

# Archives and Museum Informatics

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## Interactive ain't necessarily good

Recently I was asked to suggest how to judge installed interactive multimedia productions in a possible competition for the best museum interactives. The hope is that introducing criteria and holding competitions for the best would benefit museums both by rewarding those who created excellent products and providing some guidance and examples for those who want to improve the vast majority of interactives which are less than great. In thinking about criteria, I considered the thirty or so interactive installations I visited while I was in Australia this spring and asked myself why some were quite successful and others failed. I was moderately surprised to find as I systematically compared them, that technical virtuosity played little role in success and that the few technical issues which were important were the debugging of the software and the fit between the technical realization and the audience. I was not surprised to discover that content was critical, because this is, after all, the scripting of a creative production, but I was surprised to find how important appropriateness to the audience turned out to be. In the end, I suggested the following categories be used by judges to rank each interactive nominated for an award.

### Content:

- » Originality of approach
- » Accuracy of information
- » Quality of text, images & sound
- » Integration with rest of exhibit/museum content
- » Quality of attract sequence/mode

### Appropriateness to Audience:

- » Appropriateness of Interface tools & metaphors
- » Length/Amount of Content
- » Appropriateness and extent of Help
- » Complexity of Navigation Structures
- » Adequacy and techniques of feedback

### Appropriateness of Implementation:

- » Amount of value added by its being interactive
- » Ergonomics of installation
- » Use of Monitoring capability by museum
- » Integration with rest of exhibit/museum installation
- » Appropriate delivery devices

### Software Functionality:

- » Brittleness or Ease to crash/confuse
- » Completeness of all paths
- » Exploitation of underlying software features
- » Reusability and interchangeability of content; e.g. adherence to standards

I am beginning to use these categories to compare interactives worldwide and would appreciate hearing from readers who can suggest other categories that ought to be considered and criteria that would be relevant either to these or the new categories. D.B.

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## TRILLIUM: An Information and Ideas Network for Ontario Museums

by Richard Gerrard (Registrar, Collections Management, Toronto Historical Board, and Chair, TRILLIUM Committee, OMA) and Jim Leonard (Computer Advisory Coordinator, Ontario Museum Association)

### Computers, Telecommunications and Museums

Who in the museum community would have predicted the impact of the grandchildren of the Altair 8800 (introduced to the world in 1975 as the first "real" microcomputer) would be having on the way we do business in the 1990s. The impact easily could have been nil (and this essay not written), except for two products released six years later, which would completely change the way we think about information sharing. The first technological innovation is well known, the second less so. In 1981, International Business Machines launched the Personal Computer, or the IBM PC, which has become an industry standard. The second standard created in that year came with the introduction of the Smartmodem 300 by Hayes. It is the descendants of these two devices that permits the participation of smaller museums in the wide-area networked museum computing project known as TRILLIUM.

### Networked Museum Computing in Ontario

About the time that the Altair was hitting the market, the National Inventory Programme (NIP) of the National Museums of Canada was formed. This would evolve over time into the Canadian Heritage Information Network (CHIN). Based on a mainframe host, the NIP was initially to provide computing services to 21 of the largest museums in Canada. The objective of the National Inventory Programme is "to create from this wealth of material, a central data bank of information describing key items and collections." In Ontario, this included (in 1978) only the Royal Ontario Museum and the Art Gallery of Ontario in Toronto, the National Museums of Man, National Museum of Natural History, Canada Council Art Bank, and Parks Canada Programme in Ottawa.

The model of large collection database on a mainframe host was adopted in the early 1980s in the formation of Watwell, the Waterloo-Wellington Museum Management Co-operative, at the University of Waterloo. A combination of factors was to limit the success of this project. On the system side, there was limited data access on the host. On the user side, a difficult to use interface, combined with poor training and support, caused the system to be under utilized. These factors were compounded with increasing availability of microcomputers and a feeling that information could be gathered faster by telephoning a colleague rather than calling up the database. This seemed to indicate that a new approach would be required to deal effectively with computerizing museums.

In 1986 the Ontario Museums Association (OMA) and regional museum representatives developed a strategy to computerize museums in the existing regional networks loosely based on Watwell but without a mainframe host, and the Automating Ontario Museums project was born. Museums from five out of the then twenty-two regional museum groups submitted equipment grants to the Ontario Ministry of Citizenship and Culture to purchase computers, peripheral devices and a full range of application software.

Acquiring computer equipment and software was only the first stage of the project since additional funding for implementation and training had to be found if automation of these museums was to be a long term success. All participating museums elected to use IBM-compatible hardware with the MS-DOS operating system. Participating museums used the temporary staff to develop in-house applications from various "off-the-shelf" database development tools such as dBASE III+ and Revelation. The OMA sought funding to hire personnel to train permanent staff, develop applications and perform data entry for the participating museums. Grants were secured from the Canadian Federal government under the CEIC Job Development Program to hire twenty-two persons for one year.

The Automating Ontario Museums project formally began in April 1987 in the Peterborough, Hamilton-Wentworth, Kingston, Waterloo and Niagara regions. Much of the project's success was a result of regions pooling their resources and coordinating funding strategies to help secure the substantial grants from the provincial and federal governments. Staff hired under the CEIC programme helped ease the often difficult adjustment experienced by permanent staff and provided comprehensive day-to-day training and support. They were also able to establish basic automated collections management systems at each site.

### OMA/CHIN cooperative venture: 1987-1991

The success of Automating Ontario Museums encouraged the OMA to consider developing a more formal and broader based computer network to support the participating institutions and other interested sites. CHIN staff took part in a series of seminars held near the end of the "Automating Ontario Museums" project to feature the work of the system. This collaboration led to further discussions between the OMA and CHIN to foster a joint networking project.

In 1984, a moratorium was placed on CHIN accepting new client museums. CHIN was quite interested in developing a working partnership with another institution to create a regional network. Such a plan would allow them the means to extend their services to a new client base without burdening already limited resources. The OMA saw such a proposal as a means to implement an innovative new and cost effective service to its membership.

Early in 1988 a special OMA ad-hoc working committee was struck by OMA Council to work with CHIN on the proposal. A draft user agreement was submitted to Council for discussion in May 1988. The two year agreement between the OMA and CHIN outlined deliverables expected from both parties, goals of TRILLIUM and resource allocations under the "joint pilot project", was signed June 29, 1988. The OMA would supply a full time project manager to manage the network, provide installation and training and encourage automation in Ontario. CHIN agreed to provide the use of their mainframe system as network server, pay telecommunication and storage charges, provide technical services, and consultation as needed.

The TRILLIUM Network was developed as a prototype. If successful, it could conceivably be used as a model to extend CHIN services to other provinces. TRILLIUM would provide low-cost, nation-wide electronic messaging and document exchange services (using Envoy.100), access to CHIN's reference databases (such as Artists In Canada and the National Collection Databases) and provide for the ability for clients to eventually share collections data with the National Databases. Unlike original CHIN client institutions however, interested participants in TRILLIUM would upload portions of their collections data to the CHIN National Databases from their own in-house systems. Original CHIN clients used the mainframe as the host for their collections management systems.

TRILLIUM was promoted as an electronic communication network to facilitate the exchange of ideas and information. Narrowing the barriers of distance and isolation between museums in a large province. Any museum, art gallery or related institution in Ontario could join the network provided that they were an OMA institutional member, had access to a micro-computer and modem and were willing to pay a nominal user fee of \$100 per year (as of date of writing).

### **Project Management**

The TRILLIUM Network is guided by a Committee of OMA Council. The TRILLIUM Committee was mandated to review the existing aspirations of the project and the nature of services, prepare recommendations on how to proceed with the TRILLIUM program, including a vision statement, new objectives, overall strategies and requirements for growth, and investigate the potential for long-term funding and business plan. To assist them in this and manage the operational aspects of the network the OMA secretariat hired a Computer Advisory Coordinator. His primary role has been to build user confidence, market TRILLIUM, and promote CHIN services and computerization.

Network-specific services have included, visiting sites anywhere in Ontario for modem installation and training, telephone and e-mail "hotline" support, occasional follow-up visits, distribution of instruction manuals and updates, consulting with users on collection data standards and

computerized collections management and supporting user groups. Other duties include periodic service evaluations, identifying new features to help ensure the network's viability, acting as the CHIN Users Representative for TRILLIUM clients, making presentations at regional meetings and general marketing.

A major component of the project review has been to survey the client base to evaluate existing services and indicate which new features they would support and at what cost. The survey was circulated to all users in December 1991 and enjoyed a 65% response rate. Results have been used to chart overall strengths and weaknesses of the existing programme and identify potential new services.

### **Project Membership**

Currently TRILLIUM is composed of 70 client institutions located throughout Ontario and made up of: 41 community museums and/or historic sites, 15 specialty museums, 7 art galleries and 7 associations or government agencies. Membership has grown steadily since the project began. TRILLIUM now represents more than a third of the OMA's Institutional membership. In fiscal 1991-1992 TRILLIUM enjoyed a 25% increase in new member institutions suggesting the rate of new membership seems to be picking up pace as the project gains acceptance and more institutions purchase or upgrade computer systems. It should be stressed that each institution using TRILLIUM, represents several staff, volunteers and members.

A larger number of smaller institutions have joined TRILLIUM than might be expected. More than 76% of TRILLIUM institutions operate on less than \$180,000 per year with a full 51% operating on less than \$120,000 per year. A recent survey of users indicates that TRILLIUM is perceived as a cost effective means to augment limited resources, open new lines of contact and expand artifact research sources and additional curatorial resources that otherwise might not be available.

Usage of the TRILLIUM network has evolved in a series of overlapping stages. Participants are at varying levels of sophistication and experience on the system. Generally users seem to advance from simply posting electronic messages and bulletin board notices to uploading and downloading computer files, searching for information with the CHIN reference databases and National Databases. Soon interested TRILLIUM clients will be able to contribute collections data to the National Inventories but roughly half the users still have less than 25% of their collection records in an automated system.

The recent TRILLIUM survey indicates that the most popular feature of TRILLIUM is the electronic mail. Over 77% of the users surveyed listed this as the most important feature of the network. Users have been encouraged to access the Reference Database services but it still remains a less popular feature due primarily to a lack of time to master the command line interface of BASIS the system software.

TRILLIUM has also become the focal point of the OMA's general computer advisory services available to any museum in Ontario. The service is maintained by monitoring trends in the computer field, building a resource library with books on information science, telecommunications, general application software and database systems. A series of resource packages covering the basic components of automation such as hardware, software, data standards, TRILLIUM itself and collection database software have been created. Since 1990, well over 100 requests for these packages have been made by museums around the province. Special on-site assistance has been provided to the museums planning to computerize for the first time or to upgrade systems.

#### **Future Directions: Computer Advisory Services**

Results of the 1991 client survey indicated the need for additional support services. The OMA is now planning to develop a TRILLIUM Users Group that will meet periodically to discuss technical issues, air problems, learn about new services and share information. The OMA intends to utilize some of the resources of the existing Professional Development Programme and deliver workshops on various aspects of automation in museums and the TRILLIUM project. Investigations are underway to assist museums with the purchase of computers and software more easily through bulk purchasing and other cooperative ventures - after all, the long term viability and growth potential of TRILLIUM is dependant on museums being equipped with computers. Such a plan is also consistent with the OMA's vision statement for automation in Ontario museums.

#### **Data sharing with National Databases: pilot project**

The OMA and CHIN are now planning the next phase of the TRILLIUM Project - having willing institutions, contribute portions of their in-house collection databases to the CHIN National Collection Databases. Three institutions with a significant degree of their collection records automated using different software have been approached to participate in a pilot project.

The National Databases act as indices of Canadian museum collections. They contain well over 2,000,000 records and are accessible to all institutions using CHIN or regional networks like TRILLIUM. The collection data fields in the Humanities and Natural Science National Databases are information-oriented and non-confidential. Data relating to donor/source, purchase price, insurance value and so on, are of course, excluded. There are only about 40 data fields currently accessible to all network users. Data must be "of primary importance in retrieving information about an object...that they contain data which is of value for exchange, that they do not contain long textual data...".

Collections data from TRILLIUM clients will not be contributed to the Nationals until evaluated for data compatibility. The most difficult part of participation in the

National Database is ensuring that the database can be converted (temporarily or otherwise) to follow CHIN standards for database structure and data format, following the standards which CHIN participants have developed after 20 years through multi-disciplinary Working Groups. Participating museums have sent printouts of their database field structure, a few sample records, and supporting documentation to the OMA. The OMA and CHIN will use that material to determine to what degree the data already adhere to the CHIN data standards and how much reformatting will be necessary.

#### **An Electronic Community**

This is an extremely exciting time for telecommunications and computerization. The impact of these combined technologies on museums has been dramatic, and will continue to escalate in the foreseeable future. Other regional museum networks, like SHIN in Saskatchewan, are appearing across Canada based in part on the innovative model of the TRILLIUM Network. International networks in North America and Europe are in place or being created. For the first time electronic information sharing among museum staff on the same scale as the university's BITNET or INTERNET seems a possibility. University and government researchers (generally in the sciences) have used networks since the early 1970's to share information between mainframe computers.

A communications network is only as successful as the people who use it. TRILLIUM has enormous potential for supplementing the information resources available to Ontario Museums. The network has the potential for putting museum workers in contact with the finest minds in the most famous museums in Ontario, Canada and the World. As a communications tool it will continue to change the way curators, collections managers, and researchers do their jobs. It will create (if properly encouraged) an electronic community of people with common interests and goals, by facilitating data gathering and exchange, collaborative research and writing, and the dissemination of new information arising from this symbiotic relationship.

The Computer Advisory Coordinator has created an on-line newsletter, "TRILLIUM News". Current events, job postings, and exhibition openings are just a few of the topics covered. Other ventures in electronic publishing (e.g., longer articles, research findings, educational material) are in the discussion stages. The TRILLIUM Committee is meeting as an electronic work group on the network. We have set up what might be described as a teleconference. The e-mail address "TRILL.COM" for the conference is a distribution list containing the network addresses of all the committee members. A special interest discussion group devoted to Collections Management supports data exchange and collaborative investigation on a number of collections related topics. If the teleconference continues to be successful, other teleconferences and special interest groups will be established.



## The Micro Gallery at the National Gallery of London

by Ben Rubinstein

[Cognitive Applications Ltd., 4 Sillwood Terrace, Brighton BN1 2LR England; fax (44) 273-722767

### What is the Micro Gallery?

On July 9th, 1991, the National Gallery in London opened its new Sainsbury Wing, the first major extension to the Gallery in over fifty years. In a room below the new galleries which now house the Gallery's early Renaissance collection is located the Micro Gallery, opened at the same time.

The Micro Gallery was designed to enrich the visitors' experience of the National Gallery's collection by giving visitors access to more information about the paintings than can be displayed by labels on the wall. It may be used before going to the paintings to plan a visit, or after a visit to find out more about a particular painting or artist. Since the opening it has been in continuous use by hundreds of visitors a day, of vastly differing ages, who use it for periods ranging from ten minutes to two hours or more.

The Micro Gallery consists of a room next to the restaurant, containing twelve 19" touch-sensitive screens built into the wall. All the units have seats for between one and three people; nine of the units have a printer built into the wall next to them. Use of the Micro Gallery is free and open to any visitor without prior arrangement; paper copies of screens can be printed for a small fee. Each unit is an electronic catalogue to the Gallery's collection. The publication has five major sections: a Painting Catalogue; Artists Biographies; an Historical Atlas of Western European art; a Types Index; and a General Reference section.

Each of the approximately 2,200 paintings in the permanent collection, and on long term loan, has at least one 'page' in the catalogue, giving information about the painting illustrated with a large, high-quality reproduction. Some paintings have more extensive information, up to about eight pages, discussing such topics as the subject, the patrons, the techniques, restoration, composition, and many others. (Each painting 'story' does not cover all these topics of course, but discusses a selection of the most interesting aspects of the painting.)

Each of the 700-800 artists responsible for the paintings has at least a one page biography; some have up to three pages. The biographies act as one of the indexes to the paintings, since each biography is illustrated by active 'thumbnail' images of all the paintings by that artist in the collection.

The paintings have also been arranged by the place and period in which they were painted, and this is accessed by

a 'Historical Atlas of Western European Art'. This section allows the user to choose a particular period, and see a map of Europe with a brief discussion of artists represented in the catalogue that were active at that time; relevant places on the map are active. Alternately the user can select a single place from a master map, and page through articles about successive periods. In either case, the user accesses one to three page articles discussing particular places and periods, illustrated with maps and active thumbnails of paintings from the collection.

A fourth section rearranges all the paintings in the collection by picture type; again this section as well as forming an index contains brief discussions of different formats and subjects. Thumbnail images of the paintings are arranged chronologically, allowing users to see how the treatment of a particular subject developed.

Finally there is a General Reference section, containing short entries on topics such as painting techniques, symbols, biblical/historical stories, and notable people, illustrated with active thumbnails of relevant paintings in the collection. This fifth section does not aim to be comprehensive.

There is extensive cross-linking throughout the system. Often articles about paintings or artists will refer to other artists - the artist's name may then be made active, allowing the user to branch off to the biography of that artist. Similarly where another painting is illustrated for comparison, the user can touch that painting to find out more about it. A 'See Also' button allows the user to make connections directly, for example from a painting to its artist, to the relevant entries in the Historical Atlas and Picture Types sections, and to any related entries in the General Reference.

Throughout the system, some words or phrases are marked with an asterisk. Touching these words causes a short definition or description to appear in a panel 'floating' over the page. This glossary covers approximately the same topics as the General Reference section.

Any page in the system can be printed in black-and-white for a small fee (comparable to normal photocopying charges). Additionally, users can select a number of paintings for their 'personal tour'; at the end of a session, they can print a map of the gallery with the locations of the selected paintings marked on it; this map is entirely free.

### It's big, it's beautiful, it's brisk: some basic statistics

The Micro Gallery is a very large publication. It has about 4,500 pages; over 300,000 words of text; some 12,000 high quality illustrations; and a number of animations. It is rather better looking than most computer-based publications. This of course has a lot to do with the material it describes; but there are a number of technical aspects to it as well. Firstly a great deal of attention was paid to the reproduction quality of the images. We have become very used to technical reviewers of the system assuming that the display is 24-bit; to non-technical users

the pictures are just much better than they have seen before on a television or computer screen. The display hardware chosen has unusually high resolution 82 dots-per-inch (dpi) compared to the typical Macintosh display of 72dpi, and typical PC display of around 65dpi and refresh rate (over 70 Hz): this means that the display is exceptionally stable, with no flicker, and it is much harder to see individual pixels. All the text displayed on the 'pages' is anti-aliased, which removes the 'jaggies' characteristic of most computer text. Combined with a deliberately 'classical' approach to graphics and layout, all these factors contribute to another reaction we often hear: that the system has more of the feel of a book than of a television or computer screen.

A major design objective was for the system to respond swiftly, to encourage users to be adventurous while browsing; on average it takes about a second to go to any page. This was achieved by the use of purpose-built software for the project, and dedicated hardware for each unit (behind

each screen in the Micro Gallery is a Macintosh IIfx, fitted with an internal 1.3 Gb hard disk). The use of dedicated hardware has additional advantages of increasing robustness for the room as a whole (if one unit has a problem the others are unaffected).

The project took about two and a half years, and employed between four and ten people over that period. At the very start, the National Gallery appointed Martin Ellis to be the project manager: he was responsible for making several of the basic technology decisions; for recruiting Cognitive Applications to design and build the software; and for the appointment of Gilly Furse, the system's editor, and the imaging and layout staff. Initially we built a prototype (funded directly by the National Gallery) which demonstrated what the technology could do (inevitably it was far cruder than the system finally produced). While this was a valuable exercise in itself, the chief purpose of the prototype was as a demonstration to help recruit a sponsor.

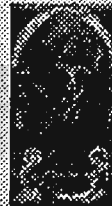
## Perspective

GENERAL REFERENCE

Perspective creates an illusion of three-dimensional space on a two-dimensional picture surface.

The 'single point' system (linear perspective) was invented by Brunelleschi in Florence in relation to his architecture. It is mathematically constructed so that all receding parallel lines appear to converge towards each other, eventually meeting at a single point, the vanishing point. This system was used by artists from the early 15th century in Florence, and codified by Alberti in *De Pictura*.

Objects in the background appear smaller than those in the foreground. Netherlandish painters in the early 15th century, represented the world as they saw it, creating a convincing illusion of three-dimensional space empirically, without linear perspective.



☐ The Virgin and Child  
MASACCIO



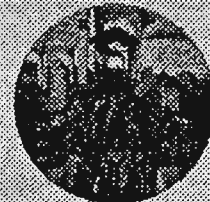
☐ The Battle of San Romano  
UCCELLO



☐ The Arnolfini Marriage  
VAN EYCK



☐ The Annunciation  
Filippo LIPPI



☐ The Adoration of the Kings  
BOTTICELLI

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General Reference Entries

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The Micro Gallery was generously sponsored by the American Express Foundation, to the cost of approximately \$1M. This budget paid for all the hardware and software purchased for the project (both for development and installation); the salaries of all those employed by the Gallery to work on it, and my company's fees including for the prototype; the design and construction of the workstations with which the room was fitted out; the furniture, lighting and so on, right down to the carpet on the floor of the room. In short the only cost to the Gallery was office space and support over three years, and curatorial time to review material and attend meetings. Without such generous sponsorship it would not have been possible to build as exciting and ambitious a system as this: we deliberately budgeted to be allowed to make mistakes and not have to live with them.

### Designing the system

Some design decisions have to be made early in the project, to allow other activities to proceed; some can be left somewhat longer. Before the project got under way it was decided to use digital graphics rather than videodisk (because of the superior image quality), and magnetic media rather than optical (because of the superior speed). This decision informed the nature of the image acquisition process. At an early stage the approximate size of the screen was settled, and enough work was done on layouts to decide on a set of standard sizes to which the main illustrations of paintings in the collection were scanned.

We continued to experiment with the type and structure of the sections and indexes, the page layouts, graphic design, and navigation structures, over a considerable part of the period. During this time, image acquisition was proceeding and material was being written for the painting catalogue entries and artist biographies. Prototypes of many different schemes were built and tested both within the project and using members of the public. At the same time, different technical possibilities were being explored, in particular to determine the best compromise between image quality, storage space, and display speed.

Throughout the course of the project, prototypes were produced in various forms. These were used within the project to experiment with ideas, and were shown informally to a variety of people from outside the team to get feedback. This input was recycled continuously into the development of the structure of the system and its interface.

About seven months before the Micro Gallery opened we had a first version of the run-time software with a large proportion of the 'stories' in place (mostly with very early versions of the content, and about 25% of the pictures). This enabled more thorough-going testing and demonstration, and we allowed for two complete rebuilds between then and the opening, to cope with changes in the design of the interface. In practise changes were almost invariably a matter of reduction - removing facilities and features

in order to reduce the number of controls and complexity of the information with which users were faced.

Towards the end of the project we conducted formal user trials, as a result of which the final rebuild simplified the system still further, gaining user comfort at the expense of functionality. The final design allows users to explore this huge publication by touching just seven simple controls. We have found that all our visitors, from the young to the very old, quickly teach themselves to use the system without difficulty.

### Producing the entries

One of the largest elements of the software work was the development of an 'editorial workbench' which could be used by non-programmers to lay out the pages of the system. This software acted like a specialised desktop publishing or page layout system, but outputting to the runtime engine rather than a printer or image-setter. It allows text and graphics to be placed on pages, formatted, and marked up for actions (such as cross-references, glossary definitions, and running animations). Associated software maintained data about paintings, such as the 'approved' title, attribution and so on; this was used to control navigation, to generate automatic captions for thumbnails, and to support automatic generation of index pages.

When building systems of this kind for museums (of which the Micro Gallery is substantially the most ambitious we have been associated with) we frequently look for sources of basic data from which we can initialise a system, to provide a kind of 'raft' of information. In this project we were fortunate that about five years earlier, the Gallery had published a complete catalogue of their collection. Although it had been written with conventional technology, it had been typeset on a computerised system, and we were able to recover a version on disk from the typesetters. By parsing this, and interpreting changes in typographical style, we were able to build an initial database not only of paintings, artists, their connections, and basic structured data such as dates, locations, sizes, acquisition and so on, but also a basic paragraph about almost every painting and artist. We were then able to lay out initial versions of all pages; saving a lot of time and allowing the editorial team to concentrate on writing expanded stories for the most interesting artists and paintings, confident that the system could be released 'complete' at almost any stage.

Christopher Baker and Tom Henry, art history graduates, were appointed by the Gallery to work on this project full time for some two years, researching and writing stories on paintings and artists, under the direction of Gilly Furse, appointed for the life of the project as the Gallery editor. Dr. Allan Braham, the Keeper at the National Gallery, also contributed material.

First drafts were written long hand on large sheets of paper, with an approximate correspondence intended between a sheet of paper and a screen 'page'. Photocopies of postcards, reproductions from books etc. were pasted

to these sheets and annotated to show intended external illustrations and details. In some cases the authors also specified animations to illustrate specific points made in the text. These first drafts on paper were given an initial review, generally by the Head of Education, Dr. Erika Langmuir, and by Gilly Furse.

The edited drafts were laid out in the editorial workbench; principally by Neil Aberdeen who was also the chief graphic artist for the system assisted at various stages of the project by Martin Aberdeen and Etienne Gillfillan. These pages were then printed in schematic form from the development system and again reviewed by the project editor and the Head of Education.

Neil, Martin, Etienne and Iain Pusey (responsible for scanning) all worked on animations. These were used for many different purposes: for example, bleaching out colour to highlight specific elements, or to illustrate points about composition; dissolving between a painting and its X-ray to reveal an underdrawing; rotating and moving figures to show how the same model was used in different places; rotating paintings to bring anamorphic figures into line.

Closer to the end of the project, when most of the graphics were in place, pages were compiled into an internal version of the complete system and printed out in batches for review by the National Gallery editor, Diana Davies, and by relevant curators.

### Image Acquisition

The Gallery's Photographic Department had 10" x 8" transparencies of almost the entire collection. They have a continuous rolling program of rephotographing paintings as better techniques are available (and as paintings are cleaned and restored) so the quality of the transparencies was quite varied. Some of the photographs and hence the reproductions of those paintings in the Micro Gallery are monochrome. Others were photographed in colour a considerable time ago not necessarily on the best stock or with the best lighting and have suffered some colour distortion, which was manually corrected. If the collection had not already been photographed, however, the project would have produced a very different result, as more of its resources would have had to be devoted to image acquisition.

Iain Pusey spent two years full time digitising and processing images, mainly using a Sharp JX-600 scanner for the 10" x 8" transparencies. Most pictures from other collections came in on 35mm slides, which were scanned on a Nikon LS-3500 slide scanner. The JX-600 was also used for scanning black and white prints, where no better image was available.

Custom software was built for the JX-600, to facilitate efficient scanning of the main images of the collection into standard size (and because in the early stages of the project there was little decent scanning software for the hardware setup we used). Many of the pictures needed

processing after scanning, particularly for colour correction. While some work was done in an attempt to automate this process, most of the work was done manually using Adobe's excellent Photoshop software.

Image display was tested in depths of 24, 16, and 8 bits per pixel. Whilst a higher pixel depth enables more colours to be displayed simultaneously on screen, it also increases the amount of data to be processed and stored. Data compression techniques employing proprietary hardware was also evaluated but eventually discarded. The essential problem with all these approaches was that they were incompatible with the response speed we required. At the same time as we were evaluating the speed and space characteristics of these alternatives we were also working to see what image quality we could achieve with 8-bit displays. In the end this work resulted in the calculation of an optimum colour table with which we achieved a much higher quality than is normally associated with 8-bit images. We were thus able to use an 8-bit display, fast enough to be used for animations and to provide true interactivity, while still obtaining excellent image quality. (The higher-than-usual resolution of the Radius display system we used also helps in this regard.)

All the images were scanned in 24-bit. This was partly to allow scanning to proceed while decisions on display setup were put off; partly to allow for future re-use; and partly because 24-bit pictures are much more flexible insofar as they can stand more manipulation without visible degradation. The 'thumbnail' images of the paintings in the collection were generated automatically from the 24-bit 'full-size' scans, by a batch program specially written for the project; another program automatically generated dithered 8-bit versions of the 24-bit scans in the colour table that was finally derived.

24-bit scans are big, and we had a lot of them, which presented a substantial archiving problem. Over the course of the project, we used first Syquest removable cartridges, and subsequently a DAT tape drive system. Neither was entirely satisfactory (the secret of DAT seems to be to avoid cheap drives at any cost!). At the very end of the project we moved to erasable magneto-optical, a much better (but relatively expensive) option.

### Reactions

Reactions to the system have been overwhelmingly favourable - and frequently more enthusiastic than we ever expected. The comments book available to visitors records very many reactions such as these (all taken from the first few days):

- » "Excellent. I don't appreciate technology all that much but this is the ideal use yet."
- » "Brilliant! Easy to use, and you learn a lot about the pictures. See you again soon!"
- » "All my life I've wanted something like this."
- » "It was really good. I learnt a lot."
- » "An excellent addition. I will look forward to using it regularly."

- » "Fascinating - a really marvellous aid to enjoying the collection."
- » "This is an excellent facility - sure it will make art history much more approachable. Ability to do the tour is great."
- » "I loved it! It was especially easy to locate paintings."

We seem to have been successful in disguising the computer sufficiently to overcome the phobias many people have the use of the touchscreen, and the work put into simplifying the interface, has certainly been vindicated. Nor have there been the negative reactions that several of us expected to the conjunction of computers and fine art; the various measures taken resulting in the 'more like a book than a screen' effect described above has undoubtedly helped in this regard.

The most frequent complaint is the lack of colour printing. Currently, the only printers capable of sufficient quality cost about 50% more than the entire workstation of computer, screen, disk, and laser printer; take from 3-5 minutes to print a page; and use media which costs about 15 times what visitors are now charged for the black-and-white printouts. However, since one result of the project has been the creation of an archive of 24-bit scans of the Gallery's collection, it may be possible in the future to set up a dedicated station, for example in the bookshop, that will simply print individual images of paintings on demand. (At present, as in many galleries, only a small proportion of the Gallery's paintings are available on postcards; thus even in black-and-white one benefit of the Micro Gallery is that for many paintings it provides the first ever opportunity to take away at least a reference illustration.)

When the room first opened, demand greatly exceeded supply as was the case in general with the new Sainsbury Wing and many visitors writing in the comments book asked that a booking system should be introduced. Almost as many comments were written in to counter these, demanding that the element of spontaneity should not be lost. Now (some four months after the opening) demand has settled down somewhat as the novelty of the wing wears off. It is very rare for any of the units to be left idle during the day; but there are usually no more than half-a-dozen visitors waiting at any time. A flexible compromise has been introduced with respect to booking; visitors who particularly wish to spend a substantial amount of time on the system can 'book' a station for any particular period. The effect of this free and unpublicised service is that typically around ten systems are available for visitors dropping in, with at any moment one or two in use by visitors who have booked time.

#### Future directions

As described above, we were able to generate enough basic information to ensure the system could be complete whenever it had to be opened (a date out of the project's control, since it was tied to the opening of the new wing of the Gallery). Thus although we opened with a 'complete' system, there was actually a considerable amount of

material, extended versions of stories represented in the running system by basic pages, still in the pipeline. This was mostly material which had been through most of the editing and layout processes, but could not be installed for a variety of reasons: for example because it had not been fully reviewed and agreed by the Curators, or because permissions or reproductions were still being awaited for pictures from external collections. The current activity therefore is aimed at getting this material, which will considerably increase the depth of the information in the system, through all the processes. The new edition was installed late in 1991. With the installation of this edition the Micro Gallery system is considered effectively complete. We do not expect any more material to be added in any major quantities, except to cover new acquisitions by the National Gallery.

There has already been a lot of interest in a CD-ROM version of the Micro Gallery, which could be used in schools and libraries. Such a system is technically very feasible; it would be 'shrunk' visually to run on standard Macintosh and PC setups with a 640 x 480 screen; this would also have the effect of reducing the size of the image data so that it would fit on a single CD-ROM; and the reduction in data would also help offset the speed penalty of a CD-ROM system. Since this system would be used in a context with a keyboard, and by people who could reasonably be expected to spend longer learning how to use it, we could also add many features which were removed from the Micro Gallery in order to keep the interface simple. We hope to start work on this soon.

We have had many enquiries about the availability of the software that Cognitive Applications built for this project. Because it was built for use by a dedicated team with whom we were working very closely, it was not designed as a shrink-wrapped product that could be used without close support. Also, much of its efficiency comes from being optimised for the one task it was designed to do: by contrast more general-purpose programs such as Apple Computer's HyperCard, Aldus Corporation's SuperCard, MacroMind Director or Asymetrix Toolbook have a much harder task, and it is inevitable that they will not perform as efficiently. Both these aspects discourage the general distribution of the software.

However, it has become clear that there is a role which is not being filled by software on the general market: for a system that will on the one hand have the capacity to drive very large publications, and the speed to make them truly responsive; and just as important, with a model and with facilities that strongly support the production processes of 'industrial scale' publications. At the same time, it has become obvious that there are more organisations with an interest in building such publications than we can support through our normal consultancy work. We have therefore been examining the system to see in which ways it can be opened up to support a wider variety of designs, without losing its particular advantages; and are now looking very seriously at the possibility of producing a version of the software that can be used with rather less support.

Finally

The Micro Gallery is the largest project of its kind that my company has undertaken; it may be the largest of its kind that anyone has completed. Over the last three years we have learnt a great deal not only about the technological issues; but also about how to coordinate the efforts of a large and varied project team, including art historians, image technicians and software engineers; and how to manage the coordination of many simultaneous processes involving not only this team but also external elements such as getting material reviewed, obtaining permissions for external reproductions, and working with architects

and room designers. In a paper such as this it is not possible to provide more than a few brief notes about some aspects of this work. I hope that some of these notes will be useful; but if you would like to know more about any aspect of the project, please feel free to get in touch with me. Above all, however, I would inform you that the National Gallery, and hence the Micro Gallery, is open free of charge in Trafalgar Square, London, every day of the year except Christmas Day; if you are in London I urge you to visit it.



# The Battle of San Romano

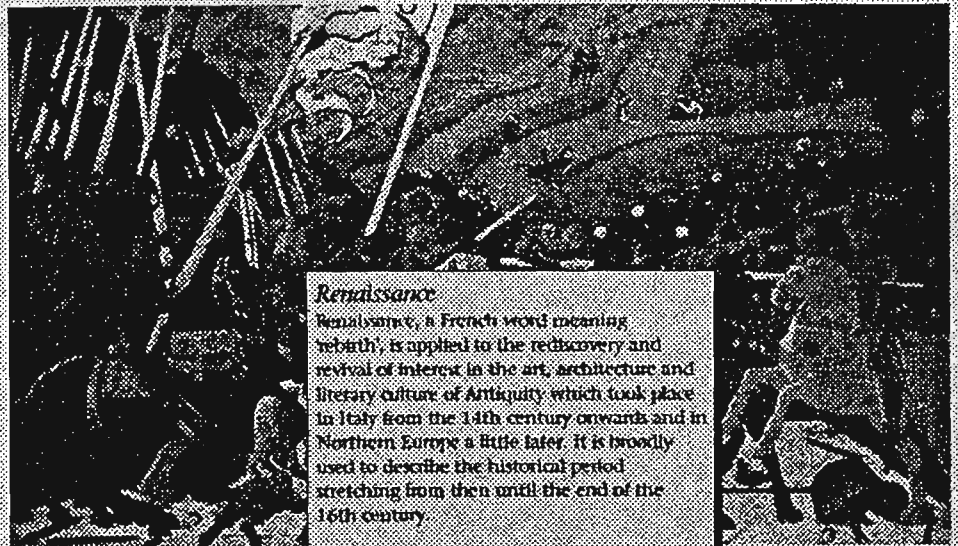
PAINTING CATALOGUE

## Paolo UCCELLO After 1432

Full title *"Niccolò Mauruzi da Tolentino at the Battle of San Romano"*  
Wood, originally arched top rising 2 or 3 feet above upper edge, 181.6 x 320 cm  
No. 583, Purchased 1857.

This brilliantly coloured and structured painting depicts part of the battle of San Romano, fought between Florence and Siena in 1432. The central figure is Niccolò da Tolentino, the leader of the victorious Florentine forces.

The panel is one of a set of three. The other two are in Florence and Paris. They were painted for the Florentine *\*Medici* family, sometime between 1435-60.



**Renaissance**  
Renaissance, a French word meaning 'rebirth', is applied to the rediscovery and revival of interest in the art, architecture and literary culture of Antiquity which took place in Italy from the 14th century onwards and in Northern Europe a little later. It is broadly used to describe the historical period stretching from then until the end of the 16th century.

It is also applied as a stylistic label to the art of these centuries. Two main phases of the Italian Renaissance are distinguished: the Early Renaissance and the High Renaissance.

The pictures partake both of courtly decoration, suitable for tapestry, and of *\*Renaissance* scientific picture-making, notably in the use of single vanishing-point *\*perspective*.

*Sport of War;*  
*Location; Perspective;*  
*Patterning; Artistic Context*

HELP	PRINT	TOUR	GO BACK	1 of 7 pages on The Battle of San Romano 1 of 2 paintings by UCCELLO	NEXT PAGE	SEE ALSO	INDEX
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## CALENDAR

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**August 24-28** San Francisco, CA; TechDoc/TIM '92-Exploring New Frontiers [GCA, 100 Daingerfield Rd., Alexandria, VA 22314;(703)519-8160,fax (703)548-2867]

**August 26-28** Arlington, VA; 14th Annual Conference on Interactive Systems for Training, Education and Job Performance Improvement [Society for Applied Learning Technology, 50 Culpeper St., Warrenton, VA 22186; (800)457-6812,fax (703)349-3169]

**September 6-11** Montreal Canada, International Council on Archives [ICA, c/o National Archives of Canada, 395 Wellington Ave., Ottawa K1A 0N3; 613-992-2473; fax 613-992-9010]

**September 12-15** Montreal, Canada; Association of Canadian Archivists [ACA, P.O.Box 2596, Station D, Ottawa K1P 5W6]

**September 11-17;** Montreal, Canada; Society of American Archivists [SAA, 600 S. Federal St., Chicago IL 60605; 312-922-0140]

**September 16-19** Miami, FL; "Mission, Money and Moxie: Survival of the Fittest" 52nd Annual Meeting of AASLH [American Association for State and Local History, 172 Second Ave.N., Suite 202, Nashville, TN 37201-1925 (615)255-2971]

**September 19-26** Quebec, Canada; XVIth General Conference of the International Council of Museums [ICOM 1992, Gerry Lou & Associates, 450,rue de la Gare du Palais, bureau 108, Quebec(Quebec) Canada G1K 3X2;(418)647-5955,fax (418)647-1892]

**September 29-October 2** Boston, MA; CD-ROM Expo [P.O.Box 4010, Dedham, MA 02026;(800)945-3313,fax (617)361-3389]

**September 30-October 4** Pittsburgh, PA; "Imagery in Science and the Arts" [International Visual Literacy Association, Barbara Seels, Ph.D., 4A16 Forbes Quadrangle, University of Pittsburgh, PA 15260;(412)648-7338]

**October 19-22** Detroit, MI; "Shaping the Information Age" ARMA International Annual Conference [ARMA International, 4200 Somerset Dr., Suite 215, Prairie Village, KS 66208-5287]

**October 27-29** Pittsburgh, PA; American Society for Information Science [8720 Georgia Ave., Suite 501, Silver Spring MD 20910; 301-495-0900] in conjunction with MCN

**October 28-31** Pittsburgh PA; Museum Computer Network [5001 Baum Blvd., Pittsburgh Pa 15213; 412-681-1818] in conjunction with ASIS



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## CONFERENCE REPORTS

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### AUSTRALIAN ARCHIVES ELECTRONIC RECORDS

On May 22 staff of the Australian Archives, including the Director General, George Nichols, and Assistant Director's General Keith Penny and Malcolm Wood, met with consultants hired to examine a proposed new strategy for electronic records management. They were kind enough to invite me to attend and participate.

Facilitator, Rob Thomsett, explained that the purpose of the meeting was to critically review a draft guideline which had been proposed to Australian Commonwealth agencies and reviewed by the consultants. Dagmar Parer, project director, showed a video which had been made to explain the draft guidelines to agencies and explained the six major points:

- » information systems applications are to be appraised;
- » if they contain no records of permanent value, they will not be further controlled;
- » if they could contain records of permanent value, the Archives will require audit trails to be kept and no permanent deletion of records;
- » until these guidelines are adopted, Australian Archives will provide only passive access to electronic records;
- » subsequently, the Archives will provide active access to information of permanent value from defunct agencies;
- » otherwise it will provide active access via networks to distributed data retained by agencies under mandated intellectual control.

The consultants identified a few issues requiring further discussion. Dave Sullivan (Telecom) noted that data management standards and practices to assure future access independent of hardware and software were very immature and that the Archives would need to invest in developing data management guidelines. Jeff Leeuwenberg (RMIT) stressed the expanding network bandwidth and opportunities for CD-ROM distribution to make the case that distributed access was feasible now. Matt Cleland noted the problems of using archival metadata across systems when some data dictionaries are active and the costs of migrating systems, but generally supported an emphasis on data management standards and metadata interchange. Andrew Wilson of the Archives' own staff pointed out weaknesses in the existing law that might make it problematic to require agencies to maintain their own records.

After discussion it became clear that the emphasis in the original briefing materials on developing methods for transparent access to distributed records was not essential to making the case for distributed access since such access could be provided by the local systems in each agency. Since transparency was a difficult, if not impossible, objective, dropping the requirement from the model would make it more acceptable. In addition, the original em-

phasis on audit trails was seen to be only one of many kinds of data management practices that would need to be employed by agencies, so it was suggested that this be dropped and replaced by a statement about adequate and appropriate data management. Finally, the definition of records being used by the Australian Archives was found to be deficient for purposes of electronic records management and a definition based on business transactions within business applications was urged (by me) and accepted by the Archives. It is expected that the revised guidelines will be issued this summer. For additional information, contact Dagmar Parer, Director, Electronic Records Project, Australian Archives, 216 Northbourne Ave., Bradden ACT 2601, AUSTRALIA.

### LONGMAN 'S SEMINAR ON EFFICIENCY IN PUBLIC SECTOR RECORDS MANAGEMENT

This Longman Professional Seminar, sub-titled "Applying New Technology and New Structures to Achieve More with Less", was held in Sydney Australia May 18-19. Two consistent themes of all the speakers were the requirement for public accountability and efficiency and the impact of new technologies on achieving both objectives.

Darrell Ross of Victoria Roads led off with a plea for records managers to lead changes in business practice, not just experience them. He stressed the demise of the centralized, head office controlled, corporate hierarchy and the emergence of new rules which required records managers to contribute to the bottom line. He argued that records managers could provide cost recovered services assuring accountability by coordinating cross-functional teams in information systems implementations.

Lindy Saul of Saul Consulting asked whether the time was ripe for a fundamental redefinition of the role of records managers, and whether they should jettison their custodial role for a proactive function of specifying or regulating records management.

In afternoon workshops Anne Picot and Barbara Reed gave participants a workshop opportunity to appraise electronic records and David Bearman led them in exploring management frameworks for electronic evidence.

The second day opened with a talk by David Bearman on the changing character of corporate communications which examined the documented ways in which computer and telecommunications are transforming organizational communications and identified problems encountered in attempting to preserve evidence of electronic transactions. Hilary Rowell then presented RINSE, the online public access catalog of the Australian Archives, which presents users with a function vocabulary before identifying records creating organizations and then series. Several other papers followed including Karl Rommel's fascinating case study of the impact of EDI at BHP Steel and Bernie Dymet's valuable overview of the situation of electronic records and the law in Australia. Unfortunately, the papers of the meeting will not be published, but I have copies of some handouts.

### AUSTRALIAN ASSOCIATION OF ARCHIVISTS

The ASA meeting in Wagga Wagga May 29-30 was preceded by a day long meeting of the State and Territorial Archivists Group, similar to our NAGARA, and the meeting of the Australian Council of Archives (an organization of institutions). The ASA meeting itself was opened by a tremendously thought provoking address by Eric Ketelaar, National Archivist of the Netherlands, who addressed the concept of privacy and its impact on archives as they come under pressure to open the records of Eastern Europe, World War II and other wartime atrocities, and of citizens in times of peace. He contrasted the privilege of research with the right of privacy and argued that privacy must always win out even though it will limit access to information and may in some cases make research impossible. He described the challenge facing archivists as to "safeguard the contractual relationship between citizen and government" and reminded his audience that Jenkinson's famous manual was contracted by the Carnegie Endowment for International Peace as part of the solution to dealing with the archives of WWI. He noted that in Europe there was an effort to "harmonize" rules on access despite the divergence of the archival traditions in European countries, and urged all archivists to join. Among the examples Ketelaar used were some which provoked considerable discussion in his audience, including his refusal to release information about victims or perpetrators of World War II atrocities in Indonesia and his absolutist stance against release of personal information from secret police files.

The second session of the meeting was the most exciting to an outsider. In it five Australian archivists examined the most important issues facing their kinds of archival institutions and what they were doing about them. As an exercise, I tried making up comparable lists imagining what spokespeople for the same types of institutions would say in the US.

Steve Stuckey identified five areas of importance to the Australian Archives, which, being *sui generis*, had to address only itself. The areas he identified match quite neatly those of the US national archives: the building program, review of disposal schedules to substantially reduce records holdings, internal retraining to reassert its leadership role in the national archival community, re-examination of custody, and electronic records management initiatives. I guessed that internal automated control systems and information access through national databases would have been on the US list, possibly along with declassification, and all of these could have been on Steve's list as well. Nevertheless, the actions taken by the Australian Archives in these areas are very much at odds with those taken by NARA. The AA building program is for regional research facilities. Its review is re-appraising "permanent" records and in pilot projects has resulted in disposal of 40%. The technical training involves using outside experts. The custody review involves both out-sourcing and consideration of agency retention which are out of order at NARA. And the electronic records program will stress the agency role and metadata, just as NARA has been ad-

vised to in report after report over the past decade but has yet to do.

Eaun Miller, Director of State Records for South Australia, followed Stuckey with a report on state archival priorities and programs. He identified seven areas: passage of state freedom of information acts, commercialization of archival activity, new buildings, legislation, computerization of control systems, regionalization, and encouragement of records management improvements. Unlike the US, electronic records are on the horizon and being thought about by State archivists, but are not on the agenda for action. Although Euan didn't mention it in his roundup of activity, the possibilities of sharing information on a national network, and interest in the MARC AMC format and the RLIN government records projects, holds an important place in the agenda. Reflecting his own agency's efforts to make itself a business unit of government, Miller instead focussed his talk on opportunities to charge for services while opening up state records management functions to competition.

Adrian Cunningham (Mss. Division, National Library of Australia) and Margie Burns (Mitchell Library, NSW) reported on the manuscripts collecting institutions. Cunningham focussed on space problems being encountered by the National Library while Burns identified four strategic issues: information delivery, usage, resources and management and emphasized a growing client centered attitude in collecting and servicing including delivery of information to remote users over ISDN networks and plans to publish full text CD-ROM's. Like the state archives, they are dramatically increasing their business activities which now account for about 20% of budget to 50%. In the US the agenda would no doubt have mentioned image bases, thesauri and vocabulary control and local and national systems implementation, but these are not yet widespread concerns in Australia.

Margaret Jennings of the University of Adelaide addressed the activities of university archives which in Australia also usually include records management responsibilities but differ widely in terms of external collecting activity. The small size of university archives staff's makes professional contact critical and is leading to some amalgamation of archival units. The issues she raised echoed those of her colleagues in the US.

Biba Berzins reported on the Australian Council of Archives (established as an institutional voice in 1985) that its problems have been in defining what it wants to be. It has not been a lobbying group because of the constraints placed on its members against participation in the political process. It has been successful in collecting information about methods and practices. The US lacks such an organization of archival institutions; we have an Association of Certified Archivists with a similar close relationship to the broader professional organization which seems to be likewise seeking a role for itself, but the comparison ends there.

In the last session on Friday, Gerald Purkis reported that regionalization of the New South Wales archival functions has been an unqualified success for both the state archives and the local communities. Eric Ketalaar described the very distributed archival system of the Netherlands which includes 650 municipalities each with archival programs, often in collaboration with a regional center at an annual per capita, publicly funded, cost of over \$10.

Saturday began with an extraordinary session on ethics chaired by ASA President Chris Coggin. In an atmosphere of palpable tension, Ann Mitchell of Monash University, who chaired a drafting committee for the ASA code of ethics presented the history and premises of the draft code which had been rejected two days earlier by the Association's General Meeting. She noted that the ASA Council asked her to draft a code in October 1990 because in a climate of rapid change the profession needed a reference point for its professional identity, because codes are accepted as a basis for professional practice and because the guidance contained in codes can be helpful to individual members. The function of the code was not legislative but the guidelines were intended as a minimum and were intended to be acted on by the profession if they were violated. Obviously they would have force only over ASA members and the most serious sanction possible was revocation of membership. Eric Ketalaar then engaged the membership in a series of Socratic dialogues which revealed to me at least that individual archivists are not good at ethical thinking and that there is significant value in providing opportunities for them to have debates on professional ethical issues. Ketalaar's technique in perambulating through the audience posing extremely difficult ethical conundrums and allowing his respondents to flounder was a brilliant means of exposing the benefits of serious discussion of ethical issues, with or without a "code of ethics".

In the next session, Sigrid McCausland and Sandra Mowbray described a government funded special project on local records which is rare in Australia because common belief is that such government funds are not available to archival projects and because the organization awarded the grant was the New South Wales chapter of the ASA. The most interesting aspect of the project to me is that it did not receive all the funding requested, and so it asked beneficiaries (local councils) to help defray the costs of its site visits and consultations. They did everything from paying the full rate to providing room and board in the homes of counselors, and enabled the project to more than double its life.

Gabrielle Hyslop of the Australian Archives then reported on its Reference Information Services which she recently took over with the charge to better serve users. She found the statistical knowledge which the service had of users was inadequate, and that reference officers alone "knew" what users wanted. She tried to organize focus groups in various regions but found users were unwilling to criticize in part because they were assigned to one reference officer. There was considerable discussion of this hot issue and lots of suggestions from the floor about newslet-

ters, national toll free numbers, performance measures for reference query response time, etc. A video of the RINSE system which introduces users to the on-line public access catalog of the Australian Archives was shown to attendees. For me its interest lay in the fact that the primary initial access point is a "functions" vocabulary which leads users to agency competencies and from there to record series; for the Australians the issue of contention was that users were virtually required to view the video before commencing research.

Elizabeth Nathan of the Department of Foreign Affairs and Trade next reported on clearance of records, which in Australia means that records over thirty years old automatically become available to the public unless a specific exemption is sought. In this way 93% are fully opened, and fewer than 1% are fully exempted. The reasons for exemption are 55% to protect confidentiality/privacy, 39% to protect foreign interests/security and 3% to protect methods. Each exemption must be able to stand up in court against principles of clearance including openness, consistency and thoroughness. The last principle is the most difficult one to apply and involves good records management throughout the document life because if information is exempted, it should be exempted everywhere it appears and in the same way so that it cannot simply be had from another source or agency. Liz stressed that determining clearance involves doing substantial research into the contents of records because the exemption is about information, not records or even words. She also noted that no special exemption applies to classes of documents, such as cabinet papers, which are often cleared before the thirty year period. As far as I remember, this is the first archival professional association session I've attended on this fascinating issue; it would be interesting to hold a similar session in the US or to compare practices internationally.



## AMERICAN ASSOCIATION OF MUSEUMS

The 1992 Annual Conference of the American Association of Museums in Baltimore attracted the largest ever number of registrants but the exhibits appeared to me to be fewer than usual. Although there were almost 180 booths, consultants, regional associations and affiliate organizations occupied many, leaving only 157 vendors of which I counted 22 with computer systems. Some vendors sold more than one application, of course, but the majority still emphasize only a single module. I counted 6 ticketing and reservation applications, 6 interactive multimedia capabilities, 5 membership and development modules and eight collections management systems. In addition there were 3 accounting modules, 1 image transmission system and 1 museum store/point of sale system. The most impressive developments since last year were in the ticketing and tour reservations area where new functionality and new products were most evident. On the other hand there was a drop-off in attendance by interactive multimedia developers and by membership and development systems vendors reflecting the fact that the museum market is a decreasing portion of their overall

business as they grow and, I suppose, that they have found the AAM exhibit hall to be a poor return on investment in the past.

There has been some consolidation in the market for collections management systems this year and a significant drop in average product price. Willoughby Associates still has the most systems with separate software packages for large, medium and small institutions which are surrounded by the same 3-4 modules. Questor Inc. still has the broadest integration in its product and has added a strategic marketing partnership with Paciolan Systems to expand even that breadth of functionality so that between the two all the fundamental modules are provided. Oaktree Software Specialists have now finished filling out the collections management functions of their inexpensive Macintosh-based system: "Accession". Vernon Systems from New Zealand is still showing its "Collection" system which remains technically interesting and has made several sales in the US recently. Cuadra Associates is very strong in the areas it has made its own: mid to large size databases, now including images, with requirements for rapid, full text retrieval. Two small firms which are relatively new to the museum market - Gallery Systems and Cactus Software - showed somewhat incomplete collections management systems but each had other strengths: Gallery Systems has strong charge back features and Cactus supports the MARC format.

Without a doubt the most interesting new product and one of the most exciting marketing concepts of all time was introduced by Chubb Inc., an insurance company, which is planning to give away its collections management system, CHUBBMUSE, to its insured. The system itself is slightly more than an inventory control capability (see review of Landmark Planner, the basis for CHUBBMUSE, elsewhere in this issue), but it has some interesting features tying in with risk management such as recording values of objects and conservation needs, scheduled maintenance, the text of disaster plans, accident reporting, and free off-site data backup. With a bit of expansion of the basic collections management functionality this could be a valuable tool for museums and a clever way for the insurance company to assure high premiums on the assumption that if a museum knows what its got, how much it's worth, how bad its condition is, and the risks in its facility, it will want insurance to adequately cover itself.

The conference itself was disappointing to someone with a special interest in automation. The pre-conference program included one workshop, sponsored by the Museum Computer Network, on automation planning. Within the general program several sessions sponsored by the Media and Technology Committee dealt with interactive video in exhibitions but there were no sessions addressing the uses of computers in any other function of the museum. Obviously AAM has effectively abdicated computing in museums to what it sees as the computing specialists in MCN despite its growing significance for all of the allied professionals in museums.



## PORTUGUESE ASSOCIATION FOR HISTORY AND COMPUTING

Early in July, I attended the annual conference of the Portuguese Association for History and Computing in Lisbon. Like their colleagues worldwide, the Portuguese are exploring new applications of computing in archives, archaeology, geography and historical research made possible by the current generation of workstation. Several museum hypermedia (Supercard and Hypercard) projects were demonstrated along with a number of specialized toolsets for archaeological and geographical data analysis and display. While the Portuguese researchers themselves felt they were woefully behind the rest of the world, I am convinced that they are doing work on a par with the best elsewhere and are actually much better informed about developments worldwide than my colleagues in North America in part because they read all our literature, plus that of Europe, while we barely read our own.

Archivists were able to debate the merits of two micro-computer application packages available to Portuguese archives. Both follow the British "MAD" conventions and interchange information with each other. ARQBASE is built on CDS/ISIS and is used in all 18 provincial archives, several "autonomous regions" and at least two municipal archives. HERODOTO is a Clipper package with a few "C" extensions, which is in an extended beta test. Michael Cook and I were given a demonstration of a pre-release version of HERODOTO, complete with bugs which the makers hope will be removed by the fall. In addition to creating archival descriptions at 9 levels (repository, group, fonds, sub fonds, sub-sub fonds, class or series, sub series, item and piece) and providing tools to link these records so that the user can move up and down levels, it provides a modest degree of archival management in the form of location, circulation, treatment and user history. The potential strength of HERODOTO lies in its ancillary databases which include facilities for thesaurus management in full conformity with ISO standards, and include databases of paleographic terms and abbreviations, numismatics and weights and measures, a chronology (historical events database) and a calendar converter, maps generators, genealogical graphics, a "shoebox" file for individual researchers to keep their notes, and links to external DBase databases. There is also a prosopography facility which includes three linked files - one for unique biographical information (name, place of birth, date of birth, place of death, date of death etc.), one repeating structure for life events (degrees, jobs, children etc.) and one for assignment of subject indexing terms to the life events and hence to the joined record.

Three universities in Portugal now provide post graduate training for archivists. I met doctoral candidate Fernanda Ribieno, who has conducted an important piece of research on search requirements of archival information systems, the benefits of controlled vocabularies, and user interface issues with several Portuguese archival systems. While her specific findings may not be directly applicable to a different user base and different description techniques employed elsewhere, her general con-

clusions, that users required the ability to limit searches by date range and that controlled vocabularies did not contribute to effective retrieval although they helped to assure researchers that they had indeed searched all available terms, are consistent with other research. Hopefully some version of her thesis will become available in English after its defense this fall. □

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**Archives and Museum Informatics** carries news, opinion, and reports on information technologies, techniques and theories relevant to archives and museums. Submissions of publications and software for review, and of articles for publication, are welcome. Deadlines for contributed articles and press releases are the 15th of March, June, September and December.

Subscriptions to **Archives and Museum Informatics** are available on a calendar year basis at \$80 for institutions and \$40 for individuals (delivered to home addresses and paid by personal check only). There is a \$5 surcharge for postage to Canada and Europe and \$10 for postage elsewhere outside the United States.

**Archives & Museum Informatics** also publishes occasional technical reports available for purchase as individual volumes or on a standing order basis. Standing orders are entitled to a 10% pre-publication discount and are mailed free of handling fees. Pre-paid orders include handling. Billed orders are subject to a \$5 billing/handling fee plus postage surcharge. Among the titles currently available are:

- #15 1992/93 Directory of Software for Archives & Museums; \$50
- #14 Hypermedia and Interactivity in Museums: Proceedings of ICHIM '91; \$50
- #13 Archival Management of Electronic Records; \$20
- #11 Functional Requirements for Membership, Development and Participation Systems; \$20
- #10 Archives and Museum Data Models and Dictionaries; \$20
- #9 Archival Methods; \$20
- #8 Functional Requirements for Exhibit Management Systems; \$20
- #7 Archival Appraisal of Online Information Systems; \$20
- #6 Archives and Authority Control; \$20
- #4 Automated Systems for Archives and Museums: Acquisitions and Implementation Issues; \$20
- #3 Functional Requirements for Collections Management Systems; \$20

To order, write, call or fax: Archives & Museum Informatics, 5501 Walnut St., Suite 203, Pittsburgh PA 15232-2311, USA; 412-683-9775; fax 412-683-7366.

## Reports:

Commission on Preservation and Access, **Preserving the Illustrated Text: Report of the Joint Task Force on Text and Image** (Washington DC, Commission on Preservation and Access, April 1992), 29p.

This handsome report of a study made possible by funding from the J.Paul Getty Trust concludes that books and periodicals from the period 1850-1880 should be microfilmed in high-quality, high-contrast black and white while those from later periods require more study. Probably they can be filmed in color until digitizing technologies improve, but addition research is recommended regarding many specifics. This is a very sober view of the current situation and can be recommended as an antidote to too much vendor hype but also as a pragmatic judgment on some real imaging options available now.

Office of Technology Assessment (US Congress), **Finding a Balance: Computer Software, Intellectual Property, and the Challenge of Technological Change** (Washington DC, USGPO, 1992) [fax order to 202-512-2250, cite S/N 052-003-01278-2, \$11.00 U.S.; foreign add 25%, Visa cards accepted]

In trying to clarify the copyright and patent law problems regarding digital media and software for Congress, the OTA has cleared them up for all of us. The discussions of content licensing issues are useful for those considering imaging. The policy analysis will be important to anyone who develops or modifies software.

**1992 Buyers Guide to Interactive Multimedia Products and Services, Instruction Delivery Systems**, vol.6#3, May/June 1992 pp.18-32

This annual update contains separate sections list vendors of authoring tools, delivery systems, developers & consultants, overlay/interface equipment, production facilities, publishers and videodisc sources, seminar/information providers.

**Very Spaghetti: The Potential of Interactive Multimedia in Art Galleries.** Reports by Richard Francis, Colin Grigg, Sandy Nairne and Isobel Pring. (London, Arts Council, 1992). 63pp.

This little book is fun in all its dimensions (including opening from the middle) and it is sensible as well. Its observations and recommendations for multimedia computing are based on interviews and reviews conducted throughout England, Europe and the United States and are presented in a personal tone, but fully professional content by the authors who are the curator of the National Gallery London, the staff officer of the Arts Council and the Museums and Galleries Commission, and a leading multimedia consultant.

## Articles &amp; Books

David Bearman, "Diplomatics, Weberian Bureaucracy and the Management of Electronic Records in Europe and America", *American Archivist*, vol.55#1, 1992 p.168-181

This article examines archival traditions in Europe and how they shape European approaches to electronic records management and suggests a framework in which to assess the likely success of policy, design, implementation and standards oriented approaches to electronic records based on variables relating to corporate culture. It builds on the author's "Information technology standards and archives" (*Janus*, vol.1992.2 p.161-166) and "Evidential historicity: Provenance in the Electronic Office" (to be published by the University of Marburg in 1992).

Roberta Binder, **Videodiscs in Museums: A Project and Resource Directory**, revised edition (Falls Church VA, Monitor Information Services, 1992) 176pp., \$75 plus \$4 handling

The second edition of Roberta Binder's directory to installations and resources for museum videodisc projects describes installations in over 100 U.S. museums, 40 National Parks, and 30 foreign sites. It provides statistics on museum satisfaction with these projects (quite high) and lists of vendors, consultants, publications and conferences relevant to anyone considering a videodisc project. Project descriptions are very informative, judgmental and useful and the resources lists are handy.

Terry Cook, "Easy to Byte, Harder to Chew: The Second Generation of Electronic Records Archives", *Archivaria*, #33, 1992, p.202-216

Cook's extended review essay interpreting and analyzing eight recent publications on electronic records is not only a useful introduction to these other works but also an important perspective on what we need to know and do about electronic records. His identification of a second generation in electronic archives management is apt and his admonition that useful advice is now available for those who are willing to take it is completely valid. Read it!

Ben Dubrovsky, "Design of Interactive Multimedia at Motorola's Museum of Electronics", *Multimedia & Videodisc Monitor*, vol.10 #6, June 1992 p.27-29

Discusses design principles that allowed Chedd-Angier to develop and install eleven separate exhibits in the Motorola Museum which have a common feel and work together. The principle that there should be a common feel is too often overlooked, and is not discussed directly here either, but the article does discuss the approach taken in these interactives and the results.

Alan Hopkinson, "Using CDS/ISIS in an Archives: A Case Study of the Tate Gallery", *Archivi & Computer*, vol.2#1, 1992 p.3-12

Because it is distributed free by UNESCO and to a lesser extent because it exports ISO 2709 records, CDS/ISIS is of great interest to archives around the world. Numerous local systems have been developed around CDS/ISIS, including AROBASE the national system of Portugal. Alan Hopkinson, the distributor of CDS/ISIS in the U.K. is a bit uncritical, but his report on the application in the Tate Gallery is worth reading in order to get a sense for how Michael Cook's "MAD" standard is being implemented within a modified MARC AMC record if for nothing else.



Margarita Vazquez de Parga and Pedro Gonzalez, "Changing Technologies in European Archives", *American Archivist*, vol.55 #1, 1992 p.156-66

Provides an overview of automated systems in archives in Europe and includes a few asides about electronic records management.



Susan Stone & Michael Buckland, eds., **Studies in Multimedia: State of the Art Solutions in Multimedia and Hypertext. ASIS Monograph Series** (Medford, NJ, Learned Information, 1992)

These Proceedings of the 1991 Mid-Year Meeting of ASIS contain a number of articles that will be of value to archives and museums including Anne Kenney and Lynne Personius's summary of the joint Cornell University/Kodak "Digital Preservation" study, Gerald Stone's report on the National Archives of Canada ArchiVISTA project, Judi Moline's excellent framework for "Designing Multimedia Systems for Museum Objects and their Documentation" and my own overview and critical assessment of "Interactive Multimedia in Museums". Other authors involved in museums include Howard Besser on image databases in library systems and Joseph Busch on "Updating the AAT for use in object and image documentation".



Elizabeth Yakel, "Pushing MARC AMC to its limits: The Vatican Archives Project", *American Archivist*, vol.55 #1, 1992 p.192-201

A valuable exploration of the real and imagined limits of MARC AMC and a discussion of some issues regarding the use of the format to describe the provenance of Vatican archives. While Yakel assumes that age has made the Vatican bureaucracy more complex than most organizations, it seems to me that it is only one of many examples of how a separate database of organizational structures is necessary in order to adequately document provenance and why the record group must be considered an unacceptable procrustean bed. Yakel does not draw the conclusion that new content designation is required or that organizations are not appropriate subjects of "bibliographic" description, but she (and we) should.



## Journals & Newsletters

**Archives and Manuscripts** is a journal that American archivists are doing themselves a serious disservice by not reading, as the latest issue makes abundantly clear. In vol.20 #1 (May 1992), Cheryl Simes reports in "The Record Group is Dead - long live the Record Group" (p.19-24) that the problem with record groups has always been one of whether series were considered part of them or linked to them. If linked by pointers, the disadvantages of the organizational changes which do occur in the real world can be mitigated. Still it's hard for Australian archivists to understand why American and British archivists love groups and fonds and won't just come over to series. In "Managing the Record rather than the Relic" (p.57-63), Glenda Acland urges archivists to focus on records as 'the full, accurate and reliable memory of transactions and activities' and give up their fixation on records as things. This will help them revive their programs in numerous ways, including opening up the path towards charging for services, because, she points out archives now serve a 'wide cross section of users with wide demands primarily for information rather than evidence. Consequently the opportunity now exists to introduce a charged reference service' which puts fees on information while providing evidence without charge as before. In their reviews of "Keeping Data", Edie Hedlin and Nicole le Maistre bring astonishingly similar insights from their veteran American and novice Australian perspectives. (pp.84-91). A wide array of other articles reveal just how different, and refreshing, the Australian perspective is to those of us in the Northern Hemisphere.

**ART on Screen** (free tri-annual from Program for Art on Film, 980 Madison Ave., New York, NY 10021) vol.1#1 Spring 1992 has some interesting bibliographic and filmographic citations. It may be worth watching, and helping, this publication become useful.

**CALS Journal** (ISSN 1061-2572) [14407 Big Basin Way, Sartoga, CA 95070-6008] is a quarterly devoted to CALS related issues with occasional interest to the archives and museum community because of its focus on standards. In vol.1 #2, Charles Goldfarb the author of SGML, writes on "HyTime: A Standard for Structured Hypermedia Interchange" (p.49-54).

**The Docent Educator** (no ISSN; 2011 Eleventh Ave. East, Seattle, WA 98102-4109; \$20 p.a.) is not a technical journal, but it embodies the most important aspects of what I consider informatics - developing systems to deliver information in informative and entertaining ways. I found the articles interesting and fun.

**Museum News**, vol.71 #4, 1992 carries the special issue title "The High Tech Museum" and examines some possible impacts of technology in areas of conservation, exhibitions, security and collections information. Unfortunately it simply quotes a lot of people who say things are happening rather than giving any details.



### NARA REAUTHORIZATION REQUIRES ELECTRONIC RECORDS ADVISORY COMMITTEE

Rep. Bob Wise (Dem., W. Va.) introduced reauthorization legislation (H.4435) for the National Archives and Records Administration on June 9 which should send a strong message to NARA. Noting the GAO report on agency heads removal of records from cabinet offices and the report *Taking a Byte out of History*, the message introducing the reauthorization is extremely harsh. The act itself contains provisions for a seven year term for the Archivist of the US and Presidential appointment of a Deputy Archivist as well as requiring NARA to establish a national advisory committee on electronic records and an advisory committee on the national archives and it calls for the Office of the Federal Register to make its notices available electronically. As Wise put it "if there is a common thread behind all these proposals it is that since the National Archives was separated from the General Service Administration, the Archives has been operating with very little outside input or oversight. This has been a mistake. The National Archives and Records Administration Reauthorization Act of 1992 will correct the lack of attention, make some long overdue legislative changes and bring the National Archives more squarely into the modern computer age." (Congressional Record- House, June 9, 1992, H4435) □

### MUSEUMS and MULTIMEDIA

In conjunction with the publication of the revised edition of *Videodiscs in Museums: A Project and Resource Directory*, Monitor Information Services has announced that its special educator rate of \$150 p.a. for a twelve issue subscription to the *Multimedia & Videodisc Monitor* (usually \$347) will be extended to museum personnel. *Multimedia & Videodisc Monitor* has consistently been one of the most informative newsletters in the entire field and remains a nearly essential source for anyone seriously interested in keeping up with commercial developments in optical media. Try it out. [Monitor Information Services, P.O.Box 26, Falls Church, VA 22040-0026; 703-241-1799; fax 703-532-0529] □

### IMAGE RIGHTS AND ACCESS

In April, Nathan Benn who established the Electric Book Company in 1990 to explore protection of image rights for professional photographers, announced the formation of Picture Network International a company which aims both to streamline distribution of electronic images and secure benefits for image rights holders similar to those provided by ASCAP and BMI to the music rights holders. The new company is an equity partner with Systems Research and Applications Corporation. [PNI, 2000 15th St. North, Arlington VA 22201; 703-558-7860; fax 703-558-4723]

A revised version of Circular A-130, the primary information policy guidance of the Federal Government, was published by the Office of Management and Budget in the Federal Register of April 29, 1992. It is a sign of the times that it is also available on the Internet via anonymous FTP from /omb/omb/a.130.rev1.

The revision marks the culmination of several years of sometimes acrimonious redrafting. Its purpose is to "bring into proper perspective" areas which were previously slighted including: IRM planning, the role of State and Local governments in management of IRM resources, records management with special emphasis on electronic records, electronic collection of information and information dissemination policy. The fundamental difference between this version and previous version is signaled in the opening section on "Basic Considerations and Assumptions" which contains such statements as:

"The unrestricted flow of information between the government and its citizens is essential to a democratic society."

"Systematic attention to the management of government records is an essential component of sound public resources management which ensures public accountability. Together with records preservation, it protects the government's historical record and guards the legal and financial rights of the government and its citizens."

"Modern information technology presents opportunities to improve the management of government programs to provide better service to the public. The availability of government information in diverse media, including electronic formats, permits the public greater flexibility in using information."

The strong bias of previous drafts towards privatisation and against information collection has been replaced with what I consider a balanced view of government requirements to acquire and preserve documentation and to disseminate it (defined as including the more passive concept of "access").

Several provisions could have a very positive effect for archivists. For example, under the section on Information Management Planning the circular states:

"Agencies shall plan in an integrated manner for managing information throughout its lifecycle. Agencies shall:

a) Consider, at each stage of the information life cycle, the effects of decisions and actions on other stages of the life cycle . . .

j) Record, preserve, and make accessible sufficient information to ensure the management and accountability of agency programs, and to protect the legal and financial rights of the Federal Government;

k) Incorporate records management and archival functions into the design, development and implementation of information systems . . ."

Under the section of Records Management the circular states:

"Agencies shall:

- a) Ensure that records management programs provide adequate and proper documentation of agency activities;
- b) Ensure the ability to access records regardless of form or medium;
- c) In a timely fashion, establish and obtain approval of the Archivist of the United States for retention schedules for Federal records, and
- d) Provide appropriate training to all agency officials and employees regarding their records management responsibilities."

If these provisions are known to archivists and records managers and used both inside agencies and by outsiders determined to get agencies to comply with their intent, they could mandate involvement of archivists early in systems lifecycles and implementation of data management oversight to protect electronic records. It behooves archivists both to comment to OMB on the usefulness of this draft and to suggest minor modifications that might improve it.

My candidates for improvements begin with redefining the term "records" which is defined by the circular (as in 44 U.S.C 3301) as:

"all books, papers, maps, machine-readable materials or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation . . . as evidence of the organization, functions, policies, decisions, procedures, operations or other activities of the Government or because of the informational value of the data in them".

The first clause of this definition declares records to be physical materials in a way that is utterly contrary to what we find in electronic records management. It would be much better to replace the term records defined as "materials" with the definition of information which the circular says "means any communication or representation of knowledge such as facts, data or opinions in any medium or form...". If records were then defined as "information made or received . . . etc." we would have a working definition which related records to communication, to business activity, and to functions of government and of records in a way that requiring people to plan for it would make sense. We would be connected directly to the ultimate reason for evidence: accountability.

My second recommendation for change is to drop an explanatory paragraph under Appendix IV which analyzes key sections of the circular. The paragraph, under the elaboration of Section 8a(4) Records Management says:

"Records schedules are essential for the appropriate maintenance and disposition of records. Records schedules must be prepared in a timely fashion, implement the General Records Schedules issued by the National Archives and Records Administration, be approved by the Archivist of the United States, and be kept accurate and current. (See 44 U.S.C. 3301 et.seq)".

Not only is the tone of this paragraph completely out of keeping with the more goals and objectives oriented tone of the rest of the circular, it makes a claim that a particular methodology which hasn't worked to date and is by no means universally accepted by archivists elsewhere, is "essential". And, of course, it bases the requirement on the same problematic definition of records as material just as the actual practice of scheduling requires the existence of records rather than of information that might potentially be evidence.

### **RLIN ADDS MAJOR SOUND AND ART COLLECTIONS**

The Research Libraries Group has announced the availability of two important scholarly resources on RLIN. The Rigler and Deutsch Record Index (RDI) is a union catalog of 900,000 pre-LP discs held by the Library of Congress, the New York Public Library, Stanford, Yale and Syracuse Universities as of 1981. It covers approximately 90% of the pre-LP discs produced in the US from the 1890's to 1950's and a significant portion of the global output of the same period. The second addition is from the University of California at Santa Barbara Art Library which has added citations to 75,000 art catalogs the earliest of which date from the mid-18th century although the collection is particularly strong from the past 25 years.

### **MUSEUM INFORMATICS AT BERKELEY**

The Museum Informatics Project at the University of California, Berkeley, was featured in the Information Technology section of the *Chronicle of Higher Education*, June 10, 1992 p.A15-17. The integration of library, herbarium, museum, map and photograph collections has been underway for some time, but it is the first time I know of that there has been notice of it in general educational publications.

### **MUSEUM STUDIES DISSERTATIONS**

The Smithsonian Institution Office of Museum Programs is seeking citations of dissertations in English for masters and doctoral research in museum studies and museum related disciplines. [Contact Nancy Fuller or Magdalena Mieri at 202-357-4061; fax 202-357-3346].

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## SOFTWARE REVIEW

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### LANDMARK PLANNER

Landmark Planner [Coastal Technologies, 615 Valley St., Upper Montclair NJ 07043; 201-744-3338 fax 201-744-2129] \$495 for single user or networked version; \$99 for year of telephone support after first three months which is included free. 30 day money-back guarantee. Minimum configuration IBM Compatible PC AT+, MS-DOS 3.0+, 640KB RAM, 2MB storage, mouse optional, HP Laser Jet II/III recommended. Written and compiled in Clipper.

Landmark Planner is intended for the small historical agency with one or more historic sites, each housing relatively small, collections, with or without full-time curatorial staff. It might be described as a "resource maintenance" application, in which the sites themselves, their facilities and individual locations within the facilities as well as the collections they house are all treated as resources to be cared for by scheduled or unscheduled maintenance. The presumed user is an administrator rather than a curator, and is scheduling and budgeting the staff, volunteers and contractors who are caring for the facilities and collections. The result is a collections management package which has some interestingly different strengths and weaknesses.

The package installs extremely easily on a low end computer system by following looseleaf documentation which was written for PC novices and is clear throughout its 56 pages. The main menu presents five choices which, like all menu options, are selectable by keyboard or mouse: SITE, COLLECTION, REPORTING, PROGRAM MAINTENANCE, VIDEO/AUDIO SETTINGS. Program maintenance support on-going construction and maintenance of tables while video/audio settings is essentially a one-time configuration set-up.

The first two menu options build the databases. SITE enables the user to define the agency (including its board and committees), its facilities (buildings and grounds), locations within facilities, and elements (structural features or installed equipment) such as windows, doors, elevators, or pumps within locations. The orientation is towards resource management, so the responsible person, the contacts for emergencies, and inspection, condition assessment and maintenance information are recorded along with addresses and indicators for historical property restrictions. COLLECTION provides one screen each for the description of objects (no parts or collections), their origin (donor/auction), condition, inspection, scheduled maintenance and unscheduled maintenance. The object description screen has extended text fields for description and for provenance which scroll in a smaller window but print out in full.

Searching is fairly rudimentary. Objects can be searched by number, object name or classification. Both object name and classification are controlled value tables to which a user may add on the fly during data entry or build

from the Program Maintenance menu options. Choice of a non-exact search value will result in display of the value lists; there are no provisions for range searching or wildcards and no text searching of the textual fields.

While the system supports recording of object status (Sell, Delete, Lend, Repair, Move are provided; others can be added) it doesn't provide any collections management process control. It does however provide more support for managing risks than most collections management systems since the user can record information about condition and valuation inspections, future maintenance to be performed on an scheduled or unscheduled basis, and the estimated costs and contractors for each action.

Location, Element and Collection maintenance schedules can be reported from the report module, which also supports catalog listing, catalog cards and collection inspection lists. Element lists, inspections and catalog cards and a budget report are included. Since there is no generalized report writer and the specific reports provided are somewhat limited, potential users should examine these reports with care. They can be printed to screen, disk or printer, but the fact that there are no reports using the agency or facilities data and no link between the information entered on emergency contacts and the reporting capabilities is somewhat disturbing.

Other aspects of the package are surprising too and the surprises are both good and bad. My distribution disk contained no Help although I'm assured that context sensitive help is available normally. There is support for images, in PCX format, and these can be viewed from within the package or outside it. The images supplied on a demonstration disk included maps, floorplans, exterior views and object photographs in color and gray scale, which, although resolution in VGA is not that good, were sufficient to convey a sense of the thing and illustrate its potential. Oddly there is no link between the image and the data about the objects. There is also no backward integrity check so if values are removed from value tables the records containing those values remain, unflagged, in the database. There are facilities for recording emergency phones, special care instructions, detailed directions for treatments, schedules for care and inspection, but there is no tickler capability.

For the kind of institution that Landmark Planner was designed to serve, this package could be a great deal both in price and functionality. It will need some careful stretching by its developers to make it a more generally useful collections management package however. Some of these extension may be provided by Chubb Insurance Company for which Coastal has developed an enhanced functionality package which Chubb licensed to give away to its insurance customers. I hope Coastal Technologies will develop Landmark Planner further in its next release as well. Its management orientation could be very useful if added to a collections management package with just a bit more searching and reporting strength.

D.B.

## TWO CD-ROM's ON ART

The CD-ROM produced for the Committee on Documentation (CIDOC) of the International Council of Museums entitled **Dutch and Flemish Masters** contains images from 70 museums in 19 countries was intended as a demonstration of what the technology could do and how standards might be applied usefully to the dissemination of CD's from museums. But don't let the term demonstration lead you to imagine that this is a throw-away. In fact, it is quite worthwhile as an art imagebase and it does a superb job meeting CIDOC's goal of illustrating how standards could be judiciously applied.

Almost 300 works are described in both French and English according to the minimum standards for textual description of the Fine Arts Working Group. Images of each work are recorded in four formats of increasing resolution: VGA, SuperVGA, Targa and DVI. Personal names are standardized using the Getty's Union List of Artists Names and place names are standardized by either the Times Atlas of the World or the Atlas Larouse de Poche.

The minimum machine to search the databases and view the images is any PC with 512K RAM and a CD drive. Better resolutions will, of course, be obtained only if the PC has a SuperVGA, Targa or DVI board. Users may select French or English for all instructions and descriptions. The self-documenting system allows browsing of the whole file or searching by Institution, Artist, Iconography, Medium, Support or Number of the work. If users choose to search by institution, they will find further options for name of institution or country; if by artist, they will find options to search by name or date and place of birth, death or activity. In each case searching only requires the user to browse a unique values list which is brought to screen with the number of postings for each value clearly indicated, and to ENTER each desired value. The system search can be saved as a set (eight such sets are permitted), or browsed. If saved it may be further sorted on another variable. If browsed the user can see up to five screens of fielded data or display the image. Unfortunately the user cannot choose to browse through images alone without returning each time to the textual record, but in other respects this product is a very pleasing example of what can be done with art or material culture on CD's.

While the Canadian Heritage Information Network which made the CD has been giving the product away, the project will fail unless it is widely discussed and treated as a prototype. In the U.S. anyway, the museum community hasn't been given a real opportunity to talk about the project. Hopefully that will be rectified.

For copies, documentation and additional project background, write to: Museum Services, Canadian Heritage Information Network, 365 Laurier Ave. West, 11th Fl, Ottawa K1A 0B8; 613-992-3333; fax 613-952-2318. \$60 for ICOM members, \$80 museums; \$100 others.

**Artifact** [Artifact Inc., 1130 Ten Rod Rd., Suite E104 N.Kingston, RI 02852; 401-295-2656] is a CD for IBM PC's containing references to over 200,000 auction records from 1987-1990. The database is continuously being updated and aims ultimately to be about 3 million records for price comparison and provenance documentation purposes. Images are said to be contained on the disc but I was unable to locate any in all the searches I conducted which including many of items illustrated in the original catalogs and quite a few of exceptionally expensive furniture and paintings.

Artifact comes with a users manual and requires one. In fact, it could use the better manuals which come with Mediabase which is the software in which the Artifact database is delivered. Mediabase includes capabilities for some fairly complex searching, but Artifact has been implemented to take advantage only of full text searching of all fields of the database. While the instructions indicate how field based searching and saving sets to narrow searches would work, one can't actually do it with the current set up.

So what can we do? Some searches for individual words work very quickly against a database of over 200,000 records and produce useful results. I searched "strainer" and found 100 in 8 seconds. The term was usually highlighted (in this and other searches some records were returned without terms highlighted even though the term was found!). When I discovered the number of different types of strainers I had retrieved, I researched for "tea" AND "strainer" in 14 seconds, retrieving 56 objects. For most items in the databases, all the information is displayed on one screen, with the following fields: Sale Date; Lot #; Gallery; High estimate; Sale Price; Low estimate; Item description; Auction information.

Not all searches are as quick or successful. I searched for "Christie's", because I wanted to know how many different Christie's auctions were covered. Of course Christie's didn't even always appear in the Gallery field but I had to search 'all categories' because of the way Artifact is set up. The search retrieved about 260 records every ten seconds and had good feedback on its progress (it continued to blink 'please wait' and to show me an intermediary count of the number of records retrieved) but it went on for over 40 minutes in the course of finding 62,301 records! This wasn't particularly useful, especially because the records are displayed in no particular order! Most of the records were, of course, auctioned at Christie's (some from other galleries had prior Christie's sales data associated with them), but I would have had to go through all 62,000 of them to find out how many different Christie's auctions were represented.

A search for Van Gogh illustrated some additional pitfalls. Of the 12 records retrieved (40 seconds) only four were works by van Gogh, the rest of the records simply mention him. None of the works was imaged even though one, the Portrait du Dr. Gachet, was sold for \$82,500,000. On the other hand, the information contained about some works can be quite extensive, for example the Portrait du

Dr. Gachet has 13 single spaced pages of exhibition history, publication history, discussion, citation to letters, and footnotes under the field "Item Description". The system allows these to be easily printed out during the browsing of the retrieved set.

Artifact does not employ any authority files, and unlike the CIDOC disc it does not permit the user to view term occurrences, so the only way to find out if a term is used, and how many times, is to search it. The advice given by the compilers of the database to search for terms that will be distinctive even if they are not the most important attribute of the object being sought, is sound, but we cannot know what the description of these items will include. There is no way to search for a range of dates or a range of prices, but these would seem to be reasonable queries for a database on auctions.

One of the questions about a database of this type is how accurate it is. While there is no way to say for sure, I found a number of minor mistakes in my short perusal - an auction on 87-11-19 is reported in the text of every record pertaining to the auction as taking place on November 19, 1990 (was it 1987 or 1990?).

In sum, the Artifact CD-ROM is a partial success for having compiled so much information in one place, but it falls far short of either what it is advertised to be (images!) or what one would need (better use of the Mediabase search facilities and adherence to standards). Hopefully some of these problems will be corrected in future updates.

D.B.



## GROUPWARE

While it is impressive to see museum market products for reservations and resource scheduling, we are all aware that scheduling, communication and resource management requirements are faced by all organizations, not just by museums. Can off the shelf commercial products be used with success? Can we define the requirements museums have in a way that enables us to assess products being sold to the wider market?

Museums have the additional problem of large collections, containing objects which are scheduled to be acquired, conserved, loaned, exhibited, and returned. They have tour groups moving through galleries, performances and lectures taking place in other facilities, special guests and delivery vans expected at various doors, and meetings taking place to plan public programs three to five years hence. With all this activity, museums need to be able to schedule rooms, people, objects and events and to be able to "tickle" and plan for their occurrence. The staff needs to be able to communicate around and in spite of busy schedules. And everyone needs to share contact lists, send forms within the museum, and manage their files.

Recently I compared several multi-user packages for managing time, resources and work which are available in the generic commercial software market for a client who

is considering beginning networked automation by installing general purpose software tools before putting up collections management systems. We found lots of possibilities, all easily affordable, but none which did everything on our wish list. Here's what we found with a few notes on their orientations.

**Beyond Mail** [Beyond Inc., 38 Sydney St., Cambridge MA 02139; 616-621-0095; 5/\$495; 20/\$1695, add ons for forms designer \$395, remote access \$295, MHS \$100] is a basic electronic mail package with forms management.

**Brainstorm** [Mustang Software Inc., P.O.Box 2264, Bakerfield CA 93303; 805-395-0223; fax 805-395-0713; 25/\$349; Brainstorm/MHS \$999] is a group conferencing facility with private e-mail and bulletin boards as well as tools for managing structured discussions.

**OfficeWorks** [Data Access Corporation, 14000 S., W. 119th Ave., Miami FL 33186; 800-451-FLEX; 305-238-0012; 6/\$495; 20/\$895; \$50/\$1395 each with add-ons for external communications] is a standard e-mail and calendaring facility with strong ties to the DataFLEX database system marketed by Data Access and SQL support.

**"OnTime" and "OnTime for Windows"**; Campbell Services Inc., 21700 Northwestern Highway, Suite 1070, Southfield MI 48075; 313-559-5955, fax 313-559-1034 [5/\$534.00; 10/\$828.00; 25/\$1770.00; 50/\$2940.00] is a networked personal scheduler which has received excellent reviews and could be put into service to schedule shared resources such as rooms by slight of hand.

**QED Office** [Strategic Marketing associates, 2785 Pacific Coast Hwy, Suite 251, Torrance CA 90505; 213-378-7632; fax 213-378-8285; 5/\$595; 20/\$1795] is a combination group contact and filing environment with calendars for individuals, groups and resources, a contacts database and file management combined with electronic mail facilities.

**SuperOffice** [SuperOffice Corporation, One Cranberry Hill, Lexington MA 02173; 617-674-1101; fax 617-674-2970; 5/\$1295; 10/\$1995; additional @ \$195 each] is a multiuser contact manager for customer support groups with support for calendars, to do lists, customer databases, mail merge and fax output.

**SuperTime** [SuperTime, 2025 Sheppard Ave. E, Suite 2206, Willowdale Toronto M2J 1V7 CANADA; 800-565-3288; fax 416-499-6462; 4/\$695; 8/\$995; 25/\$2495; 50/\$4795] is a little bit of everything - email, contacts management, project management and calendaring - with voice annotation if you want.

**Syzygy** [Syzygy Development Inc., 5555 Triangle Parkway, Suite 320, Norcross GA 30092; 404-662-5362; fax 404-662-0908; 10/\$1695 every additional 5/\$695] is "project tracking software" a kind of hybrid between electronic mail and project management with to do lists, messaging and Gantt Charts.

## MULTIMEDIA MAIL ON INTERNET

In an effort to get everyone addicted to lots of bandwidth, Bellcore has released free "metamail", the first implementation of a proposed multimedia mail standard to the e-mail community. The software is intended to enable multimedia mail from different vendors to work together using MIME (Multipurpose Internet Mail Extensions). The types of data currently supported include US ASCII, plain text in ISO-8859-8 (Hebrew), rich text (multi-font), image formats, audio, multipart mail including more than one of the others, encapsulated messages, partial and external messages (for very large objects) and binary data. A mechanism called "mailcap" enables creation of additional and future types. The current distribution of metamail comes complete with patches for over a dozen popular mail reading programs and the distributor, with typical nonchalance, assures us that "crafting a patch for additional mail readers is relatively straightforward".

[for additional information, contact: INFO-METAMAIL-REQUEST@thumper.bellcore.com]



## ICI OPTICAL TAPE

ICI Imagedata of Wilmington Delaware has been shipping its 1012 Optical Data Storage Tape which holds 1 Terabyte of data for use with the CREO 1003 Optical Tape Recorder. Average access within the terabyte is 37 seconds; 68 seconds worst case.



## STAR NOW ON IBM RS/6000

Cuadra Associates has announced that its STAR system now runs on the RS6000 platform under AIX. A new release of STAR (3.2) also contains an enhanced retrieval front end which includes end-user interface options and expanded searching based on providing for users the same automatic lookup features which data entry staff have long used.



## KEEPING ARCHIVES WITH HYPERCARD

Macresource [P.O.Box 927, Victoria Park, WA 6100; AUSTRALIA; +61 (9) 368-1985; fax +61 (9) 474-1694] has released **Professional Archivist**, a hypercard stack supporting the data set drawn from Keeping Archives. It requires an appropriately configured MAC SE 30 or higher. The international price is US\$295; demo disks are \$25. A full review will be published in Archives and Museum Informatics, Fall 1992, vol.6 #3.



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## STANDARDS

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### AUTHORITY CONTROL: A MANUAL FOR ARCHIVISTS

The Bureau of Canadian Archivists have published **Authority Control: A Manual for Archivists** by Elizabeth Black in English and French. The manual is a very basic introduction to traditional library authority files and thesauri and the methods of cross-referencing between terms. [Bureau of Canadian Archivists, c/o Canadian Council of Archives, West Memorial Bldg, Room 5074, 344 Wellington St., Ottawa K1A 0N3, CANADA]



### NISO BALLOTS Z39.2

The National Information Standards Organization balloted the reaffirmation of ANSI Z39.2 to remove the term "bibliographic" from the title of the format which now reads "Information Interchange Format", remove the bibliographic bias elsewhere in the format, and provide more flexibility through an implementation defined specification. [NISO, NIST, Administration 101, Rm E-106, Gaithersburg, MD 20899; fax 301-869-8071]



### LEGAL ADMISSIBILITY OF ELECTRONIC RECORDS

In April 1992, a Task Force of the Association for Information and Image Management produced a report entitled **Performance Guideline for the Legal Acceptance of Records Produced by Information Technology Systems** which summarizes the legal situation in Federal courts and in most jurisdictions in the U.S. of computer generated and electronic records. The discussions of case law and of the necessary procedures for assuring adequate retention of evidence will prove to be useful for archivists and records managers in all kinds of organizations. [AIIM, 1100 Wayne Ave., Suite 1100, Silver Spring MD 20910; 301-587-8202; fax 301-587-2711]



### STANDARDS FOR MUSEUM PROPERTY

The Department of Interior has issued **Interim Standards for Documentation, Preservation and Protection of Museum Property** and a two part **Checklist for Preservation, Protection and Documentation of Museum Property**. These standards, even though they were developed for internal use by the NPS, should be useful for museums willing to evaluate their programs and systems designers concerned with assuring that appropriate data to support management oversight is created and retained by their systems. [U.S.Dept. of the Interior, Office of the Secretary, Washington DC 20240]



## UK MUSEUM DOCUMENTATION STANDARD

The Data Standard Working Group of the UK Museum Documentation Standard initiative has published "Responses to the Survey of Museum Object Data Structures: Initial Consolidation and Data Model", March 1992 (152pp.) representing responses by thirteen museums to a query regarding detailed data element usage within almost 50 data "groups". The resulting matrices and comments are interesting at the moment only to those involved in systems design and standards development, but the process will produce data standards that could affect museums in the UK and elsewhere, so it might be worth study by others. [for information, contact Andrew Roberts, Standards Officer, Museum Documentation Association, Building O, 347 Cherry Hinton Rd., Cambridge CB1 4DH; ENGLAND]

## LCSH 15th EDITION

The Library of Congress has published in paper, microfilm and CD-ROM the fifteenth edition of its Subject Headings list. [LC, Cataloging Distribution Service, Washington DC 20541-5017; 800-255-3666]

## ELECTRONIC ICONCLASS

Two electronic editions of ICONCLASS are now being licensed by the ICONCLASS Research and Development Group [Vakgroep Computer and Letteren, Rijkuniversiteit Utrecht, Achter de Dom 22-24, 3512 JP Utrecht, the Netherlands; 31-30-392426; fax 31-30-333380; e-mail [ICONCLASS@Let.RUU.nl](mailto:ICONCLASS@Let.RUU.nl)]. The \$450 ICONCLASS Browser is a single user system for PC's with Windows 3.0 or higher. It includes the system and index volumes and allows users to browse the thesaurus and conduct keyword searches. The ICONCLASS Server contains the rules for the use of ICONCLASS and can be used with any C language database management program. An eight user license is \$900.

A full description of the programs and of the history of their development has just been published in Visual Resources, vol. 8 #4, p.367-382. In "ICONCLASS:Recent Developments", Hans Brandhorst and Peter van Huisstede add to information contained in their epilogue to the ICONCLASS workshop published in vol.8 #1 by describing the ICONCLASS Browser and Server and their application in a CD-ROM database containing pictorial information and data on printer's logo's used from 1540-1700. The purpose of this project was to prototype linked image/text retrieval using a structured thesaurus or classification system more than to generate the CD-ROM which is being given away with the browser. Additional research is underway, in which the authors invite their readers to become involved.

## CALL FOR PAPERS & INVITATION TO EXHIBIT

### Second International Conference on Hypermedia and Interactivity in Museums (ICHIM'93)

ICHIM '93, which will also be the Sixth International Conference of the Museum Documentation Association, will be held in Cambridge, England, 20-24 September 1993. As a consequence of its success in 1991 and the joint meeting with MDA, ICHIM '93 is expected to attract

- documentation, collections management and automation specialists;
- curators, designers, education staff and managers;
- museum advisors and training providers;
- system designers and vendors;
- interactive multimedia publishers;
- interactive multimedia curriculum developers;
- and researchers in these fields from throughout Europe, North America and the Far East.

The Conference will focus on developments in interactive multimedia systems for collections management, exhibition, public education, scholarly research, design and conservation in, for and by museums and on market developments of interest to users and producers of interactive multimedia publications.

**Vendors interested in exhibiting** their products and showcasing applications are encouraged to make early application for exhibition space which will be limited. The organizers will work closely with exhibitor if time is available to assure the best possible arrangements for displaying their products.

**Museum and multimedia professionals** are invited to submit research papers, project reports and demonstrations, and seminar or workshop proposals. If you would like to participate, please submit an abstract or outline of your paper and/or details of presenters and their papers for session and workshop proposals.

Proposals must be received by November 1, at:  
ICHIM '93

Archives & Museums Informatics  
5501 Walnut Street, Suite 203  
Pittsburgh, PA 15232-2311 USA  
+ 1-412-683-9775 or fax: + 1-412-683-7366

or

Museum Documentation Association  
347 Cherry Hinton Rd.  
Cambridge, CB1 4DH ENGLAND  
+ 44-223-242848 or fax + 44-223-213575