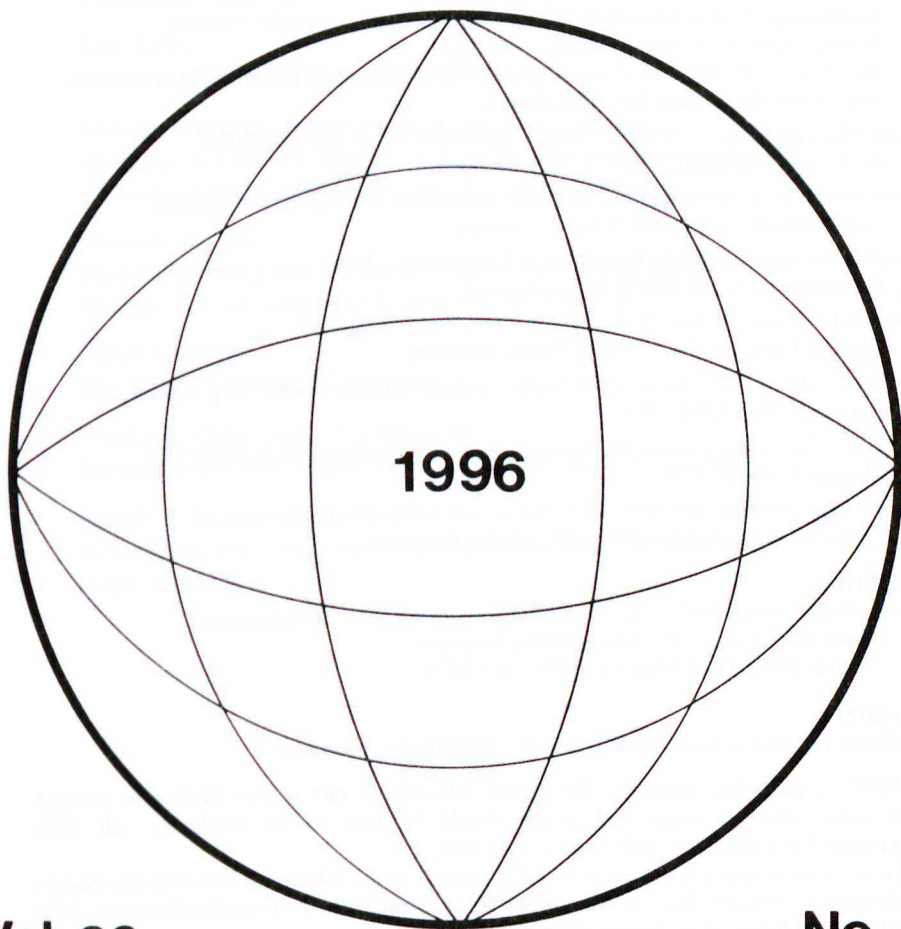


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THE VIRTUAL MUSEUM COMES TO CAMPUS: TWO PERSPECTIVES ON THE MUSEUM EDUCATIONAL SITE LICENSING PROJECT OF THE GETTY ART HISTORY INFORMATION PROGRAM

By Angela Giral and Jeannette Dixon*

Abstract: A landmark project jointly launched by the Getty Art History Program (AHIP) and MUSE Educational Media will address key issues in the educational use of museum images etc. and related information delivered over computer networks. The Museum Educational Site Licensing Project will enable museum and educational communities to develop common solutions to problems now inhibiting the development of computer-based learning tools for the study of art and culture. The pilot project will test the distribution of art images and information from six museums to seven universities. Participating institutions will resolve issues of intellectual property rights, network security and information standards, defining the terms and conditions for the educational use of museum images and information on campus networks. This collaborative venture will also demonstrate the value of digital media in the study of art and culture. The project was started in December 1994 and is expected to run through June 1997. This paper describes the work in progress from the perspectives of one of the participating universities (Columbia) and one of the participating museums (Houston).

1. The Project

Since its beginnings in 1983, the Getty Art History Information Program (AHIP) has sought to make art-historical information more accessible through electronic technology. Digital imaging offers the potential to make our cultural heritage available to a wider audience, in ways never before envisioned. Distribution of these images over communications networks is changing the nature of teaching and research. For this transformation to be completed, however, a critical mass of digital information must exist, and it must be available in standard forms. Imaging systems also require a complex balancing of the interests of

* Paper delivered at the workshop of the IFLA Art Libraries Section in Istanbul 1995.

holders and the desires of those who use images, for study, research or entertainment. Without a common framework of rights, permissions and restrictions, the development of imaging systems is hampered.

The *Museum Educational Site Licensing Project* brings together representative museums, colleges and universities to define the terms and conditions for educational use of museum images and information on campus-wide networks. This two-year collaborative initiative will develop methods and guidelines for the academic use of digitized museum-owned materials at colleges and universities. The selected educational institutions and museums will collaborate in good faith to agree on terms of capture, distribution, and use of images of works from museum collections and their associated texts. The project is undertaken in the interests of exploring and promoting the educational benefits of digital access to museum collections through campus networks.

Museum will provide images and information. Educational institutions will enable networked access and test-use of images for educational purposes. Together, project participants will define the terms and conditions that will govern the future distribution and educational use of museum images and information on campuses.

Participating **museums** are:

- The Fowler Museum of Cultural History at the University of California, Los Angeles;
- The George Eastman House, Rochester;
- The Harvard University Art Museums, Cambridge, Massachusetts;
- The Library of Congress;
- The Museum of Fine Arts, Houston;
- The National Gallery of Art, Washington, DC.; and
- The National Museum of American Art, Washington, D.C.

Participating **universities** are:

- American University, Washington, DC.;
- Columbia University, New York, New York;
- Cornell University, Ithaca, New York;
- the University of Illinois at Urbana-Champaign;
- the University of Maryland at College Park;
- the University of Michigan; and
- the University of Virginia.

Each participating institution will field interdisciplinary team of experts in such disciplines as art history, instructional technology, museum collections

documentation, imaging and academic computing. In addition, a network of observers, drawn from the more than eighty museums, colleges and universities that applied to participate in the project, along with other interested parties, will allow for the broader community to follow the development of the project.

Participating museums will make digitized images and information, representing at least 6,000 works (1000 from each), available to educational institutions in standard formats. The educational institutions will install these digitized images and descriptive texts on campus networks for research and education during the academic years 1995-1996 and 1996-1997. Works included will be selected by museums on the basis of criteria suggested by the universities.

Educational institutions will propose and explore a wide variety of educational and research uses for the material. Images and accompanying documentation will be provided without site license or royalty fees during the project. This will allow the participants to evaluate and compare the uses of the images and information on university campuses, to define requirements for network security and evaluate various technological methods for its implementation, and to develop the terms of a model site licensing agreement. Once the two-year test is completed, images and information will be withdrawn from campus network, unless subsequent licensing agreements are enacted to allow for continued use.

Participating museums, galleries, and educational institutions will contribute staff time and technical resources to the execution of the project. Planning and organization is being funded by the Imaging Initiative of the Getty Art History Information Program, which will also provide some matching funds for project implementation. Additional funding will be sought from public and private foundations. This will be administered by AHIP's partner organization, MUSE Educational Media, a non-profit organization whose Multi-Media Study Group is developing model site licensing agreements for the use of museum images in CD-ROM publications. The Project has the support of American Association of Art Museum Directors, the American Association of Museums and the Coalition for Networked Information.

2. Columbia University

Columbia University, founded in 1754 as King's College by royal charter of King George II of England, is the oldest institution of higher learning in the state of New York and the fifth oldest in the United States. The present library system is the lineal descendant of the Library of King's College. The collections of the Columbia University Libraries today hold more than 6.3 million volumes, with more than 124,000 added annually. Additionally, the collections contain more

than 4.6 million units of microform, 26 million manuscript items, and 35,000 current serial titles. The Libraries also hold important collections of CD-ROMs, data files, maps, sound recordings, and pamphlets. Library resources are provided through 22 libraries throughout the campus. In addition to its local collections, the Libraries provides access to more than 50 databases by electronic gateway through its CLIO Plus service. The Libraries add to its array of electronic resources daily through offerings in its Electronic Data Service, Electronic Text Service, and many specialized service "menus".

Academic Information Systems (AcIS), with 45 FTE professional staff and 65 students, provides the computational and networking infrastructure for the Columbia community. AcIS operates a central cluster of Unix hosts to provide general time-sharing and e-mail service for over 20,000 affiliate users. Network information servers support Gopher, World Wide Web, and Z39.50, and provide directory database and security services covering over 60,000 members of the Columbia community on several campuses. AcIS also operates one of the first campus-wide information systems, ColumbiaNet (of which CLIO is a subset), which provides access to over 9,000 local and remote information services, as well as gateways to the much larger body of Internet Gopher and WWW material. ColumbiaNet offers networked and dial-up access, allows multiple simultaneous sessions, and enforces a variety of licensing restrictions using locally developed software.

AcIS and the Libraries are currently pursuing a digital library initiative, through which the coordinated development to access tools, delivery systems and collection support tools is proceeding. The digital library initiative has and is developing contractual relationships with several commercial publishers and other higher education institutions, which are beginning to provide further electronic resources to our community over the campus network.

Access restrictions are enforced in Columbia's infrastructure services through a "Kerberos" security layer that lies between clients and any ColumbiaNet service, covering a population of over 60,000 individuals from its Personnel Information System (faculty and staff), from its Student Information System (students), and from its affiliate institutions. Daily "cross-loads" from these administrative systems automatically update the Kerberos database, providing access-status and demographic information on the entire community. Restrictions to particular services are, in turn, derived from the demographic information. Digital library development is currently focused on a set of pilot projects in full text delivery and in delivery of still images. As well as network delivery, all projects take into account user interface design, intergration with other campus services and into the

overall digital library presentation, bibliographic access to all items, and evaluation of the projects. The Libraries has received a grant from the Andrew W. Mellon Foundation for an in-depth evaluation of full text pilot projects currently being implemented, and the methodologies and statistical programs developed for it will be applied to the Museum Education Site Licensing Project.

An imaging committee (PixCom) was created for Columbia's participation in RLG's Digital Image Access Project, in which Columbia was one of eight institutions who contributed approximately 1,000 images each under the general theme of "the urban landscape". The team's charge was expanded to develop local imaging projects beyond the limited boundaries of DIAP, and it was this team that developed the proposal for participation in MESL and will carry out the project. The team consists of the Deputy University Librarian; the Director of the Avery Architectural and Fine Arts Library; the Manager of Research and Development in AcIS, who is also the Coordinator of the Digital Library Technical Development; the User Services Consultant Lead in AcIS; the Director of the Preservation Department of the Libraries; the Director of the Bibliographic Control and Processing Department of the Libraries; the Director of the Library Systems Department; the Director of the Institute for Learning Technologies; the Curator of the Photo/Slide Collection of the Department of Art History and Archaeology; the Coordinator of Imaging Projects in the Avery Architectural and Fine Arts Library. The Visual Resources Committee of the faculty of the Department of Art History and Archaeology serves as an advisory body to the Project Team.

The Project Team has been working on a variety of other imaging projects and has developed a methodology for providing three levels of support through the World Wide Web: Access to the permanent image collection, through a hierarchical set of MARC records created in CLIO (Columbia's online patron access catalog) and linked to the Web site through filters designed by the AcIS members, capable of converting the MARC records into HTML documents linked to images. The second level of support is for the equivalent of 'reserve' home pages, for which a prototypical course home page has been designed capable of admitting images from the permanent collection along with images 'put on reserve' for a specific course from a variety of sources. The third level of support is for the creation of professor's home pages (of which a multitude are already in existence) which can take a variety of forms and uses depending on the teaching style and proficiency of the individual professor.

3. Museum of Fine Arts, Houston

The six museums listed above were selected to represent different types of institutions in different geographical locations with different types of collections. The museums' primary role in this project is to provide digitized images of objects in their permanent collections; along with descriptive text for each item. The museums also provide staff expertise from various departments in the implementation of the project. At the Museum of Fine Arts, Houston, the project team includes several department heads: the Director of Education, who is in charge of all programs for the public, makes decisions on which images to include in the project, and helps design the evaluation tools; the Registrar, who manages the records of the museum's objects, assists in selecting the fields for the standard descriptions of the objects and directs the gathering of slides to be digitized; and the Librarian, who serves the information needs of the museum's visitors and professional staff, coordinates the project and taps different staff members to carry out particular pieces of it. These individuals, plus the Administrator, the Director of the Grants Department, the Curator of Photography, and the Director of Publications, comprise the project team, who consult to the project over electronic mail.

As the nature of publishing changes from the slow moving world of print publishing to that of electronic network publishing, museums need a way to provide access to their images while retaining some control over their use. They also need an easy to maintain and stable methods of collecting fees for the use of images of their works of art. Part of this project is the creation of a draft agreement for site licensing, which will deal with issues such as fair use, copyright and fees. The museums also hope to learn how "courseware" created by the universities can incorporate images of works of art for teaching purposes, can be applied later to their own in-house projects for teaching museum visitors about works of art. For instance, museums could design computer kiosks for visitors to access information. The museums also hope that if the university professors and graduate students have greater access to images of works in museums' collections, more research will be done which can be incorporated into the object files, and included in published material for the public.

Another major desire of the museums is to make their collections more widely known. Most museums have published only a fraction of works they own. University students have had either limited or no access to these images in the past. It is hoped that with exposure to the art works in electronic format, students will visit the museums to see the works of art later in person.

A final way in which museums could benefit from this project is more hypothetical; that this project could be expanded to include objects from museum collections all over the world from which one could draw images for lectures, publication, and other teaching purposes. If there were one "big image bank in the sky" for museum collections, the costly and less than complete slide libraries and rights and reproductions offices of museums could be radically changed. A request for an image for reproduction could take seconds instead of weeks. The chasing down of individual invoices could be eliminated, and a steady flow of income to the museums could be established.

4. Methodology

The project coordinators meet face-to-face twice a year to get to know each other, set the agenda, and develop a timetable. All of the project teams from each participating institutions have access to the electronic bulletin board for this project over the Internet. The MESL-L bulletin board has been heavily used by the project coordinators and the project participants. The minutes from the first meeting in Washington, D.C., in February of 1995 were published over the MESL-L listserv. Many questions, both of a technical and theoretical nature have been discussed:

- the purpose of the project;
- explanations of the JPEG format for digitizing images;
- requests for the inclusion of types of images;
- timetables were distributed;
- gathering of institutional financial data for inclusion in future grant proposals;
- etc.

In addition, project team members volunteered to serve on specific working groups:

- Monitoring & Security;
- Distribution;
- Documentation;
- Content Selection;
- the World Wide Web;
- Evaluation;
- Funding; and
- Faculty Training.

Test images have been put up on a test site on the World Wide Web at the address:

<http://www.umcp.umd.edu/MESL/home.html>. The images were scanned at a high resolution to enable viewers to enlarge the image many times to be able to

examine details of the works of art. By June 1, 1995, the museums will have sent in first batches of 500 digitized images to the central site for the university professors to access. Each participating university has pledged to have at least one course offered for fall 1995 using images from this database on their campus network.

5. Conclusions

Although the model for this type of collaborative project has existed for 20 years in libraries (i.e. projects on the Research Libraries Information Network in the U.S.), this type of collaboration between museums and universities is new. And while access to the Internet is fairly widespread in universities, most museums are just beginning to feel a need to connect. This project establishes a working model for museums and universities to come together to explore the potential of "the virtual museum." Museums in the past have operated more as walled-in castles, with their objects treated as treasures, than as information systems. This project has already brought down some "walls" of fear of loss of control on the museum end, and has opened up some new ways of thinking of reaching new audiences, as well as increasing the knowledge base on works of art, not just from inside the museum, but also from scholars on the outside. The museum is bridging the moat, and allowing end users to 'play' with its images; to 'create' virtual exhibitions, and to enjoy works of art on their own time, and in their own places.

On the side of the universities the humanities departments have lagged behind in the use of electronic media, and the availability of high caliber images provided from the museums that own the originals provides an exciting opportunity for professors of art history and other humanistic disciplines to enter this brave new world. Some have forged ahead in great strides, at Columbia, for instance, one architectural historian is making imaginative use of CAD (computer assisted design) to explain the construction of mediaeval cathedrals - the Amiens Project. But others are clamoring for more training and technological assistance.

We believe that both types of institutions have much to learn, together and from each other.

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**ART IN THE WEB.
AN ADVANCED INFORMATION WORKSTATION AS A
TOOL FOR ART RESEARCH IN THE KONINKLIJKE
BIBLIOTHEEK, THE HAGUE**

By Maggy M C Wishaupt and Marco de Niet *

Abstract: The quality of the future library will be measured not only in terms of its collections, but also in terms of the diversity and efficiency of its electronic services. Therefore, the Koninklijke Bibliotheek in The Hague is building an Advanced Information Workstation for the humanities. With this multimedia workstation users can easily locate and consult sources on the local network (OPAC, CD-ROMs, databases on several collections) and services and databases on national and international networks. Facilities for downloading and processing information will also be offered. In this paper the relevance of this multimedia workstation for art research will be discussed.

A few years from now, in 1998, the Koninklijke Bibliotheek in The Hague will be celebrating its bicentenary. A memorable occasion, calling for extensive festivities and, of course, for reflections on the history of this illustrious institution. This is bound to evoke comment from those who extol the past, with many a reminiscence about the good old days when the eminent, select and companionable 'old KB' still occupied its stately mansion in the most distinguished and elegant avenue of The Hague. This is how F. Springer, one-time law student, now a famous author, remembers the atmosphere in the old building:

During my law studies, when my oil stove provided inadequate heat for my Leiden cubby-hole, I spent many wintry afternoons in that venerable reading room. And my heart is filled with affection when I think of the soft, soothing glow shed by its green lampshades, and the unspoken, but all the more tangible bond between the patrons. We were friends, a fraternity, even though we did not actually know each other. Quick shoppers, who merely dropped in for a brief check, were considered rude intruders into our sanctuary. A deep sigh from a fellow student was all it took to divert attention from Roman law,

* Paper delivered at the workshop of the IFLA Art Libraries Section in Istanbul 1995.

and to set my imagination flying. Was this sigh caused by a truly poignant piece of writing, or by problems on the home front: Concern and alarm arose when some member of the fraternity did not show up on two consecutive days. Two whole days! Something terrible must have happened! Imagine the feeling of relief throughout the room when after three days he returned, fit as a fiddle, by the look of him. Thank God, we were all together again.

Since 1982 the KB has been accommodated in snow-white, streamlined, purpose-built premises close to The Hague Central Station. As Springer observed. 'The KB, too, has not escaped democratisation, which struck hard and early.' And he goes on to bemoan the fact that 'to have to survive in the computer age with two left hands is not exactly what I would call fun.' Poor Springer, how lost he will feel in the KB of the future. But perhaps he won't. For what will unsuspecting visitors find there in a few years' time? Impressive consoles everywhere, with celestial blue screens, which will enable them to reach the world as easily as if they were reaching for the breakfast things in their own kitchens. And by that time we, librarians of the future, will have shed our dusty image once and for all. The blue screens have sealed our fate. Thanks to the electronic highway we now enjoy full media interest. Our status has even been appreciably boosted: which of us has not felt the glance of unconcealed admiration of less fortunate friends and acquaintances when we have casually offered to look up something for them at the other end of the world? But such is the super-fast pace of current technological change that the day be fast approaching when foreheads will be tapped if you can't instantaneously hop to Honolulu or browse in Bratislava.

'The Electronic Age represents the greatest challenge ever faced by librarians', according to the caption of a recent article. For, to quote the heading of another article, 'As publishing goes electronic, will Gutenberg survive?' Speculating about the libraries of the future seems to be a never-ending pastime. But one thing is clear: if we want to ride the information highway of the future, we shall have to grant our patrons fast, efficient and cheap access to all manner of information, be it printed or electronic. It is the task of the KB as national library to develop initiatives for improving service and information supply in the Netherlands. One of the most ambitious projects resulting from this task is the development of the Advanced Information Workstation for the Humanities (AIW). AIW is an integrated workstation, designed to help researchers to locate, read, and process electronic information. This information can be accessed through the Local Area Network of the KB (with its Online Public Access Catalogue, CD-ROMs, and information server *Alexicon*), but the data can also be obtained from Wide Area Networks, such as document delivery services, online retrieval systems, FTP-archives, and Gopher/World Wide Web documents. AIW will allow researchers to

perform complex searches for electronic or printed information, even if they have no experience in navigating the networks. Sitting in the same chair a researcher can search for - and copy - references to publications in any available Online Public Access Catalogue or CD-ROM, order books on loan from another library, order xerox copies of articles from a document delivery service, check citations, copy illustrations from image databases, etc. As considerable growth of electronic publishing is expected within a couple of years, facilities for researchers becoming desk top publishers will be developed as well.

October 1994 saw the completion of a pilot project to design and build a prototype of the multimedia workstation. This prototype has given the first impulse to realising the following goals:

- integration of the protocols of all networks the KB can access;
- making all the relevant information on these networks accessible in a user-friendly way;
- offering various possibilities for processing the data found.

In order to make it possible to study in detail the problems encountered in cataloguing electronic information and making it accessible, the pilot project focused on a single field on enquiry: modern art history. Several art historians (university lecturers, researchers, librarians) were invited to test the AIW prototype, thus providing essential feedback on the special needs of scholars for modern information systems.

And so, for the past year, we in the KB have regularly scoured the Internet for a year, trawling for nuggets of art history information worthy of being incorporated into AIW-catalogue. Initially this involved a lot of toing and froing: from one Internet site to another, from one institution to another, and back again. Sometimes we felt worn out, giddy and disorientated, as if we'd been riding on a merry-go-round. At other times we were on the point of falling asleep, while waiting endless for a promising picture. The end result of all our searching was a curious medley of the most heterogeneous unstructured items: pictures of paintings by Kandinsky, a bibliography of architects in the Bay area, a safety-at-work manual for artists, digitalized exhibition catalogues, university study programmes. One gets the impression that any self-respecting institution is obliged to come up with its own gopher or WWW page. Even though the finds were at times somewhat disappointing, the miraculous new technology with its absolutely fabulous possibilities nevertheless drew shouts of joy, and we proudly showed brilliant pictures and exciting library catalogues to passing colleagues. But nowadays we are experienced networkers: quick and competent, we crawl

from one web to another, from Virtual Tourist to Fine Art Forum, from festivals to body art, from electronic cafe to imperial palace, from Singapore to Split. All this can be done through services that try to create order out of chaos, like Yahoo, ArtSource or World Wide Arts Resources. In a few words: they lump together everything connected with art, established connections, and make a rough classification based on the different kinds of art, on which the user can subsequently log in. But however helpful such services may be, a more sophisticated classification will soon be needed, for resources on the Internet are multiplying like white mice. Consequently, during the AIW pilot project a catalogue of Internet files was drawn up, which included full bibliographic descriptions of selected electronic art-related resources. These references, which contain codes of our national classification system, together with selected keywords, are made according to the Dutch standard cataloguing rules. With these references it will be much easier for researchers to find relevant information (bibliographic or full-text) on the Internet.

Providing access to electronic files outside the KB itself is only one aspect of AIW. The AIW has a number of other searching facilities; the search screen offers all kinds of search procedures. The 'geographical route' leads a user to any known catalogue or database that is available online. You can consult the OPAC in the Koninklijke Bibliotheek, but also of other libraries in the Netherlands and abroad. A special section is created for bio- and bibliographical works of reference; this way, a patron can get access to specialised databases maintained at the KB and other Dutch libraries as well as connect to databases and hosts all over the world. For an art historian this means that she can consult not only important online bibliographies in the field of the history of the book, maintained at the KB, but also the Art Index via Dialog, the Avery Index to architectural Periodicals, Art Bibliographies Modern, and Scipio via RLIN. Another group of services the AIW allows direct access to, are document delivery services, such as the Dutch Union Catalogue and Uncover, from which you can order articles from journals. If a user has no idea where to look for a specific information system, he can take the 'systematical route'. By choosing fields from our classification system or by using controlled keywords he can find information about relevant databases in the catalogue of the AIW, and set up connections immediately.

Besides the searching facilities, the AIW will offer several applications for word, image, video and sound processing as well. These applications will be integrated as much as possible: if a user had found a file, an appropriate processor will be activated and the file will be displayed automatically. But it will also be possible to activate an application without automatic start up procedures. A user will be

allowed to upload any file he has been working on at home or at work, adjust it, and take the result of a day's of a day's work at the KB home on a diskette (or send it to his own private email address).

One of the main tasks since the completion of the prototype in October 1994 has been the refinement of the AIW-catalogue of online catalogues and databases, which can be anywhere in Cyberspace, Resources offered by organizations like Dialog, RLIN, OCLC and Pica need special treatment, as it will not provide information about the contents only. There are various procedures for accessing their online databases. Some of the problems a library has to tackle are: how to provide accounts for these services to our patrons? How to control the use of these databases? How will a researcher find the relevant database for his enquiries, quickly and cheaply?

Besides building this catalogue, attention has been paid as well to the navigation from the references in those databases to the corresponding full text documents or images, in electronic or printed format. A patron using the AIW will be advised how to download the full text information or how to order it.

In a few years time, we will have established a workstation that integrates the complete flow of information for art historians and other scholars. By that time it will be 1998, the bicentenary of the KB. The IFLA conference in Amsterdam in that same year may open up possibilities for organising a pre-conference meeting of the IFLA Art Libraries Section. On that occasion we hope to be able to show you the final result of our AIW-project.

Let us end by returning to Spinger and his reminiscences about the old KB, which he concludes with a story that might occur in any library, anywhere, at any time.

On that dull and dreary afternoon, after a familiar KB-lady and an equally familiar, ever cheery dust-coated gentleman had disappeared behind the mysterious, sound-proofing door, this very door got stuck. Instead of closing quickly and silently as it should have done, it remained half open. Unprecedented! And suddenly, from the semi-dark opening a scream resounded through the reading room. A scream, not of fear, but of pleasant surprise - as if someone was unexpectedly caught and tickled. A scream immediately followed by the sensual laugh of a man and a triumphant "At last", before - agonizingly slowly - the door closed. And this raised the question that has haunted me ever since: had he *at last* found that one untraceable book, or had he at last found *her*?

Whatever the answer to that question may be, in the libraries of the future the chances of finding an untraceable book as well as of finding one another will have been considerably enhanced thanks to the electronic highway.

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AUSTRALIAN VISUAL ARTS: LIBRARIES AND THE NEW TECHNOLOGIES

By John Thomson and Joye Volker*

Abstract: Initiatives underway in Australia are providing opportunities for innovative solutions to the application of new visual resources technology in teaching and research. A series of projects have been set up using World Wide Web technology in academic institutions. The Web offers opportunities for sharing materials transparently around the world and promises to be especially valuable in the visual arts generally because it can deal with images just as easily as text. Institutions are also embracing CDROM technology and many products have already been developed. This paper will describe the strategies, the development of projects and the products available and will also discuss the impact of integration of these new technologies on visual arts libraries in Australia.

Introduction

Australia is a big country - the sixth largest in the world. With an area of 7,682 square kilometres it is not much smaller than the United States of America, or indeed all of Europe. The distance from Sydney on the east coast to Perth on the west coast is 4160 km which is almost the same as the distance from Istanbul to Seville. Our nearest neighbours are New Zealand (Sydney to Auckland is the same distance as Istanbul to Warsaw) and Indonesia (Darwin to Jakarta is the same distance as Istanbul to Monaco).

Distance and isolation both within the country and from the rest of the world, have always been problems for Australians. Governments have recognised that Australians have the right of equal access to the nation's resources, regardless of where they live. Increased access to the collections of public institutions such as museums and libraries has been a key feature of government policy for some years.

The World Wide Web

In Australia, perhaps because of the tyranny of distance, there is great interest in

* Paper delivered at the workshop of the IFLA Art Libraries Section in Istanbul 1995.

the development of AARNet (the Australian Academic Research Network - Australia's version of the Internet) and the provision of information over electronic networks. In March this year the Australian Library and Information Association launched ALIANet - a World Wide Web site. It is believed that it is the first national association to offer electronic mail services and access to on-line information via AARNet to its members.

The last few years have transformed forever the way we will communicate in the visual arts. This has been achieved through the development of the World Wide Web for multimedia access to images via the Internet and an increasing sophistication and availability of CD-ROM technology. The Internet and particularly the World Wide Web software offers opportunities for sharing materials transparently around the world. It promises to be especially valuable in art history and the visual arts generally, because it can deal easily with images and diagrams as well as text. Whether the promise is fulfilled depends not merely on co-operation between interested parties (and this must be international, given the nature of the Web), but also on the resolution of the many problems related to Copyright of both objects and intellectual property.

The Web allows us to electronically publish text and visual information which has generated electronic exhibition catalogues, publications on the visual arts and interactive collaboration in art practice on a global scale. It also allows us to optimise resource sharing with other visual arts institutions within Australia.

In Australia there are three Web servers which have a visual arts focus: ArtServe at the Australian National University's Department of Art History; DIVA at Monash University and AusArts at the Australian National University Institute of the Arts Library. The latter two have been implemented by Librarians.

ArtServe is the largest image bank in the world and currently gets over 1,000 enquires per day from all over the world. Materials included are 2,800 images of "Print & Print History" which includes a database-query interface; 2,600 images of „Architecture of the Mediterranean Basin“ and a 120,000 word book "The Greek and Roman Cities of Western Turkey".

DIVA (Digital Images, Visual Arts) has a focus on Australian arts, particularly art produced in Melbourne. It contains images of architecture, performance art, painting and sculpture.

AusArts, was developed over the last four months of 1994. The initial objective was to setup a virtual library for the visual arts and music. It was to be an electronic 'start here' for students and staff, providing an introduction to the extraordinary amount of information in cyberspace. It has now moved towards

providing online exhibitions with a focus on contemporary Australian art and to publishing information about the Institute of the Arts and promoting its courses and facilities.

Government Policy

At national government level there is recognition of the potential of new technologies. In October 1994 Australia's Prime Minister launched a major new Government cultural policy titled "Creative Nation". It attempted to define and re-assess Australian culture and aimed to encourage innovation, self-expression and creativity. In one of the key policy areas the government recognised that "interactive multi-media has the potential to become a new force in education, art, culture and service and the biggest information business in the world."¹ The government it would spend Australian \$84 million over four years on five specific measures. These included "the commissioning of CD-ROMs involving material from our major cultural institutions for Australian schools under the "Australia on CD program"². Another measure was the establishment of a government owned company, Australian Multimedia Enterprise, to encourage private sector support in project development and to assess and oversee projects from the concept stage through to commercialisation and distribution.

Resources for Australian Art Research

For many years at the annual conferences of the Arts Library Society / Australia and New Zealand (ARLIS/ANZ), arts librarians had been debating the paucity of resources for Australian art research and teaching. The arts, unlike the sciences and the humanities, were poorly served by existing sources. Few Australian newspapers or art journals were indexed. Biographical information, especially for nineteenth century or new and emerging artists, was almost impossible to find. Details for exhibitions, except for major ones, were difficult to trace. Librarians had to rely on a combination of memory, detective skills, intuition and resourcefulness.

There had been a couple of attempts to fill these gaps using electronic technology. In the early 1980's, the Australian National Gallery Library in Canberra began an on-line data base „Australian art index“ (AARTI). Ambitiously it attempted to provide details of all Australian exhibitions, journal articles, new monographs and biographies of artists. Due to dwindling staff resources in the Gallery Library, the

¹ Creative nation: Commonwealth cultural policy. Canberra: Commonwealth of Australia, 1994. ISBN 0 642 22126X, p. 55

² Creative Australia. op. cit. p. 57.

project ceased in 1985. Two microfiche sets were produced covering the years 1982-85. In September 1983 the Australia Council (the Federal government's arts policy and funding body) began an on-line index of their file or press clippings on arts activities in Australia (ARTSDOC). There were 21,000 clippings indexed when the project ceased in 1988. It was proposed that the clippings themselves would be published on microfiche, but due to copyright problems this was never achieved.

In the last few years there has been some improvement in indexing Australian art journals. Ironically the best access is through two foreign indexing services. "Art Index" and "Design and Applied Arts Index" both of which index Australian titles.

The field of Craft is well documented in Australia with "Craftline", a nationwide database which includes 7000 biographies. Three volumes of „Index to craft journals“ (1979-1990) covers not only Australian but also European and North American craft journals. The continuation of the Index is not assured as it relies on the successful application for project funding.

CD-ROMS

In the last few years, there has been an unprecedented expansion of CD-ROM technology. Some believe that it is only an interim technology, others that it is the medium for the new millennium. It is estimated that there are 9,500 CD-ROMs currently available world wide with an annual growth rate of 50%³. Whatever its long term future, CD-ROM technology, with its storage capacity for both text and image, its ability to make connections and pathways that are not possible with existing systems and its low reproduction cost, is ideal for art related products.

It is a very long and costly exercise to produce CD-ROMS and with the small Australian market (total population is 18 million), a reasonable return on investment is risky. Despite the problems and risks, major Australian arts institutions and organisations, recognising the advantages of the technology, are producing CD-ROMs. Some of these are discussed below.

Discovery Media

One of the most exciting developments has been the emergence of Discovery Media, a small electronic publishing house in Sydney. The two young owners

³ Figures quoted from "CD-ROM industry to boom: facts and figures". Online currents Vol 10, no. 1 January/February 1995. p. 23.

have a background in art history and editing and some computing knowledge. As students both have been frustrated at the difficulties in finding information in a wide variety of different places and recognised the potential for electronic publishing in making resources on cultural life easily available.

Australian Visual Arts Database

Discovery Media's first title was „Australian Visual Arts Database“ (AVAD). It was published in early 1992 with 15 databases. This CD-ROM has revolutionised art research. It has not only provided easy and instant access to information from a range of published sources, but also has made available much previously unpublished material. The third edition of AVAD was released in February 1995. There are 19 individual databases containing biographical information, details of exhibition catalogues 1990-93, historical exhibitions, auction records 1984-1993 and periodical indexes.

A notable new data base on the third edition of AVAD is the Index to the Illustrations in „Art In Australia“. „Art and Australia“ was published from 1916 to 1942 and contained some of the most important writings and developments during this period of Australian art. The lack of an index has always been a major impediment to research. An index had been compiled on cards, but was not available publicly. ARLIS/ANZ has struggled for many years to find funds and a method whereby the index could be published. With the appearance of CD-ROM technology and the enthusiasm of Discovery Media, the first part of the index has at last been published relatively cheaply and with little effort. It is hoped that further sections of the index can also be published in this form.

Art Right Now

"Art Right Now", also published by Discovery Media is the first Australian CD-ROM to cover contemporary Australian art. It features art and commentary by and about 45 contemporary artists. It includes more than 400 images of paintings, drawings, prints, sculptures, 3-D forms and installations.

Future CD-ROM projects in preparation by Discovery Media are the papers of Sir Joseph Banks (an 18th century botanist and explorer who first recorded much of Australia's flora and fauna) and a design and technology CD-ROM aimed at school students.

Poster Art 1914-1920

The first major public institution in Australia to publish an exhibition catalogue on CD-ROM was the Australian War Memorial in Canberra. This was based on

the exhibition „Poster Art 1914-1920“ held in 1992-93. It contains 92 British, German, French and Australian war posters of the period. A description of each poster is spoken in English, German, French and Japanese. It also contains information about the artists, typographical style, use of national images and other themes such as wartime propaganda, coping with shortages and funding the war.

Patterns of power: Aboriginal art from Arnhem Land

In June 1995, the National Gallery of Australia in Canberra is to release its first CD-ROM: "Patterns of power: Aboriginal art from Arnhem Land." (Arnhem Land is an area of 72,000 square kilometres in the north of Australia). The disk will contain 180 artworks carefully selected to show the extent of the work produced by the indigenous people of Arnhem Land. Unlike CD-ROMs from other art museums, this disc does not attempt to contain all the works from the Gallery's collection. Instead the full potential of CD-ROM technology is being exploited to include a wide variety of resource material. There will be photographs and moving images of ceremonies and of the environment in which the artist lives, as well as interviews with artists, traditional music and other culturally important material that helps in the understanding of the art. There will also be maps and animated diagrams to explain geography and important signs and symbols in the work. Other background information such as photographs, film and diagrams will explain methods and techniques. Information on the disc is seen, heard and explored in a non-linear minimally verbal way. This can be more accessible to some people.

Great care has gone into the design and creation of this disc. The designers have always been aware that hi-tech can overshadow the context in which the art was produced. The quality of the image has been a major priority. For example it will be possible to rid the screen of all the surrounding borders and icons leaving just the artwork to occupy the viewer's attention. For three dimensional objects, video film has been rejected because of its poor resolution. Instead there will be four photographs taken from the front, back and each side of the object. This will enable a partial „walk around“ the object, while still ensuring the same high quality resolution of other works.

Conrad Martens: Life & Art

In May 1995 the State Library of New South Wales will release a CD-ROM on Conrad Martens (a British born artist who arrived in Australia in 1835 and provided a unique record of the formative part of Australia's history). The CD-ROM will draw on 2000 items including watercolours, oil paintings, drawings,

sketch books and notebooks, as well as specially written text and spoken extracts from Martens' lectures and diaries, much of which has never been publicly available.

National Film and Sound Archive

Another national institution, The National Film and Sound Archive has announced the release in May 1995 of a CD-ROM containing catalogue listings of 250,000 items from the Archives's collection. These cover feature films, newsreels and documentaries, radio serials and advertisements and sound recordings. The first edition of the CD-ROM will contain text only. It will be updated annually and in future will include increasing proportions of associated sounds, stills and moving images.

Artistic and CD-ROM

A new generation of artists are taking CD-ROM technology in a new direction. At Perspecta '95, a biennial review of modern art at the Art Gallery of New South Wales in Sydney, several artists have worked with computers to produce CD-ROMs which use images, sound and text. In June 1995, the Museum of Contemporary Art in Sydney, Australia's newest contemporary art museum, will open an exhibition, "Burning the Interface: Artists' CD-ROM". It explores new interfaces and interactive audiovisual potentials and is believed to be the first major exhibition of its kind in the world. An international call for proposals yielded 135 replies - far greater than was expected. In Melbourne a new digital art gallery, Drive - Art of the New Media, exhibits a range of work including interactive multimedia installations, animation and static digital art.

Impact of new technology on visual arts libraries

The impact of integrating these new technologies into visual arts libraries in Australia requires librarians to have new skills. Librarians must deal with very complex issues in the management of new technology. Some skills include organising information in digital formats, retrieving this information, designing human-computer interfaces, identifying learning systems, promoting information literacy including teaching others how to access and use electronic information, publishing in digital formats and assisting others in digital publishing and designing, developing and creating information products. It is important to take advantage of opportunities to share ideas that work, and to learn from each other's experience. This Conference has a significant role to play in helping visual arts libraries transform themselves as a result of new information technology. The key

to transformation lies in weaving technology into the very fabric of the Library so that it is automatically considered as one of the tools available to meet the challenges, solve the problems and accomplish the goals of the art library and its institution.

The new visual arts library must be a multimedia resource centre, capable of providing intellectual access to information embracing visual, audio, print and electronic media in the visual arts. In doing so it will have broken some barriers in the complex web of the provision of visual resources.

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THE GEORGE FULLARD ELECTRONIC ART BOOK PROJECT

By John Kirby*

Abstract: The paper describes the process which led to the production of an electronic book and demonstrates the use of the medium as means of bringing art to diverse audiences. Sheffield Hallam University possesses a large number of drawings by the sculptor George Fullard (1923-1973). Concern over conservation led to a discussion of how to provide access in the future. The result was an electronic book, available as a multimedia CD-ROM but which could also be made available on networks. Particularly important is the provision of an information resource that can be used at a variety of intellectual and interest levels.

George Fullard was born in Sheffield in 1923. As a teenager he enrolled at the Sheffield College of Art where he studied until he was eighteen. He then enlisted in the army and was seriously wounded in the fighting in Italy. He never fully recovered his health and died in 1973, just as he was gaining a substantial reputation as an artist.

Before leaving the College he completed a portfolio of drawings which were inspired by the scenes around him in the aftermath of the Sheffield blitz of December 1940. In form the work consists of a series of completed drawings and a large sketchbook. This made up part of his application for a place for further study at the Royal College of Art in London, which he took up after the war. The drawings were returned to the College, which is now part of Sheffield Hallam University, and added to the collection of the Library, where they lay in relative obscurity until the late 1970s. Although there were a number of exhibitions of Fullard's work none included any of these early drawings. Indeed, one curator bemoaned the lack of any of Fullard's student work! Unknown to him there was a rich collection hidden away in Sheffield.

In the 1970s the Fullard drawings, along with a larger body of student work, were noted as being part of the Library and added to the main catalogue, but they still remained unexhibited. In 1987 eight of the more finished works were shown in an

* Paper delivered at the workshop of the IFLA Art Libraries Section in Istanbul 1995.

exhibition at the Mappin Art Gallery which documented the development of the Sheffield School of Art from its beginnings in 1843.

In 1993, as part of the 150th anniversary of the founding of the School of Art, Sheffield Hallam University held a series of exhibitions in Sheffield galleries and public spaces. One of these was of the Fullard drawings and sketchbook. The resulting interest in the show from the people of Sheffield and from academics and researchers surprised even those of us who have been Fullard fans for many years. The value of the drawings as a precursor of Fullard's later work is clear and the origins of the subject matter of much of his sculpture can be traced back to these youthful sketches.

The run of the exhibition was extended due to popular demand and there has been considerable subsequent interest in the works. This has led to our dilemma, which must be shared by many. As a librarian I am committed to making material and information available to enquirers. At the same time I am placed in the position of a curator of a collection of valuable works of art, which are unique and extremely fragile. While we were happy to allow people to look at the drawings, we were concerned at the damage that could be caused simply by turning the pages to find the required image. How were we to provide access to the drawings while at the same time preserving them?

We considered a number of possibilities. Because of the physical nature of the sketchbook, mounting and framing the images was not possible. We thought about producing a facsimile of the sketchbook and the completed drawings. This would be an expensive option, a large format book with a low print run; we could not expect to sell thousands of copies! While we would recreate the shape and form of the original, it would lack the additional information that we also wished to include and would probably not be of interest to the general public. We considered a book of selected drawings, showing the more finished pieces from the sketchbook, perhaps with some photographic material of similar scenes. We may still produce this, it would have a local appeal and would probably sell quite well. But this book could not include more than a few of the 250 images that we have; it would not include many unfinished sketches or show the way that Fullard's thought processes and ideas changed in the development of producing a completed drawing; the crossings out may be more important than the final versions.

We also wanted to include a large amount of research material, much of it unique or archival, and to bring together writings by and on Fullard from the scattered sources; we did not want simply to provide a bibliography but the texts themselves. In short, what we wanted to produce was a book that would meet the

needs of children, academic researchers and members of the general public; that would include an enormous amount of data but would be accessible to all. In other words, something impossible!

The development of new technologies, however, has allowed us to start to produce a new form of document, an *electronic art book*. It includes reproductions of all the works, with a wide variety of other information. For many users of the material, access on a screen is perfectly adequate and if necessary images can be identified for later study of the actual drawing. The selection process, however, the looking through the collection and turning the pages is done electronically with no damage to the originals. In addition there is access to a range of documentation to support a study of the drawings.

Because of the way that the electronic book exists, it is possible to continue to add data to it. Unlike a printed book, this document can easily be changed and developed as new information becomes available. It will also be possible to generate other publications from this data, both in electronic and print formats, so that if we decide that we *do* want to publish a book of drawings of Sheffield in war-time, we can select from the electronic information we have already created and manipulate that information into page layouts etc. The Fullard project is also linked electronically to another project that we have already developed in the University which documents public art in Sheffield. If the user is interested in Fullard's sculpture *The Walking Man* outside the Town Hall, for example, he or she can find out more about the artist by moving from the public art file into the Fullard file and back again. We consider this potential interlinking of information to be one of the most exciting elements of the project.

While the electronic book contains a lot of material that might appear in a familiar book form, photographs, drawings, texts, maps, there is also the opportunity to use a wider range of information carriers, such as video and audio recordings. At present the use of video is a little restricted in terms of the size of image possible, but this will certainly change, as technology develops, to allow full-screen video. The potential to use videotape of interviews or to move round a piece of sculpture showing different viewpoints is particularly useful. Already we use sound to add interest both to still and moving pictures, and, more importantly, to record interviews, commentaries etc.

The George Fullard electronic book contains a variety of information and the elements of the document are built round a series of "chapters". Each of these consists of a basic narrative connected to additional information, photographs, contemporary documents, visual and audio material etc. The main "chapters" in

the book are the catalogue of works, a biography, critical documentation, the Sheffield College of Art, and Sheffield during the early years of World War II.

The catalogue of Fullard's work is still incomplete; this is an area of the work that has yet to be tackled systematically, but it does include images and documentation on a number of later works as well as all of the Sheffield material. The catalogue has its own „content page“, providing a choice of entries to the images. These entry points include student drawings, the sketchbook, later drawings, sculpture, and themes.

Each completed drawing has been reproduced, and in a number of cases additional details from these have been included. The drawings in the sketchbook are reproduced a page at a time, the first image showing the whole page of drawings and their arrangement on the sheet. Some of the drawings are then shown in groups, where they clearly have a strong relationship to each other in terms of subject matter. Then each single drawing is reproduced separately. The subject of each image is coded into a series of headings of particular relevance to Fullard's work, for example, wheeled objects, woman carrying a child, so that the linkages can be made between works on similar themes.

The biography consists of a fairly short factual narrative to which is connected a series of bits of further information. This additional material can be accessed by clicking onto highlighted areas in the text or onto buttons at the bottom of the screen. An example of this access to additional information is a map of Sheffield in 1939 showing where Fullard lived, where he went to school, the Art College, Graves Art Gallery etc. Clicking onto these points on the map will take you through to pictures and text information about those places, data which is held in the College of Art "chapter". The information is therefore built up in a series of layers, which can be accessed or not, depending on the user's interest.

The critical documentation "chapter" has a bibliography and a short narrative that charts Fullard's development as an artist, linked to a number of texts from periodicals, books and other writings; we felt that the inclusion of the full texts was important as many of them are not readily available except in a specialist art library. (I have to confess that we have not managed to track down all the necessary copyright clearance yet for all of the articles, but we are working on that!) This section also includes unpublished material, student dissertations, essays, seminar papers etc. We will encourage anyone who does some work on Fullard to deposit a copy of their writings with us so that they can be made available for later users.

Our experience of researchers into other Sheffield-born artists, such as Frederik Varley, shows that they are very interested in the art education of the subject of their study. We have therefore included information on the College of Art at the time of Fullard's attendance, drawn from a variety of archival sources, including photographs of students and their work, the prospectus for 1939, entries from the student records, information on influential teachers such as Eric Jones etc. Similar, information is provided on the art galleries in the city that relate to their state in the late 1930s and early '40s, details of collections and exhibitions which Fullard saw etc. These sections are built round a narrative prepared for the 1993 exhibition.

The final "chapter" is on Sheffield at war, using photographs, reminiscences and contemporary documents linked by a narrative written by a local historian. This provides the background to Fullard's drawings, the environment which provided so much of his subject matter.

While the concept of the "chapter" is derived from the book, the electronic art book uses these merely as a skeleton structure for the data. The reader's use of the information is not bound by the linear form of the book, or entirely governed by the way that material is selected and mediated by the author. Here is a much freer information environment that places control in the hands of the user to a large extent. By providing access to a large body of material the electronic book enables the user to pursue his or her own interests for a far greater extent than in the conventional book.

The reader can choose his or her own route through the book. There are a series of basic narratives provided that allow a coherent voyage through the information. At any point, however, the user can go back to the contents page and select a new subject area in which to browse. There are also a large number of points within the information at which one can move between the "chapters". I have already mentioned an example of this facility above, of moving from the biography into the College of Art section. This kind of jump is provided for at many points, then by clicking on the *Back* facility users can retrace their steps or alternatively could continue on a new train of enquiry.

Another example of this linkage is in the critical documentation, where clicking on the highlighted name of a drawing or sculpture mentioned will display the image held in the catalogue of works. The drawings and the sketchbook are also interlinked internally, the user can select drawings of a similar subject from elsewhere in the body of work, and linked externally to similar themes in later work illustrated in the catalogue. Some of the drawings also link to photographs in the biography or in the Sheffield at war sections.

At present this electronic book exists only within the University as a research project. The next phase however will allow several options for development. We *could* produce printed books on particular subjects selected from the database, but we are much more likely to produce a CD-ROM version. Such a CD could be made readily available to anyone; an immediate use would be in the City Art Galleries as additional information to support their displays of Fullard's works and many of the local schools have also expressed an interest in having access to the information in the classroom.

The information could also be made available as part of a larger electronic package that includes information on public art in Sheffield and a new project that will document the output of the city's cutlery and metalware industries. Other opportunities for disseminating this information include the local cable company and of course there is the potential to make this project available on the Internet for all the world to see. For the moment, however, our aim is a little less adventurous; we are working to build a series of interlinked projects that will make the cultural heritage of Sheffield available to the people of the city, providing access to information in a new and, we hope, exciting way.

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ABERDEEN ART GALLERY IMAGE DATABASE PROJECT A PROTOTYPE PROJECT TO CREATE AND MAINTAIN A LOW-COST ART IMAGE DATABASE

By John W. Murdoch, Robert Newton, Douglas Anderson*

Abstract: The concern in this study was primarily to identify the way in which visual arts - paintings, etchings, engravings - could be organised and made accessible using low cost computer hardware and software. The aim was to take a typically art gallery collection and investigate fully the type of problems which were involved when considering digitising the collection.

The paper examines how the project created a sophisticated image database using minimum financial outlay. Of necessity, the paper is presented as an outline review for expansion and discussion during the conference.

1. Introduction

The Aberdeen Art Gallery Image Database Project is a pilot project funded by the Scottish Library and Information Council (SLIC), with the aim of creating a small image database containing a selection of works held by Aberdeen Art Gallery. The project was developed using a relatively low hardware specification, using standard proprietary software, and provides a possible model for others seeking a low-cost approach to the development of their own image databases.

The project has illustrated many of the issues likely to arise during the development and construction of an image database, including selecting the hardware and software; image capture, compression and storage; the indexing and retrieval of the works; and the design of the user interface¹.

2. Background

The rapid technological developments in the computing field in recent years have brought image databases within the reach of museums and galleries². Examples include the MicroGallery at the National Gallery in London (also available on

* Paper delivered at the workshop of the IFLA Art Libraries Section in Istanbul 1995.

CD-ROM as Microsoft Art Gallery); the Library of Congress Vatican Exhibit (available on the World Wide Web); the National Railway Museum database; and many others. A more comprehensive overview of image databases in museums and galleries is presented in the project report³.

3. Existing catalogue

The Gallery's existing catalogue is kept on a custom-designed database running on their mainframe. The catalogue, which is limited to plain text records, contains a significant quantity of valuable information about each work of art, and it was considered important that this information should be retained in the image database.

For the purposes of the pilot project it was not feasible to extract information from the database catalogue and incorporate it directly into the image database, and consequently the textual data had to be entered manually. However, given the limited nature of the pilot project, this did not present a significant problem, and indeed turned out to be an advantage, as it permitted a consistent level of control to be exercised over data integrity during the creation of the database.

4. Equipment specification

The project was developed on a Western Systems 486DX2 66MHz PC with 16 MB RAM, a VL-bus graphics card with IBM VRAM, a 500MB hard disk, and 17" SVGA monitor, a typical specification for development of a system of this sort⁴. A Fujitsu M2511A 3.5" internal optical disk drive, with a capacity of 128MB per disk, provided archiving facilities.

SPC *Superbase 2.0* was chosen as the database system for developing the image database, as it offered both ease of use, and more powerful image handling features than its competition. Micrografx *Picture Publisher 4* was chosen to provide image editing, re-touching and manipulation facilities, and image compression was provided by Iterated Systems' *Colorbox SDK* and *Images Incorporated 3.0*.

Images were captured using an Epson GT6500, and A4 flatbed scanner capable of scanning at up to 400 dots per inch and in 24-bit colour or 8-bit grey scale.

The total equipments cost for the project was £3856 (+VAT), although it should be noted that since the equipment was ordered in June 1994, the prices of some of the items of hardware have decreased following the release of new models with higher specifications. In particular, PC prices have dropped substantially, but it should also be possible to obtain the scanner and optical drive at a lower price, or if not,

with an improved specification at the same price. Updated versions of all the software packages are also now available, offering greater functionality at the same price.

5. Digitising the works

5.1 Selecting the source materials

The Gallery keeps photographic records of their collection in the form of monochrome negatives. In addition, they have a limited collection of colour transparencies of their more popular works, in 5"x4" format. Transparencies are not particularly suited to use as a source material for digitisation using conventional scanners, requiring specialist equipment which was outwith the limited budget of the pilot project.

This problem was overcome by making use of the Gallery's collection of postcards of the more popular works. These scan well, and offered the added advantage of being a standard size. A template was used to ensure that each postcard was centred in the scanning area, irrespective of whether it was in a landscape or a portrait format.

5.2 Image capture

To minimise the loss in quality which would occur during the digitisation process, the image capture parameters were selected to match those of the final screen display. As it was likely that the database would also be viewed on systems other than the development system, an average screen resolution of between 72 and 80 dots per inch was assumed. The works were scanned in 24 bit (True) colour, at a resolution of 75 dots per inch, and yielded images 400x400 pixels in size.

Some problems with moiré patterns arose as a result of interference caused by differences between the dot mask used by the scanner and the dot pattern used in the printing of the postcards. Such effects were minimised by re-scanning the postcard after a slight re-alignment of the postcard on the scanner.

After scanning the individual images were examined using *Picture Publisher*, and a white mask applied to the edges to remove any artefacts created during scanning. The masked image was then cropped to fit the display frame size, and saved as a Targa (.TGA) format image. After conversion, the resulting images were archived on 128MB removable optical disks.

5.3 Image compression

The digitisation process produced image files of approximately 500KB in size, and while these images could have been incorporated directly into the database,

the large file size resulted in unacceptably slow display times. To overcome this, the images were compressed using Iterated System's *Images Incorporated* fractal image compression software. The proprietary fractal compression was chosen rather than the standard JPEG because it offered smaller file sizes, and more critically, allowed a higher degree of control to be exercised over the final screen display palette.

6. Database structure and content

6.1 Database structure

During the preliminary discussions held with the Gallery, a set of basic criteria for inclusion in the database was outlined. These were used as a starting point for further discussions, during which it was decided to limit the information in the pilot database to the material available in the Gallery's existing catalogue. A final, revised set of criteria was established, and, after comparison with the Gallery's catalogue, translated into an appropriate field and file structure for the database itself.

6.2 Content

When the project was still in the planning stage, several alternative approaches for selecting the content of the database were discussed with the Gallery. These included using the work of a single artist for the pilot project (Dyce or Erdley were two of the artists suggested); concentrating on a specific collection within the Gallery's wider collections (the MacDonald collection was considered for this), or simply digitising the existing collection of colour transparencies.

The final choice of content resulted from the decision to use the Gallery's postcard stock as the source material for digitisation. The restrictions imposed by the limited size of the postcard collection available for use in the project dictated that the pilot database would be of a general nature.

The selection of material was further complicated by copyright issues, or rather digitisation rights. In order to avoid the complex and time-consuming task of tracing and contacting the copyright holders of the various works, the pilot project only included works where the Gallery holds the copyright. Inevitably, this meant that the works included in the database were limited to older pieces.

In total, fifty-three works were selected for inclusion in the pilot database, with the final set of works covering a range of subject matter, artists, periods, schools and original media.

6.3 User interface

The user interface of the database was designed to present the images and their related information in a clear manner, while still allowing the user to browse or search the database without the need for specialist knowledge of the database system. Most operations are carried out by using the mouse to point and click at the on-screen buttons, or to select categories within the search options. Keyboard entry is only required for the more detailed keyword title search option.

The computer's video system was configured for a screen display resolution of 800x600 pixels with 16-bit colour, which provided a high quality display on the 17" monitor used by the system, and the user interface was designed for use at this screen display resolution. Subsequent testing of the completed user interface has shown that this screen resolution can also give acceptable results on a system with a 14" monitor, although this is not a recommended configuration for general use.

The user interface was designed using the *Superbase Form Designer*, and the *Superbase* programming language, *SBL*. The final version was converted to a set of programs written in *SBL*.

The Main screen of the user interface offers the user the choice of either browsing or searching the database, and all screens in the interface contain an option to return to the main screen. A monochrome version of William Dyce's *Pegwell Bay* was used as the backdrop for the main and search screens.

The menu bar gives access to the File and Help menus, and is available from all screens. The File Menu gives the user access to the database maintenance functions and the exit option, while the Help Menu allows the user to access the help screens and the general information screen.

The Browse screen is the main information presentation screen, and is used for both general browsing of the database, and for viewing the results of searches carried out by the user. The screen displays details of an individual work, with a button giving the user access to an additional screen of information on that work. Two large VCR-style selection buttons allow the user to move forwards or backwards when browsing through the database collection or search results. The Main Screen button allows the user to return to the Main screen at any time.

The Search screen allows the user to select one of the six different search options, or to return to either the Main or the Browse screen. Searches can be carried out by artist, title, period, school, category, or class. Clicking on one of the search options displays a dialog box which allows the user to either select an item from a

list, or to enter their own search text. The results of the search are viewed using the Browse screen.

The database maintenance functions, entering new records and editing existing records, are carried out using a combination of two record entry screens. The database maintenance functions are only accessible through the appropriate File Menu options, and are password protected to prevent any unauthorised alteration of the database contents.

7. Future considerations

7.1 User evaluation

The system developed during the course of the project is located in the Aberdeen Art Gallery library, and is available for use by the general public.

A detailed programme of user evaluation was outwith the scope of the pilot project, but feedback has been sought from members of the public who have tried the system. The comments received have been very positive, with praise for the system in general,

Full of good information but simple to use too -. great idea!

the quality of the images,

Excellent - amazing graphics/image! I must come back to use it some more

and the ease of use.

Excellent visuals and easy to use for the computer illiterate such as myself.

There were also a number of requests among the comments for more background information on the works and artists.

The reproductios are surprisingly good but it would be better if there could be more information available about the artist and the painting.

Informal feedback from members of staff at the Gallery has also been very positive, and the Gallery is actively seeking funding to develop the pilot into a full system.

Once funding has been obtained, a more detailed programme of user evaluation will be carried out. The results from the user feedback will be considered when deciding on any necessary revisions to the pilot database, and will help provide guidelines for the eventual construction of the full database.

7.2 Further recommendations

If the project is to continue and expand beyond the pilot stage, there are six main areas which require further investigation.

- The possibility and practicalities of directly incorporating data from the main Gallery catalogue to avoid the need for re-typing.
- Enhancing the background information on the works and artists, as requested in the user feedback.
- Alternative methods of capturing and digitising the images. Possible methods may include the Kodak PhotoCD system; digital cameras; or a rostrum camera and video frame-grabber board.⁵
- The search options need to be developed further, and more advanced search facilities added.
- The copyright issues will have to be investigated fully, and approaches made to the copyright holders of other works to obtain permission to digitise their works.
- Consider the potential for income generation for the Gallery through sales of a limited version of the database on CD-ROM.

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IMAGE PROCESSING AND DATABASE SYSTEM IN THE NATIONAL MUSEUM OF WESTERN ART; AN INTEGRATED SYSTEM FOR ART RESEARCH

By Hiroyuki Hatano*

Abstract: A research group of a librarian, curators and a computer specialist, to which I take responsibility, has been developing an integrated system for art research on an experimental basis for four years from 1994. Image processing technologies using input and output devices and software for high definition digital data are applied to studying Western artwork of the museum collection and comparing ours with that of the other museums. According to this system, for example, we can see on the CRT monitor the image of the same size of the artwork itself.

On the other hand, the integrated database system will enable us to catalogue artwork, on the same screen, recognized, images and different application programs such as AAT, ULAN and Iconclass in the same system. We examine, for the academic research of Western art in Japan, the efficiency of the application to those machine-readable thesauruses and classification systems, which have been developed in Western countries using Western languages. The use of digitized microfiche images is also discussed.

Introduction

Many art museums in Japan have been experimenting with the creation of databases of collection catalogs and with the practical application of high-definition image presentation systems using high-vision techniques. In most cases, the trials aim mainly at the daily management of the collections, art education and diffusion for visitors. On the other hand, a number of curators in the museums are asking themselves if image processing and image database creation by computer are truly helping their jobs or contributing to their research activities. We have set up a research environment clearly different from an ordinary museum job environment, and have identified several research subjects (but not the general issue of image processing or image databasing). We are aiming to verify that a new computer system can be a support tool to solve such problems.

* Paper delivered at the workshop of the IFLA Art Libraries Section in Istanbul 1995.

1. Objectives of research

In art research images such as photos are essential and it is therefore necessary to collect and accumulate visual resources of various kinds. At the same time, effective means of retrieval and use must be established. In the field of Western art studies, European countries and the United States have a history of image study, and photo archives exist to support it. They have also established description and classification systems, and effective retrieval techniques¹. To our regret, we do not have a fully-fledged photo archive of Western art, and have not yet come to full understanding of the above-mentioned European and U.S. systems and techniques². In the fiscal year 1992 the National Museum of Western Art, Tokyo, bought some fundamental reference materials including the Marburger Index³, and in the following year, held a lecture meeting with Mr Jan van der Wateren, Chief Librarian of the National Art Library, Victoria and Albert Museum as speaker⁴. In 1993 a representative of the research group (myself) made a short visit to France to study image database systems, get information-related reference materials from French counterparts, and to set up co-operative relationships with them⁵. In addition, we are asking visiting researchers of fiscal years 1992 to 93 for advice and proposals on information processing systems. Furthermore, conventional comparative study of artworks had been pursued by comparison of photo negatives, and handwork such as reproduction and enlargement simulation of duplicated materials⁶. This way of study was accompanied by problems of precision, efficiency and effect. Many researchers concerned have been expecting a real-size research support system using image processing and database systems.

Through the image stocks (microfiches and photos) so far built up in Europe and the U.S., the first objective of our study is to discuss the efficiency of the ICONCLASS⁷-based classification and language control method applied to the actual research environment. The second is to clarify various conditions and problems for promotion of the study, to open a new aspect of use of electronic image information, and to produce a model of visual resources and image information to be presented to a future Western Art Information/Reference Materials Research Center. The third is to make a comparative study of the collections of our museum using image processing technology, and to make use of the image database in special exhibitions.

This kind of study has been conducted to a certain degree for Japanese and Eastern arts⁸. For Western art, however, there has been little systematic study in Japan. Our research is characterized by co-operative study by a group of experts in the fields of art history, documentation and information systems. At the same

time, this is the first full-scale trial to establish visual resources and image information specifically for the study of Western art. Researchers in our museum and in others have eagerly awaited a Western art information and materials system or center and our research is an essential basic step towards it.

In Japan, there have been some cases of artwork database creation for art including Western art but an overall image study system has not been created to cover photographic prints, microfiches, CD-ROMs, X-ray photos, infrared photos, etc.

In this respect, the efforts to improve study and to update systems are worthy of special mention; for example, the photographic materials retrieval system pursued by the Witt Library, Courtauld Institute of Art, University of London⁹; the painting and drawings database JOCONDE¹⁰ in the French Ministry of Culture, Thésaurus iconographique¹¹; AAT (Art & Architecture Thesaurus)¹²; the image classification system ICONCLASS developed by Leiden University; the image database related to scientific analysis image data NARCISSE¹³; and VASARI¹⁴.

The Japanese technical level of hardware for image databasing and image processing has acquired a high reputation in European countries and the U.S. How to make the most of it in the software field is the great problem now facing us. If the methods developed by Europe and the U.S. prove to be effective (or to have some limitations) through this research, a new step forward in the study will definitely be taken.

2. Organization of research team, and contents of research

To pursue this research, a team of five members from different job categories has been created. The role allotted to the members, and the contents of the research are as follows:

- A: Management of the study, analysis and evaluation of application tools (by the Author).
- B: Application of image processing in German art studies.
- C: Study of artwork collections through the use of computer image processing, and creation of checklists of paintings and drawings by Domenico Tintoretto.
- D: Database ("Einblattholzschritt") of German Renaissance woodcuts.
- E: Creation and management of image processing databases and image processing systems

Member A specializes in library and information science and art documentation. Members B,C and D are specialists in art history. Member E is a systems engineer. In fiscal year 1994, the system was mainly operated by member A under technical assistance from member E. In fiscal year 1995, the emphasis of the research will be placed on research by members B, C and D, and in fiscal year 1997 (final year) the research will be submitted for analysis and general evaluation by member A.

3. Creation of system

In view of the team's budgetary and technical restrictions, we have selected personal computers as the mainstay of the system instead of a workstation. Initially there was a plan to connect the main system to the personal computers of co-operating researchers via a small-scale LAN. This plan, however, was abandoned for physical and fiscal reasons. Instead, the two main personal computers were connected peer-to-peer on Ethernet. In total, this system is composed of three components: image input/output system, image database system, and terminal system.

3.1 Image input/output system

On an IBM DOS/V machine, two types of scanners are attached so that the researchers can enter the image of their choice. One is a flat-bed scanner permitting entry of images whose sizes range from 4x5 inch positive film (standard size in art study) to reflective documents of up to A4 sizes. The other is a special scanner for 35 mm slides. Also provided is a CD-ROM drive incorporated in the personal computer so as to import images from CD-ROM, including Photo-CD. Also available is input from an analog videodisc player and videotape recorder. The devices used are compatible with NTSC as well as PAL and SECAM, the standards in England and European countries.

The image entered is sent to the PC via Ethernet, and then submitted for image processing. The software used is DENGADENGA. Once processed the image is output as hardcopy by PICTROGRAPHY 3000, using the advanced technology called "Silver Halide Photographic Process Combined with LD Exposure and Thermal Development and Transfer."

3.2 Image database system

DENGADENGA has a database facility, but this facility is not sufficient. Instead, an integrated database has been made using PARADOX. According to a basic plan, textual data can be entered while checking an image taken in from a magneto-optical (MO) disk, with reference to the existing application software

such as the image classification system ICONCLASS, Art & Architecture Thesaurus (AAT) and the Union List of Artist Names (ULAN)¹⁵⁾.

To avoid duplication between image processing input and output and image database input, an IBM DOS/V machine and MO device are included in the system (Fig. 1) so as to permit the latter job.

3.3 Terminal systems

On the terminal system the co-operating researchers enter mainly textual data. In most cases they use Macintosh machines for their principal purposes of research. The IBM machine was selected to match the requirements for WordPerfect, the most popular word-processing software in the U.S. and Europe. A card-type modem is also mounted to provide a telecommunication facility.

4. State as of March 1995

The first year of the research was aimed mainly at system creation and collection of reference materials. Although these have not been completed yet, the activities now underway can be summarized as follows:

4.1 Real-size image display facility

As one feature of the image processing facility, we have been developing software to permit real-size display of artwork. This system is designed to display, on full scale, artworks related to each other in some points (e.g. altarpieces, triptych, etc., serial works or works of different versions) and to make comparative simulation by juxtaposition, superimposition, reduction, enlargement, deformation, partial shift or change in colors. This system will make it possible to display images on a high-definition monitor with an error of about 0.2 mm.

4.2 Collection of microfiches and creation of image files

André Malraux says "For the past hundred years (if we except the activities of specialists), the history of art has been the history of that which can be photographed"¹⁶⁾. Research of artworks depends to a great extent on how to obtain high-quality art photos, as many as possible, in an efficient way. We have bought a collection of microfiches "Sixteenth Century Pamphlets in German and Latin" (about 2,900 sheets, 142,000 frames)¹⁷⁾ and "The Witt Library" (about 15,000 sheets, 1,470,000 frames)¹⁸⁾. In our research, the former collection was selected as a model for an image database. First, an image file was created as follows:

- 1) In a pamphlet consisting mainly of text pages, a page with a figure is selected and marked. At this time, selection is made between 200 dpi and 400 dpi according to the definition of the image.
- 2) Image data is entered by a subcontractor and is presented in TIFF format as an image file held on magneto-optical disk. The number of images amounts to 5,112. The data volume for an A4 image is about 500 Kbytes at 200 dpi; and, for an A3 image, about 4 Mbytes at 400 dpi. The data storage requirement reached five 5-inch MO disks (double sided).

4.3 Creation of database

The database is composed of two or more files having different data structures varying with the objectives of the research shared by the co-operating researchers. For "Sixteenth Century Pamphlets in German and Latin", data items are classified. This is because there are two bibliographic levels: for the individual figure and the pamphlet containing the figure. They are classified into two respective files and are linked with each other. In the data items, the subject (or category), key word and name of artist are taken from AAT, ICONCLASS and ULAN. The data is presented in the form of a book or floppy disk. Among the database systems, AAT and ICONCLASS have priority. AAT currently operates only on DOS; ICONCLASS can run on Windows.

5. Conclusion

Our system has now been completed up to a certain level of practical operation. Evaluation of the system, however, remains somewhat difficult at this time. The curators specializing in art history have difficulty with the operation because of the complicated procedures involved.

From the fiscal year 1995 onwards verification of the effectiveness of the system, data input, image processing, and application of an image database for research activities will continue to be pursued by the respective members.

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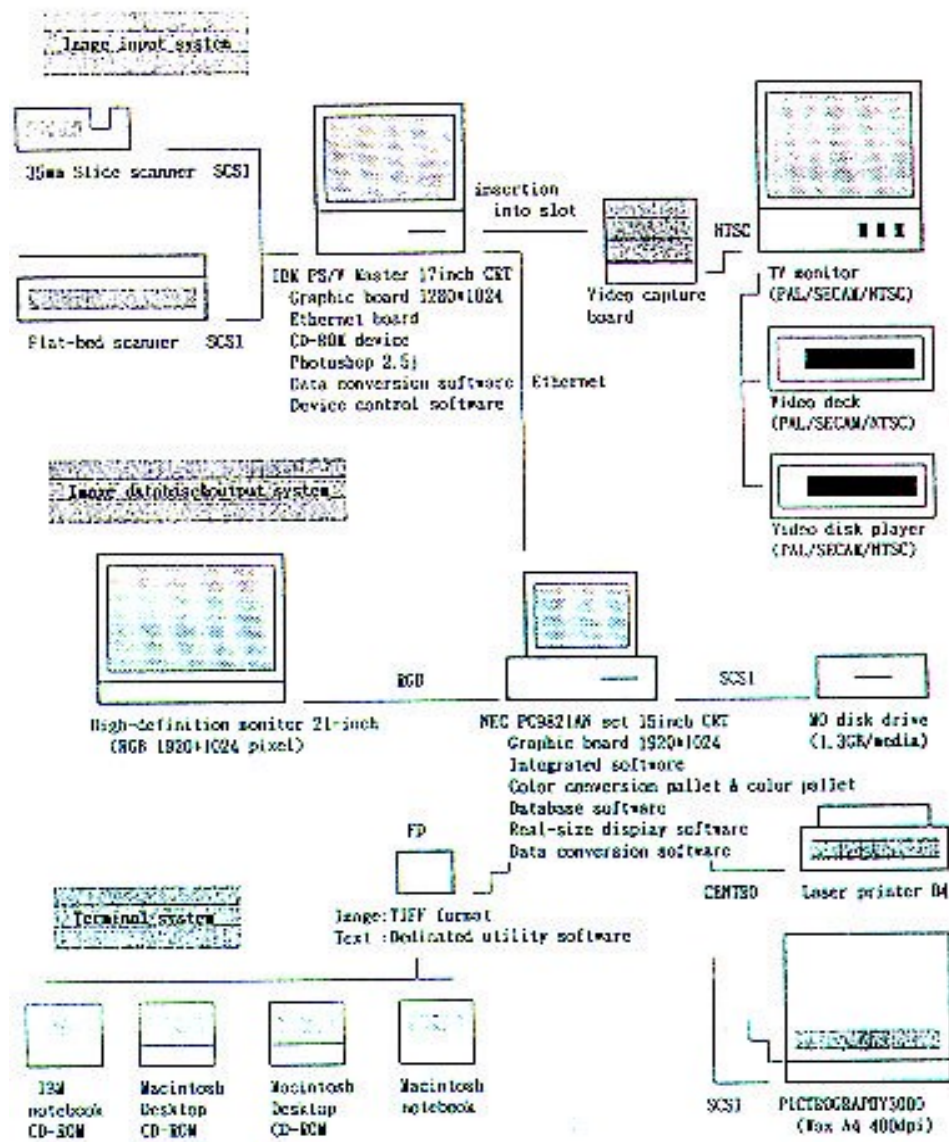
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Figure 1: System configuration



FREE TO FEE: THE CURRENT ACCOUNT FROM AN ACADEMIC LIBRARY

By Karen Latimer*

Abstract: The Queen's University of Belfast set up a fee-based service in 1991 aimed initially at built environment professionals. The Architecture and Planning Information Service at the University has long been a major source of architectural and environmental information in Ireland and has close links with the Architecture Library at University College Dublin and professional bodies such as the Royal Society of Ulster Architects and the Royal Town Planning Institute in Northern Ireland. The background to establishing the service is examined. The marketing methods and target audience are described as are the particular services offered. Problem areas encountered including balancing the service to internal and external users, staff training, setting realistic prices, quality control and contract issues. Future trends identified include the development of client-tailored services and cooperation between fee-based services.

Introduction

In this short paper I should like to look at the experience of one university library in providing a fee-based service to external users with particular reference to the service to built environment professionals. The purpose of the paper is to stimulate debate and discussion about such services by looking at some of the successful approaches as well as the problems encountered at the Queen's University of Belfast in setting up its Fee-Based Service. We do not presume to set ourselves up as a perfect model nor to have all the answers but rather hope that by sharing our experiences we can help to solve some of the problems that face us all.

Background

Charging for library services is not a new idea in the United Kingdom. Indeed the issue has been debated in the journal literature for over forty years but it was not until the entrepreneurial 80s under a Thatcher-led government committed to competition and free market forces that income generation became a reality for

* Paper presented at the Workshop of the IFLA Art Libraries Section on the topic „Pay or Profit: Fee or Free“ at the 62nd General Conference of IFLA in Beijing 1996

many libraries. The Minister for the Arts reporting on library matters in 1991 encapsulates the fee v free argument as only politicians can by stating that the regulations enabling public libraries to charge help them to „achieve improved value for money and provide even better service to the public while preserving the principle of free access“.[1] The same report notes that self-generated income in libraries rose between 1981 and 1991 by 17.1%.

The government report referred to public libraries and indeed the main debate in the national press did concern public rather than academic libraries. Universities, however, were by no means immune from economic pressures. In 1985 the Committee of Vice-Chancellors and Principals produced a report exhorting

universities to increase their efficiency.[2] The Universities Statistical Record for 1993-1994 notes that income from research grants and contracts had increased by 27.1% from the previous year.[3] University libraries, too, began to look at external sources of funding, one of which was some form of fee-based service. The Follett Report, the major recent report on higher education libraries in the UK, noted that „the proportion of total recurrent spending devoted to library provision has declined in the last decade“ while also noting that student numbers and the price of books and periodicals has increased over the same period.[4].

It could be argued that one way to concentrate scarce resources is to cut out services to all but the primary users. However, universities do have a major role to play in the wider community and most institutions' mission statements reflect this. A recent HEFCE circular notes that key areas of development in many institutions are „meeting the educational and training needs of the local or regional community“ and also „diversification of sources of income.“[5]. Academic libraries, too, have a responsibility to provide support to individuals and organisations in their region. One of the Queen's University Library's policy objectives states that „the mission of the University Library is to provide a library and information service which will assist the University to achieve its mission and to extend that provision to the wider community as far as is practical and appropriate“.

At Queen's University as student numbers rose and funds decreased relatively, staff found it increasingly difficult to provide a 'free' service to external users who were becoming more information conscious and more demanding. On the 15th May 1990 the Senate of the University agreed „that the Library be permitted to introduce a fee-based library and information service“[6]. It was felt that this would generate some additional income and also enable the library to provide a service to people outside the university who needed it while limiting numbers to a manageable level.

Establishing the service

In October 1990 a Management Group including the University Librarian, two Associate Librarians and the Fee-Based Service Librarian was set up. Existing services were surveyed and a rather cursory SWOT analysis was carried out. Strengths were skilled staff, strong collections in certain key areas including architecture and planning, a good location and excellent computer support; weaknesses were lack of business skills, gaps in the collection and the need to maintain a balance between internal and external users; opportunities were identified as the potential to attract membership from a large pool of our own graduates and a head start in the field; threats were recession and competition. It was a fairly superficial analysis but we did identify areas to focus on initially.

The Royal Society of Ulster Architects, a regional branch of the Royal Institute of British Architects, was concurrently examining the information needs of its members. Close links already existed between the Society and the University's Architecture and Planning Information Service which also had a long running association with the Northern Ireland branches of the Royal Town Planning Institute and the Institution of Civil Engineers. The decision was taken, therefore, to focus the activities of the new Fee-Based Service on these groups. The relationship between this service and the architecture profession was further cemented in 1991 when the Royal Society of Ulster Architects set up its Practice Services Scheme to provide support to member practices [7]. The Fee Based Service Librarian was co-opted to the Practice Services Management Committee and an information package was agreed upon which included contributing book review and information alerting sections to the Society's quarterly Practice Bulletin and also a discount on membership of the University Library. Similar discount arrangements were then set up with the Royal Town Planning Institute and the Institution of Civil Engineers. Other existing users of the Architecture and Planning Information Service working in related areas were approached. These included landscape architects, consultants, amenity societies, housing associations, museums, the Tourist Board, the DoE Historic Monuments and Building Branch and numerous architecture, planning and engineering practices.

The Queen's Library was fortunate in having kept records of external users and enquiries fielded by the Architecture and Planning Information Service. These helped enormously in setting up the service and deciding exactly who to target initially for membership. Also a high proportion of Queen's graduates stay in the area and this group was targeted early on as well. Initial marketing was the least of our problems. We encountered greater difficulty in producing promotional literature. Well-designed and informative publicity material is crucial especially

when targeting a design-conscious audience. We had little time or expertise and limited set up funds so we did not perhaps make as big an impact initially as we could have. We have subsequently improved our brochure design and content. Talks to interested groups stimulated demand as did publicity in the local architectural press.

It is always difficult to move from a free service to one for which there is a charge and we received our fair share of abusive correspondence! Webb points out that „It is not a good idea to introduce charges randomly for existing and unchanged services which have previously been free at the point of delivery“ [8]. We cannot claim to have entirely avoided this pitfall although we did offer an enhanced service and with hindsight we should have spent more time before setting up the service on detailed forward planning, analysis of existing services and market reserch. Nonetheless by the beginning of 1992 we had 106 members almost entirely drawn from our existing base of architects, planners and engineers and five years later we have 726 members from a wide range of disciplines.

Table 1 Membership Figures

	1992	1993	1994	1995	1996 (April)
Pers.Assoc ¹	451	486	497	491	516
Prof.Assoc	148	163	179	183	210
Total	599	649	676	674	726

Services

In an academic library the would be entrepreneur is always torn between providing a service which mirrors that already available to staff and students or branching out into innovative packages that appeal to the busy professional and may have a different slant. At Queen’s University we decided to concentrate initially on the core services of lending, document delivery and literature searching. However we were soon seduced into offering consultancy services to practices which mainly involved sorting out their libraries, often as part of a quality assurance exercise. Such services are superficially attractive because they

¹ There are two categories of membership: personal associate for members using the library for educational and leisure purposes and professional associates for members using the library in connection with their profession or business.

are easy to cost and lucrative but they are fraught with liability and contractual difficulties. They are also hard to run in tandem with the core services unless work is contracted out which brings its own difficulties. We also flirted with hiring out our decorative Ruskinian Gothic library building as a film location but after a camera crew had set off the entire alarm system almost irretrievably one Sunday we rather lost interest in that particular income generating activity.

There are two additional services which have proved popular with architects and others. We publish, in print or on disk, a fortnightly current awareness service, APIS Bulletin, which lists books and articles of interest to architects and planners. This service is backed up by the lending service and an efficient document delivery and invoicing system. (Participating practices pay £100 or more in advance to set up an account which attracts a 20% discount). The other service which is proving increasingly popular is the recently established database IDEAL (Irish database on environmental and architectural literature) set up in co-operation with the Architectural Library at University College Dublin. IDEAL enables users to access information relating to Ireland which is not available in national and international bibliographies and databases. The bulletin service will probably cease when other CD/online material becomes more readily available whereas it is hoped to develop the IDEAL database and make it more widely available. It is important to continually monitor the services offered, revise prices and procedures as necessary and remove or add services as appropriate.

Balance of fee and free service

In our experience a number of problems await the intrepid entrepreneur or, in academic circles, the cautious dabbler of toes in the water. Each of these problems could be, and indeed have been, the subject of whole papers in themselves. Here it is only possible to raise the issues, examine some solutions or compromises and introduce topics for debate and discussion. Much has been written on the fee v free debate. There are impassioned supporters of both viewpoints and I don't propose to rake over old ground here. We decided to charge fees to those users who needed access to our collections and services and, crucially, whom we could not otherwise help. Being a university library with a clearly identifiable set of prime users, we did face the problem of balancing the fee and free service. Tension mainly arises in relation to use of key texts and staffing. We tackled the former by including a phrase in all our publicity material which enables us to restrict the use of certain material to internal users only. We make it quite clear to potential members at the outset what is, and is not, available to them. Problems do sometimes still arise when, for example, practice members and university staff and students enter the same architectural competition. Perhaps because we are a

small region with close contacts with all our professional members, we have found them very co-operative in returning material required by students.

Staff training and management

Training, motivating and managing staff who are providing a service for both internal and external users can be a harder problem to solve. This problem is particularly pertinent to academic libraries where staff work in many different areas and buildings as well as working different shifts. All staff must be given clear procedures to follow and be kept up-to-date even if they only very occasionally encounter a fee-paying user. We have attempted to solve this problem by using a combination of integrated and specialist/independent staffing structures and services. The registration of new members and renewal of existing memberships are mainly handled centrally by the FBS staff. Problems are referred to the Unit from service and information points. Literature searching is delegated to appropriate subject specialists but if any member of staff is overburdened the work is reallocated sometimes on a consultancy basis. The Fee-Based Service keeps a small register of trained and proven consultants to whom work can be sub-contracted.

At Queen's University Library there has recently been a long overdue increase in the emphasis put on staff training. The skills taught are equally valid for the service to internal or external users and training sessions tend to emphasis similarities, not differences, between different types of users. It is no longer good enough to say the architect in practice needs this information to-morrow but the academic architect can wait until next week. With clearly established and realistic targets, perhaps what we should be saying is that they both need the information the day after to-morrow.

As well as keeping a close watch on distribution of work and providing suitable training courses for staff, we keep everyone informed of changes in policy, procedures or prices through written communication and a regular series of updating seminars. Guidelines are issued to every member of staff and kept at issue desks and information points. Income generated through fee-based services is ploughed back into the whole library service which helps to motivate staff.

It would be overly optimistic to claim that no tension exists especially at busy times or when particular problems arise. Staff are absolutely vital to the success of a fee-based service within a large university library and we work hard at ensuring that everyone knows what is going on, feels they have a stake in the service and can benefit from staff development opportunities. We also try to

ensure that FBS staff are available to help when problems arise or pressure of work becomes too intense.

Quality control

Service standards are closely related to management and training of staff. Introducing charges brings the responsibility to users which should already exist into even sharper focus. As a profession we are increasingly attempting to develop sensible performance indicators to measure our services and improve their quality. At Queen's University we have set targets for acquisition and cataloguing of material and document delivery. We have a complaints procedure and ask for feedback, through user surveys and evaluation sheets, on all aspects of our service. We monitor the use made of our collections and services by our associate members although we could do much more in this area.

Table 2 Use by Associate Members

	1992/93	1993/4	1994/5
Book Loans	4452	4779	4782
Inter Library Loans	140	388	481
Literature Searches	45	67	53
Photocopies	-----	1014	1564

Costing and pricing

Library staff on the whole have little experience in this area and it is often wise to seek help certainly when it comes to pricing services. We were fortunate at Queen's when we set up the Fee-Based Service because our Medical Library, with the aid of external management consultants, had just carried out a thorough study of the cost of its services for the Department of Health and Social Services. We, therefore, had accurate costs from which to work.

Pricing, however, remains an area fraught with difficulty or at the least requiring clear headed decision making. Most prices are based on actual costs (including salaries, stationery, materials and overheads which involve running costs and purchase of equipment), demand and prices set by competitors. Decisions have to be taken about loss-leaders, cost-recovery or profit margin.

Literature searching is particularly hard to price because of the unpredictability of number of relevant references and staff time required. Our charges for annual membership and document delivery (inter-library loan and photocopies from stock) are fixed but consultancy work and literature searching are priced per job.

Table 3 Charges

Membership		Additional Services
Personal Associate Membership		Inter-library loan £10 per item (urgent action) £20 per item
QUB graduates	£33	Literature searching : minimum £25
Others	£55	Photocopying £1 (first page) + 25p.(subsequent pages). 20% discount for account holders.
Professional Associate Membership		Fax £1 (first page) + 75p. (subsequent pages)
Full Rate	£110	
Discounted rate	£100	Consultancy - costed per job
Charities	£55	

Copyright and contracts

At a recent seminar on income generation at the University of Hull [9] there was much discussion about copyright and contracts. These are specialist areas which need to be looked at carefully. Copy-right has been well covered in the literature by Wall [10] and others. Contracts, with clients or with suppliers of information, can be straightforward but are often more complex, for example when dealing with database hosts, and may need to be looked at with professional advisors. More discussion and co-operation between providers and suppliers can help to solve these issues and a platform such as IFLA with representatives from both groups is an ideal place for discussion.

Future developments

What does the future hold? Looking at the service we provide to built environment professionals in Northern Ireland, there are pointers to the future which may be relevant to others contemplating, or already involved in, some level of income generation. No library these days can hope to provide its users' needs from its own collections. Co-operation is an obvious answer to limited resources, shrinking budgets and increasing information sources. Collaboration among fee-based services has long been the norm in the USA mainly thanks to the work of the

discussion group FISCAL (Fee-based Information Services in Academic Libraries). In Ireland the two main academic libraries supplying architectural and planning information to professionals, University College Dublin and Queen's University Belfast co-operate very closely together. As well as helping each other with enquiries and lending material, the two libraries have set up the database IDEAL mentioned earlier. The days of jealously guarding one's home patch have gone, if indeed they ever really existed. Obviously there must be clear financial benefits for all concerned but this is not hard to achieve.

The impact of full text and bibliographic CD and on-line services such as Avery, APId and Construction Expert is not yet clear. The impact of the RIBA's recently established fee-based service has also yet to be seen. It may be that our fee-paying clients will require less help from information brokers like ourselves. Indications at Queen's, however, are that there is an increasing demand for what are termed „value added packages“ and for consultancy work.

One thing is certain, managers of fee-based information services must keep in touch with clients' changing needs and with trends in information supply and provision. No service should be static. Some services will cease to be viable and other needs will arise. In an academic library where the fee/free balance has to be maintained, this means constant reassessment of services offered.

Conclusion

The Fee-Based Service at Queen's University has enabled us to offer a service to architects, planners and others that we would not otherwise have been able to provide. In addition it brings us in a useful amount of extra income that is ploughed back into the library service wherever it is needed whether it be for equipment, additional book and periodical funds or staff salaries. It has raised our profile both within and without the University and it has caused us to look hard and long at the various services we offer and at staff training and management. With hindsight we should have spent far more time at the initial planning stage checking that we had adequate provision of stock, appropriate staff skills and were offering the right sort of services. Looking ahead there are still problems to solve in the age of electronic access. In conclusion from our experience even built environment professionals, notoriously unwilling to spend money on information, are willing to spend money to save staff time and get results. Don't do it for money alone but for money, kudos and the satisfaction of providing a useful service, developing new skills and meeting the challenges of change, then by all means go ahead - or, to quote Coffman [11], pass the business to us.

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PAYING FOR SERVICES: EXPERIENCES AT THE SMITHSONIAN INSTITUTION

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Abstract: The Smithsonian Institution, a trust instrumentality of the United States, and the largest museum and research complex in the world, receives many outside permission requests to reproduce images in the Smithsonian Collections. Charging fees for photographic usage is a common practice in the United States, especially in art, history and general museums. Beginning in 1992, the Smithsonian established internal guidelines for charging such fees and for handling permission requests from outside sources. The procedures to assure that the Smithsonian recognizes and respects the intellectual property rights (copyrights, trademark, right of publicity) associated with images in the Collections and the terms of any pre-existing agreements. Great care is also taken to protect the Smithsonian's name from use in any commercial context to avoid the implication that the Institution endorses a product, or one product over another.

To mark the 150th anniversary of the Smithsonian Institution this year, we are especially delighted to be able to share our experiences with you at the IFLA Section of Art Libraries Workshop. On the theme of Pay or profit: Fee or free, our paper is entitled Paying for services: Experiences at The Smithsonian Institution.

The Smithsonian Institution ("SI") was established in 1846 with funds bequeathed to the United States by James Smithson, an English scientist, for the Increase and Diffusion of Knowledge. The SI is the world's largest museum and research complex, with sixteen (16) museums and the National Zoo, eighteen (18) branch libraries, plus three independent art libraries -- National Museum of American Art/National Portrait Gallery Library, Freer/Sackler Galleries library, and the Hirshhorn Art Library, and over nineteen (19) archival units/operations. This paper will attempt to relay our experiences in implementing policies on charging fees for photocopies, black & white photographs, color transparencies, and for licensing of merchandise, using images from the Institution's vast collections of more than 140 million artifacts and specimens, over 1 million catalogued books and countless materials in our archival collections.

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As a national institution, the Smithsonian is open free to the public and presents a variety of programs and services of cultural and educational value, such as permanent and special exhibitions, lectures, films, Internet's WWW, etc., and the Smithsonian Institution Research Information System ("SIRIS") (Bitnet: SIRIS@SIVM; Internet: SIRIS@SIVM.SI.EDU). SIRIS is a primary avenue for public access to information about our library and archival collections, and as a result, SIRIS generates many users' requests for photocopying. We would like to spend some time familiarizing you with SIRIS.

SIRIS is a computerized collection of research catalogs maintained by Smithsonian Institution's libraries, archives, and research units. SIRIS provides an Online Public Access Catalog (OPAC) to information about research resources held by SIRIS members. There are five institution groups in SIRIS, but we will discuss only three the largest: LIB Catalog, ARC Catalog and the ARI Catalog. The LIB Catalog contains holdings for the eighteen (18) Smithsonian Library branches and the American Art & Portrait Gallery Library. The Smithsonian Institution Libraries (SIL) supports the research activities of the Institution's staff, scholars from around the world, and members of the public. The SIL collections of approximately 1.2 million volumes, including over 15,000 journal titles, are available in the Reciprocal Faculty borrowing program of the Research Libraries Advisory Committee of the Online Computer Library Center (OCLC). In addition, SIL holds a large collection of manufacturers' trade literature and catalogs and historically important rare books and manuscripts. The ARC Catalog is the archives and manuscripts collections catalog. ARC describes holdings of the Archives Center at the National Museum of American History, the Archives of American Art, Human Studies Film Archives, National Anthropological Archives, and Smithsonian Institution Archives. ARC contains 103,523 records as of March 31, 1996. Three to five additional SI archival units are soon expected to join the ARC. The ARI Catalog is the art inventories catalog. The ARI database contains over 300,000 records from two ongoing projects--The Inventory of American paintings Executed before 1914 (a national census of painting created by American artists working prior to 1914), and the Inventory of American Sculpture (a national census of works created by artists born or active in the United States up through the 20th century). ARI is designed to assist researchers in locating American paintings and sculptures. Data has been compiled from reports supplied by private collectors, museums, corporate collectors, and public art programs.

Fees for photocopying library material is one of the most common fees charged in a library, archives or research setting. The charges vary slightly within the Smithsonian Institution. At the National Museum of American Art/the National

Portrait Gallery (NMAA/NPG) Library, we charge single sided copies at 15¢ each, double sided copies at 25¢ each, and microform copies at 25¢ each. The library staff does the copying for users to assure the best care for our material. Smithsonian staff and fellows, current or former, are not charged. Each year the NMAA/NPG Library collects an average of \$2,500.00. However, to upkeep a photocopier and to purchase the necessary supplies amounts to much more, or about \$8,000.00. The Smithsonian branch libraries charge 10¢ per copy. At the Archives Center of the National Museum of American History, the first ten pages per calendar year are free, afterwards there is a charge of 20¢ per page.

Charging fees for photographic usage is a common practice in the United States, especially in art, history and general museums. Beginning in 1992, the Smithsonian established Institution-wide policy permitting its bureaus to charge fees for the right to reproduce images in the Smithsonian collections and guidelines on handling permission requests from outside sources. In establishing a fee schedule, each bureau was cautioned to take care not to inhibit publication of images, especially in the areas of non-commercial scholarly publishing. The guidelines recommend setting up internal procedures to assure that the Smithsonian bureaus recognize and respect the intellectual property rights (copyrights, trademark, right of publicity) associated with images in the collections and the terms of any pre-existing agreements with donors or others. Great care was also to be taken to protect the Smithsonian's name from use in any commercial context to avoid the implication that the Institution endorses a product, or one product over another. We would like to spend most of our time discussing fees established under these guidelines.

Before we examine the specific policies and practices of a specific Smithsonian bureau, we need to define the types of fees that may be charged for reproduction. First, a production fee is charged to anyone who requests an image of a collection object which may include SI-owned photographs, other two-dimensional visual materials, films, or videos. This fee is intended to cover the costs of laboratory, materials and postage expenses in producing the copy for the user. Second, and in addition to a production fee, a reproduction fee may be charged for use of any image in a commercial publication or for other commercial type uses. Such fees are generally waived for scholarly or educational uses. Finally, an access fee may be charged for commercial taping, filming or photographing our objects at our facilities by outsiders. Such commercial activity requires electrical support for additional lighting and staff oversight to ensure safe handling of objects. These three types of fees may be charged whether or not the image is protected by copyrights. However, before granting permission to reproduce an image in our possession, the question of copyright ownership must be considered.

If the Smithsonian owns the copyright in the image or if the work is in the public domain, not protected under U.S. copyright law, the duplication is permitted. If our research shows that the image is protected by copyrights not owned by SI, we refer the user to the owner of copyrights for permission. If ownership is unclear, SI may grant right to reproduce, but only to the extent of our ownership of the copyrights, and we place the responsibility on the user to determine ownership, to procure additional permissions, and to indemnify SI against any claims based on allegations of violation of copyrights and related rights that may arise from the user's failure to obtain adequate permissions. It should be noted that most uses for private study or research purposes would fall under the "fair use" provisions of U.S. copyright law that permits duplication for "criticism, comment ...teaching... scholarship or research" without the permission of the owner of the copyrights. Let us look now at the specific policies of one Smithsonian bureau.

We will use the National Portrait Gallery, one of the Smithsonian Institution's art and history museums, as a model. Each Smithsonian unit, including the libraries and archives, may adopt its own fee schedules and procedures provided that the central Institution-wide guidelines are honored. The act of Congress creating the National Portrait Gallery in 1962 stated that it would function as a public museum "for the exhibition and study of portraiture and statuary depicting men and women who have made significant contributions to the history, development, and culture of the people of the United States, and the artists who created such portraiture and statuary." The Gallery has about 1,480 paintings and sculptures in its permanent collection, 2,674 prints, 1,646 photographs, and about over 550 images in its temporary collection.

The National Portrait Gallery has contracted with a commercial firm in New York City to handle requests for images in the permanent collection that will be utilized in commercial or profit-making ventures, mostly in commercial book publications. All requests for such reproduction uses are forwarded to the firm for processing and are subject to their standard materials and photographic usage fees which are approved by the Gallery in advance by contract. Requests for photographs for personal use, research, non-profit publications or videos, CD-ROM, special media use, etc. are handled by the Office of Rights and Reproductions at the Portrait Gallery.

The National Portrait Gallery offers for purchase photographic prints and slides, and when possible, provides rental of color transparencies for the unrestricted portraits of its permanent collection. Copyright restrictions on some special collections and many portraits created after 1920 prohibit their being made available without prior written permission from the copyright holder. All requests

must be submitted in writing to the Gallery's Office of Rights and Reproductions ("ORR"). A complete request must include the title, artist and accession number of the art work desired, as well as a statement of the intended use of the material i.e. printed or video reproduction, CD-ROM, research or personal use. An invoice will be forwarded for those items that are available, and prepayment is required. Upon receipt of payment, delivery will be made within 4-6 weeks.

Further reproduction of photographic materials is strictly forbidden without the written permission of the National Portrait Gallery or its agents. For nonprofit reproduction uses, Reproduction Permission Forms may be obtained through the ORR. The Gallery does not permit the use of 35mm slides for reproduction or duplication. Color reproductions must be made from 4x5 inch color transparencies. In addition, proofs must be submitted for correction of all printed color reproductions before final approval will be granted. One copy of the finished product is required to be submitted to the ORR. Fees are non-refundable. When paid, the receipted invoice together with the counter-signed permission form constitute official authorization.

The Gallery's production fee is \$10.00 for 8"x10" black and white print and \$25.00 for color. These fees increase for larger prints. The production fee for color slides is \$6.00. Color transparencies in 4x5 inch size may be rented for six months for \$50.00, with a damage or loss fee of \$100.00.

To demonstrate the application of reproduction fees, let's examine four possible scenarios. First scenario: if I want to order a black & white print for personal use to decorate my room, I only have to pay for the production fee. For a black and white 8x10 inch print, the fee is \$10.00; the reproduction fee would be waived for private study purposes; or if I am preparing for my doctoral dissertation, again I only have to pay for the production fee but not the reproduction fee, because my use is for scholarly research, not for profit. Second scenario: a university press, a nonprofit entity, requests an image for a scholarly publication of low press run of about 1,000 copies. Here, the reproduction fee is waived, and therefore there is only a \$10.00 charge for an 8x10 inch black and white print or a rental fee of \$50.00 for a color transparency per image. Third scenario: that same publisher requests an image for use in a publication of a press run of about 10,000 copies, because a profit from the publication is anticipated. For this large run publication, a reproduction fee will be charged, in addition to the production fee. The Gallery's standard reproduction fees for one-time editorial use of the image inside the book is \$50.00 for a black and white image, and \$100.00 for color. For use on the cover, the charge is \$100.00 for a black and white, and \$200.00 for color. Fees are for one-time, non-exclusive use, world rights, in one language

only. Re-use of the image in a later edition or in another publication will be considered a new request. Fees for a CD ROM/laserdisk use (per 5,000 units) is the same as for books. Fourth scenario: a profit making big commercial publisher requests an image for a large run. ORR will refer the request to the New York firm to handle. These fees are usually higher than the Gallery's standard charges. The Gallery is paid a portion of the profit made by the New York firm from use of the image.

The Smithsonian Institution also has a central Office of Product Development and Licensing that arranges for licensing of images in the collections with manufacturers on behalf of the Institution, usually for merchandising and other profit-making ventures. For example, merchandise sold in our museum shops are licensed through this office. A portion of the licensing fees comes back to each bureau for images used from its collection. For fiscal year 1995, the Office of Product Development and Licensing has transferred more than \$13,400 to the Smithsonian Libraries for profits made in that year. Images from SIL collections are used in publications and other products, such as note cards, place mats, framed prints, scarves, and jewelry.

The Smithsonian now maintains several homepages on the Internet's World Wide Web. The main reasons for putting the Smithsonian on WWW are for outreach, content not otherwise or easily conveyed, public feedback/interaction, publicity and sales. The important aspects of the WWW site is to provide general museum information, self-guided tours of exhibition, background information on current exhibitions, programs, and educational activities. The WWW site is being updated on a daily basis. The WWW also serves people with disabilities, since electronic information helps to solve some accessibility issues. All aspects of the electronic rights in a digital library environment can be a big concern for the whole Institution. Among others, the Smithsonian Rights and Reproduction Committee, consisting of staff working in this area institution-wide, is working to establish proposed guidelines for electronic reproduction uses, including definitions for various units/products and the fees to be charged for them. The Smithsonian, unlike the National Gallery of London, the Hermitage Museum in Russia, and the Kimbell Museum in Fort Worth has not contracted for electronic distribution of its images through commercial software companies such as Bill Gates' Corbis, Inc.. SI does have contracts with pay online services in which some of its images are featured along with other information about the Smithsonian.

Usage fees have met with some resistance. There are some who insist that publicly supported institutions should make their images available for free.

Others argue that it is inappropriate for public institutions to charge anything above the minimal production fee allowed under the provision of certain Freedom of Information laws applicable to government entities. Still others argue that nonprofit organizations generally should not be in the business of generating income. However, in times of drastic cuts in public funding and shrinking private support, educational institutions must, as a matter of survival, look to ways to generate income consistent with their educational mission. Under U.S. law, although, a nonprofit organization is allowed to make money to cover the cost of its operations, all profits must be dedicated to advance the social purposes of the organization. Some commentators, however, argue that too much commercialism has crept into some nonprofit institutions in the U.S.. They fear that, in the eyes of the public, these organizations may be viewed as small businesses, indistinguishable from their for-profit counterparts. Most nonprofit institutions are aware of these concerns and work hard to insure that the earned income activities they engage in support and further the organization's interests. The Smithsonian Institution, at its historic 150th anniversary, continues to treat its collections not as assets held for profit, but rather as assets held in trust to support its educational mission, To Increase and Diffuse Knowledge.

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SUBSIDIZING END USER ACCESS TO RESEARCH DATABASES: FROM CARD FILE TO THE WORLD WIDE WEB

By Joseph A. Busch and Angela Giral*

Abstract: This paper reviews work of the Getty Art History Information Program (AHIP, recently renamed the Getty Information Institute) over the past decade to subsidize end user on-line access to scholarly research databases. A brief history of the formation of AHIP is followed by a summary of a study of subsidized access to Dialog databases by Getty Center resident scholars which was reported in a series of papers by Marcia Bates, professor of Library Science at the University of California, Los Angeles. Dr. Bates found that searching patterns of humanities researchers differed substantially from previous studies in the sciences and social sciences disciplines. The second part of the paper presents a model of the relative merits and opportunities associated with the various contractual arrangements and incentive strategies employed by AHIP with vendors such as Dialog, consortia such as the Research Libraries Group, and a CD-ROM publication program, compared to print publications and the experimental offer to access to some of the AHIP databases over the World Wide Web.

Introduction

Since its inception, the Getty Art History Information Program (AHIP, recently renamed the Getty Information Institute) has worked to create scholarly information resources and data standards. These resources and standards are fundamental and critical to the cultural disciplines. They are also building blocks and enabling mechanisms for information networks. All of AHIP's activities are grounded in the belief that networks will eventually connect arts and humanities information across national boundaries; and that this networked information must maintain scholarly depth and perspective for research and education while offering content and form that appeal to broader audiences.

In the early 1980's the Getty Trust agreed to undertake the costs of operating the *Avery Index to Architectural Periodicals* and the *International Repertory of the Literature of Art/Répertoire International de Literature de l'Art* (known as

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RILA). In 1989, RILA merged with the *Répertoire d'Art et d'Archéologie* (known as RAA) to form the *Bibliography of the History of Art/Bibliographie d'Histoire de l'Art* (known as BHA) which is jointly operated with the Institut National de l'Information Scientifique et Technique (INIST). Together with the *Provenance Documentation Collaborative*, a consortium of libraries and archives in Europe and North America, AHIP's current Research Database Program is producing seminal resources that support the study and practice of architecture, art history, and associated disciplines. In partnership with affiliated institutions and individual researchers more than ten year's dedication to building these resources has brought them to maturity just as information networks have advanced to a state where they can exploit them.

Today, our continued investment in and commitment to the resource databases is taking advantage of increased inter-connectivity not only in shaping user access to the resources but in creating decentralized and participatory mechanisms for adding to those resources. In the future, these resources may be created in cooperation with their users. They will contribute to the selection, description, and indexing of relevant research materials. Users will add links to related information that exist in the many and various digital libraries, archives, and museums. The role of the Research Database Program will be to orchestrate, coordinate, and edit information about our shared cultural heritage worldwide, and the research databases will appeal to a broad audience of specialists as well as the public.

Case Study 1: Changes in Pricing of the *Avery Index to Architectural Periodicals*

The *Avery Index to Architectural Periodicals* was founded in the mid-1930's as an extension to the reference services of Avery Architectural and Fine Arts Library. Originally maintained as a card file available only at the library, it was first published and made available to the outside world by G. K. Hall in 1968.

In 1974 Columbia University became one of the founding members of the Research Libraries Information Network (RLIN). The process of computerization, designed to enhance worldwide accessibility to the *Index*, had the immediate impact of slowing down the creation of records, on the one hand, and decreasing accessibility to the users of the Avery Library for whom the *Index* had originally been created. To recover costs, RLIN charged its members for deriving a cataloging record from an original record contributed by another institution. It also levied a fee for searching the growing bibliographic database. When the special databases were created (the *Avery Index* being the first of these) it was

known that no one was going to derive records from them. Thus the contributing institution, the Avery Library in this case, paid a fee for creating its own records in RLIN. A surcharge of 50% per connect hour was then charged to searchers to compensate the creators for the fees they paid for creation as well as for the intellectual effort of creating the analytic records. Online searching being what it was in those days, the income did not cover for the costs. Thus, as a result of computerization, the creation of *Avery Index* records was costing Columbia more while it was serving its users less than before computerization.

In October 1983 the *Index* became an operating program at the J. Paul Getty Trust and in May 1984 it became one of the constituent activities of the newly created Art History Information Program. One of the first things the Getty Trust did was to lower the cost of searching the *Avery Index* online by eliminating the surcharge charged for searching it on RLIN. Thereafter users of the *Avery Index* online on RLIN paid only \$60 per hour of connect time instead of the \$90 they had been paying up to that time. Also, thanks to Getty support, the Avery was able to expand the indexing staff so that the accumulated backlog was eliminated, and the *Index* was able to be kept current. Finally, the Getty subsidized the preparation of camera-ready pages from the online database, so that G. K. Hall could print annual „supplements“ to the *Index* and sell them to subscribers at an affordable price. The first computer-generated volumes were published in 1985 and titled *The Fourth Supplement (1979-1982)*.

Then the costs of technology changed. The cost of computer storage decreased as the cost of telecommunications with dedicated lines increased, making it less cost-effective for RLIN members to create records on a central mainframe computer located in California, and more cost-effective to create records on local cataloging systems. This threatened to diminish the value of the central RLIN bibliographic database as a source for „copy cataloging.“ At the same time, the use of the RLIN bibliographic database for verification, reference, and interlibrary loan was increasing.

RLIN decided to change the cost-recovery formula and began charging on the basis of the number and kind of searches performed instead of on the number of connect hours. For example, a search by the record identification number (which is very efficient) cost half or a quarter as much as a search by any other field. To encourage institutions to contribute good quality records to the database, a system of searching credits granted for the contribution of original records was devised. Lastly, the cost per search became lower when an institution purchased a block of searches in a year. But all of these pricing strategies were designed for a bibliographic service aimed at a professional market of libraries and librarians.

The full implementation of local area networks with gateways to the Internet were just emerging.

In 1987, the Avery conducted an end user pilot study to assess the feasibility of providing users direct access to the *Index* without the intervention of a librarian, much as they had had when the *Index* existed only in card form. The project was advertised to faculty and students in the Department of Art History and the Graduate School of Architecture at Columbia University and flyers were posted throughout the Avery Library to capture potential alumni users. The flyer offered a week of free access to the database if users agreed to come for a two-hour training session, to have their transactions recorded, and to answer a questionnaire. Of a potential user population estimated to be 800 students and faculty, only 14 applied to participate in the pilot project. Half of these received instruction and access information, including a password, but only three continued with the project by actually logging in search time from their home or office.

In spite of the small population of this study, the Avery was able to learn some useful things, reported fully by Janice Woo in the „Final Report“ [1]. Perhaps the most significant findings were that the transaction logs showed successful searching whether the user had received the two-hour training or just the written instructions, and that all three were willing to pay for access from home or office - but no more than \$10.00 per hour.

However, it was not until 1992 that two important developments enabled enhanced direct user-access to the *Avery Index* online: RLIN designed a more user-friendly interface, named „Eureka,“ and the *Avery Index* moved from the special database environment to a new service entitled „CitaDel.“ This is a subscription service where an institution pays an annual subscription fee for wide access through their campus or local area network. The subscription charge was initially based on the total number of potential users, but was changed to the current formula based on the number of simultaneous users.

Columbia University keeps statistics on the use of the various databases offered on its Clio Plus campus network bibliographic system. The *Avery Index* receives an average of 4,000 searches per month. It is unknown how many searches are performed at other institutions, but at least 60 are offering such access (through RLIN) to their faculty and students throughout the world.

The Research Libraries Group (RLG) is a non-profit consortium that has to recover the costs of the services it provides. RLG has made creative use of pricing policies to encourage certain behaviors while discouraging others. It is clear that

for arts and humanities databases (among which Avery is counted) are not commercially viable, let alone profitable. The Avery Index exists because first Columbia University, and then the Getty AHIP have subsidized the creation of the information it contains. Access to this information has traditionally been purchased by institutions for the free use of their selected users: first through the purchase of the printed books, and more recently through the purchase of either the CD-ROM version or subscription to online access through RILIN. Never has the individual user paid directly for such information and those who were asked did not volunteer to pay a large fee.

Case Study 2: Getty On-line Searching Project

From 1989-90, AHIP conducted a study of subsidized access to Dialog databases by resident scholars at the Getty Center for the History of Art and the Humanities. The visiting scholars were given unlimited on-line searching access to Dialog databases from a workstation in the Getty Center Library. Before each search, the scholars typed their research question in their own words, and during the search a log of all entries and system responses was captured by the computer. With the scholar's permission, this transaction log was analyzed by Marcia Bates, professor of Library Science at the University of California, Los Angeles, with the assistance of students and Getty staff, and reported on in a series of papers [2-6]. This log of the on-line search activity of 28 humanities researchers over a two-year period is a unique data set representing the perspective of humanities researchers that can be compared to similar bodies of data representing on-line searchers in the science and social science disciplines.

The statements of research questions by the scholars in the Getty project has been particularly valuable in documenting differences in the search behavior of humanities researchers compared to the search behavior in other disciplines. As illustrated in *figure 1* approximately half of the humanities search questions included personal names, a quarter geographical terminology, a quarter „discipline“ terms, and a sixth contained chronological terminology. (Note that the total percentages are greater than 100 because search question statements may have included more than one type of search term). Discipline terms are the names of disciplines such as „art history“ or „rhetoric.“ These observations confirm that scientists and social scientists largely search by common subject terminology, while humanists make extensive use of formal names.

Type of Subject Term	Humanities	Sciences & Social Sciences
	<i>Getty Study</i>	<i>NSF Study [7]</i>
Work or publication	5%	3%
Personal name	49%	0%
Geographical name	25%	8%
Chronological term	17%	3%
Discipline term	23%	0%
Other proper term	7%	11%
Other common term	57%	100%

Figure 1 - Comparison of types of terms in statements of research questions.

While humanists use different conceptual models in formulating their research questions, the principles of databases design and of on-line search services such as Dialog are specific to the needs of users in the bio-medical and technological disciplines. Dr. Bates reports that --

- The free Dialog search service was not used very extensively; most used it for less two hours total.
- Search statements were very simple; approximately two thirds were Select statements.
- Boolean searching is a problem for humanists; more than one quarter never used a Boolean OR.

These results do not diverge significantly from other research into studies of end user on-line searching behavior regardless of discipline.

The most interesting of Dr. Bates' papers is no. 4 [2]. In it she speculates on the intrinsic nature of humanities research, how it differs from other disciplines in

terms of, for example, the objects of study and the relationship between research and the literature which documents it. She observes from the interviews

conducted with scholars who participated in the Getty Project that the value of on-line (or manual) searching for these scholars was to identify publications that were outside their normal research areas. Finally, she discusses what database services might be of interest to humanists, how databases might be designed to address the specific needs of humanists, and search interface and functional design considerations for this special class of end users.

Taken together, the reports of the Getty Project provide many insights into the potential for on-line searching in the humanities. They also provide a comprehensive justification of AHIP's research database program and a road map for its improvement in the future.

Comparison of Distribution Models

The Getty's involvement with supporting the creation of research resources bridges the transition from printed card and book indexes to on-line databases and CD-ROM's. The early computer systems and editorial standards and policies were designed to support centralized data collection and editorial work, and the automation of typesetting and distribution of printed books. In the mid-1980's, AHIP began to experiment with commercial and non-profit on-line search services such as Dialog and the Research Libraries Information Network (RLIN). In 1994, AHIP began publishing on CD-ROM, and last year initiated limited World Wide Web access to some databases on an experimental basis.

From the beginning, the costs of collecting, editing, and publishing high quality research information has far outstripped the revenues generated from their use. Supporting these costs has amounted to a huge subsidy to the institutions who purchase and provide access to the products. While AHIP has always assumed that success could only be measured in terms of our effectiveness in reaching the ultimate beneficiaries of these resources, the researchers; it is very difficult to measure the actual number of users of a printed index or CD-ROM, or the number of actual end users of an on-line search service. While some have argued that the information would reach the most users by simply giving it away at no charge, the inability to measure the *real* end user audience has been an obstacle to making this argument. Like other organizations, the Getty requires accountability from its projects, and as everywhere else there is competition for funds. The research databases have experienced level funding for the past five years, and the Getty would like the operating costs in some cases to decrease substantially.

There are relative merits and opportunities associated with the various methods for distributing research databases. The following model suggests some of the factors to be considered in measuring their relative value.

1. Information Quality - *the quality of the information in terms of the searching functionality that is supported.* Printed books require look-ups in each quarterly or annual volume, while a CD-ROM or on-line service supports searches across the entire database. In a printed book the complete bibliographic information exists only once in a volume, while a CD-ROM or on-line service provides access directly to the complete search results. Searching databases at AHIP's web site supports only keyword searching, while CD-ROM's and on-line services support field-specific searching with index lists. Web searching is stateless, while CD's and on-line search services are interactive, that is, search results can be combined, sorted, and saved.
2. Number of Accesses - *the number of accesses that can be physically supported as well as the total number of users.* Printed books and CD-ROM's are essentially single user products. While it is possible to network our CD-ROM products or copy them to a network hard disk, this is done infrequently for the purpose of providing simultaneous access. Commercial services while capable of supporting many users at the same time, have relatively few users. Non-profit services such as subscriptions to the RLIN CitaDel service provide desk top access through campus-wide information services, for example, to every desk top at every University of California campus. Accessible at no charge through any Internet provider, the AHIP web site has the largest measurable number of database accesses (over 5,000 per month).
3. Royalties Received - *the amount of royalties earned as a function of the number of sales or accesses and the royalty rates.* Royalties from books and CD's are relatively high but the number of units sold is small since these are marketed principally to institutions rather than individuals. Since the manufacturing costs of CD-ROM's is low, there is the potential to realize higher royalties if sales are equal to printed volumes, (particularly with BHA which is self-published). The highest royalty rates are from the commercial on-line search services, but AHIP has generally foregone royalties in order to keep the access charges as low as possible. The Avery Index realizes the greatest royalties from RLG CitaDel searching. Using the same strategy as with commercial services, AHIP has agreed to forego RLG royalties for BHA for 3 years in order subsidize access at a lower cost. There are no royalties from Web access.

4. User Charges - *the amount charged to purchase or access a resource* (a negative value). Print and CD-ROM publications are priced for institutional purchasers at approximately \$1,000 initially, plus \$500 per year for update subscriptions. Commercial services are the most costly to use at approximately \$50 or more per hour, plus charges for each citation that is viewed or printed. Non-profit search subscriptions cost approximately \$1,200 per year for the first unlimited access logon and \$750 per year for each additional logon. Rates for large consortia are negotiated individually. Web access is as inexpensive as an Internet connection plus telecommunications charges.
5. Producer Subsidy - *the amount of subsidy provided by the Getty* (aside from the content development costs). Printed volumes are expensive to produce, market, and distribute; CD-ROM's less so. Data for commercial and non-profit services is inexpensive to produce but royalties are generally foregone to subsidize access. Web access is totally subsidized and potentially undercuts sales through other distribution products.
6. User Information Contribution - *the opportunity for users to contribute to the selection, description, and indexing of relevant research materials*. Print, CD, and commercial services are one-way communications channels. Non-profit and Web-based services can be enabled for two-way communications.

Each of these factors has been given an approximate value (from *low* to *high*) in figure 2 below. This subjective analysis indicates that the non-profit distribution method provides the best mode of overall access. AHIP concluded an agreement with the Research Libraries Group in March to foster broader information access and contribution by the international cultural heritage community. While this analysis supports this decision, we will monitor the results of the AHIP/RLG partnership to determine how best to extend access to research databases in the future.

	<i>User</i>						
	<i>Information</i>	<i>Number of</i>	<i>Royalties</i>	<i>User</i>	<i>Producer</i>	<i>Information</i>	<i>Total</i>
	<i>Quality</i>	<i>Accesses</i>	<i>Earned</i>	<i>Charges</i>	<i>Subsidy</i>	<i>Contribution</i>	<i>Rating</i>
<i>Print</i>	Medium	Low	Medium	(Medium)	High	None	Low
<i>CD-ROM</i>	High	Low	High	(Medium)	Medium	None	Low
<i>Commercial</i>	High	Low	Low	(High)	Medium	None	Low
<i>Non-Profit</i>	High	High	Medium	(Medium)	Medium	Medium	Medium
<i>Web</i>	Low	High	None	(Low)	High	Medium	Low

Figure 2 - Comparison of Distribution Models.

Notes

1. Woo, Janice. „The Online Avery Index End-User Pilot Project: Final Report.“ Information technology and Libraries (September 1988): pp.223-229.
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7. Saracevic, Tefko, and Kantor, Paul. „A Study of Information Seeking and Retrieving. II. Users, Questions, and Effectiveness.“ Journal of the American Society for Information Science 39 (May 1988): pp.177-96.

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