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Sharing Professional Knowledge

To date most of the discussion in the archives and museum communities regarding information interchange has centered around the benefits of exchanging information about the objects or archives in our collections, the institutions which hold them, or the contexts of their creation and use. In contrast to libraries, archives and museums can see the greatest promise in the interchange of information about contexts of creation and use, or provenance, because their shared tasks is that of documenting the social and natural world which is the subject of provenancial information. But little attention has been paid to the benefits of the interchange of information about how to run an archive or museum.

This editorial represents my first reaction to the demonstration of RLG's AMIS system (see p. 13). It suggests that we should consider the benefits of the exchange of professional know-how to be among the greatest potentials of interchange and that we should turn our attention to how to represent such knowledge for maximum utility.

Those who have seen the AMIS system know that the core concept is that it supports the day-to-day work of the archive or museum "in the foreground" while constructing documentation of objects "in the background". At any point the user can switch views and see the object with all that is known about it and "catalog" it in a traditional fashion, but the usual experience is one of a system that executes the policies and procedures of the local site. Those policies and procedures are embodied in executable "checklists" which may have many steps and may incorporate other checklists. A checklist for planning an exhibition includes checklists for preparing and approving the script, acquiring objects through loan, installing the exhibit, and publishing a catalog, each of which incorporates many other checklists and itself has numerous steps.

The checklist was developed with the aim of making the system specific to the procedures of an individual institution while its code could be generic. Since seeing it in operation, however, I have begun to think about it less as a method of individuating practice than as a means of sharing practice. The potential of the checklist to embody the professional knowledge of how to conduct a particular task is particularly obvious when the task is highly specialized, such as custom brokerage for international loans or conservation of papyrus, which might not be done by some archives and museums only as often as once a year while others might be involved in it very frequently.

The benefits of exchanging information about how to do a professional task, in a fashion that makes it possible for the recipient to execute the task with a reasonable degree of professionalism, including calling in experts when necessary, could be one of the most important consequences of sharing information about objects and their provenance through a system modeled along the lines of the RLG AMIS system. As the designer of the checklists I can honestly say that I didn't realize the potential until I saw it. We even left expertise out of the kinds of data being considered for interchange by CIMI, but now I think we need to consider how executable procedural guidelines can best be represented and whether the checklist metaphor is such a vehicle.

D.B.

In This Issue

For a week in May 1992, Martha Mills, of the law firm of Smith, Williams & Lodge in Chicago, hosted an electronic conference on the subject of advanced uses of digital technology in public spaces. Her own interests in multimedia exhibits in museums led the conference contributors to discussions of issues of interest to the museum community, although they were exhibit designers, members of the general public who were in fact infrequent museum goers, and interested outsiders such as Martha herself. While the entire transcript of the weeklong conference is much too long to reproduce here, I thought Martha's first two "uploads" to the conference were interesting. With Martha's permission, their unedited text follows.

Use of Advanced Digital Technology in Public Places

Introduction

When one thinks of a magical digital wonderland and the enchantment of museums and like places, and does the appropriate mathematics, one gets the equation: magic times enchantment equals fascination at the least, and a miraculous explosion at best.

Gather out of star-dust
  Earth-dust,
  Cloud-dust,
And splinters of hail,
One handful of dream-dust
  Not for sale.

  Langston Hughes
  The Panther and the Lash, 1932

The Information Age is already an accepted descriptive for the times. Analog technology is being overtaken by digital technology. Interactive media is here, ready to graduate from cameo roles to bigger and better things. Multimedia, any combination of text, color graphic, digital audio and full-motion video is here, getting ready to step on stage. Virtual reality is here, waiting just off stage. All are ready to see the curtains open on a world we have been previewing and biting our nails over. Only the play will not be put on for us, we will all be on stage. We can all play together, be interconnected, read anything anywhere in the world, see anything anywhere in the world, tap into something to remember our lines, lay back a bit and watch someone else act, join in again actively.

With such visions are our public places -- museums, libraries, zoos and aquaria -- looking at their roles. With not dissimilar visions are other public places, parks and squares, public waiting rooms, commuter stations, civic centers, sports arenas, and street corners, eyeing the rest of the players.

Public spaces have in common the fact that they are public, they are social, they are spatial, and they are timeless in the sense that interaction with any particular person is variable and idiosyncratic. In many of these spaces, people are waiting and are therefore receptive to diversion. An informative diversion could be anything from a passive presentation to an interactive kiosk showing area attractions. The kiosk could also permit a printout of places to go and directions. It could also permit interactive requests for reservations, taxis or routes.

Museums once thought of themselves as institutions to collect and preserve objects from around the world, places for scientific study of their collections, and only lastly as places to display the exotic to the public. Some have referred to this period of display as the stack 'em deep, pile 'em high philosophy of display. Over the years museums have changed a great deal. Today, while museums are diverse, as are their aims, it can safely be said that they are primarily in the business of dissemination of information rather than artifacts. The advantage to thinking in terms of information is that it validates the collection of intangibles, such as oral histories, and replicas, as well as actual artifacts; it places museums in a key position in an information age; and it makes it easier to integrate traditional functions of collection, preservation, research and display with the new watchwords, education and communication.

Libraries, similarly, no longer look on themselves as places to conserve books, serve scholars and just tolerate the public, but as depositories of knowledge that can and should be made accessible to all. Where now we have databases, ultimately all the world's literature and written knowledge will be available to us.

Zoos (and aquaria) are no longer the squalid cages of the past filled with high profile exotic animals, but places of open design, where animals are not only placed in natural context (for people's benefit), but also for the animal's own ability to engage in natural and interesting behavior. Today's zoos are increasingly institutions devoted to conservation, breeding and preservation of species, ecology, education and scientific research. They are involved in these areas at their own institutions, and increasingly in cooperative efforts with other similar institutions, third world countries, universities, museums, germplasm facilities, agricultural interests, and private, local, state and national parks, forests or protected areas. Zoos are also increasingly involved in education to encourage people, particularly minorities and women to go into those scientific and zoo-related fields on which zoos and animals, in zoos and in the wild, depend.

Other public places are beginning to realize that they do not exist to do the rest of the population a favor, they exist to serve a function vis a vis that population and the world around us.

Much of the material located for this paper was related primarily to museums. Therefore, many of the references will be to museums. The concepts, the technology, the practical considerations, and the cautionary considerations are equally applicable to all public places.

Examples of the use of Digital Technology

The Franklin Institute Computer Network

The Franklin Institute/Science Museum has installed a museum-wide, multi-layered information system, with stations in each of the museum's 20 permanent exhibits. Stations are equipped with bar code readers which serve several functions. There are different bar codes for adults, children and parents of pre-schoolers. When the appropriate card is used, a different menu appears, simplifying the multi-layer system and making it more useful to visitors. The bar codes also allow the visitor to request printed science information and take-home activities. Print requests are then picked up on the way out through the print shop. The stations have information about exhibits, and also can answer questions about restaurants, restrooms and museum stores.

Both the menus, the appearance and the information available differ greatly between adults, children and preschoolers, as do the take-home items. Under development is material for Boy and Girl Scouts, and new functions, such as enhanced personalization, multiple languages, stations dedicated to in-depth experimentation, and maybe even artificial intelligence to anticipate a visitor's choice based on past decisions.

Museum Education Consortium

The Chicago Art Institute, the Boston Museum of Fine Arts, the N.Y. Metropolitan Museum and Museum of Modern Art, the Washington National Gallery and the Philadelphia Museum of Art formed the Museum Education Consortium in 1988. They produced "The Museum Visitor's Prototype", to explore new ways for visitors with little or no knowledge of art to look at and think about art. In fact the Consortium prototype focused on one artist, Monet, and one painting, "Waterlilies" which hangs in the Museum of Modern Art in New York. Interactive media allows exploration of information about a variety of paintings, artists, etc. as relates to Monet and his work, allows a look in Monet's studio and his garden, where the scene was painted, there are zooms to details, talking heads, time- lines, side by side comparisons of paintings, journals and sketches of Monet, and more. The Consortium has more recently produced another prototype in which one can visit an ancient Mayan site in Mexico.

The prototype runs on a hardware platform including a Macintosh II with extended memory, Truevisions's Nuvista image capture and overlay board, a Pioneer 4200 video disk player, an Electrohome color monitor and stereo speakers. In order to test reaction to the images, some are in analog form from the video disk and others are digital from the computer hard disk. Some of the footage was filmed in HDTV.

The prototype was interactive, allowing visitors to take their own routes through it, and go deeper or not if interested. It was tried at two of the museums and it was reported that people generally liked it a lot. It was also reported that many people spent up to 20 minutes having a good time with it.

The Smithsonian Institution

The Smithsonian Institution has been active in seeking new ways to reach people. There are three things it has done which will be described here. First is the Information Age Exhibit. It is a permanent exhibit tracing the evolution of electrical and electronic information technology and how it has affected American society. The exhibit has 700 artifacts ranging from Sam Morse's telegraph to computers and robots. There are also graphics, mannequins, 3 environmental settings, and lots of labels.

The exhibit is highly interactive. There are 56 personal computers, 4 work stations, 2 minicomputers, 44 video disk players, 2 high speed printers, 3 video projectors, 4 large projection monitors, 20 standard video monitors, a high definition television, a 12 screen video wall and an automated sound sampling and regulating system. An IBM token ring connects the PCs. The PCs control other peripherals. The token ring is connected to an Ethernet backbone which controls the exhibition monitoring system.

Visitors can "log in" by bar code when they enter the exhibit from a bar code on the back of an "interactive brochure". Each brochure is different, so a visitor's progress and activities can be followed (not by actual identity) and the exhibit evaluated. Visitors can scan in their bar code at various points for print outs. On the way out, they scan into the printers, and what they have ordered is printed out.

The system is designed to be interactive so that visitors can make their own choices, stop, start, change their mind etc. In evaluating the exhibit, it was found that while all exhibits were popular, the most popular ones used humor, cartoons or games to engage the public. The most popular game was a code breaking game. It, like many other parts of the exhibit, was personalized so that a person could encode his own name in a World War II German code, and then decode it.

Another way in which the Smithsonian is using advanced digital technology, is in the production of "Treasures of the Smithsonian" in CD-I format. "Treasures" is a disk one can buy and take home. It has 150 objects from around the Smithsonian. These are described in audio-visual segments with images, commentary, or sounds and music, detailed text notes, and some of the exhibits have special features that permit one to walk around an exhibit or play an instrument. A viewer can select a route through the exhibits, can interrupt any audio-visual sequence, restart it or skip it.

A third way the Smithsonian uses advanced digital technology is not so much related to visitors, as internal. It uses geographic information systems (GIS), which combines computer cartography with relational databases and analytical tools and produces digital maps. The Smithsonian uses GIS combined with a spatial database, to plan

and manage its own space and exhibits. It also uses the GIS systems in connection with on-going research, such as for combining and comparing time-sequential maps and satellite imagery or comparing species diversity of flora or fauna in areas under study. It can even be used as a spatial demographic tool for marketing and development to reach existing and potential members.

Oakland Museum History Stations

The Oakland Museum is a museum of the history of California. It has some 6000 artifacts on display. It decided that it did not want labels. It opted for interactive history information stations, with screens designed to blend into the rest of the museum. The stations have touch screens, maps of the museums, audio-visuals, in some cases stories by Californians about what is there, a curator's card for those who want more depth, and a game in which mysteries of California history may be solved by looking about the museum. There are three stand alone history stations, with 286 PCs, touch screens, VGA full page text overlay board, video disk player, and integrated stereo amplifiers and speakers.

Neo/Museum/Children's Museum Prototype

In Yoshino, Japan, the Neo/Museum was constructed in 1990. Students, faculty and researchers visit it to collaborate on experiments in children's learning with interactive multimedia and software development. The visitors are multidisciplinary. One of the programs it has developed is Animemo. This is a simple authoring tool in which children learn how to make animations and engage in active storytelling without the usual constraints of text or still pictures. Another is the Mapmaking project in which hypermedia authoring and database management by children is being explored. A map of Yoshino and surrounding areas forms the user interface to a database. The database has information, textual, graphic, audio and visual about the places of interest on the map. Children can add their own annotations and information about places they know. Sometimes they interview older residents to see what they know and add it to the map. Later other children will work with the same map as annotated. The program is thought particularly important in Japan where the highly competitive learning environment tends to discourage learning that is not strictly scholastic.

Perseus

The Harvard School of Classics produced a hypertext CD-ROM type disk called Perseus. It is on display at the Fogg Art Museum in Cambridge from Feb. 1 - May 31, along with actual objects of Greek art and culture. It contains 6000 still and moving pictures of classical Greek objects and 30 printed volumes of text, including original Greek versions and English translations of epics, plays, historical works and biographies. Luminaries include Homer, Herodotus, Plutarch and Sophocles. The text and pictures are linked with dictionaries, maps, drawings, plans and even satellite photos.

British Golf Museum

The British Golf Museum opened in 1990 and tells the history of golf from the middle ages to today. It uses Laservision and DC-I to generate audio-visual material. It is said that the effects are "amazing" but they are not described. There are 11 touchscreens, 8 of which use laservision players and 3 of which use CD-I. There is also an audio-visual theater, using a laservision player, and five tableau commentaries running off laservision players. There is also one slide show. The touchscreens are located around the museum and contain materials appropriate to their location and are totally integrated with the exhibits. As a visitor moves through the museum the audio-visuals become more complex (as they will have learned what to do with the earlier ones). There are slave monitors so that others can watch if one person monopolizes a screen. There are a couple of quizzes on the screens, and there is a disk one can buy to take home. On that disk one can pick a historical figure and play a sudden death playoff on the old course, choosing among old equipment. The disk will give the player hints as to the historical figure's style of play.

Technology in the Planning

International Shakespeare Globe Theatre

One of the most interesting projects-in-the-works is the International Shakespeare Globe Centre. It will be a theater, museum and research center located at the site of the original Globe theater. The multimedia planner envisions the reconstruction of the old Globe in modern London as a junction of time and space, and he wants to make that contrast real. The visitors will enter at street level and go down to the museum. The hall will have large street windows allowing a glimpse of modern London. As visitors go downstairs, the windows turn to window-like film projections, featuring the same view of London, but going back in time. The museum level will be 17th century. There will be filmed projections of Londoners of varying class ranks going to theater, electronic maps, scenes of various Londoners at home, work etc. Workstations could supply more detailed information. In one you might fly over London and move up and down to see whatever you wanted. There will be an "Act in Shakespeare" exhibit in which a visitor can act against other projected actors, and take home a videotape of it. Similarly, one can pick out any Shakespearean costume and it will be projected on a visitor's body and he can take home a picture of it. There will be electronic design kits so that visitors could design staging. It is planned to "sneak" surprises into other exhibits. For example, there may be an exhibit of Elizabethan dining. The guide can ask, who is eating this (i.e. king or pauper), and with an unknown switch can make a hologram of the appropriate food appear on the platter when the lid comes off. And there is much more, but one can see it will be a fun place to visit.

Bibliotheque de France

This project is not in the "as amazing" category as the Globe Theater, but it is quite real. Ground has already been broken for this library. It will occupy nearly 15 acres in central Paris, have 3 million square feet of floor space, house 12 million books, be able to seat 4000 readers, and have networks for dial-in users. The library is thought of not as just a big building, but a big concept, not just to conserve books, but to disseminate them to the public, in large part relying on electronic technologies. This library is France's bid for a central spot in the information network of the future. It is difficult to describe the architecture, but it will have massive towers, and still have congenial reading rooms opening into gardens. The library has planned for preservation of books, physically, preventative, and by microfilming, photocopying, or digitizing. There are plans for reception areas, bookshops, exhibition halls, restaurants, cafes, reading rooms, children's areas, research rooms etc. What amazes some people is that all this is going in expensive space in central Paris, which is an indication of the importance that France attaches to its vision of this library.

New York Hall of Science Audio Project

The New York Hall of Science in Queens, New York is working with new digital audio technologies to make interactive exhibits in which, for example, one could play an original Edison wax cylinder by laser. The laser would mean that there would be no wear and tear on the disk, one could stop and start anywhere, one could transform pitch or rhythm by moving the laser along the cylinder. Another exhibit might be a walk-on sound mixer with many tracks. A video camera would pick up movements and numbers of people and vary the sound accordingly. There would be a set of binaural headsets with microphones attached, placed some distance apart, allowing two visitors to trade ears with each other. There would be an audio history of different devices. A visitor would walk up and speak into a microphone and hear the voice come back with the quality of whatever device was chosen, and accompanying distortion, static, etc.

Considering the Constraints of Advanced Digital Technology

While advanced digital technology offers opportunities of great attraction to museums and other public places, there are also cautions. How does a museum or other public place go about deciding what it ought to do, if anything, with advanced technology? [I will use the word "museum" for convenience, but other public places are included.] The effective use of the potentials of advanced digital technology requires the same planning and understanding of teaching and entertaining principles as any other interpretive media.

» What are the goals, i.e. what does the museum want a user to gain by a particular application?

The substantive content and instructional capabilities of an application are more important than the medium, though the medium can create interest in accessing the content. As one designer noted, quoting Miles Davis, "You can only play as far as your concept."

» What is the best use of interactive technologies in museum settings in general?

One particularly good use of computers is to explain complicated and interdependent phenomena. Visitors do not like to take the time to learn about things like ecological processes, the food chain or plate-tectonics. Interaction, hypermedia and simulation possibilities can put a visitor in a real world situation (a rain forest, a planetary system, a city). Just as in a computer game, the visitor must deal with many interdependent factors to achieve a goal or solve a problem.

Another good use is animation to illustrate dynamic processes, such as how drugs or liquor effect the body and mind.

» What is the target audience?
» Who is the application for?
» What is the expected interaction time?

If the museum is a busy one and there are few display stations, long interaction by one person will leave many frustrated and unhappy visitors. The museum must take into consideration the frequency of multiple users, i.e. family or school groups. One solution, as in the case of the British Golf Museum, is slave monitors so that more people can see what the application is even if they are not interacting with it. Regardless of the number of stations, the museum must tailor the length of the interaction to the material desired to be conveyed.

Other things that will affect interaction time are location, accessibility, comfort and visibility, and age of the user. The museum can use these factors to shorten or lengthen likely interaction time.

» What kind of content research needs to be done; what kinds of rights clearances will be required?

Laying aside problems of digital technology and copying, a major problem for museums in preparing interactive and hypermedia applications, is the practical and economic one of copyright problems and photographs. Visual content of interactive media is often rather dreary because the maker has decided to rely on expired copyright photographs, as from the Library of Congress, Smithsonian or Bettman Archives. As public domain photographs are depleted, the need for fresh images grows. One interactive laser disk can contain 50,000 images. Stock photographs typically net a photographer about $100 as a royalty. If only a $50 royalty were paid per photograph, the cost of the application is already $2,500,000, without more. Photographers have to be individually located and signed on. This by itself is difficult and time consuming. The most widely agreed upon man-

ner of resolving the problem at the moment seems to be clearinghouses similar to ASCAP in the music field. The Electronic Book Company was formed in 1990 for just such a purpose. These issues are being looked at actively by the American Law Institute, American Bar Association, College Art Association and the Museum Computer Network.

Two other possibilities are for museums and public bodies to scan in all of their photographic libraries, for preservation and accessibility as well as other reasons, and to make them jointly available to each other. Similarly, public bodies could jointly hire photographers whose work would then belong to them jointly, as Life Magazine used to have staff photographers. Of course, this would not solve the problem of the need to access photographs of people and events between the period of copyright expiration and the present, but it would make many more images available.

» Who in the museum is charge of all of the various aspects of the application, and who will coordinate everyone?

The team will need management for staffing, scheduling and financial accounting, as well as a design team for software, hardware, interface design, content and content hierarchies, use of appropriate mediums, i.e. sound, animation, video, graphics, text and narration, contract and copyright issues, maintenance issues, evaluation, and display station design.

» How will the planned application blend in in the context of the exhibit and the museum?

Interactive or hypermedia applications do not exist in a vacuum. They share space with the museum itself and the artifacts in it. The application should hold its own, but not compete with the museum or its exhibits. It should enhance, supplement, supply links or animate the more static portion of the exhibit. What the application does will be determined by what the concept of the exhibit is.

» Is the media chosen appropriate to the information sought to be conveyed?
» What is the optimal user interface design? What kind of interaction does the museum want to encourage? How will it be inviting, accessible and meaningful?

There is a certain amount of agreement as to what appeals to people. The choice to participate or not, or to go this way or that, is important. The sense of user control is important. A user also needs to feel he has learned something or gained confidence to be satisfied with the interaction. Animation, simulation and games often help bring material under control. Personalization, as in the decoding game at the Smithsonian, is important. Or personalization as in an exhibit where the visitor goes on an Arctic trip at the Canadian Museum of Civilization. The visitor packs gear, all with the help of an old man who knows his stuff, goes on a hunt, meets challenges, again with the old man's help, sees and interacts with the Arctic and its brutal weather. The visitor who has taken that computer trip has a much more personalized vision of the Arctic than most other people. Learning, after all, is not information delivery by itself, but motivation to learn in the visitor.

There is also some agreement that if trade-offs need to be made for financial reasons, that more effort ought to be put into the program than the video (unless, of course, the video is the main thing). By this is meant that building the program to involve the user and give the user lots of choices is productive in the sense of both learning and entertainment. Visitors are often not looking for high quality video production, but entertainment.

» What are the problems with developing a prototype and then a working model?

It is easy to get real and financial interest in a prototype of an interactive or hypermedia project. However, the gap between prototype and working exhibit can sometimes be large. A prototype is a small version, meant to be scaled up to larger dimensions. People often have unrealistic ideas of the time it takes to make a workable prototype. If it takes three months to take 5 artifacts and build a prototype, how long will it take for the 150 artifacts intended for the final application? There are, as of yet, few published case studies or design guidelines for hypermedia, though more are available for interactive media. There are also serious problems in off-the-shelf software, and more work than one imagines in making one's own software.

» Will the data, text, graphics, images, audio or visual materials need to be updated during the course of the exhibit or in likely future uses, or will they remain the same?

When one sets up an interactive or hypermedia exhibit, one must consider whether it will need to be changed or up-dated. Some applications, particularly with hypermedia, are not set up so that updates and changes can be made easily, and if one obtains software permitting changes, it is often prohibitively expensive. Hypermedia applications often have indexes and images taking significant space on CD-ROM which cannot be up-dated. If one does produce an interactive or hypermedia application which becomes outdated, it will fall into disuse. Since the applications are expensive to begin with, this is a significant consideration.

» What kind of image quality will be needed?

This is an area where there is much change. The choice of digital or analog is iffy. If one wants many, many images on interactive media, analog may be better. If one wants to make changes to images, as showing an artifact as it is now and as it was at various times in the past, or to share images over a network, or create applications which can be revised, or to create the highest resolution images, one wants digital. As between digital and 35mm photography, however, photography still has the edge in color reproduction and resolution. Digital is close to catching

up and has real advantages for selectively controlling reproduction, and showing dimensions and tactile features.

The technology is state of the art, but here, to take 2-D and 3-D digital images. One of those cameras, owned by the National Research Council Canada, uses a laser sensor which projects a laser beam on an object, measures the angle of returning light and calculates an x,y position within an accuracy of 10 micrometers. There is a mirror scanning arrangement which sweeps the laser spot in a particular direction while the position is being sampled at a high rate of speed. This can be done with a moving camera or a stationary one with the object rotating. Either way in less than one minute a 512 by 512 high definition range is taken. The laser sensor also captures data relating to color, depth and other surface elements. With the development of laser color printing and robot painting, this camera will soon be able to yield accurate color and shape reproductions of any objects. This kind of digital image would not only be useful for interactive and hypermedia applications, but also for basic measurement of three dimensional color artifacts for documentation and display purposes, for the sharing of information by telecommunications, to compare an object over time (such as pre and post restoration), to replicate objects or missing parts of objects (Egypt could, at last, get an exact replica of the sphinx's nose to replace on the original, the nose being at present in the British Museum), and for research. The European Community also has a project called "VASARI" to demonstrate the practicability of high resolution, colorimetric acquisition, storage and retrieval of images. This system takes images or details in small sections and mosaics them together. Many of the uses foreseen by the VASARI project, are permanent, highly accurate color images, uses in art restoration, uses in collection management, the ability to produce extraordinarily high quality reproductions (and ability to earn income therefrom), ability to send digital images from a central data base to a reproduction facility for copies on demand, and other telecommunications sharing among museums.

In an interesting sidelight, there was an article about a Japanese artist, Yasumasa Morimura who used computer based digital image processing to produce works of art from old masters. He took the Rembrandt painting "Anatomy Lesson of Professor Nicholaes Tulp" and fed it into the computer. He posed to mimic the original figures, including the cadaver. He fed that into the computer with the original, and twisted, squashed and tinted away until he got a new work with the original Rembrandt, but his face seamlessly on all of the figures. He printed it on a high-resolution color printer, rephotographed it, and blew it up to 8 x 10. For a price, it can be had.

» What hardware should be used?
» What software should be used?
» Will the application as designed be durable enough for unsupervised use?

The New England Aquarium in Boston was making its first venture into interactive computer exhibits. The first exhibit station was a Macintosh II with a Sony Laserdisc player and a color monitor with a Microsoft touch screen. The program was Hypercard, using Videoworks and Pixelpaint software. The exhibit lasted 2 hours. A ponderous finger broke the screen. The Aquarium got a new monitor with the screen backed with unbreakable laminate. The exhibit lasted 7 hours. Someone scratched the surface of the screen with a knife. The screen was replaced and covered with a 3 mil sheet of lexan. That worked, but the nearby exhibit where one presses a button to show how, anatomically, different animals make sounds, wouldn't work because some enterprising visitor had superglued all the buttons!

Each component of a system must be reliable, with the visitor input portions especially bombproof. re has been much creativity in substituting parts from known reliable systems for computer parts, such as parts from arcade games, vending machines, automated teller machines, pay phones etc. The incorporation of these parts may take some ingenuity, but it may be worth it in the end.

» What will the maintenance needs of the application be?

One or more designated persons need to be in charge of maintenance or it often does not get done. Regular checks and maintenance should be routine. If no one is in charge, the system could go down and remain that way for days before someone enterprising calls for help.

» Can the system be built to accommodate future upgrades?

The system should be built with the knowledge that portions of the system will become outmoded and will be replaced. For example, a kiosk might be built with the notion that the monitor it presently has may be replaced by a larger one in the not too distant future.

» How can the prototype, and then the working model of the application best be evaluated?

Evaluation techniques have been both personal and electronic. Several applications in various places have been evaluated by observation and personal interview. The observation came in handy because many visitors who did not look at an interactive exhibit when asked whether they used it and how they like it, said they used it and liked it. The Smithsonian and Franklin Museum because of the bar codes are able to determine numbers of visitors, numbers of users, length of use, how a visitor used the application, and more. Evaluations too often, however, are of the attention given to computers, to applications, rather than to the learning outcome of the application and exhibit.

Other Questions

» Will the application encourage the visitor to further explore other works in the museum?

Multimedia, hypermedia and other technologies are tools, or even interpretive tools. They are not an end in itself. Museums need to ask at least the following questions.

» Does the technology detract from the exhibit?
» Does the technology focus attention on the exhibit?
» Does the technology increase visitor involvement?
» Does the technology help the visitor make decisions about the exhibit?
» Does the technology increase visitor confidence in handling the topic?
» Does the technology make connections between familiar knowledge and the exhibit content?
» Does the technology permit different levels of discovery for visitors with different interests (layering)?
» Does the technology provide a variety of sensory inputs, print, visual, animated, graphic, sound?

Compression of sound files is now possible and they can be synchronized to video. This will allow sound to be imbedded in the entire multimedia program, as opposed to separate sound, as on CD. In addition, advances are being made in binaural sound without the necessity of headphones. This would make the experience more enjoyable and interesting. Sound has sometimes been ignored in favor of video and text. Sound cues can do much to enhance understanding and reinforce interface metaphors and navigation. And there are people who learn better by sound than other means.

» Does the technology give the visitor something to take home?
» Does the technology give the museum a way to evaluate the technology, the exhibit and visitor participation?
» On another level, is the technology designed for use by a wide variety of people, different ages, different conditions and different levels of computer comfort?
» Does it allow for lack of computer literacy?
» Does it allow for limited interaction time?
» Is it tailored for all age levels?
» Is it tailored for varying reading levels?
» Can someone who speaks no English figure it out?
» Is the subject matter easy enough for some and hard enough for others?
» Is the user interface consistent over different applications?
» Has the museum guarded against information overload?
» Is the exhibit placed appropriately so it can be used, seen and heard?
» Is the exhibit available to disadvantaged people?

On the question of the user interface, there are also some considerations. The user interface is what is between the application and the visitor. The visitor will have only a few seconds to a minute to figure out how to use the application. More than that and the visitor will give up in frustration.

» Will a user always know where he is in a program?
» Can a user easily get to an area of interest without running through a lot of other programming first?
» Does the interface tell the user how it works?
» Are the icons, buttons, structure, sound, or other getting-around-metaphors consistent?
» Does the interface give the appearance to the user that he is always in control?
» Is the content grouped so that the user anticipates the next subject or level?
» Is complex content presented so that it feels simple?
» Is the navigation structure appropriate to the content?
» Is more than one mode of sensory learning possible?
» Does the navigation process interrupt the visual or sound comprehension?

□

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CONFERENCES

RECOMDOC '92: Report on the First Eastern European Conference on Museum and Cultural Heritage Documentation

by **Nancy Bryan**
Getty Art History Information Program

The spectacular mountain village of Sinaia, Romania, was the site of RECOMDOC'92, the first Eastern European Regional Conference on Museum and Cultural Heritage Documentation, organized by Romania's Centrul de Informatica si Memorie Culturala(Information Center for Culture and Heritage, or CIMEC) with assistance from the Getty Art History Information Program (AHIP). This conference offered the first opportunity for many Eastern European museum professionals to travel outside their own borders, to meet their counterparts from other countries and learn details of their projects, and to hear speakers discuss current initiatives in the fields of museum automation and standards for information exchange.

The idea for the May 1992 conference originated at a meeting of the International Documentation Committee (CIDOC) of the International Council of Museums (ICOM) in Copenhagen a year earlier, a meeting which for the first time included participants from Eastern Europe. At the Copenhagen meeting, Eleanor Fink, Program Manager of Information Standards and Services at AHIP, suggested to Ecaterina (Katie) Geber of CIMEC the idea of a regional Eastern European conference to bring together a wide range of art-world professionals: curators, registrars, art librarians, and computer specialists,including the designers of automated systems for museums. Katie enthusiastically promoted the idea to her supervisor Dan Matei, Director of CIMEC. In their turn, the Romanian conference organizers discovered that the creators of many museum and cultural heritage projects in the field were eager to attend and to share their experiences with others.

Thirty participants attended from Romania, as did 30 from Hungary, Czechoslovakia, Moldavia, Slovenia, and Greece, and 10 guests from the West (the United States, Canada,Great Britain, and Denmark). Economic restrictions prevented many interested Eastern Europeans from attending; some who initially accepted were forced to withdraw because of economic hardship.

AHIP's participation in this historic event was fitting, given both the J. Paul Getty Trust's interest in encouraging developments in the Eastern European art world and AHIP's variety of activities that employ automation technology to enhance worldwide access to art information. The Sinaia conference embodied a theme particularly important to AHIP: fostering the exchange of information in the arts by means of international standards and cooperative ventures.

The wider spectrum of Getty interests was also on view in Romania that week: in addition to the Sinaia conference, a special exhibition at the Muzeul National de Arta al Romaniei (National Art Museum) featured the four paintings that had been sent to the Getty Museum for restoration after being damaged by gunfire during the revolutionary battle inside the museum's walls in December 1989.

In his keynote address, Radu Boroianu, the Romanian Secretary of State, asked the conference to answer the following questions: Do the Eastern European countries form a region? Can they exchange information, forging links between specialized institutions? Can they work together to find common solutions? For him, this international gathering of experts elevated the status of the conference from a regional affair to an event with global significance.

Michael Ester, Director of AHIP, observed that the task facing Eastern European countries as they begin to work together in many areas is similar to that facing the United States: to seek improved communication, and a common framework for expressing cultural diversity. He told the audience that, despite AHIP's involvement in computer technology, its management understands that the real issues are not the latest hardware or software but the value of information itself in preserving our cultural heritage. AHIP's Eleanor Fink, praising the Romanians for making the conference a reality in such a short time, emphasized AHIP's catalytic role in raising community awareness of critical issues in automation and developing consensus where possible. She urged conference participants to use the conference to "gain a broad look at what is happening elsewhere," and pointed out that standards can have widespread application only if they are developed as part of a process of consensus.

The first day's session was largely devoted to speakers from Western countries sharing their varied experience in documentation practices, systems, and standards in Western museums. Despite the unique perspective of each speaker--for example, Andrew Roberts from CIDOC, and Barbara Rottenberg from the Canadian Heritage Information Network (CHIN)--the overall sense of the messages was quite similar. First, all saw adherence to standards as highly desirable, since standards (in data, systems, and information interchange) foster accountability, access, and easy information exchange. Second, the task of developing standards, though often daunting, is well worth the effort invested. Third,many automation projects in the West have become bogged down by the lack of clear conceptual design or an inability to follow through; the experience gained from such unsuccessful projects can be useful in helping those who are just starting their own projects avoid similar pitfalls. Fourth, there is no need for Eastern museum and systems professionals to think of their efforts as lagging behind those of their Western neighbors;indeed, Eastern institutions are well advanced in documenting art collections, and Western museums face economic and staffing challenges similar to those of their Eastern counterparts. The next morning

was given over to two workshops sponsored by AHIP: "The Art and Architecture Thesaurus," given by Susanne Warren, and "Introduction to Museum Automation," led by Margaretta Sander of the Art Information Task Force and John Perkins of the Museum Computer Network. The latter workshop offered not only advice on how to plan museum information management projects, but also "hands-on" exercises that gave participants first-hand experience in the group processes that must occur as an institution makes its initial efforts to define its information needs. Both workshops were received with great enthusiasm by conference attendees.

The remainder of the conference gave participants the opportunity to share the details of their projects with each other. Among the projects presented were Romania's Brancusi collaborative multimedia project; the CAMUS database developed for Romania's Village Museum; the centralized 300,000-record database for Romania's cultural heritage, underdevelopment by ICCH; the STAR database of information on the Romanian theater; Czechoslovakia's automation project to help prevent art theft; and Hungary's network linking museums and universities.

As the conference drew to a close, the participants from Western countries, many of whom had undergone the trials of attempting cooperative projects, warned their Eastern European counterparts not to be unrealistically hopeful as they embarked on such endeavors for the first time. Michael Ester of AHIP told participants that now, after the formal papers had been given, they faced the more difficult task of discussing the real problems and working out common solutions.

In the final roundtable, participants offered their summaries of what the conference had meant to them, as well as their hopes (or fears) for the future. The conference's most important benefit to most of the Eastern European participants was the ending of pervasive isolation imposed by their previous regimes and the free interchange of information among professional colleagues who had been ignorant of each others' existence until now. Dan Matei told the gathering, "You in the West think of the Iron Curtain as separating East from West. What you do not understand is that there was also an Iron Curtain between each of the Eastern European countries as well."

The Eastern Europeans were surprised to discover that the countries of the West faced exactly the same problems as they did. John Perkins of the Museum Computer Network summed up the situation with admirable directness, stating that North America had been impoverished by the previous lack of contact with Eastern Europe: "We have as much to learn as we have to offer." An Eastern European participant phrased it no less directly: "We're not talking about help; help is asking for something. We're talking about cooperation, because that means I have something to share." Many reiterated a single wish: that the cooperation engendered by this meeting would keep them from "reinventing the wheel" as they struggled to find answers to their questions. This sense of sharing and momentum promises success for the CIDOC meeting to be held in Ljubljana, Slovenia, in September 1993. The proceedings of the Sinaia conference, which will be sponsored by AHIP, will be edited in the summer of 1992, and should be ready for distribution to participants by the fall. The participants agreed that the conference had demonstrated not just a new way of"doing things," but an entirely new way of seeing: an apt compliment for a conference in the field of art. □

Technology, Scholarship and the Humanities: The Implications of Electronic Information

This three day invitational conference was sponsored by the American Council of Learned Societies (ACLS), the J. Paul Getty Trust, the Research Libraries Group (RLG), the Council on Library Resources (CLR), and the Coalition for Networked Information (CNI). The ninety or so participants came from a wide range of institutional and disciplinary settings and a bewildering array of different experiences in electronic information systems. Yet the meeting succeeded in airing a variety of perspectives and probably served to move the humanities community towards common action.

The sponsors had commissioned five papers which were distributed in advance, articulated concrete objectives for their own institutions in the opening session, and dictated a strict structure for discussions in the day-long breakout session in which five sub-groups each examined one of the papers. Each group was charged with reacting to the paper it had been given, formulating short and long-term challenges and identifying the constituencies that needed to be mobilized to achieve the ends identified. It seemed that little was to be left to chance in a tight schedule, but the interconnections between the topics: the intellectual, professional, and institutional implications of electronic information and the implications for the sociology of knowledge and for national institutions, enabled each group to move beyond its charge and address some overarching issues.

In the opening session, Stan Katz, President of the ACLS, introduced representatives from the sponsoring organizations to outline their hopes and expectations for the meeting. Michael Ester, Director of the Getty Art History Information Program, noted that 70% of the American public gets 100% of its information from electronic sources (mostly television) and asked what practical steps we could take in such an environment to further knowledge and scholarship in the humanities. He rightly cautioned against the belief that we could simply bring the libraries and museums of the world to an "electronic loading dock" and load them up to digital databases without attention to intellectual control standards.

Doug Greenberg (ACLS) noted that promoting access to information resources has always been central to the ACLS mission, but that like many other non-profits,

ACLS also is a publisher and seeks guidance on how best to publish information products, such as its biographical databases, in an electronic world. In the process the ACLS wants to identify new partners and allies for the humanities as they enter the uncertain digital future.

Paul Peters of the Coalition for Networked Information noted that while the Internet was intended to provide access to all kinds of information resources, the CNI is interested in promoting "knowledge communities" on the Internet, and emphasizing it as a tool for getting people together rather than as a storehouse of information. As such he encouraged exploring how the network and CNI's task oriented structures could support the work of the humanities, not just be a conduit to its sources.

David Penniman, from the Council on Library Resources, called on the conference to produce a "vision of the future" and imagined that such a vision would come with an agenda related to areas in which the CLR funds research: human resources, economics, infrastructure and access.

Finally, John Haegar of the Research Libraries Group challenged the group to address: Whether technology could improve some types of scholarship? Whether it was necessary for humanists to take a stance? Under what conditions would access to the networks of digital data become essential to humanistic scholarship?

Before the conferees began working on realizing the objectives proposed by the sponsors, they heard from Vartan Gregorian, President of Brown University whose keynote address called on everyone to use technology to re-integrate "our divided knowledge" rather than simply to generate more data. His eloquent plea was not to abandon specialties but to provide tools to synthesize new "wholes" from special parts. It is essential, he said, to get the data online, to make it available in libraries, offices and homes, and to teach users how to take advantage of it. At the same time, the University must have an education plan, not simply a technology plan. He reminded his audience that Universities need to take risks and change their organizations to respond to the new age, but that these risks and responses were necessary precisely because the fundamental mission of the University is unchanged as the situation around it is being transformed. To realize the historic mission today, he cautioned, requires new methods.

The second day of the conference was devoted to five break-out sessions which addressed papers by Oleg Grabor on "The Intellectual Implications of Electronic Information", Carolyn Lougee on "The Professional implications of Electronic Information", Richard Lanham on "The Implications of Electronic Information for the Sociology of Knowledge", Bill Arms on "The Institutional Implications of Electronic Information", and Lawrence Dowler on "The Implications of Electronic Information for National Institutions".

On the third day, when these groups reported their deliberations and conclusions, a variety of proposals emerged. Oleg Grabor's paper had defined the humanistic scholar as a kind of text analyzing monk who was already surrounded by the few sources he would study in depth to the end of his days. In a discussion described as marked by the "elaborate politeness" of scholars, this image of the humanistic scholar was not directly challenged, and the group, which included individuals with wide differences in their experience with electronic communications, failed to reach consensus on whether electronic information was hampering or helping scholarship. They did agree that the society was in the midst of a long-term revolutionary process in which the humanities should speak with a single voice. They urged that software resources with potential for the humanities be systematically reviewed and assessed. They urged internationalism and adherence to technical standards, and sought to increase funding for humanists using and making electronic resources. And they expressed a fear about who would control what information became available in electronic form. Susan Hockey of the Center for Electronic Texts at Princeton summed up the dilemma of the breakout group and the conference as a whole by saying that humanists need to have a greater collective understanding of what scholarly research electronic information makes possible.

The second paper, by Carolyn Loungee, had argued that the value systems of higher education could easily accommodate crediting electronic research and publication in the same ways that it now credits scholarly productions in paper, but that it would have difficulty rewarding teaching in the electronic environment. The group agreed with the thrust of the paper and called on universities to create conditions in which all humanists would have access to electronic resources and would learn about successful uses of technologies by their peers. They urged the creation of a "national virtual library" and creation of opportunities for faculty and advanced students to take fellowships and workshops in electronic research methods. And they urged continuation in some for of the dialogue begun at this conference, possibly by having an on-going conference on the network.

The third breakout group grappled with a brilliant and complex paper by Richard Lanham which suggested many ways that electronic environments would shape knowledge over time. In concluding that the character and place of humanities would be transformed over the longer term, they recommended many actions already suggested by other groups such as institutes for training faculty, investments in virtual electronic libraries, and attention to the question of democratizing access to resources. Unfortunately their report did not include discussion of the issues directly addressed in Lanham's paper, although their discussions no doubt did.

The fourth group began by accepting the thesis of Bill Arm's paper, that change is inevitable, that systemic forces are at work and universities cannot afford to sustain existing models or to leave matters to chance but must engage humanists in shaping a activist agenda. They

recognized that resource allocation within the university and the broader culture is critical and that enough money would not be available from Federal sources. They recommended that the scholarly community develop standards for description of objects and for methods of intellectual access (not technology standards but content standards). They proposed that institutions needed to think about technology as a strategic issue and commit themselves to investments in content **and** conduit for that knowledge-base. At the same time they made it clear that open access does not mean free access and that charges would be involved. Finally they pointed to a need to develop support from the society as a whole by lobbying and by seizing on big ideas that could support big initiatives such as the concept of the virtual electronic knowledge-base.

The fifth group, in which I participated, had an excellent paper by Larry Dowler as a foundation, but rather than take up his challenge to replace competitive models with cooperative ones, it tended to focus on a concrete manifestation of the "one voice" for the humanities and the need for a on-going forum to continue to expose humanists to electronic opportunities recommended by some of the other groups. In its deliberations the group determined that humanities had a need for extra-ordinary support now because it needed to tackle the job of "bringing the cultural heritage of the past 6000 years into a digital environment". It recommended that humanities institutions join the Coalition for Networked Information and use it as a platform for a white paper or 'call to action'. It suggested identifying an array of exemplary projects and making them known to humanists, focussing on how these projects changed the process of thinking. And it proposed that the CNI forums be used to address international initiatives, data representation standards, preservation and intellectual property issues.

In wrapping up the conference, each of the sponsors returned to the podium to commit their institutions to actions urged by the meeting. Doug Greenberg remarked on the unanimity of the need for a "coherent voice", an "ongoing forum", models, funding, training, and standards. He also noted the concerns expressed over who would control the process and how to assure access and internationalism and promised the ACLS would continue to conduct the humanists "chorus" in public places so their voice could be heard.

Paul Peters promised to put the conference papers on the CNI server for network access and to conduct an ongoing electronic conference. He acknowledged the value of the rhetorical plea for a "10 million volume digital library" and the advocacy role for CNI in pushing for access by humanists to the network. And he accepted the charge of the fifth group to make places at the CNI table for humanities organizations.

John Haeger noted that the conference had not provided strong support for the argument that humanities would be better off in the electronic world, that technologies needed to be brought to bear or under what conditions humanities would require access to electronic resources and urged that "transforming" solutions will have more resonance than "palliative" ones. Nevertheless, he promised that RLG would to continue to make more humanities content available over the networks and to continue to develop content standards.

Michael Ester urged the need to "push the results of this conference down into our communities" as well as to "project it up" to new audiences. He emphasized the calls for greater communication, training and advocacy, noting that there is a compelling case to be made for the humanities and that we must make it. He emphasized that the real work of making an electronic culture will not be completed when we grab what is easiest to scan and put in it machines. And he reminded us that the costs of the undertaking will not be within the grasp of individual institutions and must therefore be undertaken by the community as a cooperative whole. The Getty, he said, will continue to promote such cooperative expressions of need.

David Penniman felt the meeting reinforced the vision of the "electronic library, archives and museum of the future " and the need for humanities to make the case for investment of an order of magnitude required to achieve it. He also urged continuing to fund the way out, crazy, imaginative leaps that would push at the frontiers of what was possible, and pledge CLR to setting aside some funds for what one of the groups had affectionately called Wacko's (which David suggested must stand for Wild and Crazy Kids Overachieving).

I left the meeting with a new appreciation for the extent to which we have failed to introduce scholars to the potentials of electronic research and the degree of resistance we will meet. At the same time, I was excited that very large ideas, like my proposal to "re-present" all of cultural history and "appropriate to the digital world" the knowledge-base of museums, archives and libraries, were attractive and energizing concepts. If the meeting indeed leads to a 'call to action' along these lines, it will have been the best investment the sponsors have ever made.

D.B.

ARCHIVAL CONFERENCES IN MONTREAL, Sept.7-17, 1992

International Congress on Archives

The papers for the ICA conference were distributed in advance, and as is usual for such meetings, they were largely non-controversial. The one exception in my view was a challenging paper by Angelika Menne-Haritz, Director of the Archivschule in Marburg, on archival education and I was unfortunately unable to attend the session where it was discussed. What the meeting did have (in addition to 2500 delegates and red carpet receptions) was a large non-commercial exhibition area and a somewhat smaller, but very international, commercial exhibition. It also had one highly controversial informational meeting of the "Ad hoc Commission on Description Practices".

Dr. Menne-Haritz argued that the extrapolation of the central principle of provenance in archival science to the present time required the adoption of a functional concept of provenance to replace that of the organization as source of records. "Only a functional interpretation of contexts surrounding the creation of documents" can preserve the principle of provenance she argues, and such a practice of functional analysis requires higher education in archival studies. Around this framework she advances a case for post-graduate training in archives as an autonomous discipline in an electronic information age. In a general sense, throughout the ICA meeting and the other conferences, this new appreciation for graduate education in archives and of the role of functions was a recurring theme, although others did not put the two ideas forward as the necessary consequences of one another.

The ICA Ad Hoc Commission of Description Standards held an open forum on the final day of the ICA conference after it had already achieved endorsement from the ICA for its "Statement of Principles" for description practice. The atmosphere of the meeting was quite charged because many attendees felt that the Commission had either ignored their views or not given them adequate time to formulate responses before rushing towards ICA acceptance. The logistical problems encountered in translating the document into the official ICA languages meant that non-English speaking countries had often not seen the Principles in time to have input. In addition, a large Australian contingent which had responded to the Principles pressed their position that the focus on fonds was wrong and should be abandoned for a focus on series, and acknowledging the possibility of multiple provenance, in keeping with Peter Scott's revision of antipodean archival practices. At the invitation of the Commission I presented my arguments against the Principles which were published in **Archivaria** #34 along with the text of both the Principles and ISAD(G), the General Rules for Archival Description.

Although Christopher Kitching, Chairman of the Ad Hoc Commission, felt that the objections raised from the floor could be accommodated within the current Principles and Rules by re-interpretation, I left the session convinced that the Commission had seriously misplayed the standards development rules by pressing too rapidly for adoption of something that was not ready, or which the community was not ready, to adopt. Further discussion of archival description at the ACA meeting, which interpreted RAD (the source of the leading concepts in the ICA principles), further convinced me that the philosophy of description and the focus on fonds adopted by the ICA commission is hopelessly mired in ambiguity and will not justify, or produce, common practices. In addition, the Commission seems determined to have a document of Principles and Rules for their own sake rather than as a vehicle for actual harmonization of practice.

The professional cauldron of the ICA meeting, where information about new and exciting developments in the archival field was shared, was the exhibition halls. The "Hall of Canadian Archives" featured displays by ten! professional organizations of archivists in Canada, and by universities with training programs, and large institutions. Thematic exhibits, manned by staffs of exemplary institutions throughout Canada, displayed new approaches and tools in acquisitions, appraisal, description, automation, public programs, conservation, records management and buildings/facilities. The result was not only an in-depth view of the vibrant local community of archivists, but also an introduction to new methods relevant to archivists everywhere. Twenty five commercial exhibits, including six software vendors, were displayed in a second exhibition hall. Although many of the software vendors were new to me and other attendees (because they operate in Canadian or European markets only) there was only one exhibit which continually attracted crowds: the Research Libraries Group unveiling of the future capabilities of its object oriented Archives & Museum Information System (AMIS).

The AMIS demonstration, as RLG staff pointed out, was just that. It was not a prototype, much less a live system, but rather a mock-up of the way the AMIS system is expected to work when it goes into beta release in January 1994. Nevertheless the radical departure it represents brought flocks of archivists to see it.

AMIS runs on the object oriented NeXT Step platform, currently available only on NeXT computers but about to be released for 486PC's and other platforms. It manages collections, people, facilities, supplies, and other resources in accordance with the policies and procedures of the host institution, which are expressed in "checklists". Checklists define the steps in any procedure from organizing a school group visit or planning an exhibition to conserving water damaged paper or scheduling transfer of records. The checklists define what information must be brought from the database or entered by the staff person engaged in the activity. When each step is completed, the checklists direct the output of reports or alert other members of the staff to actions which must be taken. The demonstration provided two views of these processes: one from the individual users point of view is an electronic mailbox with tasks waiting to be done, while the second took the managerial perspective and looked at the status of each project underway in the institution.

The demonstration of AMIS conducted by Alan Tucker at the ICA meeting showed the exhibition process including, proposing, scripting, acquiring objects, documenting, photographing, installing, publishing a catalog for an exhibit. As the process went on, the content of the exhibit was increasingly fleshed out with objects borrowed or brought from the institution's own collections and each staff member (beginning with the curator, the exhibition manager, the registrar, the photographer, and the editor) was provided with tasks to accomplish on behalf of the overall process without having to attend large coordination meetings or send forms to other departments requesting work. Because any object in the system can be scheduled, individual, departmental and institutional calendars provide a context for on-going work and assure

that necessary spaces, staff and equipment is available to conduct each task when it takes place. The attendees were visibly impressed by the integration of the work flow and documentation that resulted from using AMIS. My own reaction, after the relief of seeing that my design ideas were being followed, was the discovery of the value of sharing procedural information, or expertise, which is the subject of my editorial in this issue.

Association of Canadian Archivists

The Annual Conference of the Association of Canadian Archivists was devoted to the theme "Dismantling the Tower of Babel: Developing a Common Language Through Descriptive Standards". In addition to its rich intellectual content, the meeting provided the best banquet (18th century Quebecoise food) and reception (at an icerink!) that I have attended in a long time.

Jean Dryden opened the conference at a breakfast on September 12 by likening the journey towards description standards to aspects of the Wizard of Oz. The parallels were fun, and perhaps eerie. The concurrent session I attended next was devoted to the "Concept of Archival Description: Past Present and Future". Luciana Duranti tackled the past in a self-exemplifying tour-de-force. Finding that the very concept of archival description was not coined until twenty years ago and was not a topic of discussion less than a decade ago, she journeyed into the historical record to tease out of the documents which served as archival descriptions the attitudes which contemporaries took to the task. In Sumerian archives of clay tablets there were repertories or lists of holdings which probably served as document surrogates while in medieval Italy lists of documents were publicly read to assure accountability. By the 14th century in Italy the guides also had a juridical and administrative role. When the process of arrangement and description became an integrated function in support of historical researchers in the 18th century, abstracts of important documents were made as surrogates. In the 19th century *respect des fonds* was enforced for administrative users and in the 20th century the contextual introduction became an important part of the guides because they were intended to be read by researchers directly rather than solely by archivists who would have this knowledge. Today, and in the future, she suggested the purpose of archival description will be to explore context and provenance and provide unmediated access to a broader range of researchers than ever before. Ultimately, she concluded, the nature of description, the methods and purposes of control, reflect the relations between the material and its users.

The second speaker, Richard Szary, addressed the future of archival description. Noting the dramatic increases in the volume of records, the complexity of organized activity, the legal requirements for records and accountability, the diversity of record types and forms, and the variety of communications and control technologies, Szary predicted a greater demand for archives for administrative purposes, with emphasis on immediacy of access, unmediated searching, and content based queries.

He criticized current descriptive practices as focussed on records rather than the activity which generated them, as directed towards creating information rather than on acquiring it from other sources, and as limited to holdings rather than oriented towards the whole universe of documentation whether or not it was archivally retained. He pointed out that our current systems require intermediaries, place exorbitant time demands on researchers who must ferret out individual pieces of information from masses of records retrieved and reflect local and time-bound perspectives on the importance of records. Szary proposed an approach to description in which data about records would be captured throughout their active life, the focus would be on context or function of creation, description would include records not in archival custody and the metaphors for searching materials would be tailored to the needs of individual users whole interchange standards supported the exchange of data between institutions. Such practices would assure that data elements defined as important for archival control or access would be generated throughout the lifecycle of the document.

In a subsequent session, Terry Eastwood and Jackie Dooley debated "provenance" vs. "subject" access. Eastwood noted that our users come to archives with a subject in mind and meet records which are organized by, and reflect, activity. He agreed with Schellenberg that content analysis in archival description must focus on context of creation but then concluded that this creates an organizational authority database which is somehow not accessible by subject. I was confused by his view of provenance as a kind of record (and hence a thing) rather than a relation (a link) and by his objection to using AAT terminology to index functions, apparently because he sees it as subject indexing in disguise.

Jackie Dooley pointed out that access by provenance doesn't render access by subject irrelevant and that subject terms can come from scope and content notes and from provenancial relations. Beginning with a definition of subject which goes far beyond "topical heading" to include names, places, form, function, and occupation, as well as other fields when desired, she emphasized that the issue archivists need to confront is the scope and depth of indexing. She urged us to conduct more user studies in order to determine what works and what doesn't rather than debate abstractly whether provenance or subject access are better.

I found the discussion distressing, because in my view, the question is not whether we index subjects, but where these subject terms come from. Eastwood didn't see the different between indexing the subject of organizational functions and indexing the description of records and Dooley didn't see the fact that archival information systems should primarily contain knowledge about actions and actors, and only secondarily point to records. In the years since Dick Lytle raised these issues, the discussion has not moved to a concrete data model which both sides could use to argue their differences, or reveal that they never differed at all.

I missed the concurrent sessions at the ACA Sunday morning because I attended an SAA "strategic planning session". This exposed that SAA leadership has taken detailed planning seriously but has no strategy for how to change the position of the profession within the larger world or its position within the profession. It is still unwilling to endorse graduate education as the only acceptable entree to the field and unable to define archival knowledge as different from that of the other information professions. While recognizing that something very important is happening with electronic records, the profession can't define the appropriate role of archivists in the revolution or see how the SAA could become more important through its actions on this front. As a result it seems the strategic plan will probably consist of doing some things we have already started.

The afternoon session was a joint program of SAA and ACA on archivists and cooperation. Lisa Weber analyzed a statewide networks and archival description standards as cooperative efforts which have been undertaken in the United States over the past decade. She found that measurable common goals, communication, resources and leadership were critical determinants of success or failure. John McDonald described opportunities for archivists to make their special understanding of records as evidence important to management in an electronic age. He stressed the real need which is being expressed in corporate circles for experts who understand information and business requirements and noted that archivists need to focus not on the technology but on the transformative effect of the technology on organizational patterns of communication. Louis Garon noted that the linguistic and cultural barriers between French speaking and English speaking Canada impede cooperation between archivists in Quebec and at the national level and that French speakers had developed their own description standards and training programs.

In her commentary, Leonor Ortiz Prieto, Archivist of Mexico, noted that the North America Free Trade agreement could open new opportunities for cultural exchange but called for an attitude of realism regarding the goals of any such cooperation. While she concurred that in the end we will need to cooperate, she urged archivists to first establish clear missions, goals and values. She boldly declared that archivists are not now a profession, in the way sociologists use that term, because we have not been granted autonomy in a domain that the society deems is important, do not possess scientific knowledge based on common expertise and training, and do not promote common goals and values. She noted, for example, that the SAA goals of preserving historical records don't adequately address issues of control throughout the life-cycle of records and attention to documentary integrity which are more important to her archival community. And she reminded the audience that one of the major criteria for success of cooperative undertakings identified by both Weber and McDonald was the presence and continuous reaffirmation of shared goals.

Society of American Archivists

I will remember the 1992 SAA meeting at the occasion for a terrific series of sessions organized by Margaret Hedstrom and Larry Dowler under the rubric "2020 vision" which brought experts from other disciplines to the annual conference to expose archivists to visions of the future of technology, of organizations, of our society and of research. The excitement generated by these four sessions and the final wrap-up session which concluded the series was as palpable as the ideas were challenging.

In the opening session, Ron Weissman, Director of Strategic Planning for NeXT Computer Inc. and a practicing historian of Renaissance Italy, forecast a future which by the end of this decade would transform computing from application centered to information centered and transform information retrieval from subject oriented to project oriented. The underlying technological changes would be the existing trends towards faster, cheaper and more ubiquitous computers and the coming dominance of object oriented methods. The result would be that individuals would be assisted by the computer to do whatever work they needed to do without having to use different tools for each application or search different files in different ways for each query. In the very near term then, Weissman forecast the computer as an intelligent partner about whom we will need to know very little but of whom we will ask very much.

In her commentary on Weissman's paper Luciana Duranti, Professor of Archival Science at the University of British Columbia, suggested that Ron Weissman's dream could be an archival nightmare as it meant that both documents and provenance as we know them would be lost. She explored the challenges posed to archivists in this changing environment using the tools of diplomatics, and asked were in such a system of communications the act which is at the heart of the archival concept of document as evidence, would be found. In partial answer to her own question she urged archivists to become involved in designing these software solutions of the future.

John McDonald, Director of Information Management Standards and Practices at the National Archives of Canada, concurred with Prof. Duranti that the technologies described by Weissman presented a tremendous challenge to archivists, but preferred to see the tools which Weissman predicted as means for archivists to achieve their aims. The same objects oriented systems could execute archival functional requirements for corporate memory management if those requirements were articulated in executable terms. The invisibility of the process to the end user could thereby end up being a boon, and the objects could document their provenance. McDonald urged archivists to work closely with other information professions to bring the organizational requirements for evidence into sharp relief and suggested that by doing so they would be valued more by corporate management.

In the second 2020 vision session, Tora Bikson, Senior Social Scientist at the Rand Corporation, predicted that technology push and demand pull would combine to create organizations with flatter hierarchies, greater team work, broader participation and more permeable boundaries in the next decade. More individuals at a greater distance would communicate more and decision making will become more widespread in organizations she described as "adhocracies". Organizations will export more functions to outside firms and conduct their own business along functional rather than geographic lines, but we cannot know exactly what kinds of structures will replace the ones we have because the change process itself cannot be managed and open systems are inherently incomplete. She urged all managers to focus on managing change, to recognize that the capabilities of technologies are only being taken advantage of slowly and that organizational memory is becoming more critical. In a memorable conclusion, she challenged archivists to "do organizational sociology in real time" and reiterated Weissman's admonition that "technology is not self-implementing".

Joan Warnow-Blewett of the American Institute of Physics followed with a case study that exemplified what it means to do organizational sociology in real-time. The subject of her research is the high-energy physics community since WWII, and specifically the collaborative projects to develop particle detectors. These collaborations, like the machines on which the experiments run, grew dramatically from a few people at a few universities to a recent proposal from 991 research teams for an experiment to run on the Superconducting Supercollider. The archival interest here is on the organization of scientific research; the experimental data are of no scientific or archival value after a few years. The size of these endeavors, and their short life however require large scale collaborations between archivists. The AIP is now looking towards collaborations in other fields such as geophysics and space research to determine if common patterns can be identified and strategies developed for documenting these enterprises.

Vicki Walsh, in a paper that was not read due to time constraints, asked how archivists could capitalize on the interest that corporate managers have in organizational memory? Whether there is anything to the concept of cycles of organizational change? And if the implications of changing organizational communications can be made to make the professional organizations of archivists more effective by flattening, broadening and teamwork?

In the third session, devoted to cultural and social change, Ramon Gutierrez, University of California @ San Diego, examined the tension between global and local communities which have marked the modern world. Tracing the advent of globalism to the discover of the world's wind systems in the 15th century and localism to the creation of the nation state at the same time, he suggested that wee are now witnessing the "deterritorialisation" of language, custom, the body, and nature and a new period of rising localism. The paper, rich in metaphor, majesterial in its sweep and suggestive on so many levels, located the very concept of archives as a social construct subject to radical revision. Commentators Nancy Sahli (NHPRC) and Deborah Newman Ham (Library of Congress) focussed on the part of Gutierrez' message which dealt with the political economy of archives, their role in passing along the history of the dominant culture, and the problems faced by archivists in documenting disenfranchised groups. I was more taken by the possibility that archivists find themselves unknowingly on the front lines as the boundary skirmishes surrounding person, organization and nation are fought out in the arena's of privacy, freedom of information and trans-border data flow.

In the fourth session, Peter Lyman, University Librarian of the University of Southern California, warned himself and the audience that any prognostications were as likely to be wrong as those of the hapless forecasters documented in Ithiel de Solla Poole's Forecasting the Telephone. He began by noting that the graduate students of today will be the mature researchers of the year 2020. They will see ideas as property and as proprietary, require access to information (for a price) and communicate their knowledge digitally. Disciplines, Lyman believes, will be less important as invisible colleges provide for the needs of distributing information and publication serves a solely "archival" function. New ways of organizing knowledge are in part a consequence of our new way of seeing the world in the age of the satellite which has given us a view of the earth from space. We now concern ourselves with the earth as our habitat, and the scientific issues of biodiversity, global change, and ecology.

In his commentary on Lyman's paper, Larry Dowler (Harvard University), acknowledged that we cannot predict the shape of research but we can know that documentary evidence will continue to be reinterpreted and reinvented over time. Dowler envisioned a future in which archives will make common cause with museums, historical societies, libraries and other cultural institutions holding evidence so that whatever research is conducted will be a richly supported as possible.

Connie Gould, of the Research Libraries Group, asserted that technology will, and already has begun to, change the way we think about and solve problems. Gould pointed out that as the questions scholars ask change, they are necessarily driven towards primary sources to interpret them anew. She provided numerous examples of fields of research which are branching and splintering and in which primary materials are becoming more critical. She called for archives to join the information delivery mainstream so that they would be represented on the scholarly workstation of the future.

In the final 2020 vision session, the chairs of each of the four previous sessions provided a review of highlights of the discussions they chaired and Hugh Taylor wrapped up the whole and led a group discussion. Taylor, following Weissman, prophesied that in 2020 we will have the texts and a discussion of them simultaneously, online,

worldwide. We will find a new orality, and new integration, which was lost when the written word replaced human memory and delivered us the "fractured knowledge of literacy". Soon we will come full circle, speaking to the computer which responds to our voice and gesture. But we will face the new challenge of learning to "read" media, where context and content are inseparable. There we will need to assure that systems are not allowed to "diminish the person in relation to nature". The direction of technology will be to integrate man and nature, as it did before the industrial revolution alienated man and his labor.

In addition to the 2020 sessions, the SAA meeting featured the first meeting of an Electronic Records Roundtable. The audience of nearly 50 people had a lively discussion of its potential role and heard a report on the University of Michigan project to appraise the records of its electronic conferencing system which has hosted over 3000 conferences since 1975 and currently logs more than one user a minute. Based on content analysis of some of these conference, the Bentley library decided to accession eighteen in a software dependent format and to monitor others for possible future acquisition. The time available was too abbreviated to permit full discussion of this decision, but I look forward to reading a justification for it some day.

Another electronic records oriented session, on "Electronic Retreads", featured archivists discussing how they came to work with electronic records and how it has affected them. Judy Roberts-Moore of the National Archives of Canada (NAC) reported that experienced traditional archivists would find the electronic environment more familiar than they anticipate. At NAC all the archivists in the General Archives Division were cross trained in electronic records when they merged with the Machine-Readable Archives Division. Both sides had been physically and intellectually isolated but by taking a few days of abstract training and the teaming up one on one with electronic records archivists as they went through an appraisal process, she and her colleagues were able to make the transition. She noted that the encouragement of workshop instructors and the scheduling of a practicum immediately following the theoretical training, contributed to the initial skill acquisition. While she found it humbling to feel like a neophyte, she was encouraged by the realization that she would eventually feel comfortable in the electronic records world.

Linda Henry, who joined the NARA Center for Electronic Records 15 months ago with only a rudimentary knowledge of how to use a word processor, discovered that neither gender, age nor computer anxiety were major barriers to learning, but that "acquiring extrinsic knowledge", a framework that enabled her to relate what she was learning to something which was meaningful to her, was difficult.

Gaeton Drolet of the University of Laval reported that for himself the challenge was to develop relationships with others, such as computing professionals and clients who had the skills to use electronic records. He urged the audience to just "do it" - to get on Internet, join IASSIST, use the ENTER key, and plunge in.

In her role as chairman, Peggy Adams of NARA reported that she came to archives knowing about computers and that having to learn about archives also involved becoming literate in a new culture. She emphasized the value of using the technology as a means of understanding for those who don't have a technology background. The audience size and its interest in the discussion which followed demonstrated that a large number of archivists are now on the verge of becoming involved in electronic records but that they are still uncertain whether doing so means becoming a computer expert or learning to look at electronic records through archival eyes.

D.B.

CALENDAR

November 2-6 Lincoln, NE; Basic Videodisc Design/Production Workshop [Nebraska Videodisc Design/Production Group, 1800 N.33rd St, Lincoln, NE 68583;(402)472-3611;fax 402-472-1785]

November 8-11 Baltimore, MD;Sixteenth Annual Symposium on Computer Applications in Medical Care [American Medical Informatics Association,4915 St.Elmo Ave., Suite 302,Bethesda, MD 20814;(301)657-1291]

November 14-18 Seattle, WA; ACM-Hypertext'93 [Muru Palaniappan,Aldus Engineering, 411 First Ave.S., Seattle,WA 98136]

December 1-2 Ottawa, ONT;Electronic Democracy International Conference and Training Session"Electronic Democracy: Cultures, Values and Norms" [Riley Information Servies Inc., 633 Bay St.,Suite 2207,Toronto, Ont M5G 2G4;(416)593-7352;fax 416-593-0249]

December 7-8 Philadelphia, PA;"Document Delivery & Libraries;Internet & Libraries" [Meckler Conference Management, 11 Ferry Lane West, Westport, CT 06880; (800)635-5537;fax 800-858-3144]

December 7-10 San Diego, CA; CALS Expo'92"Catalyst for Competitiveness" [CALS EXPO'92, Galaxy Registration, Inc., PO Box 3379, Frederick, MD 21701;(202)775-1440;fax 202-775-1309]

December 8-12 San Francisco, CA; AMIA Conference [Association of Moving Image Archivists, c/o National Center for Film and Video Preservation, The American Film Institute, P.O. Box 27999, 2021 N. Western Ave., Los Angeles, CA 90027; (213)856-7637;fax 213-467-4578]

January 28-February 3, 1993 San Francisco, CA; ARLIS/NA Conference"Moving Into the 21st Century" [Pamela Parry, ARLIS/NA 1993 Conference, 3900 E.Timrod St., Tucson, AZ 85711;(602)881-8479;fax 602-322-6778]

IN BOX

THREE NEW DOCUMENT IMAGING MANUALS

The Association for Information and Image Management [1100 Wayne Ave., Suite 1100, Silver Spring, MD 20910] has published three manuals on document imaging. All three bear the imprint date 1992.

Don M. Avedon, **Introduction to Electronic Imaging** (53pp.);

David B. Black, **Document Capture for Document Imaging Systems** (99pp.);

Robert W. Starbird and Gerald C. Vilhauer, **A Managers Guide to Electronic Imaging** (42pp.).

Avedon's **Introduction to Electronic Imaging** reads like the text and overheads of a one day intensive workshop. It is organized from "what is imaging" type basics through implementation with short but helpful final sections on legal issues, workflow specifications, standards, and systems integration. I feel it is extremely valuable both to the senior managers in charge of such projects and to the implementation team.

David Black's **Document Capture for Document Imaging Systems** is a detailed briefing on the critical aspect of the process. It is very good at explaining algorithms used in calculating capture variables and generally substantiates most of the author's arguments. It serves as an excellent introduction to intelligent character recognition (ICR), automatic indexing, the role of barcodes in document processing and many other advanced issues. The discussion of indexing is weak when it verges on theory, but quite adequate to the typical Electronic Imaging System (EIS) which employs few indexed fields. His discussion of media selection strategies is very useful and avoids the traps which typically outdates such technology assessment advice prematurely. I'd give this book to my project manager with confidence that it would contribute to improving the process.

Starbird and Vilhauer's **A Manager's Guide to Electronic Imaging** begins by asking the right questions: "What factors should you use to select documents for conversion to digital imaging?" and "How will you determine the appropriate technology mix to meet you requirements?" Unfortunately they don't answer these questions directly, but instead follow them with presentations on hardware and software, discussions of traditional records management, and superficial assertions on the benefits of EIS. Ultimately the pamphlet fails to address management questions and doesn't introduce basics nearly as well as Avedon's manual. I was particularly disappointed that Starbird and Vilhauer provided no tools, measures or hard criteria that I would want to use to decide when to image documents, what approaches to use or how to organize the project. In spite of its title, I'd recommend Avedon's Introduction as the text for managers.

D.B.

REPORTS

Cataloging Architectural Drawings: A Guide to the Fields of the RLIN Visual Material (VIM) Format as applied to the Cataloging Practices of the Avery Architecture and Fine Arts Library, Columbia University. Developed for Project Aviador, Jeffrey J.Ross Ed. ARLIS-NA Topical Papers #1 (Tucson AZ, Art Libraries Society of North America, 1992) 90pp. [ARLIS/NA, 3900 E. Timrod St., Tucson AZ 85711; $20 plus $1 billing fee and $1 shipping outside the USA]

This manual addresses many of the special problems involved in cataloging architectural drawings in museums, archives and libraries, including what unit of material to catalog (a set), how to assign authorship, and how to distinguish in retrieval between architectural works represented in drawings and the things themselves. The report defines and explains rules adopted in Project Aviador and proposed as a standard for practice in both MARC and non-MARC systems. It contains numerous examples and much excellent discussion of the reasoning behind cataloging decisions and should prove extremely valuable to the profession.

□

Cornell/Xerox/Commission on Preservation and Access, Joint Study in Digital Preservation, Report: Phase 1 (January 1990-December 1991), Digital Capture, Paper Facsimiles and Network Access, Anne R. Kenney and Lynne K. Personius Project Managers, Ithaca NY, Cornell University, 1992, 47p.

This initial report of a cooperative research project underway at Cornell University is a signal that the questions about digital imaging as a preservation technology are now changing from 'whether' to use it to 'how best' to employ it. "The Joint Study concludes that digital image technology represents a new method for the preservation reformatting of library materials that in the future will replace or complement microfilming and photocopying. The use of digital technology is currently cost-effective as a reformatting option and the quality is comparable to light-lens processes. The technology offers a means for replacing paper with paper, while simultaneously providing new access opportunities. In the future, researchers will be able to access not only catalog records but also the full text to which those records refer." What remain are concrete questions about how to describe document structures, where to reformat and when to migrate data which are described in this report and are being addressed in follow on research. Conclusions are reached about resolutions, costs and time associated with preservation digital imaging.

□

Hamza Kandur, **Management of Electronic Records**, PhD. thesis University College London March 1992, 200p.

This extremely dense and comprehensive overview of electronic records management is full of valuable advice but it is too often presented as a given, without sufficient analysis of the reasoning and with a prejudice that new ways of doing things must be better ways. There is a ten-

dency also to toss in large amounts of technical information which is not very germane to the main argument. To my taste, the UN ACCIS report is still the best available guidance. What both need is better case studies of successes and failures.

□

Stephanie Koester, **The Use of Interactivity and Technology in Museums**, Master's Thesis, Instructional Technology Program, University of Texas at Austin

This report based on interviews with 45 museum professionals, multimedia experts, interactive exhibit designers and hardware and software vendors, describes the current state of interactive multimedia in museums and the issues which observers believe are of importance to its future. Koester 's report sticks very close to the interview scripts and to the literature in the field. She provides numerous tables reporting findings by type of museum and by source of information. The thesis is being edited for publication as an Archives and Museum Informatics Technical Report in early 1993.

□

Joe Moreau, **Directory of Computerized Inventory Control Systems**, American Bookseller April 1992 p.51-61

The annual update to the directory of bookstore software retains its high standard of description of the systems and its use as a comparison tool for archives and museums with store operations heavily or exclusively devoted to books and stationery items.

□

David H. Thomas, **Archival Information Processing for Sound Recordings: The design of a Database for the Rodgers & Hammerstein Archives of Recorded Sound** (Music Library Association Technical Reports #21) Canton MA, The Music Library Association, 1992 132pp.

This report contains many generally useful observations about the requirements for recorded sound archives including useful discussions of the difference between bibliographic and archival control and the need for systems to support work flow and user requirements, but the subtitle of the report should be taken seriously: this is a case study first and a general design discussion second.

□

U.S.Department of Justice, Systems Policy Staff, "Admissibility of Electronically Filed Federal Records as Evidence", **Government Information Quarterly**, vol.9#2 p.155-167

These guidelines to Federal agency staff from the Justice Department spell out evidence and hearsay rules, issues of authentication and how to establish and especially maintain systems that will produce records that are admissible in court. As Tim Sprehe says in his commentary published in the same issue of GIQ, the Justice Department opinion removes a bureaucratic barrier to introduction of these technologies but it doesn't resolve the technical design, implementation and standards issues.

□

BOOKS & ARTICLES

Christine Borgman and Susan Siegfried, "Getty's Synoname and its Cousins: A Survey of Applications of Personal Name-Matching Algorithms", **Journal of the American Society for Information Science**, 43(7) 1992 p.459-476

This exhaustive, occasionally technical, review of name matching approaches of numerous applications and description of the J. Paul Getty Trust program 'Synoname', is a major contribution to name authority research and implementation.

□

Barbara Craig, ed., **The Archival Imagination: Essays in Honour of Hugh A. Taylor**, Ottawa, Association of Canadian Archivists, 1992

This Festschrift for Hugh Taylor is a worthy tribute to a great thinker. It contains essays by Canadian, American and British colleagues who have been inspired by Taylor and who develop themes in his work, particularly the sensitivity to the interaction between archival history and theory and the archival role as a deeply social phenomenon. Terry Eastwood and Terry Cook both take on the theory of appraisal, coming to radically different conclusions about how and why to proceed, but each trying to make appraisal a central and a truly professional task of archivists. Barbara Craig and Frank Burke each address the concrete history of records creation and records keeping practices as the modern bureaucratic organization has evolved and seek in the interaction between social purposes and technological means answers to fundamental questions about what archivists are and how records creation affects us. In a closely related essay, a reflection as it were of these records creation practices into archives, Michael Roper looks in detail at the evolution of the concepts of respect for original order and provenance in the British Public Record Office. Other essays by Tom Nesmith, Kent Haworth, Carman Carroll, Shirley Spagge and Anne McDermaid fill out an exceptionally valuable volume, complete with a comprehensive bibliography of the writings of Hugh Taylor and a review essay of his contributions.

□

Margaret Hedstrom, "Understanding Electronic Incunabula: A Framework for Research on Electronic Records", **American Archivist**, vol.54#3 Summer 1991, 334-355

By taking a broad and long-range cultural history view of electronic records, Hedstrom is able to discern first that the current state of the record is "incunabula" meaning 'out of the cradle' and that the proper perspective for research is grounded firmly in the transitions of our society and its communications systems rather than on specifics of the technologies now in use. These proposals to the NHPRC Working Meeting on Research Issues in Electronic Records (January 1991) launched a meeting that produced an agenda quite in keeping with her recommendations. While the report of that meeting will be read for designing specific research projects, Hedstroms' contextual overview will continue to be a sound basis for research on electronic and non-electronic records issues.

Linda McRae, "More than MARC: Developing a Standard Descriptive Terminology for Visual Image Collections, **Visual Resources Association Bulletin**, vol.19#1 p.25-6

Reports on progress in a wide range of terminology projects effecting the art historical research community. □

D. Andrew Roberts, ed.; **Sharing the Information Resources of Museums: Proceedings of an International Conference**, Cambridge, Museum Documentation Association, 1992 169p. plus bibliography, biographies and indexes (19.95 + 3 for overseas shipping, can bill to Visa)

The 1989 MDA Conference, reported at the time in this journal, was a watershed in the realization by the museum community of the importance and complexity of standards and cooperation. Papers in this volume report on the range of cooperative developments worldwide and are an important resource for future successes in data sharing. □

Beverly Serrell and Britt Raphling, "Computers on the Exhibit Floor", **Curator**, vol.35#3 1992 p.181-189

The authors ask what the users receive rather than what the exhibit delivers and suggest 10 evaluation criteria to employ in assessing interactives from this perspective. □

Diane Zorich and Lane Beck, Museum Information Exchange and Repatriation, **SPECTRA**, vol19#2 Spring 1992 p.2-6

Repatriation has been a hot topic in the museum community since the passage of the Native American Graves Protection and repatriation Act of 1990. Zorich and Beck develop the case for how satisfying the act will require sharing of information, of terminology authorities and electronic mail communications between museums and between museums and tribes. □

JOURNALS

Exhibit Builder, vol.10#1, September/October 1992 is devoted to articles on museum exhibits and interactives. □

ICCROM Newsletter #18 (ISSN 0258-0810) has a section on Data Management which reports very briefly on activities of its members with respect to conservation data standards and internal information systems developments. [International Centre for the Study of the Preservation and the Restoration of Cultural Property, 13 via di San Michele, I-00153 Rome RM, ITALY] □

Internet World vol.3#7 September 1992 is the first issue of that journal under the new name. Previously it was Research & Education Networking. It is still published by Meckler and still a 9 issue p.yr., 16p. newsletter format publication devoted to the Internet. [$127 p.a.; Meckler Corp.,11 Ferry Lane West, Westport CT 06880; 203-226-6967]

NEWS

ASC BROCHURE ON MUSEUM ARCHIVES

The Association for Systematics Collections has published a brochure on the nature and importance of museum archives directed at natural science museum administrators. The brochure will be mailed to members of numerous natural science professional associations. Others may obtain the brochure by writing to the ASC [Association for Systematic Collections, 730 11th St., NW, Second Floor, Washington, DC 20001; 202-347-2850]

ACA FORMS ELECTRONIC RECORDS GROUP

The Association of Canadian Archivists formed a committee on electronic records at its meeting in Montreal in September. The group held an organizational meeting but made few decisions about the functions it would perform. Some discussion was devoted to the question of whether the community was yet ready for a journal devoted solely to electronic records issues and it was agreed that this would soon be necessary but was not yet possible. For further information, contact Terry Cook [National Archives of Canada, 395 Wellington St., Ottawa K1J 6L2; 613-996-7726]

NEDC MANUALS & LEAFLETS

The Northeast Document Conservation Center has published Preservation of Library and Archival Materials: A Manual, by Sherelyn Ogden, a 160 page looseleaf binder consisting of 37 technical leaflets on collections care aimed at non-conservator staff of libraries and archives who must plan and implement collections care programs. Costs of the volume have been underwritten by a grant from the Institute of Museum Services and are available for $20, plus $3.50 postage and handling from NEDCC.

NEDCC also announced the publication of a free technical leaflet on duplication of historical negatives by its Senior Photograph and Paper Conservator, Gary Albright. The leaflet is designed to help curators, collections managers, and other with collections of glass plate, cellulose nitrate or cellulose acetate negatives assess their collections and determine if duplication is appropriate. [contact NEDCC, 100 Brickstone Sq., Andover MA 01810, 508-470-1010]

PUBLIC ACCESS CONFERENCE

A report on the Interagency Conference on Public Access which was held on May 20-21, has been published in **Government Information Quarterly**, vol.9#2, 1992 p.187-198. The account gives a good picture of the state of agency concerns about access to electronic information generated by the Federal government and the status of OMB and Congressional regulations.

COPYRIGHT OF GOVERNMENT SOFTWARE

On August 5, the Register of Copyrights testified before Congress in favor of permitting the Federal government to own and transfer copyrights in works created by government employees. The testimony came in support of S15681/HR191 the "Technology Transfer Improvements Act" which would allow the government to hold copyright and even charge royalties for the first time in 100 years. The Register argued that this was necessary because of the nature of software because of its immense economic value and the competitive position of the U.S. in a global economy. A similar right was granted to Federal patents in 1980.

GUIDE TO LITERATURE and ART ARCHIVES

The International Council on Archives, International Federation of Library Associations, and International Council on Museums have launched a cooperative project to produce an International Guide to Literature and Art Archives in Museums, Libraries and Archives. The project, which expects to report on over 3000 institutions worldwide, has issued a prospectus and is currently testing a questionnaire. The North American survey will be coordinated by Charles McKinnon of the National Archives of Canada and will begin in 1994.

SOFTWARE REVIEW

ChubbMUSE: Risk Management Software

Chubb & Sons Inc., 15 Mountain View Rd., P.O.Box 1615, Warren NJ 07061-1615; 908-580-3323; IBM compatible 286 +, 640K memory, 3MB disk space; free to museums insured with a member company of the Chubb Group of Insurance Companies; 60 day evaluation copy for prospective insureds. Toll-free help desk 1-800-54CHUBB.

Chubb is offering collections, facilities and risk management software for free. It's basically the Landmark Planner package reviewed in the last issue of this newsletter enhanced a bit and surrounded by good risk management advice. So what's the catch? In a sense there isn't one - Chubb wants its insured museums to manage their collections, facilities and equipment better because knowing the sources of risks to the institution helps the museum to avoid them and avoiding risks reduces insurance claims. It's a win-win situation. Is it worth using if you are insured by one of the Chubb companies? Is it worth changing insurance company's for? What is it?

To begin with the software is part of a risk management program which consists of applying CHUBB developed guidelines and recording the results of answering questions in a "checklist" which is then maintained in the software. For example, the guidelines for facilities protection begin with: "Evaluate the susceptibility of collections to changes in climate and determine the need for back-up power or climate-control systems." The corresponding checklist requires you to answer a series of yes/no questions of which the corresponding question is: "Are all climate control systems operating properly?" The total regimen provides for the software to schedule inspections in which the checklists will be systematically completed, thereby assuring that at appropriate intervals the museum will establish its levels of risk and correct situations which are dangerous. Because the guidelines and checklists are based on extensive museum insurance experience and because they are logically and neatly displayed, the risk management program, with or without software, is a tremendous benefit.

Guidelines and checklists are provided for facilities, equipment, safety, and collections. In addition the system includes guidelines for planning for disaster response and for recording accidents. The software also supports recording of a full AAM facilities report for the museum and keeping information about the museum governance bodies, committees and staff.

So what about the software? It's a DOS based, menu driven package in which each guideline/checklist is a series of screens. Filling out the checklists in software isn't all that different from filling them out on paper. So what's the advantage? Because the process involves scheduling lots of events, it could be useful if a tickler alerted the right people of necessary inspections at the appropriate time. Unfortunately the scheduling provided by ChubbMUSE is by the month rather than the day or day and hour, and while it can be searched it doesn't "tickle". The reports which can be written aren't useful unless we know when something was done. We can't apparently report by who was assigned or by what is happening today. I can't limit me search by my own checklists, for example to find out what is expected to arrive at the loading dock or what groups are touring in any given day/time.

There are other frustrations such as the fact that contacts list for committees aren't sorted alphabetically by last name but by first. Searching the database by items which are in need of specified types of care is not possible. Index reconstruction is quite slow.

On the other hand there are plenty of benefits. The checklists for facilities and collection management are extremely thorough and would be useful if they were followed, even though I'm not confident that most museums would in fact run through all these inspections, answering each question. The reports which are provided allow the museum to review its past experience and to assess the types of hazards encountered, although they need to be combined with other information, such as the response times from previous events, to help define new procedures. The data which can be entered about holdings extends considerably beyond the basic inventory data that would be minimally required for risk management. Indeed it provides as much collections management and reference data as most museums will record in another computerized system. In addition, the system supports images which the user can toggle to from the cataloging data.

SOFTWARE

CD RECORDER'S

Kodak has announced the PCD Writer 200, a double speed CD-ROM XA recorder which costs $6,000 and produces a CD-ROM or CD-ROM XA disk in about half an hour. The PCD Writer comes with DOS software priced at $1995. Kodak is interested in working with prototype applications including applications which take PhotoCD images and write them to the lower resolution Portfolio Photo CD standard or the Catalog CD standard which will be available next year. Call them at 716-724-1983.

Dataware Technologies CD Recorder is priced at $9,000 and can be purchased with the company's Reference Set Cd-ROM Authoring Software for $19,500. Dataware has written a white paper that is intended to help companies assess their need for these technologies: The CD-Recordable Application Guide highlights key applications and describes actual projects using the technology. [Dataware Technologies, 222 Third st., 3300, Cambridge MA 02142-12188; 617-621-0820.

CARLYLE INTRODUCES ImageOPAC

Carlyle Systems Inc. [415-345-2500] has introduced a new product called ImageOPAC as part of its Voyager series of library automation systems. ImageOPAC allows for scanning of color images, retrieval through the GUI interface, display by clicking on the image icon in the text record and manipulation of retrieved images.

DISPLAY GEOGRAPHIC DATA ON MAPS

MapInfo Corp's, MapInfo 2.0 [200 Broadway, Troy NY 12180; 518-274-6000; $995 for windows 3.1] extracts data from spreadsheet or database packages and displays them on maps which it then allows to be searched within graphic boundaries defined by the user. The product allows the user to arrange and resize maps, tables, charts, text and clip art for presentations and to display 18 types of map projections.

KODAK PHOTO-CD LINE

Now that Photo-CD is becoming available throughout the country, its a good time to look at the product line which Kodak expects to release to support it. First, the Photo-CD itself is made at a Kodak film developer from a regular roll of 35mm film and holds 100 color images which appear in "thumbnail prints" on the cover and can be read from CD-ROM XA drives (not the older CD-ROM drives!). Basic Photo-CD software to display these images has a list price of $39.95; image manipulation software is $139.

FAX ON DEMAND DOCUMENT FULFILLMENT

Document delivery and corporate news and information services are often difficult to use, available only during work hours and slow. Distributing information by means of fax-on-demand gets around many of these problems. **FaxBack Inc.** [15250 N.W.Greenbrier Parkway, Beaverton OR 97006-5674; fax #(800)-FaxBack] sells a "demand publishing" product which could be useful in many information service settings. It allows users with a touch phone to order documents which will be instantly sent to their fax machines and permits the provider to bill the user's credit card. Documents may include images and systems can be configured to also take voice messages. Systems come with 2,4 or 24 lines and can hold up to 1 million documents and/or provide access to databases and print reports remotely. For an overview of the technology, call the 800 number and enter document 1000 when asked for a document number.

AUTHORITY REFERENCE TOOL (ART)

The J.Paul Getty Trust Art History Information Program (AHIP) has announced the publication of its Authority Reference Tool for the Art and Architecture Thesaurus. ART is a software program that makes using any thesaurus or vocabulary resource in conjunction with a word processing or database record convenient and easy. The AAT version includes the full text of the original three volume publication plus the supplement published this fall for $125.00. [To order, write to Oxford University Press, Electronic Publishing, 200 Madison Ave., New York, NY 10016; or call 212-679-7300 x.7370]

CANADIAN ARCHIVAL AUTOMATION PRODUCTS SHOWN AT ICA

As might be expected, the International Congress on Archives commercial exhibitions included several Canadian firms which have not sold across the border. None of these products were particularly exciting, although several looked like reasonably capable records management systems. Included were:

Conseillers en Informatique Documentaire et de Gestion (CIDG) [1300 Henri-Bourassa East, Montreal H2C 1G7; 514-385-5510] which showed its "Ad Hoc" series including library, archives and current records management, with special functions for minutes, correspondence and religious archives.

Groupe GESTAR [520 avenue du Parc, Bureau 600, Montreal H2V 4P2 Canada; 514-271-4000] which demonstrated the "Documentik" records management and archives system with its ability to maintain classifications, run registry offices, describe accessioned records and provide retrieval bi-lingually.

Informatech, Inc, [1600 boul.Henri-Bourassa Ouest, Bureau 304, Montreal H3M 3E2; 514-333-5577] showed "The Imaging Solution" an IBM server based software

solution for archives and records management electronic document management applications.

Omer de Serres Division Informatique [254 Ste-Catherine Est, Montreal H2X 1L4; 514-843-3082] demonstrated Westheque, a multimedia electronic document management system tied to WestPhoto, WestFilm, and WestRush and ArchIS an archival information management system for the Macintosh oriented towards Electronic Document Management applications.

EUROPEAN ARCHIVAL AUTOMATION PRODUCTS AT ICA

Several European firms came to ICA to show off archives automation and electronic document management systems. Again, I saw nothing about these which was very exciting, although they may be acceptable in their own markets.

Chemdata SA [17 quai Gillet, 69316 Lyon, CEDEX 04, FRANCE; 33-78.29.70.50] sells Texto a VideoTex file server in 8 languages for a vast array of operating systems from mainframes to PC's.

Eurodoc [Le Flourestan, 2 boul.Vauban, 78180 Montigny-le-Bretonneux, FRANCE; (33-1) 30.43.46.00 or in Canada at 514-334-4133] showed Stael, an electronic processing and filing system for MS/DOS machines and a wide array of optical disks, tapes etc.

Logimot [47 av.Alsace-Lorraine, 38000 Grenoble FRANCE; (33)-76.87.18.59; fax (33)-76.87.28.23] is an IBM 370 mainframe application.

GTE ImageSpan OFFERS IMAGEBASE SOFTWARE

GTE ImageSpan [One Stamford Forum, Stamford CT 06904] is shipping the Digital Album, image management and database software for IBM 386 with Windows or Macintosh Series II or Quadra computers priced at $595. GTE will also provide digitization services for 35 and 70mm slides, transparencies ranging from 4"x 5" to 8"x10" and prints up to 17"x23" at a variety of resolutions and in almost any format.

BULLETIN BOARD SERVICE FOR PC HOST

Galacticomm Inc. [4101 SW 47th Ave., Suite 101, Fort Lauderdale FL 33314; 305-583-5990; fax 305-583-7846; bbs 305-583-7808] is offering Version 6.0 of The Major BBS, a multiuser BBS for a PC with Dos 3.3+ and 2 MB RAM with electronic mail, forums, teleconferencing, polls, questionnaires, keyword searching and a user registry, equipped to support dial in, LAN and serial connections for 2 simultaneous users for $259. Upgrades to up to 256 simultaneous users, with x.25 connections, and access to major databases are offered at additional, but very modest, costs. This kind of package makes bulletin board capabilities within an institution or across a membership organization attractive.

STANDARDS

CIMI

In June, the CIMI Committee completed the second year of its two year NEH grant funded life and learned that its application to the NEH for a follow up grant had been declined. After consulting with CIMI participants, David Bearman (CIMI Chairman) and John Perkins (Project Manager) decided that the work of CIMI could be carried on by its Task Groups, as had been planned under the second grant. The Canadian Heritage Information Network and the Research Libraries Group Inc. generously agreed to provide some support to the coordination of Task Group projects and the individual Task Groups agreed to continue with their own funding.

While the rejection of the renewal proposal by the NEH set the work back somewhat, and left CIMI without funding for the Committee of professional association representatives which has directed the project since its inception, the practical work of developing content standards suitable to history museums, art exhibit loan, conservation reporting, and art scholarly information which had been underway in 1992 will continue through 1993. Bearman and Perkins hope to issue a report summarizing the conclusions reached as a result of the four meetings of the CIMI Committee, probably for publication as a special double issue of SPECTRA. During its highly productive, if relatively short, life, the Committee was able to examine the available universe of technical communications standards and to determine under what circumstances different standards would meet the needs of museums for data interchange. As such, they cleared the way for groups with interchange requirements to define specifically what information they need to share or migrate. Perkins will continue to work with the Task Groups throughout this year as they define their content and service requirements.

At its summer meeting, the Museum Computer Network board again endorsed the CIMI initiative and charged Andrew Roberts, Kathy Jones-Garmil and David Bearman with recommending a management structure under which CIMI could continue to operate. The group has recommended a nine member MCN Board appointed Committee which will be charged with all aspects of CIMI oversight if the recommendation is adopted at the MCN Board meeting October 28. It is assumed that this management committee will seek new sources of support for the CIMI project now that the fundamental technical communications protocols for use by the museum community have been agreed.

Additional reports on CIMI activity have been published in **Information Standards Quarterly** vol.4#3 July 1992 p.27-28 and **SPECTRA**, vol, 19#3/4

ICA PRINCIPLES REGARDING ARCHIVAL DESCRIPTION

The Statement of Principles Regarding Archival Description presented to the International Council on Archives (and apparently approved) by ICA at its recent meeting in Montreal, together with a draft set of rules for its implementation entitled ISAD(G) General International Standard Archival Description have been published in full in **Archivaria** #34, Summer 1992 p.8-32. They are accompanied in that issue by a critique of them by David Bearman (p.33-49), discussions of implementations in the U.K. by Michael Cook (p.50-57), in Canada by Kent Haworth (p.75-90) and general principles as imagined by the authors of ISAD(G) explained by Hugo Stibbe, Secretary to the Ad Hoc Commission which proposed the rules (p.109-137). Judging by the discussion of these principles at the ICA meeting, and the continuation of debate at the Association of Canadian Archivists and Society of American Archivists meetings in Montreal, the issue of description standards will be a major concern of the archival profession in the next few years and the debate will be joined around these proposals. They certainly demand to be read.

STANDARDS AT THE N.A.C.

In **The Archivist**, vol.19#2 1992, John McDonald discusses "Information Technology Standards at the National Archives of Canada". He details efforts by NAC and the Treasury Board to push for open systems and their current efforts to adopt Open Document Architecture (ODA) and Standard Generalized Markup Language (SGML). NAC is also monitoring the status of Electronic Document Interchange (EDI), Computer Graphic Metafile (CGM) and Information Resource Directory Systems (IRDS) as potentially significant to archives in the future.

MULTIMEDIA STANDARDS

Two recent reviews of multimedia standards cover most aspects of the capture and delivery issues. Scott Elliott in **Multimedia Review** vol.3#2 Summer 1992 (p.30-43) covers all the basics and provides citations to the current state of standards. Robert Gordon in **New Media News** vol.6#2 Summer 1992 (p.15-21) focuses solely on CD standards for multimedia applications. His discussion of all types of CD's is one of the best I've read.

STANDARDS OVERVIEW

The September 1992 issue of the **Journal of the American Society for Information Science** (vol..43#8) is devoted to the state of information technology standards. It contains articles by Richard Cox on "The American Archival Profession and Information Technology Standards" and by David Bearman on recent experiences in the museum committee as CIMI has tried to identify appropriate information interchange standards for museums.

RLG DEVELOPS Z39.50 SERVER FOR INTERNET

The Research Libraries Group has developed a Z39.50 server for searching RLIN and CitaDel databases which has been successfully used by 14 institutions, including several library systems vendors (NOTIS, DRA and Innovative Interfaces), over the Internet. The server allows users to access these RLG database through the native interface of their own system, thus saving them having to learn RLIN commands. Z39.50, the Information Retrieval Service definition and Protocol Specification was approved by NISO in 1988 and has recently become a focus of an implementation group associated with the Coalition for Networked Information. Z39.50 is compatible with the draft international standard DIS 120162/10163.

TASK GROUP ON CULTURAL HISTORY INFORMATION

The CIMI Cultural History Information Task Group met in Miami at the AASLH conference and made significant progress towards definition of the content of a "Scope of Collections" record which would provide a way for museums to report on their holdings at a level of considerable aggregation while noting important objects and a "Scope of Collections Reference" record to report on important reference datafiles maintained by the institution. Such records could be shared in state and national databases. The Task Group will continue with its work this fall and hopes to define an interchange standard this calendar year. [For further information contact: Ellsworth Brown, Chairman, Chicago Historical Society, Clark @ North Ave., Chicago IL 60614 or Rosanne McCaffrey Mackie CHITG staff 412-0486-2811, or John Perkins, CIMI staff 902-454-4077]

BUREAU OF CANADIAN ARCHIVISTS

The Bureau of Canadian Archivists has issued to new papers discussing issues of critical importance to archival description standards: **Subject Indexing for Archives** and **The Archival Fonds: From Theory to Practice**. Each book cost C$5.00 and is available from the Bureau @ 344 Wellington St., Room 3020, Ottawa K1A 0N3, CANADA; 613-996-6445.

CD FORMATS GALORE

Industry sources now predict that over 20 incompatible CD formats will be marketed before the end of this year. In addition to CD-ROM and CD-ROM XA, you can now purchase drives and disks configured for CD-I (Phillips), CDTV (Commodore), VIS (Tandy), Ultimedia (IBM), and DVI (Intel) with others on the way. It seems obvious that with such a superfluity of incompatible formats consumers are going to resign from the market for a while. As for those of us going into production, there is no right answer for multimedia, but CD-ROM -XA is definitely the right way to go for databases and still-image bases.