabilities made it possible to include photographs with the catalogue information.

It is not my purpose here to go into the details of various database programs, or the agonies that the museums have experienced experimenting with them. Whatever its ultimate value, the process of producing a useful digital catalogue is expensive and time-consuming. And if there is any lesson to be learned from these past two or three decades it is that it is better that a system be user-friendly than comprehensive. Regardless, as this piece is being written some of the fruits of our various labours are soon to be available. The Deutsches Museum plans to have its several thousand exhibited objects available on-line by the end of 2004. The Science Museum, in conjunction with the *Ingenious* project mentioned below, plans to have about 8000. The Smithsonian's National Air and Space Museum has essentially all of its objects electronically catalogued, with brief descriptions, in a system that is accessible internally. Plans are under way to make it available on-line in the coming year. At the Smithsonian's National Museum of American History the situation is much less certain. Although descriptions of substantial portions of the collections have been digitised, no time has been set when the additional effort will be made so that they can be publicly available.

At present two examples from other museums provide insights into the value of such efforts. One is *Epact: Scientific Instruments of Medieval and Renaissance Europe*, initiated at the Museum of the History of Science at Oxford in conjunction with the Museo di Storia della Scienza (Florence), the Boerhaave Museum (Leyden) and the British Museum. *Epact* includes all of the pre-1600 instruments (some 5000) in the three museums. The special strength of the project is its completeness, thus making any study of them all the more meaningful. The second example, also on the Web in a fully-searchable format called *Compass*, is a selection of 8000 objects from the British Museum, part of a continuing programme to make the collections of that museum available.

Expanding our reach

Museums have traditionally gone beyond their narrowly defined purpose (focused on their collections) to engage in a variety of educational, entertainment and (frankly) commercial activities. Lecture series, shops and Imax cinemas are among those that come easily to mind. Therefore it is hardly surprising that museums are exploring ways to use the Internet in ways that go beyond virtual exhibits and catalogues of collections. Indeed, already we see some very ambitious projects that have the promise of substantial educational value.

But, the possibilities being endless, there are numerous other projects in various stages of development. I shall focus on two at the Science Museum, which share the advantage of being funded and should be visible on the Web by the time this volume is published. Both will be accessible via the Website of the Science Museum, www.sciencemuseum.org.uk. Each will enable a museum located in the southeast of England to reach out across a country and indeed across the world to people who could not possibly make a physical visit.

Each site will explore ways of extracting historical meaning from objects. One will be based on a museum exhibition, *Making the Modern World*, which uses objects to focus on a number of critical inventions and technological achievements. But the Web version will be more than a collections-based history of technology. It will use the multiple media available on the Internet to address educational concerns of high-school students. The site is being developed in collaboration with a local high school, taking into account the needs of tutorials and other activities of that school's curriculum.

The other project, called *Ingenious*, will make available representations of large numbers of objects and images from the constituent museums of the National Museum of Science & Industry (the National Railway Museum, National Museum of Photography, Film & Television, and the Science Museum itself). In addition, there will be links to library books and their illustrations. Users will be encouraged to employ this extensive database to construct their own 'galleries' or illustrated essays, where historical material is assembled in ways that address contemporary issues.

Conclusion

Among these three digital initiatives – exhibitions, collections, extension – it is the second that seems to me to be most significant to readers of 'Artefacts'. The tools (notably the ability to include pictures) have become available in the past few years, and substantial progress has been made. But digitising collections and making them widely available is an expensive process requiring a major commitment that is sometimes difficult to justify because it does not have the visibility of exhibitions and other educational activities. However, it is in fact central to these and to virtually everything else that we do.