

# ARCHIVES AND MUSEUM INFORMATICS

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*Cultural Heritage Informatics Quarterly*

In memory of

**ALAN TUCKER**

*Friend, Colleague, Mentor*

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*Archives and Museum Informatics* carries news, opinion, and reports on information technologies, techniques, and theories relevant to archives and museums.

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# Archives and Museum Informatics

*Cultural Heritage Informatics Quarterly*

Volume 9 Number 1 1995

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## EDITORIAL

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### **Its Happening - Now What?**

Every day there are new WWW sites opened by museums and archives around the world. Every week there are announcements of major new digitization projects. Every month a government issues a major policy paper declaring the importance of the information economy and providing new funds for demonstration programs and research. In late February 1995 the G7 countries met in Belgium to deliberate the role they could play in bringing about a fully networked world.

None of us can keep up with the wealth of new material becoming available in digital form; we cannot even identify it. The challenge is not simply to encourage more data capture but to make sense of the burgeoning data and to link them in meaningful ways into information resources that can be used by specialists and laypeople alike. And here we feel like we're losing.

What do we need to do now? First, we need identify the barriers to full networked interactive access to the world's culture. We should convene the best minds in the technologies of culture and find research that would make cultural heritage more accessible. We need to ask what research is on the horizon that, if funded and successful, would contribute to making the vast textual, image, and sound libraries of the world available for our meaningful search (not browsing). And we need to devote our energies to promoting those areas of research and bringing their results to the broader community.

Second, we need to create a critical mass of cultural documentation which can be used legally, and is intellectually and physically accessible. We need to experiment with economic and social mechanisms through which creators of cultural information and holders of intellectual property rights can make them widely available and be adequately rewarded for doing so. We need to promote standards for knowledge repre-

sensation that allow for coherent connections between heterogeneous information resources. And we need to test protocols that can link heterogeneous systems environments and support enhanced queries and automatic directory construction.

Third, we need to understand the needs and interests of the populations that networked cultural heritage is designed to interest, involve, and inform. We need to understand what they are asking for, how they want to interact with digital representations of cultural creations, what they want to be able to do with them, and what permissions and licenses they will need. We need to find out what role multimedia cultural heritage information can play in our potential users' work or recreational activity by monitoring how our highly preliminary efforts to date are being used and by engaging in basic market research.

Finally, we need to create a profession of cultural heritage information providers, sharing our knowledge with others in the same business, adopting methods that have been proven, testing new ideas in concert, and engaging in critical discussion and publication of results. Employing the building blocks of an academic discipline -- journals, conferences, awards, and research grants -- we need to create a worldwide community of professionals whose interdependence is their strength and whose common commitment to integrated knowledge-bases presses against technological and conceptual boundaries.

Aware of the state of technical knowledge, equipped with institutions through which cultural heritage information can flow, alert to the needs and interests of our potential user community, and connected to each other through professional ties, we will be able to gain control of the tremendous wealth of digital cultural data coming online and craft it into usable, meaningful, and satisfying, cultural experiences.

David Bearman, Editor

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## LETTER TO THE EDITOR

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### From Dr. Wendy Sudbury, Chief Executive The Museum Documentation Association

We are grateful for the warm review of *Spectrum: The UK Museum Documentation Standard* in your last issue.

Your reviewer bemoaned the lack of a top down view with graphical flow charts etc, and used terms like "data dictionary." I hope you will allow me to point out that this is to misunderstand what we were trying to achieve.

*Spectrum* is a standard for collections documentation *not* a system specification. Its strength is that it can be implemented in *any* system, even a paper based one. As such it does not *prescribe* practices (which may be at variance with existing systems and therefore unacceptable to some). *Spectrum* provides a check list for new systems designers, an evaluation tool for existing systems, and an exchange standard.

Each procedure contains a minimum standard, specifying *what* should be achieved not *how* it must. It then offers a breakdown of possible steps built up from the widest consultation, hopefully comprehensive, but not prescriptive as to order or to relationship.

Likewise the units of information are deliberately not "entities" or "fields" even though the scope of what we mean by each term is fairly well defined. It is left to the system designer to specify the field which encompasses one or more of these units of information, and to define its relationship with others.

This is the real power of *Spectrum*. Museums in the UK are using it to identify gaps in their existing procedures, and having identified a gap, have a checklist of possible components to a solution: No-one has to

rethink each problem from scratch; no-one has to implement a prescribed solution.

Those museums with the freedom to design a new system from scratch are finding that they can export whole chunks of Spectrum into the instructions to the supplier. We are also working with vendors of off-the-shelf collections management packages to agree an accreditation scheme whereby Spectrum-compatibility can be indicated.

How is this standard? We have recognised that modern communication technologies allow for more idiosyncrasy than we used to expect. It is no longer essential that we use the same system, only that we each understand and can map our own systems to each other. Spectrum is that exchange or "trunk" standard for the UK, and our hope is to be able to agree on international exchange standard to which local, national and regional standards can map. We will secure a consensus very quickly that way, when no-one is asked to surrender their favourite detail, only to specify how it relates to a common understanding. The scope for international data sharing unfolds very quickly then, as does, for example, the core component of an international loan agreement.

If Spectrum is less than a system specification, it is also, in one important respect, much more than a standard for documentation procedures. We discovered very early on that you couldn't describe the documentation of collections management until you had a consensus on what constitutes good collections management. As such, Spectrum has become unintentionally a quality standard as well as a standard for systems. Its procedural element seems to be truly innovative, and we would welcome further feedback and possible partners for an international mapping exercise.

The information superhighway is galvanising politicians in the UK, and elsewhere. Now is the time to bid for money to set up a consortium of consortia.

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## THE INTERNET

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### Museums and Archives on the World Wide Web: Resource Guides and the Emerging State of the Practice

David A. Wallace, (davidw@lis.pitt.edu)

#### Introduction

This article will focus on existing guides to museums and archives on the World Wide Web (WWW) and provide more substantive commentaries on six museum and archives sites. Special emphasis is placed on how different institutions represent themselves on the WWW, how they represent their holdings, and how they provide access to their holdings.

The WWW is providing the public a rich array of, so far, free cultural heritage. The ability and willingness to provide multimedia representations of cultural institutions and cultural heritage artifacts is expanding at a dauntingly rapid rate. For example, the French Ministry of Culture (<http://www.culture.fr/gypda.htm>) made a sampling of images of Paleolithic cave paintings from the Vallon- Pont-d'Arc grotto available over the WWW within weeks of their discovery. In addition, the Getty Art History Information Program recently announced the creation of a WWW site (<http://www.ahip.getty.edu/ahip/home.html>) designed to spur the "collaborative building of a cultural information infrastructure" by demonstrating "how massive bodies of cultural information from heterogeneous sources can be gathered, digitized, stored, processed, and distributed across national and international boundaries."

On the archives front, several promising imaging initiatives are in the works. The importance of these are that they are designed to provide access to actual documents, as opposed to letting users browse ASCII text version of finding aids. Carnegie Mellon University's HELIOS

project (Heinz Electronic Library Online Service) plans on offering electronic access to roughly 1 million pages of document images from the collection of the late Senator John H. Heinz III, and Columbia University's Project JANUS is producing high quality digital images to its Marshall Perlin papers, including many thousands of FBI surveillance records released through the Freedom of Information Act (Perlin was the lawyer who represented Julius and Ethel Rosenberg's sons). And, of course, the U.S. Library of Congress has recently announced that it will use \$13 million in donated funds to digitize five million images from both its and other institutions historical collections by the year 2000.

Additionally, the Research Libraries Group announced in early February that it has formed a Task Force on Archiving of Digital Information which will explore a variety of means, both social and technological, for preserving digital repositories. In a related vein, the National Center for Preservation Technology and Training (NCPTT) recently stated that it is in the final stages of providing public access to a Gopher site that will provide centralized access to Internet resources on preservation. A WWW home page for this resource is in the works (Unfortunately, the Gopher address was not included in the announcement. Queries on his project should be addressed to Mary S. Carroll at mccarroll@alpha.nsula.edu).

All of this adds up to the undeniable fact that vast amounts of cultural heritage, and the means for managing it, will be mediated through distributed computer networks.

### Museums: Multi-Site Guides

Though some of the sites listed below were noted in a previous installment of this column, I feel a more thorough discussion of a few key multi-institutional guides is needed. These are offered to assist users in navigating across the diversity of museum sites available on the WWW.

The two most comprehensive that I have found are the World-Wide Web Virtual Library: Museums list and the Ohio State University at Newark, Art Gallery's World Arts Resources list. Both are international in scope and provide direct hypertext access to over a hundred institu-

tions - with the *World Arts Resources* list nudging out the *Virtual Library's* list in actual offerings.

#### \* The World-Wide Web Virtual Library: Museums

<http://www.comlab.ox.ac.uk/archive/other/museums.html>

The last issue of this column reported that this site was accessed some 300 times a day. As of January 1995 the traffic has more than doubled. This site now experiences roughly 700 daily accesses.

This extensive guide provides hypertext links to museums, galleries, and archives. It is organized around the following themes: Museums and exhibitions; Art galleries; Museum information (lists of museums by country/area); Library exhibits; Further lists and links (virtual exhibits, etc.), and; Contacts (professional information). In addition, the compiler of this resource, Jonathan Bowen, provides a brief section of personally recommended recent additions.

The Museums and exhibitions section is ordered alphabetically by country. Eighteen nations and nearly 100 museums and exhibitions are represented. Just over half of these nations are located in either North America or Europe. The remaining are located in Asia, the Pacific, and the Middle East. Unfortunately, there are no representative sites from either Africa or South America.

The Art galleries section contains hypertext links to nearly 40 galleries, though the content of this section is somewhat redundant with the Museums and exhibitions section.

The Museum information section provides access to sites in ten nations by geographic locality within those nations. For example, the Albany, New York, link provides basic ASCII textual descriptions of eleven museums in the that area. This site would appear to be most useful to users planning a visit to a specific location. The Library exhibits section allows the user to connect to a disappointingly scant eight locations.

The "Further" lists and links section provides over 30 "on-line hyperlinks to virtual museum exhibits and related information...." This

page essentially provides users with the ability to connect to sites which themselves provide jumping-off links to numerous other museums and exhibits.

Finally, the "Contacts" section provides a series of hypertext links to online information about and addresses of museums, galleries, and archives.

\* World Arts Resources

<http://www.cgrg.ohio-state.edu/Newark/artsres.html>

Compiled by the Ohio State University at Newark, Art Gallery, this site "attempts to compile all available arts information that is available via the World Wide Web and the Internet." This page includes linkages from the following headings: The Ohio State University at Newark, Art Gallery - HOME PAGE; Museums; Art Galleries and Exhibitions; Other Important Arts Resources; Arts Publications; Commercial Arts Resources; and Institutions, Governments, Academic. I was the 9,765 person to visit this site since its inception on September 20, 1994.

The Museums section provides access to over 130 museums in 21 countries. When I visited this site for the last issue of this column, it held links to only 45 museums -- indicating the ongoing rapid expansion of cultural heritage sites on global computer networks. As with the World-Wide Web Virtual Library Museums page, the sites in this section are organized alphabetically by country, with the lion's share once again represented by Europe and North America. Trailing behind are Asia, the Pacific, and the Middle East. Greece, Ireland, and Taiwan are the three countries represented in this site which are absent from the World-Wide Web Virtual Library Museums page. The continuing absence of any African or South American museums in this site leads me to conclude that there are none on the World Wide Web, yet I find this extremely hard to believe.

The Art Galleries and Exhibitions page maintains hypertext links to roughly 100 individual sites, while the Other Important Arts Resources page contains over 75 links to "arts information and other important sources that are not necessarily connected to the visual arts."

The Art Publications page contains links to over 30 arts-related publications available online, while the Commercial Arts Resources page lists a dozen sites which provide online information on works from commercial galleries. Lastly, the Institutions, Government, Academic page "compiles information about government, local and academic sources available via WWW." The 40-plus sites here include information ranging from the Getty Art History Information Program to Renaissance and Baroque Architectural Images loaded in conjunction with a course offered by the University of Virginia's School of Architecture.

Interestingly, both of the above described macro-guides present listings of institutions based on geography, rather than discipline or focus specific. It remains to be seen whether users prefer to search for museums based on location over subject. I am curious to examine the topical breakdown page promised by the Impact Museums home page (see description below) once it becomes operational.

There are also a handful of less extensive sites which provide links to museums and exhibits. Among the more interesting, both existing and proposed, are:

\* The Natural Museum of Los Angeles County Guide to Museums and Cultural Resources

<http://cwis.usc.edu:80/lacmnh/other.html>

This multi-institutional guide is divided into three sections which provide hypertext links to: 43 Museums and Other Cultural Centers; six Resource Guides; and, six Special Exhibits.

\* Science: Museum's and Exhibits (from Yahoo)

[http://akebono.stanford.edu/yahoo/Science/Museums\\_and\\_Exhibits](http://akebono.stanford.edu/yahoo/Science/Museums_and_Exhibits)

Thematically specific to the sciences, this site provides links to 35 institutions, ranging from an exhibit of prehistoric whale bones uncovered in rural Vermont, to an educational visual tour of the universe, to the Smithsonian Institution's gem and mineral collection.

\* Art: Museums (from Yahoo)

<http://akebono.stanford.edu/yahoo/Art/Museums/>

Like the previous site, this index is made available through Stanford University's Yahoo hierarchically arranged index to the WWW (<http://akebono.stanford.edu/yahoo/bin/menu/>). The Yahoo home page is well worth anyone's visit, providing links to thousands of individual sites arranged by topic and sub-topic. For example, within its index to over 500 arts-related sites, a user can access a lower-level index to 28 categories within the arts, such as Architecture, Cinema, Dance, Exhibits, Performing Arts, Photography, Sculptures, and links to other arts-related WWW indices.

The Museum index provides links to nearly 30 museums worldwide, from the Online Museum of Singapore Art and History, to the Whitney Museum of American Art.

\* Museums, Exhibits and Special Collections

<http://galaxy.einet.net/GJ/museums.html>

This index is part of the larger Gopher Jewels collective (<http://andromeda.einet.net/GJ/index.html>). This subject tree of Gopher resources provides access to over 50 topics such as Anthropology and Archaeology, Architecture, Arts and Humanities, etc. The Museums, Exhibits, and Special Collections index provides links to just over 40 sites, including the International Council on Monuments and Sites (ICOMOS) and the U.S. National Archives.

\* Impact Museums home page

<http://www.lib.berkeley.edu/TeachingLib/museums/home.html>

Right now in an early stage of development, this site endeavors to "provide a variety of ways to access web pages produced by museums," such as by Topic, Geographical Location, and Region.

\* RLG Member Web Exhibits

<http://www-rlg.stanford.edu/exhibits/museums.html>

This site provides links to sixteen RLG member WWW sites.

### Museums - Individual Sites

To provide a sense of the actual offerings provided by specific institutions, the following discussion will present encapsulated reviews of three museums. The focus here is on how institutions represent themselves in virtual space, and not on specific exhibits. As already noted above there are well over 100 museums already present on the WWW. Hence, any attempt to fully classify their breadth is beyond the scope of this column. What should be noted is that the range runs from offering no more than a listing of an address and hours of operation, to full-blown multimedia representations.

\* Carlos Museum of Emory University

<http://www.cc.emory.edu/CARLOS/carlos.html>

The Michael C. Carlos Museum at Emory University in Atlanta, Georgia has provided an eminently useful means for communicating with the public. Intuitively logical and user-friendly, this site provides the visitor with an experience which, in several senses, mirrors an actual visit to the museum. The home page for this site opens with a brief scope note of the institution's holdings, and an optional online video welcome from the museum's director, Dr. Maxwell Anderson.

These are followed by a graphical representation of the museum's floor plan. This feature will be immediately recognizable to anyone who has ever visited a museum and made use of publicly available pamphlets depicting individual floor levels and the galleries they house. There are currently three separate floor levels to choose from, with a fourth presently under construction. Visitors can enter any one of the available floors by pointing and clicking on them. Once selected, a more detailed (and legible) floor plan is presented, enabling the visitor to select any gallery by either pointing to and clicking on it directly or by selecting from a textual listing of galleries which lie below each plan. Once a particular room is selected, the visitor is presented with a sampling of

textual and graphical materials associated with that room. What the visitor is not presented with is a virtual room in which to move around in. Rather individual offerings from each gallery are available for selection.

The Plaza Level (Staff and Educational Programs) allows the visitor to select from among eight separate rooms: Classroom; Conservation; Curatorial; Education; Exhibit Design; Registrar; Security; and Volunteers. Clearly, this is the area in most museums that are either not open to the public or which are neglected by patrons. However, by providing access points to this area of the Carlos museum, the institution offers visitors the option to learn more about the different functions of the museum and of museum work. Though lightly populated at this point, these "rooms" allow the visitor to, for example, not only get a crisp description of what exhibit design is, but also get to meet (via photo) the staff person responsible for running this department. The Conservation Laboratory not only provides pictures and descriptions of the types of conservation work conducted by museum staff, but, in one case, also provides a hypertext link to the specific object being conserved -- showing it from all sides and describing it in detail.

The First Level (Galleries, Bookshop, and Museum) lets visitors access the museum's Rotunda, Book Shop, and Information Desk, as well as any one of six individual galleries (Ancient Americas, Ancient Egypt, Ancient Near East, Prints and Drawings, Asia, and Greece and Rome).

The Museum Information icon provides information on operating hours, tour information, and a two-month calendar of events highlighting an extensive offering of lectures, in-gallery talks, and workshops, often delivered by world-renown scholars. The Bookshop provides recommended readings associated with specific galleries.

Selecting any one of the gallery offerings pulls up a brief description of the gallery's subject, its holdings, as well as a sampling from the collection itself. As noted above, the individual galleries provide a mere slice of what is actually available for viewing in the physical museum (to say nothing of the museum's actual holdings in specific areas). For example, the Ancient Americas permanent exhibition maintains roughly

350 objects, while the online gallery exhibits only five choice items. Nevertheless, selecting any one of these five objects pulls up provenance and descriptive data about the item. Sometimes associated with the provenance and descriptive data are alternative views of the object and/or the ability to transfer a larger image of the work. At the top of gallery's online exhibits page lies the text "Today's Exhibition Includes:" indicating that the museum rotates its online offerings.

The Prints and Drawings gallery offers, by far, the greatest number of online works. Twenty works of art on paper are available for viewing, ranging from an Albrecht Durer woodcut to a Paul Klee pen and ink drawing. When I visited museum in early February, the Greece and Rome gallery was unavailable, and the Ancient Near East gallery held only one item. Clearly, the museum's entry into cyberspace is still under construction.

The museum's Second Level (Administrative Staff and Boardroom) has only two of its six "rooms" available. Once complete it will offer the visitor the opportunity to "access" the Assistant Director, Budgeting and Personnel, the Director, Membership, Public Relations and Marketing, and Special Events. As with the Plaza Level, this is one area of the museum not likely to get a lot of foot traffic in the real world. However, the ability to peek behind normally closed doors is one of the nicer aspects of virtual museums. The museum's final floor, the Third Level (Galleries, Reception, and Cafe) is not yet open to the public.

For those who choose not to access the museum via the floor plans, a thematically arranged index listing is provided.

The final link available via the museum home page, labelled "About this Exhibit," notes that, "The text and images in the Michael C. Carlos Online Exhibit are for the personal use of students, scholars, and the public. All images are subject to international copyright laws. Any commercial use or publication of text or images is strictly prohibited." The difficulty of managing copyright and image ownership over distributed networks is clearly one of the key issues, perhaps the key issue, facing virtual museums.

Overall, the Carlos museum has performed excellent work in making its holdings available online -- few though they may be.

\* University of California Museum of Paleontology  
<http://ucmpl.berkeley.edu/>

Unlike the Carlos museum which opens up with a description of the museum and a virtual floor plan, the University of California Museum of Paleontology first presents visitors with a tablet of individual images which link to pages entitled About This Server; About The Museum; Exhibits; On-Line Catalogs; and Subway to Other Servers. Below this tablet lie hypertext links to About the Images on This Page; Home Page for Imageless Clients; Local Time and Weather; and, What's New.

The home page tablet is composed of images of a bas relief and four sculptures created by Bay Area artist William Gordon Huff for the paleontology exhibit at the Golden Gate International Exposition in 1939-40.

The About This Server page notes that it is offered "to explore the possibilities of an interactive natural history museum through the Internet." Self-consciously geared to serve the public who visits the site, this page offers intriguing options, such as the ability to ask a question to a museum researcher via e-mail. The question request form optimistically notes that the researcher "will (hopefully) get back to you within a short while." Use statistics maintained by the site are also available. Weekly statistics dating back to August 28, 1994, are provided for: the total number of accesses; total index accesses; distribution of accesses by domain (Europe, commercial, educational, other, and unknown); the number of accesses by the top 10 domains; a list of the 30 sites accessing the server most; and, the 100 most accessed items at the site. For the week of January 28, 1995, the site experienced over 60,000 separate accesses. The About This Server page also includes a sign-in guestbook with room for comments, as well as the option to scroll through past contributions to the book. A recent visitor from Florida wrote that "it's great that people are able to access this kind of stuff from their homes and offices. It's great for school kids especially." Finally, this page offers useful technical information about how the server was created. "All our

tricks are revealed." Clicking on this icon, entitled "Server Technology," presents a matrix of 15 boxes on topics such as "The HTML Language," "Image Manipulation," and "ISMAP and Scripts." Any institution anticipating creating their own home page would do well to take advantage of this offering.

The About The Museum page provides information on the museum's purpose, a staff directory, a searchable database of publications by affiliated researchers and graduate assistants (including a request form for obtaining reprints), and information about the public outreach program.

Clicking on the Exhibits page icon calls up a page entitled "Paleontology without walls," and an icon divided into three parts: Phylogeny, Geology, and Evolution. Selecting any one of these three options allows one to start exploring the museum's offerings from that point of view. For example, clicking on the Evolution option draws up a page on the theory and history of evolution, including further hypertext links to individual evolutionary topics such as Systematics, and individual scientists such as Linnaeus. Alternatively, choosing the Geology portion of the icon delivers the visitor thumbnail sketches of the development of the geologic discipline, the major geological ages of the planet, and a suggestion for further reading. The major geological ages portion of this page provides a graphical icon containing those ages, any of which can be selected to call up additional data. For example, selecting the Mesozoic Era portion in this icon led to a page describing that era in greater detail as well as providing hypertext links to "More on Stratigraphy," "Fossils of this Time," and "Fossil Localities," all context sensitive to the Mesozoic.

At the bottom of the Exhibits page lie two search tools which allow users to "travel to any of our exhibits on organisms or geological time periods." The "Take Our Web Lift to Any Taxon" icon transports the visitor to a hierarchically arranged classification of the "ancestor/descendant relationships which connect all organisms that have ever lived." When I selected the Chondrichthyes (Sharks) option here I was delivered to a page describing, with images, a project examining the Great White Shark. The second navigational tool, entitled "Take Our Web Geological Time Machine," presents the user with a chronologi-

cally arranged (though still largely undeveloped) hierarchy of geological ages. Selecting any one of the available ages delivers you a page of information on that age as well as hypertext links to other offerings related to that era. For example, selecting the Cenozoic era provided me with a textual description of that era as well as the option to select a mammals hypertext link, since the Cenozoic is popularly known as the age of mammals.

The Online Catalogs page provides the visitor with the opportunity to conduct their own online querying of this site and other external resources. Though designed primarily for scholars, the lay public are invited to take advantage of this option. According to the text associated with this page, the "catalogs are information sources for anyone who is interested in going a little deeper, past exhibition and into the real research that paleontologists do." Four online catalogs and three services are provided within this page. These online sources include catalogs and indexes on vertebrates, invertebrates, microfossils, and plant fossils. The three other services include access to the mollusca listserver, Pacific Rim collections from around the world, and other online collection catalogs that are available over the Internet. Searching "canis" in the vertebrates catalog and index provided over four screens of citations. Each citation includes taxonomic, locality, and citation information on a particular fossil specimen.

The final option available from the museum's home page, labelled the Subway to Other Servers, is a graphical link to other museums across the globe in the form of a subway map. This "subway" map contains roughly twenty "stops" or "destinations," from the Smithsonian Institution, to the University of Buffalo Geography Lab, to the Paleontological Institute of Russia, to the Australian National Botanical Gardens. Users can point to and click on any of these map points and be automatically transported to that subway point without having to worry about getting a seat or standing uncomfortably close to strangers.

Although lacking a sense of a physical space for visitors to roam around in, like that of the Carlos Museum floor plans, the University of California Museum of Paleontology is highly accessible to users, allowing them great freedom to select their own path through the site. An added feature of this site is that it can be used by any visitor to open up

avenues for further research and individualized study that can be done directly online (although I did have great difficulty loading many GIF images when I visited this site). As with the Carlos Museum, portions of this site are under construction, and one often has to turn back from dead ends and select alternative courses of action. Nevertheless, this site essentially offers the type of self-guided learning so painfully overhyped in discussions of the information superhighway.

\* The Krannert Art Museum

*<http://www.ncsa.uiuc.edu/General/UIUC/KrannertArtMuseum/KrannertArtHome.html>*

The Krannert Art Museum and Kinkead Pavilion (Champaign, Illinois) home page presents the visitor with a photographic image of the museum as well as five hypertext links: Guide to the Krannert Art Museum and Kinkead Pavilion; Educational Resource Center; The Palette Cafe and Bookstore; Museum locations and hours; and, Map of the museum.

Selecting the Guide to the Krannert Art Museum and Kinkead Pavilion link summons a sampling, organized by gallery, from the institution's permanent collection. At the top of this page lies a link which, when selected, pulls up a very brief summary of the history of the museum and its holdings. The gallery icons provide links to collections in nine galleries: Sculpture; European and American painting; Twentieth-century art; Asian art; Medieval and Near Eastern art; Decorative arts; Old World antiquities; African art, and; Pre-Columbian art. A total of twenty-six works of art are available from these nine galleries, an average of roughly three pieces each. The Sculpture gallery offers the least, only one object, while the Old World antiquities and African galleries offer the most -- four objects each. Selecting any one of these galleries provides the visitor with a summary description of that particular gallery, plus a sampling of thumbnail image(s) from that gallery. Each of these thumbnail images can be selected and, once selected, the visitor is presented with a larger image of that object and a several hundred word description of the particular work. For example, selecting the "Burial Mantle" object from the Pre-Columbian Art gallery calls up a nearly screen-size representation of the object plus a two paragraph description detailing the object's style, material, and imagery. Lying at

the bottom of each gallery and specific image pages are arrow icons which enable the user to go backward, forward, or onto the next collection. This eliminates the necessity to back-track through already viewed pages in order to view yet unseen portions of the collection.

The remaining hypertext offerings from the institution's home page are quite slim. The Education Resource Center page offers a very brief description of the center and provides a telephone number for those wishing to plan a docent-led tour of the museum. The Palette Cafe and Bookstore page is equally succinct, though, oddly, it does provide a sample weekly menu from the museum restaurant. Unfortunately, practically no information about the bookstore is provided. The Museum location and hours page is also terse, providing basic data. Finally, the Map of the museum page offers a non-hypertext version on the museum's two levels.

### Archives: Multi-Site Guides

Comprehensive archives guides are far less common than are comprehensive museum guides. The best current guide to archives on the internet is the:

\* Archives and Archivists List

*WWW* <http://WWW.MUOhio.Edu/~ArchivesList/>

Compiled by John Harlan, who runs the Archives Listserv, this site contains pointers to over 40 sites.

The first hypertext link on this page points the user to the University of Michigan's Guide to Archives Information on the Internet, a somewhat dated document which lists addresses to archives through WWW, Gopher, and Telnet. Unfortunately, this document is straight ASCII text with no hypertext functionality. This is followed by the archives and manuscripts list maintained by Johns Hopkins University in Baltimore. The Johns Hopkins site provides Gopher access to thirty-five institutions.

The main portion of the Archives and Archives List WWW page lists those archives and manuscripts repositories which reside on the Internet.

These sites are divided into three groups: those which are available via Gopher; those which are Gopher/WWW sites, and; those which have World Wide Web pages. Institutions are alphabetically arranged within each of these three sub-groups.

There is some redundancy between these groups. For instance, the British Columbia Archives and Records Service and the Charles Babbage Institute are listed under both the Gopher list and the World Wide Web list. The reason for this appears to be to allow users to access these sites through either a Gopher or a World Wide Web interface. While the number of Gopher sites currently edges out the number of WWW sites, I would expect archives WWW pages to far surpass the number of archives Gopher servers over the upcoming year.

Lying underneath these listings of archival institutions is a link to the Libraries and Librarians listserv list, a link to internet searching capabilities from Miami University, subscription information for the Archives listserv, and contact information.

Since there are substantially fewer archives than museums on the Internet, there hasn't been a desperate need to break down the list of archives into either geographic or topical categories (As with museums, the United States is the dominant contributor of archival institutions on the WWW -- making up 5/6 of all archives WWW pages listed.). However, it is perhaps not too soon to do so, given the general rate of growth the WWW and the Internet are experiencing.

Another useful guide to archival institutions can be found at:

\* Libraries and Archives

<http://cavern.uark.edu/comminfo/www/libraries.html>

Though this site includes libraries it is useful to point out since it provides links to over thirty archives and archives-related sites, including a slew of U.S. Presidential Libraries (which are really presidential archives.) Interestingly, many of the sites listed here are not available in the more comprehensive Archives and Archivists List WWW, indicating that the opportunity is ripe to develop a truly comprehensive archives guide.

The University of Michigan's ASCII text guide to archives on the Internet, housed in the institution's Clearinghouse of Subject Oriented Internet Resource Guides at *gopher://una.hh.lib.umich.edu:70/00/inetdirsstacks/archives%3akaynthonry* was the first true guide to archives on the Internet. However, as it has not been updated since May 1994, it is a bit out-dated.

### Archives: Individual Sites

Ironically, although there are far fewer individual archives on the WWW than there are museums, I found that I had more difficulty selecting a sampling of archives to review. A handful of sites not examined below each offer something unique and valuable to online users. As with museums, there is incredible diversity in the manner in which archives are represented, from a simple single-page ASCII text description of the institution, to rich multi-layered multimedia offerings which include representations of actual holdings and interactive reference querying. Among the more intriguing sites readers should be aware of which are not detailed below (yet reachable through the Archives and Archivists List WWW), are the: Charles Babbage Institute; Harry Ransom Humanities Research Center; Oregon State Archives; Tulane University Special Collections; and University of Notre Dame Archives.

\* British Columbia Archives and Records Service - Electronic Access Project

*<http://www.bcars.gs.gov.bc.ca/bcars.html>*

This site provides online access to the services of the British Columbia Archives and Records Service (BCARS), "an integrated Records Management and Archives Program within the Ministry of Government Services, Province of British Columbia." The top part of this home page provides hypertext links to Conditions for Electronic Access, Information for New Visitors (which actually exists as a separate section further down the home page), as well as links to the institution's Annual Report and brief histories of the Records Management Branch and the Provincial Archives.

Lying below the top part of the home page are the following groupings: Highlights; Network Exhibitions; Information for New Visitors;

Future Additions and Projects; For Inquiries Related to Collections; and For Comments or Further Technical Information on this system.

Aside from a link to the Network Exhibitions portion of the home page, the Highlights portion of the home page contains hypertext links to the Visual Records Collections (including the Photo-Imaging Database), the Research Library, the Finding Aid Database, and a Virtual Reference Room.

The Visual Records Collections link in the Highlights portion of the home page provides an overview of the roughly 100,000 individually described photographic images from the institution's collections, 5,000 of which are retrievable for online viewing. The institution's Electronic Access - Imaging Project, which offers this access, is "an automated photographic imaging database system that allows clients to search through textual description of images, view the associated image if it is available online, and make direct reproductions using laser and dye sublimation printing technologies." Permission fees are required only from users who plan on using the institution's images for commercial purposes. Additional background on the project is available from a link at the bottom of this page, providing information on, among other things, conditions for electronic access, searching strategies, and a description of the extent of the information available online. Remote access is encouraged as a means of providing researchers with the opportunity to conduct advance preparatory research and to work independently of the hours kept by the physical institution. Within the Visual Records Collections page, users are afforded the opportunity to search the visual records collections by Subject, by Photographer/Artist, by Criteria specified by the searcher, and by Geographic Region. To search by either Subject or Photographer/Artist, users point to and click on a letter of the alphabet. Once a letter is selected the user is presented with an alphabetically arranged index of terms (or names) beginning with that letter. For users who feel a bit constrained by this method they can also select their own criteria. Choosing the Your Own Criteria hypertext link presents users with a Gopher search form which allows them to enter terms outside of the controlled vocabulary. The Geographic Region search option in this page presents users with a color map of British Columbia. Users who point and click on this map are presented with a larger version of it containing a color key to all of the districts in the

region, any of which can be individually selected. Records retrieved by any of these means provide the user with a standard description of the item: its catalog number(s), subject term(s), geographic region, title, the name of the artist/photographer, its date, and its accession number. If the item is available for viewing online, the users can choose to see either a thumbnail or screen size GIF representation of it. Interestingly, items retrieved via searches are presented in a somewhat ranked fashion, wherein those items containing the highest number of occurrences of the sought term in their database record description are placed at the top of the retrieved group.

Links to six screens worth of citations to books devoted to photographic subjects are also provided from the Visual Records Collections link, as are direct links to nearly fifteen specially highlighted specific collections.

The Research Library link in the Highlights portion of the institution's home page presents the user with a Gopher search form. Retrieved items here present a basic bibliographic description, including the BCARS call number, to the publication(s) returned by the search.

The Finding Aid database link in the Highlights portion of the home page is primarily dedicated to textual materials. Users are presented the opportunity to either perform a keyword search in all of the finding aids online, browse through non-government records finding aids, or browse through government records finding aids. As with other online searching, searching here is accommodated through a Gopher search form. Retrieved records present the user with standard ASCII text fonds-level description records.

The final link in the Highlights section of the BCARS home page, the Virtual Reference Room, provides the user with a graphical representation of the floor plan plan of the institution's reference area. Users who point to and select alternately colored areas of the floor plan plan are provided additional information relevant to that area. For instance, selecting the "Microfilm Cabinets -- Government Records, Historical Manuscripts" area provides an ASCII text orientation to the organization and broad contents of that area of the reference room. Lying below the floor plan is a link to a Research Orientation Guide, which provides

information on advance preparation, remote access, on-site research, procedures, and format-specific guidance for manuscripts, microfilm, still images, sound and moving images, and cartographic materials.

The Network Exhibitions section of the BCARS home page provides direct hypertext links to six highlighted exhibitions, including a group of moving image collections in MPEG format.

The Information for New Users section of the home page lists basic user orientation information such as conditions for electronic access, background information on the Electronic Access -- Imaging Project, and general information on the BCARS's reference services (location, contacts, access, hours of operation, registration procedures, the orientation guide, and copying and reproduction procedures). This section also contains a link notifying visitors that, as of September 27, 1993, access to government records held by the institution will be governed by the Freedom of Information and Protection of Privacy Act. Unfortunately, the text of the act itself is not available online.

The final sections of the home page include notices of future additions and projects, and e-mail address for making inquiries on collections and for offering comments or obtaining additional technical about the institution's system.

In just over a week since being offered to external users, more than 20,000 items have been accessed from this site, indicating, to my mind, the rich potential offered by digital archives and remote-site services delivery. According to a press release distributed by BCARS to announce external access, it noted that, by offering such a service, it anticipates: "an increase in public awareness of BCARS and other British Columbia archival institutions; a broader range of types of clients; and greater convenience for researchers who now have a timely and effective way to conduct advance research preparation prior to visiting BCARS." Indeed. This site represents the cutting edge of what is possible for archives on the WWW. Any institution contemplating entering the WWW would do well to place a visit to this site. Another reason to keep an eye on this site is that it promises to grow in size, and be continually added to as time passes.

\* Michigan Digital Historical Initiative in the Health Sciences  
<http://http2.sils.umich.edu/HCHS/>

The Michigan Digital Historical Initiative in the Health Sciences (MDHI) is a "statewide, collaborative, digital environment" between eleven institutions, including "archives, museums, educators, technologists, and state agencies" (consortium members include the Bentley Historical Library, the State Archives of Michigan, the Walter P. Reuther Library at Wayne State University, and the Henry Ford Museum & Greenfield Village). So, although not focused upon an individual institution (the project is coordinated through the SourceLINK Project of the University of Michigan Historical Center for the Health Sciences -- HCHS), this demonstration initiative presents insight into some of the possibilities emanating from cooperative endeavors possible due to distributed digital computerized networks transporting multimedia objects and descriptive data. The digital library is projected to compile representations of individualized resources such as "longitudinal public health data, records of clinical institutions, manuscripts, photographs, and historical scientific institutions." Currently, this site houses an overview to over 1,400 primary sources from 35 institutions.

The project can be broadly split into two camps: actually delivering the content across networks (both fee and free mechanisms will be accommodated); and conducting research on the actual implementation of the digital library, including technical, security, and use measures.

Geared towards providing easy access to a wide spectrum of users, from clinical professionals to K-12 students, it hopes to demonstrate the "relevance of the historical perspective to contemporary educational agendas and policy debates on topics such as social, economic, and scientific aspects of health care delivery, and substance abuse," and purports to serve as a model for any topical area.

As it is a somewhat unique initiative, deep background information on the project itself is provided, including detailed objectives, anticipated services, and visual graphics detailing a blueprint for the development of the MDHI and a development plan through a Mosaic application.

Currently, the home page provides access to eight types of information, fleshing out this rather ambitious undertaking. These include a Guide to Collections; Guide to Artifacts; Guide to Graphic Art; Index to Repositories; Technical Guidelines; Retrospectives; CD-ROM Products; and, Internet Resources. Each of these eight options are presented as colorful thumbnail tablets. Two additional options -- MARC AMC Guidelines for Coding Archival and Manuscript Collections and Guidelines for Electronic Records Management -- are promised in the near future.

The Guides to Collections link provides instructions on how to use the guide and an index to primary sources. The use instructions page notes that the project team has striven to standardize the representation of collection descriptions as they have been drawn from different repositories finding aids, each with their own style. Consequently, users are apprised to stay alert to alternative descriptive practices (such as measures noting collection size). This cautionary note raises some of the tough issues that are confronted by multi-institutional initiatives, issues for which there are no simple solutions. The Index to Primary Sources link draws up an orderly listing of the letters of the alphabet, much like the BCARS subject and artist index. Once a letter is selected the user is presented with a parsed listing of a combined subject, place, and names index. For example, one choice called up a further listing covering the terms encompassed between "Smallpox to Society." For users who wish to do so, they can alternatively scroll down a full alphabetical listing of all the terms within a particular letter. Most individual subject, place, name terms are followed by hypertext collection citations (since the site is still under construction not all have been coded.) Clicking on any of these hypertext citations summons the description of that collection.

The Guides to Artifacts hypertext tablet of the home page draws up a slightly different means for accessing materials than is offered by the Guide to Collections index. Hypertext links offer the option of calling up an Alphabetical List of Historical Artifacts, or a Subject Index to Historical Artifacts. The alphabetical list provides hypertext links to an image and description of the object. Unfortunately, I batted 0 for 5 when trying to summon image representations of the artifacts. A useful feature at the bottom of each artifact description is the option to View Related or Similar Artifacts, View Related Materials, or Browse All Artifacts.

The Subject Index to Historical Artifacts presents a straight alphabetical subject listing of the artifacts (minus the ability to select from a tablet of individual letters) with the option to select hypertext links to representations of the actual items themselves. Individual item descriptions provide the same navigational functionalities as were provided for the Alphabetical Listing of Historical Artifacts.

Selecting the Guide to Graphical Art tablet on the home page presents the user with two alternatives: Trades Cards and Advertising and Medical Instruments. Trade Cards and Advertising provides access to a handful of rather large-sized image files, while the Medical Instruments link was unavailable when I tried to access it.

The Index to Repositories link on the home page summons a listing of "images, artifacts, and archival and manuscript collections" by repository. Also given is each institution's address, contact information, background and history, and use and reproduction policies. Users can search repositories and their holdings either within the state of Michigan alone or across the nation as a whole. Twenty-five in-state and twelve out-of-state institutions are offered for perusal. What is interesting here is that the listings included many institutions that I have never seen before online and that are absent from the Archivists and Archives List WWW guide. In a sense, these pages serve as an additional guide to archives repositories on the Internet. Unfortunately, many of the links I tried to these other sites were non-operational.

The Technical Guidelines portion of the home page offers crisp summaries for handling and managing cultural heritage materials. Current offerings include: Guidelines for Identifying, Sorting, and Storing Old Files and Personal Papers; Guidelines for the Preparation of Oral Histories; Preservation Guidelines for Historical Materials; and, an Electronic Records Bibliography. This last document, prepared by Nancy McGovern of the U.S. National Archives and Tom Ruller of the New York State Archives and Records Administration, provides a bibliography with hypertext links to the following subjects: General Sources; Special Archival Issues/Reports; Metadata; Databases; Electronic Text Systems; and, Geographic Information Systems.

The Retrospectives portion of the home page provides an index to (with hypertext links to the text under construction) and the full text of the publication *Retrospectives*, the quarterly newsletter of the University of Michigan's Historical Center for the Health Sciences. The CD-ROM Products section provides information about and images from CD-ROM products under development in conjunction with the MDHI initiative. Finally, the Internet Resources tablet in the home page provides a listing of roughly ten WWW sites which hold information about the history of health sciences (whose hypertext links are mostly absent, but surely will be developed).

Overall, this is a tremendous site, offering a mix of cutting edge research, comprehensive subject coverage, and hidden gems.

\* U.S. Department of Energy OpenNet  
<http://www.doe.gov>

The above address is to the Department of Energy's Home Page. Once in it select the OpenNet icon. For some reason I was not able to access the OpenNet page directly through its URL.

Though not an archives per se, and not included in the Archivists and Archives List WWW guide, the Department of Energy, like any other operating government or non-government entity, is really a living archives which compiles records as a matter of course of business. Institutions such as these are some of the most important in our society and the records they possess can tell us much about the times we live in. It behooves archivists to seek out and examine how institutions such as this are delivering public access to their records. Based on my review of this site, the profession has much to learn about archives from such "non-archival" entities.

DOE Secretary Hazel O'Leary's opening message to this resource notes that OpenNet, sponsored by the DOE's Office of Declassification, is intended to "provide easy, timely access to recently declassified information, including information declassified in response to Freedom of Information Act requests." OpenNet's scope note states that it will include references to "all documents declassified and made publicly available after October 1, 1994," as well as pointers to collections of less

recent vintage. OpenNet exists in support of the agency's "Openness Initiative of Public Awareness, Public Education, Public Input, and Public Access."

A hypertext link within the OpenNet home page also provides access to a slew of descriptive documents released by the agency in conjunction with the Secretary's June 27, 1994, press conference which announced the Openness Initiative. Included within top- and sub-menus are titles like "Drawing Back the Curtain of Secrecy: Restricted Data Declassification Policy, 1946 to the Present," "Draft Public Guidelines to Department of Energy Classification of Information," "Improving Public Access to Declassified Documents," and "Development of Automation to Assist Declassification." This last paper describes a project to develop an intelligent computer declassification system. Specific aspects of this project are looking at how paper records can be scanned and stored as images whose text would be converted to computer-readable text files, and the employment of artificial intelligence to create a declassification knowledge-base that would enable systems to evaluate "natural language text to the degree necessary to apply declassification knowledge and recognize classified documents." This is essentially a description of a system that would be capable of automatically determining which portions of individual documents could be declassified and which must remain classified. It is envisioned that such a system will increase public access and replace the costly time-consuming manual review process currently in use. While these goals are worthy and essential, the key to such a system lies in the assumptions guiding automated declassification decisions -- a process which itself would no doubt become the subject of a Freedom of Information Act request.

The actual OpenNet database is a bibliographic database of "well over" 250,000 citations to individual records. The database contains the following fields: Title; Author; Subject terms; Addressee(s); Originating Organization; Location of Document; Document Number; Document Type; Document Date; Accession Number; and, OpenNet Entry Date. The database search form provides two alternative searching strategies -- to search the full text of records in the database or to search specific fields in the bibliographic records. Detailed help is provided for both full-text and field-specific searching. In addition, four lists of valid search terms (which are really authority files) are provided to assist

searching in specific fields. These are for document type, originating organization, document location (only three are given), and subject terms. OpenNet also supports adjacency and truncated searching.

The Document Location field references the site location of the actual hardcopy of the document, as well as providing information on how to contact that site. In order to obtain copies of records identified via a search, users must contact the site which holds the document as no records images are available directly online. Unfortunately, users are also presently unable to order documents directly online via an OpenNet e-mail interface. A commitment to making record images available online through this database would demonstrate a profoundly reengineered process for delivering federal government information to the public. Despite this absence, OpenNet has made the DOE the clear leader in the federal government for providing greater public access to federal records.

To get a better feel for OpenNet's searching and retrieval functionalities, I conducted a sample query. When selecting the Access the OPENNET Database hypertext link in the OpenNet home page, I was presented a screen which offered five alternatives. I could move directly to searching the database, or I could select help-oriented links which would give me more information on frequently asked questions, searching (full-text and field-specific), and reviewing valid search terms.

As already noted, the actual database search form allows the user to submit two types of queries -- full text or field specific. Searching "Human subjects" (taken from the valid search terms) in the Title field yielded an interminable wait. I gave up waiting for a sampling of retrieved records after more than an hour's time had passed. However, despite this site's actual retrieval difficulties, it serves as a useful template for modelling access via computer networks.

## Conclusion

As is evident from the rather detailed discussion above, both museums and archives are contributing unique hypertext applications to the WWW. There exists no one way to do things, and each institution has felt free to shape its offerings based upon its assumptions of who the

audience is, and what they feel are beneficial online offerings. Users who visit any of the sites reviewed above or any of the other sites listed in the guides to museums or archives should be aware of the following complications. One, the time to complete image transfers vary -- some occur rather quickly and others take forever. Two, failed transfers are common. Sometimes you will always fail to get a particular item and other times the failure is only temporary, owing to the idiosyncracies of your particular connection and the larger network itself. Three, all sites are under constant construction. This being the case, you will often travel down deadends. Four, current WWW navigation through individual sites is often like travelling through a museum -- you may find yourself wandering around in circles and lose track of how to get back to something you saw ten minutes ago. And five, acclimating yourself to these sites takes time. I often spent an hour or so blazing through an entire site before I would patiently explore each nook and cranny.

Despite these concerns, this is a fascinating time for cultural heritage institutions and any serious organization should be investing both time and resources towards migrating some portion of its collections and resources onto the WWW.

*Postscript.* Readers of past columns should be aware that there now exists a Listserv Home Page at <http://www.clark.net/pub/listserv/listserv.html> which provides hypertext access to an index of listserv information.

Also, a useful grouping of WWW search interfaces can be accessed at <http://www.neosoft.com/neopolis/search.html>

This site offers searching through: the Lycos Home Page; WebCrawler; the World Wide Web Worm; CUI's W3 Catalog; the Harvest WWW Home Page, and; the Nomad Gateway.

As always, please contact me with updates and announcements of new projects and Internet and WWW resources at [davidw@lis.pitt.edu](mailto:davidw@lis.pitt.edu).

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## EUROPEAN MUSEUM REPORTS

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### European Policies Towards Interactive Multimedia for Museums: Part II

Xavier Perrot

Unless the European Union changes its rules, it will be a long time before baseball becomes a metaphor for politics in Europe since any political decision must be unanimously approved to become an action plan. The recent expansion of the Union to include Austria, Finland, and Sweden, would require fifteen bases to be gained to score a run. In addition, the former European Community had no competence in the cultural domain prior to the Maastricht treaty which is why existing programs are scattered and most often technology oriented. But the current French Presidency of the Union (January 1 - June 30) has made the subject of "European Cultural Heritage & Multimedia" one of its four top priorities, which should make the EU interesting to watch.

#### European R&D Projects

Before focusing on the rationale of the French Presidency's initiative, we summarize here the main European projects concerning museums.

The DG III (Directorate General/Industry) has run the ESPRIT program (since 1985), that features:

**VASARI** (Visual Arts Systems Archiving Retrieval Images), directed by James HEMSLEY, Brameur Ltd. This project contractually ended on March 1992. Its main results were:

- two working scanning prototypes installed at the National Gallery in London and at the Dornier Institute in Munich. The Vasari

system is able to capture images at a resolution over 20 pixels per millimeter;

- real color data-capture and advanced developments in colorimetry and color difference;
- advanced high resolution imaging software.

A large scale exploitation of the VASARI results is awaited from the MARC project (Methodology for Arts Reproduction in Color), an extension of VASARI to the publishing world. Led by THOMSON, this project will end by September 1995, is user-driven and should produce high-quality catalogs showing paintings from different European museums. The main innovations expected are the high-definition direct electronic and portable acquisition system and the handling of color-calibrated images.

The MUSA project (Use of Multimedia for Protecting Europe's Cultural Heritage) ended in November 1994. Led by the SIDAC Company, it was also based on the previous ESPRIT project. The goals were to:

- provide the multimedia publishing industry with direct access to high-quality images and data about visual arts from museums, including the visualization of 3D models of reconstructed objects;
- give museums new means (including new sources of revenue!) for the conservation and dissemination of works of art.

The DG XIII (Telecommunications, information market and exploitation of research -- Information industry and market and language processing) runs the RACE program for 1 billion European Currency Units (ECU), approximately \$1.4 billion, from 1987 until 1996. RACE features two relevant application projects:

EMN (European Museum Network), led by Achim Lipp, took place from 1989 until 1992 [Hypermedia & Interactivity in Museums: Proceedings of an International Conference, edited by David Bearman (Pittsburgh, PA Archives and Museum Informatics, 1991) 334pp.; "Eight European Museums Teaming Up for EMN and Where To Go From Now," Museums and Interactive Multimedia: Proceedings of an International Conference, edited by Diane Lees (Cambridge, UK, The

Museum Documentation Association, 1993): 344-349.] The objective was to develop an interactive networked multimedia system which complied with these two requirements:

- guidance, information, and animation for visitors who may consult any single multimedia station installed in one of the eight partner museums' public spaces;
- set up common pool of representation of selected artifacts, common rules of object description, common input routine, and multimedia input tools.

RAMA (Remote Access to Museum Archives), led by Dominique Delouis from Telesystemes (France), has just received a one year extension agreement from the European Commission, so that the developed system could be optimized and prepared for marketing. Major museums are involved in RAMA: Musée d'Orsay, Museen zu Berlin, Ashmolean Museum, Goulandris Museum of Cycladic Art, and the Museo Arqueologico Nacional in Madrid.

DG XIII also administers the IMPACT program, aimed at developing the European information services market, which is in line with current European policy to prepare Europe for the global information society. The program's main phase, IMPACT 2, runs from 1991 to 1995 with a budget of 64 million ECUs (approximately \$100 million). The four actions lines of IMPACT are:

- improving the understanding of the market;
- overcoming legal and administrative barriers to the development of the European information market;
- application of standards and specifications/quality assurance;
- strategic information initiatives/stimulating supply.

Under the last action line, a call for proposal for shared-cost projects to develop information services based on interactive multimedia is supporting the production of 22 CDs. Among eight titles of the broad theme "Art & Culture," five involve museums:

- "ViaLucis," on CD-I, introduces the spectacle of Baroque (Instituto Portugues de Museum, Portugal).

- “Modern and Contemporary Art,” on CD-ROM, builds on the success of a popular book to provide a unique resource with over 2500 encyclopedic entries (Videomuseum, France).
- “Journeys through London”, on CD-I, explores what project coordinator Tom EVANS describe as “the first world city of the 19th century” (Museum of London, UK).
- “Gothic Cathedrals of Europe,” on CD-I, CD-ROM, and Photo-CD, is the first title in “Monumenta,” a projected series of electronic publications which will explore Europe’s architectural heritage (British Museum - Musee National des Thermes de Cluny, France - Museu Nacional d’Arte Catalan, Spain).

It’s also thanks to the IMPACT program that the NARCISSE Consortium (Network of Art Research Computer Image Systems in Europe) has developed the Very High Performance Scanner, the multilingual thesaurus, and the “Art & Sciences” CD-ROM [*Archives and Museum Informatics*, Vol.7, #4 (Winter 1993/4): 4-6].

Finally the VAN EYCK project (Visual Arts Network for the Exchange of Cultural Knowledge), which is financed fifty percent by European Commission DG13 E3 through the libraries program, aims at the construction of an integrated workstation for art historians and museum professionals. According to project leader Jan Van der Starre (RKD, NL), it should allow them to consult art historical databases in a uniform way.

Every one of the projects previously mentioned would deserve a full article, but our intention here is more of a political than a technical review. From a strategic point of view, the situation of these efforts is neither homogeneous nor within the scope of a clear general European plan. The main reason for this apparent lack of political will is the novelty of Article 128 of the Treaty of Maastricht.

### The French Presidency’s Initiative

France will be in charge of the European Union Presidency from January 1 to June 30, 1995. As early as January 13 and 14, the French Ministry of Culture and the European Commission organized an expert

meeting in Cannes about “The European Cultural Heritage and Multimedia.” This event was the first manifestation of the French Presidency. We will explain here the rationale of this “top priority” initiative and what could concern European museums in the near future.

According to French Minister of Culture Jacques Toubon, in his opening session keynote talk, Europeans are indulging in impassioned discussions about the emergence of multimedia which is transforming their individual national societies into a single world-wide “information society.” They are conducting philosophical debates as to the impact of those technologies which appeal to the human intelligence on their vision of the world and on the transmission of knowledge by digital media. They look forward with enthusiasm to future computer applications for the preservation, management, and dissemination of our common heritage. Such debate is necessary. It shows the degree to which multimedia offers marvelous tools for culture and education, tools which will develop on an exponential scale. But professions working in the culture field must bear in mind above all else that the battle around the actual content of multimedia programs has already begun. And it is precisely in these markets that Europe is lagging behind Japan and the US, even though we Europeans possess a heritage of extreme richness capable of generating products of enormous potential. The prizes of fundamental cultural importance can be won through an economically based response within an industrial context that is imbued with a sense of urgency and which favors the creation of new types of activity. The European Union is thus presented with an opportunity to initiate priority action for the promotion of its cultural heritage and multimedia.

Multimedia technology can be used to promote effectively the main tasks which the Union set for itself in Article 128 of the Treaty of Maastricht:

- the enhancement of knowledge and dissemination of the culture and history of the peoples of Europe;
- the preservation and protection of the cultural heritage of particular importance for Europe;
- the encouragement of non-commercial cultural exchanges; and
- the encouragement of artistic creation, including the audio-visual sector.

In this Article, the Community sets out the cultural aspect of its measures in general terms. Cultural multimedia affects those institutions which manage the European heritage, scientific research, the services industry (telecommunications), and the industrial sector involved in the production of multimedia program content.

In a market which is expanding strongly, multimedia products and services derived from the European cultural heritage possess major economic potential not only in Europe but also in the United States and Japan. This heritage is in fact attracting increasing interest from corporate groups of world importance in the information and communications technologies fields which are currently creating electronic publications and preparing for future networked services.

Today two factors are pushing producers into a publishing logic that leads them to seek to recoup on international markets their investment in titles they publish:

- First, the installed base of CD-ROM and CD-I drives is still small in European national markets, although its growth is explosive.
- Second, the cost of producing interactive multimedia applications is sometimes high and techniques are still maturing.

In the future, with high transmission rate networks and the effects of telecommunications deregulation, the information highways will be offering flexible, diversified services in which distance will usually have only a minor effect on cost (as is already the case with French Minitel servers or the Internet).

The constraints are and will remain strong on the economics of the new multimedia markets. The capacity of European program operators to offer high quality program content directed at uses fully understood by the consumer and expressed in the language of the country of distribution will also be challenged. Most conventional publishers -- for whom products derived from the cultural world are only one segment of their total range -- do not feel threatened, given their long professional experience, since they are the owners of their publishing resources and have strong relationships with both their authors and their distribution network (cf. "New opportunities for Publishers on the Market for

Information Services", EUR Report 14925, January 1993). But they are more uncertain about new electronic media in a multimedia publishing market whose total value may reach an estimated 12M ECUs (approximately \$16M) by the year 2000 in the European Union countries alone.

Given the background described above, this promising market is likely to be approached in disorganized fashion by the suppliers of the technology. Japanese and American competitors, favored by their situation at home, could win a crushing victory. The successful organization of the European environment for art and culture could therefore provide a significant advantage for industrialists and for European service companies, as well as facilitating access to a profitable market for the institutions entrusted with the task of managing, preserving, and disseminating information on the cultural past. The notion of profitability should of course be understood in terms of financial profit or in terms of wider cultural dissemination.

Article 128 of the Maastricht Treaty does in fact place the common cultural heritage in the non-commercial category and includes explicitly only "non-commercial" dealings in its references to cultural issues. The involvement of European professionals from the fields of the arts, science, and culture in the "interactive interpretation" of the cultural heritage is fundamentally important if Europeans are to prevent the eradication of their intellectual traditions in the media of the future.

The idea of the non-commercial character of the field is a basic doctrine which has not been altered by the recent introduction of business considerations. Museums for example have a complex relationship with the publishers of printed material: they themselves occasionally become first rank publishers in national markets, especially where exhibitions are concerned ["Reunion des Musees Nationaux's Multimedia Projects: Meeting with Joel Poix" *Archives and Museum Informatics: Cultural Heritage Informatics Quarterly*, Vol.8 #1 (Spring 1994): 24-27.]

The arrival of multimedia makes this issue all the more problematic. To retain control over the use of their collections, especially given the absence of any totally credible legal protection, institutions in the cultural heritage field are obliged to develop independent policies on sales and publishing, even if such policies must be implemented through

technical co-production agreements. These institutions thus expose themselves to the risk of competition and to the accusation that they are guilty of unfair competition, given that their work is underpinned by their control of publicly owned sources of data.

This latter point may be partly resolved by networking European agencies charged with the management of image and text collections and the marketing of those same collections. Institutions would work on an equal footing in offering value-added products based on program content and interpretation by drawing on existing holdings of cultural resources.

Indeed, the high economic stakes seem to justify urgent action on the part of the European Union in favor of its cultural heritage and interactive multimedia in order to achieve the following goals:

- equal access for all Europeans to common resources (training, study tools, program content, services) in addition to the encouragement of international exchanges, commitment to the concept of Europe, and multilingualism with the assistance of multimedia; and
- provision of a framework for the necessary collaboration between cultural institutions and industries in the private sector, in addition to the encouragement of initiatives capable of allowing the European market to catch up with that in the United States and Japan, most notably by supporting the publication and distribution of multimedia products using material drawn from the European cultural heritage.

***Proposal 1: Encouraging the networking of multimedia resources for the cultural heritage.***

The first level of intervention would consist of ensuring that the specific needs of cultural institutions are taken into account in the definition of technical standards for information and telecommunications technology. There is first a need to certify certain standards for given applications and, second, a need to promote the adoption of those standards in the cultural sector. Europe-wide adoption is a minimum for the implementation of those standards. Such standardization would ensure interoperability between the various systems used in the fifteen countries of the European Union. Individual cultural characteristics must be capable of expression in the specific approaches to cultural documen-

tation adopted in the various countries and regions [“European Policies Towards Interactive Multimedia for Museums: Part I - National Support for Cultural Multimedia” *Archives and Museum Informatics: Cultural Heritage Informatics Quarterly* Vol.8 #3 (1994): 217-226.] But it is imperative that the development of standards, terminologies, vocabularies, and multilingual glossaries be assisted for indexing cultural artifacts, collecting documentation, and facilitating pan-European consultation of data resources. There is a need, for instance, for the definition of a minimal model for technical item descriptions, the use of which would be recommended or required in all databases containing material related to the cultural heritage, as is already the case in the field of architecture.

Regarding the security of objects, the European Union could encourage the creation of networked databases enabling the implementation of directives governing the circulation of cultural artifacts.

A program comprising financial incentives, participation from the private sector, and technical guidelines could result in the creation of a “European Virtual Museum” which would not be centralized in any one location. The production resources and the infrastructure for the distribution of such a service would be shared among its various creators in the different countries involved. This sharing would be transparent to the user since desktop computers connected to existing networks through a unique access code would be used to consult the data.

Finally, European action could promote equality in the dissemination of the common heritage using multimedia by encouraging the installation of network access terminals in libraries, schools, and even in hospitals or other public places. It should be underlined here that subsidized access to this network for European students would simply be granting them what is already available to American students who are able to access the Internet.

***Proposal 2: Help for the publishing market.***

The initiation of a pilot program to promote cultural multimedia publishing is a matter of urgency and is recognized as such by cultural heritage institutions and publishers. From a legal point of view it would be desirable to agree to use a world system of unique identifiers similar

to ISBN, created by book publishers, for application to collections held in digital form. Such a technical measure would serve the requirements of marking documents for research purposes and could help protect and manage reproduction rights.

The marking of digitized works of art has already been embodied in an agreement in principle issued by the International Organization for Standardization (ISO); an application will be developed by the European Standards Committee (CEN or Comité Européen de Normalisation). This will need to be accompanied by support for the organization of collective management of legal rights, the dissemination of guidance publications, and form contracts for the authors and creators of interactive multimedia programs. The European positions adopted must be energetically defended at world level in G7 and GATT meetings for example.

Such European action should draw inspiration from previous programs and complement measures at the national level to aid production. It should be guided by a desire to achieve precise "targeting" which could take two possible forms:

- Selection of European cultural topics opened up to a precisely formulated call for tenders. These topics could be of particular interest from the points of view of commercial attractiveness and cultural heritage and could contribute to increased awareness of a shared European identity.
- Particular attention must be given to the weak links in European multimedia cultural publishing. High-level training for multimedia authors/creators is indispensable. Aid for the translation, or "localization" of products would assist the circulation within Europe, and even internationally, of what or costly products.

***Proposal 3: The organizational framework and terms for Community intervention.***

If the effectiveness and widest possible application of the measures to promote cultural multimedia are to be guaranteed, they must be given cross-disciplinary foundation and scope. This might be achieved by a positive response to the idea of the "European Cultural Consortium"

(GEIC) grouping together a number of private companies, which should be joined by executives from the fields of education, tourism, and public relations and advertising.

The institution of a mechanism for aiding European interactive multimedia production presupposes the provision of a limited budget along with the involvement of the European Union over a limited duration. This is so because what is needed above all is an initial stimulus for production, "start-up" assistance which could help Europe catch up the ground lost to Japan and the United States.

## **Conclusion**

The French initiative seems to happen at the right time, given the relatively recent adoption of the Maastrich Treaty, the general public's concerns with and hype about multimedia, and the economic pressure of the market. The results can be expected, partly depends on the French Cultural Ministry Team's ability to score a home run.

During the Cannes meeting, it was noted that the official representations of the member states were all supporting the general idea, with a traditional reserve from the British government which always "keeps its options open." But the determination of the EC and the French government to set up an action plan soon met a positive response. It has been heard that, even if a unanimous agreement could not be found, the interested countries could run a cooperative program with its own budget. It's likely that the number of these countries could be around fourteen. Among them for sure would be Spain, whose European Presidency will begin on July 1, 1995.

For apparently political reasons, the EC and French Government insist on competition between the United States, Japan, and the European Union as a fuel for their policy. But when it comes to culture and digital technology, the real issue is more the relationship between cultural institutions, public service, and business trade. For instance, it seems that the recent reluctance of European Museums to sign early agreements with the Continuum company has been the attitude of major American museums also.

In my opinion, international cooperation among museums should be encouraged, especially when consistent efforts have already been made (Getty's program, ICOM, etc.). In addition, European countries should be careful when using public money in the cultural field while pretending to help **their** industrials: most of the actors in the fields of technology or communication are operating worldwide. However, within the cultural sphere, the idea that in a world-wide information society the game would consist of private operators on one side and consumption by final users on the other, with the role of the public authorities being limited to ensuring that the trading mechanism stayed well lubricated, is a simplistic and dangerous notion. While private companies need to retain their freedom of action in the market, responsibilities for the cultural heritage and its presentation must be held in common.

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## CONFERENCES

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### “Playing for Keeps”

“Playing for Keeps” was the title given to a conference on electronic records management held by the Australian Archives in Canberra on November 8-10, 1994. The catchy title reflected the realization, shared at least by the almost 400 attendees, that substantial parts of the electronic record of contemporary society will be lost without immediate and effective action by archivists and records managers. Unfortunately the conference proved to be more an opportunity to catalog the confusion of the community regarding what effective intervention might look like than it did to chart a course. Indeed, I was discouraged by what I saw as retrograde motion; progress which I believe was made at the April workshop in Pittsburgh was barely reflected at the Canberra meeting and strategies being advanced by official bodies in Australia are inadequate at best and in some cases ill advised.

The conference was opened by Rob Thomsett an IT consultant who chaired the meeting throughout. He introduced the Director General of Australian Archives (AA) and conference sponsor, George Nichols. Nichols articulated the aim of the meeting, which represented a culmination of the initial stage of AA work on electronic records, as being to convey the problems of managing electronic records for long periods of time. He also expressed hope that the meeting would bring archivists and other elements of the “information sector” into cooperation.

Nichols then introduced the Commonwealth Minister of Communications and Arts, Michael Lee, who demonstrated some understanding of the issues in noting that accountability can't be allowed to be lost in the fast pace of technological change. “The record,” he noted, “captures evidence of actions and decisions (and) for records to be evidence they must be captured and preserved.” Characterizing the personal computing environment as anarchic, he stressed that definition of key principles for proper management of electronic records was necessary. Having said this, however, he proceeded to describe what his agency was doing and the recent reports of the Broad Band Services experts group (the Aus-

tralian equivalent of the National Information Infrastructure Task Force in the U.S.) and "Creative Nation," the government's recent policy on information technology support. It was clear from these, although certainly no surprise, that the focus is on the information industry and creation of value-added content and definitely not on records. As the heritage sector has been dismayed to discover, even this content orientation is to the marketable contents of multimedia CDs, and not to shoring up the documentation infrastructure. It didn't sound as if Lee understood that the solution to electronic records archival issues would require on-going government funding of agency maintenance of long-term records or upfront investments in business process analysis and technologies to capture records of business transactions.

But the Minister could hardly be expected to understand this if his archival advisors didn't, and the next talk, by conference organizer Dagmar Parer, suggested this was the case. The first of a distressing number of Australian archivists to use the term "frightening" to describe current trends towards electronic offices, she placed total faith in the development of Information Management Plans by government agencies which embodied the principles "preserve your valuable information." I found no concrete relationship between these information management plans and records creation. There was also no recognition that data management and information management are techniques that might be used for records management but that, insofar as they have their own objectives, these are quite different from recordkeeping. The work of the Information Exchange Subcommittee (IESC) was promised to deliver "document attributes" critical to management of electronic records, but this is in draft and the only currently available IESC report is the one that makes the troublesome and unimplementable distinction between personal, work group, and corporate level information. Parer further confused the matter by employing the paper-based life cycle of records framework rather than the electronic record oriented life cycle of systems. By the conclusion of the meeting it was clear that Parer's failure to rigorously insist that the focus of archives and records management is on records and not on data was responsible for pointing the Australian Archives and the conference in many unfruitful directions.

The Australian Archives, however, is not alone in confusing information with records and imagining information management practices

will resolve recordkeeping issues. Ken Thibideau, director of the Center for Electronic Records at the U.S. National Archives and Records Administration, reported that his agency had concluded that "software dependence has not been the case in the past and will even less true in the future" and that therefore they were bringing records (mostly databases) into their custody in neutral interchange formats on magnetic tape. Urging "pragmatism," he described how the Center, established in 1988, has recently increased its intake from 1200 files accessioned in 1987 to 8700 files accessioned in 1993. He seemed oblivious to the fact that this four-fold increase took place during a period that the U.S. federal government installed computer base grew exponentially and typical computers contain hundreds, if not thousands, of electronic records files each. His final reflections -- that NARA was preparing guidelines to deal with electronic mail (after, it should be said, having been required to do so by court order) and that it had considered strategies to accession electronic mail employing metadata -- rang a bit hollow when it became evident that instead of dictating the necessary metadata, NARA was simply accepting whatever metadata the agencies or White House happened to record.

I found it refreshing, therefore, when Margaret Hedstrom of the New York State Archives presented the next paper and the strongly argued view that successful electronic records management will require that archivists and records managers define records, identify business processes that create archives, and change their methods. In particular, she noted that the customers of recordkeeping are managers, lawyers, auditors, Freedom of Information and Privacy Act administrators, and, with respect to records of government, the public. We can only serve these customers if we enhance accountability and promote access to electronic records. It is encouraging that research in New York has found that some agencies in some functions had good recordkeeping practices and that the incentives for good recordkeeping in those situations (and the model practices they embodied) can be promoted elsewhere in government with effect. Hedstrom showed how her organization has moved from demanding compliance with regulations to assisting agencies to satisfy their recordkeeping requirements. She also explained the change in approach required to inculcate recordkeeping cultures rather than collect retention schedules.

The next session examined practices in the UK and Holland. Edward Higgs, previously of the Public Records Office, presented a picture of UK practice which made it clear that his understanding of electronic records issues, and probably that of UK institutions, was still at the stage of how best to collect databases for subsequent academic research and had nothing to do with recordkeeping. Hans Hoffman, of the Dutch National Archives, by contrast, presented the framework that is reflected in the study "Preserving the Present." This study documents the Dutch Ministry of the Interior approach to distributed records management with retention based on analysis of business functions and a focus on responsibility of the records creator. Unfortunately it seems that the Dutch National Archives has not figured out how to associate appropriate contextual metadata with records and is leaving the definition of requirements largely to the agencies.

In the final "international" session, John McDonald of the National Archives of Canada reported both on Canada and on the International Council of Archives Committee on Electronic Records which he chairs. In Canada, government has taken worldwide trends to heart and is engaged in restructuring, downsizing, empowering employees, partnering, and steering rather than rowing. The strategy is based on information management and the Chief Information Officer (a new position with substantial authority) is rapidly moving the government towards a paperless environment. The NAC standards and practices bureau is, therefore, quite concerned with focusing attention on needs of "corporate memory" and is involved in a variety of government-wide efforts to reform or model business practices. Among these are efforts to create user interfaces that model business applications rather than software applications and efforts to foster recordkeeping regimes with aware record creators and appropriate standards.

The ICA Committee (whose members were present throughout the conference as it had met the previous week in Canberra) had been writing a guide to electronic records management built around the traditional life cycle of records, but at its recent meetings moved towards adoption of a new paradigm calling for electronic records management to "move upstream," employ operational definitions of functional requirements for records and recordkeeping systems, and re-examine fundamental organizational strategies. The Committee hopes to have an "exposure"

draft of its report in April 1996 and a final report in time for the ICA meeting in Beijing in September 1996.

The day concluded with a panel of the speakers receiving written questions prepared throughout the day by the audience. Unfortunately, this controlled method of interacting with the presenters persisted largely throughout the conference and dramatically reduced the public dialogue. In this session, the prepared questions focused on the Government Information Locator Service (GILS) model of the U.S. government and the capabilities of the Internet. While a session on information locators would have been valuable, the brief reflection on them in this session did little more than point interested individuals to the GILS server from which they could ftp documents. The Internet-based discussion was very poorly informed and showed that many archivists fear the Internet for utterly irrational reasons.

The second day of the meeting was devoted to Australian, as opposed to international, views. It began, appropriately with a presentation of the Australian Archives policy on electronic records by Stephen Ellis and Steve Stuckey. For everyone in the audience, and for most of the AA staff, this was an unveiling; although some aspects of the policy have been presented before. The actual presentation was a bit theatrical and we were not given any written material, so I hope the following account adequately captures its intent. Over the next two days there was considerable controversy about the policy, but I often wondered if it was actually about what was said or about how.

What I heard Stephen Ellis explain, by analogy to the 13th century, was that Australian Archives had concluded that taking records into "protective custody" would not work for electronic records because of the software dependence of electronic records. This non-custodial orientation has been articulated differently before, and of course I have been a proponent of it, but it took on a character in what Steve Stuckey then presented as the policy per se, which I found troublesome.

Noting that electronic communications raised issues "that go to the heart of the intellectual and organizational challenges of electronic records management," Stuckey stated that their new policy would address record creation, appraisal and identification, management, ongo-

ing maintenance, and storage and accessibility. The basis of the policy is that law applies to all records equally regardless of format and that every transaction creates records. In Australia there is no such thing as the North American concept of non-record material. Identification of records, therefore, needs to be based on function and archives need to concentrate on only those records of significant evidential transactions. So far, so good.

Stuckey then characterized the environments in which they find electronic records as being of five types and presented policies for each:

- Word processing and e-mail systems with paper
- Word processing and e-mail systems without paper
- Databases
- Multimedia and observational data systems
- Transaction processing and administrative support systems

The policy for environments where there were paper filing systems is "print it, file it." He asserted that "the reason to maintain records electronically is that they are best used electronically." Subsequently, in summing up, Stephen Ellis stated this more forcefully as "only keep electronically records which must be kept electronically" (their emphasis). For environments in which transactions are not printed to paper or presumably those in which it is necessary to keep records electronically to facilitate use, the policy is to define retentions for transactions before systems go live (e.g., appraise them up front) or hold onto all records until they can be appraised. Presumably Australian Archives will provide guidance in these situations, but Stuckey didn't suggest what it might be.

Stuckey did provide guidance for the other realms, but I found it without any intellectual sign posts. He noted that data are not records, but then said that to be records, databases must be accompanied by documentation, dictionaries, and (without any explanation of what this meant) business rules. Subsequent suggestions that this would be metadata, which I agree with, were obscured by apparently thinking that databases themselves, and not the business uses of databases, would constitute the record. Indeed at one point Stuckey argued that manipu-

lability for future users was a value to be considered in his advice to "retain records in a live environment."

Ultimately the Australian Archives policy was to take records only from defunct agencies and only if, like multimedia, they cannot be transferred to paper. Records in electronic form are to be kept by the agencies and access to them will be provided by network connection under control of AA with the cost of maintenance and access to be borne by the agencies.

I suspect that what came across was far from what was intended to be communicated. It had at its foundations many approaches I have advocated for years, but the effect was to say, "We don't like electronic records and don't want them. Usually you should print them to paper but if they must be kept electronically they are your problem and expense. What's more, we don't have anything very useful to tell you about how to do it and we think it costs lots of money and is a tremendous problem area." Frankly, if I was in an Australian government agency and heard this message, I'd be convinced that AA's position was useless to me.

Unfortunately, to my mind, the presentations made by Australian agencies for the rest of the day, which were presumably intended to lay out best practices and provide further guidance in how AA wants agencies to manage their electronic records, were of little help.

Tom Worthington, chairman of the Information Exchange Subcommittee which previously brought Australian government agencies distinction between personal, workgroup, and corporate information, described a new guidance they will soon be publishing on standards for knowledge representation to preserve government information over time. His presentation seemed mostly designed to demonstrate that he was able to toss around CCITT, JPEG, SGML, HTML, RTF, and other standards and propose reasons why all are difficult and uncertain. Presumably he wanted his audience to trust him and his colleagues with how to structure their records to preserve them over time, but I was left with the realization that they didn't understand the issues of genre and form and were inadequately aware of the time frames across which archival retention is trying to ensure accessibility. Obviously we need to

wait for their guidance to be published before critiquing it, but at least in this presentation he didn't help the archives case.

The next paper, delivered by Judy Huxley of the Department of Primary Industries, was designed to bolster a part of the AA policy which calls on agencies to formulate Information Management Plans (IMPs) as a means of ensuring that they will create and maintain electronic records. Huxley's paper convinced me (although I didn't need convincing) that these IMPs, while fine for high-level guidance on information management and information technology integration, will do nothing at all useful for electronic records management because they entirely miss the concept of recordness.

Carole Ellis of the Records Management Office of Western Australia then presented a workplan for archives based on work in Western Australia. The workplan called for ensuring adequate legislation for electronic records, surveying physical records, documenting appraisal policies for electronic records which would then be built into all new government information systems at the design stage (but didn't suggest that they had any idea how to do this), and leaving records with agencies until "an acceptable storage media is established." The last point made evident that they don't understand at all that electronic records are not unstable because of the media they are written on but because they are software dependent.

Maggie Jones of the National Library of Australia spoke next on the recommendations being made by the Australian Council of Library and Information Services (ACLIS) Task Force on the Preservation of Electronic Information. These recommendations were addressed to five communities which they believe had valuable electronic information that is at risk. In each case they suggest that printing to paper or microfilm was the best solution (although it was uncertain how this would best be done with interactive multimedia). Even more distressing than the specific advice she gave was the repetition throughout her talk and those preceding it of the theme that the future was frightening and that the new technologies were threatening fundamental values of archives.

David Berman (no relation) of the Australian Geological Survey Organization, after providing a good case for why cartographic data used

in decision-making needs to be captured as a record, seemed to suggest that the best way to document these decisions was bit-mapped images rather than employing the latest spatial data transfer standards. He did note that the Commonwealth Spatial Data Committee has defined responsibilities of the custodians of public spatial data, but what precisely these responsibilities were was not clarified.

Madeline Campbell of the Attorney General's Department then livened up the proceedings significantly with a hard hitting talk on access to information. She noted that "if agencies manage their records to take care of FOI needs, the archives task will be easier." FOI, she reminded her audience, is about "information in documentary form," in the "possession" of agencies or to which they "have access." Thus shared databases, records of outsourced activity, and online documentation is all subject to FOI. A recent Australian policy report asserted that "access to information is a basic right." She noted that a recent Electoral Reform Commission made 98 percent of its records (all but draft policy documents and privacy protected records) available online to journalists and the public as it was conducting its work and experienced no problems as a consequence. And she urged the Australian Archives to set up terminals in its reading rooms for requesting and reading FOI materials.

Finally, Roger Jones of the Australian National University discussed the use of social science data in Australia, noting that there has been a great increase in demand in recent years due to acceptance of quantitative methods, cheaper computers, greater skills of social scientists, and the availability of more data. He felt the privacy act was too restrictive in limiting linkages made for academic reasons and argued that what researchers need is more social survey data, not more administrative history of agencies. He urged the establishment of a register of Commonwealth data systems and their retentions.

In the panel discussion at the end of the day, Ken Thibideau stated that the cost of processing Oliver North's papers in response to a FOI request was \$15 million and asked Madeline Campbell what price was considered reasonable in Australia. She replied that an "FOI applicant should not suffer because the agency had a bad access system" and therefore the cost to the government was not germane. Tim Robinson noted that some private entities are undertaking what were previously

governmental functions and asked if this meant they were subject to FOI. Madeline Campbell answered that hearings were underway in Australia to establish a policy on this.

A question about whether funds would be available for conversion received disparate answers. Stephen Ellis stated that physical preservation was rarely a concern before logical preservation. Tom Worthington stated that the AA should be providing advice on how long CD's last. David Berman claimed that if the media was left undisturbed it would be readable in the future! And Madeline Campbell compared conversion costs to employee pension costs and said that organizations should be building them into systems as they go.

By the morning of the final day of the conference, I was extremely distressed by the confusion of the speakers and the absence of a framework for addressing electronic records. I departed completely from my prepared paper and used my opening talk period to make an impassioned plea for an intellectual framework of functional requirements for record-keeping, grounded in the fact that records are transactions, that they consist of content, structure, and context information, that these are necessary for records to be evidence, and that the management of evidence over time is a risk management function. I urged archivists and records managers to become expert risk advisors based on understanding of business processes and liabilities, but reminded them that it is program managers who run the actual risks. And I advanced the rigorous specification of requirements for evidence which I believe our research at the University of Pittsburgh has defined. I argued why it was important that such specifications be expressed in a way that is operationalizable, testable, and can inform policy, guide implementation, design software solutions, and select standards. Briefly, I explained the nature of an acceptable systems architecture that would address these requirements at layers of the OSI architecture and explained the concept of metadata encapsulated objects in which the metadata requirement is dictated by the functional requirements of evidence. Finally, frustrated by the one-way communication we had experienced, I took questions from the floor. They were quite stimulating and suggested that there was considerable willingness to build on functional requirements grounded in social and legal understandings of evidence and understanding of the concept of encapsulated metadata based standards.

After morning tea, there were several "case studies" of software acquisition. Adrienne Kebbel (State Services, New Zealand) reported on a team-constructed RFP for document management in the New Zealand government. The NZ Archives was consulted, but it was only one partner in a team that included representatives of computing, library, statistics, and publishing. The goal of the system was to facilitate directories of electronic records in a central registry tradition. Ms. Kebbel felt it had largely succeeded, but it was less clear what attendees were to make of the New Zealand experience.

The second speaker, Brett Newbold of Oracle Corporation reminded me of why vendors should not be invited to speak at such meetings. Acknowledging that all he knew about records was that he personally had a collection of LPs, he proceeded to demonstrate that he understood nothing of the archives business either. Unfortunately, the final speaker of the morning, Brian Pick of the Australian Bureau of Statistics spoke more about statistical data management, which was not of much use to the audience and left little time to mention the "corporate data objects collection" or records of the Bureau for which he had what sounded like well thought out objectives to marry the objects with business processes in order to determine their management rules.

By the time the afternoon session began, I was exhausted and, I'm afraid, somewhat inattentive. I found Rob Thomsett's account of the trials and tribulations of a consultant to industry more annoying than amusing and was barely able to find a thread in the "panel discussion" in which I was a participant. Fortunately, the meeting was concluded by an interesting and controversial summation by Margaret Hedstrom.

Hedstrom noted that the problem was only in a small part technological. Ultimately it was organizational and involved adoption of new roles and attitudes towards accountability. She noted that loss of electronic records compromises all records in the organization and that strategic approaches must begin with business process analysis and the recognition of risk. Within the business process, we need to locate the record and articulate the requirements for it. We must recognize the continuing values of records and create solutions which support the business functions that create records and assign to them the management of risks. In addition to shifting the responsibility, we need to shift from thinking in

terms of paper to thinking in terms of electronic recordkeeping environments where paper exists only as the convenience copy. Indeed, we should look forward to a fully electronic environment rather than fearing it because it enables us to refocus our energies from documenting endless volumes of records to analyzing significant functions, business processes, and transactions and saving what truly needs to be preserved.

The organizers distributed electronic copies of the "Proceedings" to attendees in December and have promised to make printed copies containing the overheads used by speakers throughout the meeting, the discussion that took place in panels, transcripts of the actual talks that were given (when they differed from prepared texts), and copies of handouts available soon.

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## Collections Heritage Committee

On November 6, 1994, prior to the annual conference of the Australian Museums Association, there was a one-day meeting of the Collections Heritage Committee in Perth to consider the draft recommendations for the Australian Museum Information Service (AMIS) developed by the HCC and its consultants over the past few months. The Committee and thirty invited representatives of Australian museums, libraries, and government organizations concerned with the arts, spent the day reviewing the reports and deliberating next steps.

The session was chaired by Margaret Coaldrake, Director of the National Museum of Australia, who welcomed participants and introduced Andrew Reeves, Convenor of the HCC Database Working Party. Reeves described the four-year history of the effort as it has moved from emphasis on development of standards and databases (about which there was considerable disagreement) to a focus on making collections information accessible over networks where it can be used by museums and, especially, the public. While he didn't stress the point, it was evident how much progress has been made in the past year in defining models.

I led off in the panel at the introductory session on "OnLine Information and the Internet" by noting how rapidly the Internet had been growing worldwide, reflecting on the number and value of museum listservs and Mosaic sites, and describing some efforts, like MESL, CIMI, and RAMA under way elsewhere. Philip Anderson, of the Royal Melbourne Institute of Technology (RMIT) and one of the HCC consultants, then noted that the Z39.50 and SGML standards based solutions he developed in his paper were not the only possible models for a distributed AMIS but that they were viable ones. Martin Hallett, of the Museum of Victoria, recounted some instances in which Internet provided information had assisted his museum professionally in the past year, including examples of receiving responses to a plan to exhibit a mummy that led the museum to reconsider its plans. Tim Boshier, also of the Museum of Victoria, concluded the panel by identifying the audience's experience with Internet (about 25 percent had access), reflecting on how users might access such a system, and exploring what they could find if they did. The discussion that followed made evident both the interest in Internet-based museum information and some of the concerns that it raises including how to ensure small museums have access, what to do about incompatible data, and how to provide support for a distributed environment. In spite of some initial misgivings, however, it was clear that decentralized, flexible, relatively unplanned development models were preferred over the alternative.

In the following session, Philip Anderson explained in greater detail the architecture proposed for a Z39.50-based distributed AMIS (1). At the user end, an individual in a museum, at home, or at school might dial up a local node which would have directory-level information about the AMIS network resources. The node would translate the user query into Z39.50 (as a client) and call a server (as he called it in his model, a "concentrator") that would forward the query (acting as a client now) to other servers and concentrators. The query would be executed remotely and the results would then be passed back to the machine that the user initially called. The user would then be handed a search result in that machine's local reporting format.

In my opinion the institutional locations proposed for the architecture - state museums as the concentrators and regional museums as the access nodes with local museums and individuals dialing in, were a somewhat

limiting vision. Like much of the day's discussion, there was a tendency to envisage traditional museum community actors playing relatively traditional roles. In fact, of course, the concentrators, if regional at all, could have been libraries or state tourism agencies. The concentrators could also have been organized along subject content lines (natural history, architecture, ethnology, etc.) or along market lines (hobbyist collections, tourism collections, etc.). Nevertheless the software and standards architecture presented by Anderson was appropriate.

Because attendees had little experience with the Internet, the presentation by Martin Hallett which followed was, for many, a revelation. Hallett had mocked up a demonstration of a possible future AMIS using Mosaic. He showed a home page with a basic description of AMIS, a mock news release on the November 6 meeting itself, a directory of Australian museums including hours and charges, a subject index to Australian museum collections, a virtual tour of one museum, several images from a photography collection at another, and similar taste treats including a listserv for Australian museum professionals. At the same time he announced that the Australian Museum Forum (AMF), a listserv/bulletin board for the Australian museum community, was operating and "open for business."

The demonstration provided an entree for Andrew Moritz of Museums Australia to discuss AMIS issues from the perspective of the regional and local museums (2). Moritz opened by expressing his pleasure that the network architecture and strategic plan recognized the needs and the aspirations of local museums to own their information and to have equality of access to the network despite their low level of technological preparedness and expertise. He then reviewed the desiderata as he had presented them in May.

After lunch, Warwick Cathro from the National Library of Australia took the floor briefly to express the support of the National Library for the AMIS architecture and explain the potential inter-relationship (based on adoption of common standards in TCP/IP, Z39.50, SGML) of AMIS and the National Document and Information Service (NDIS) project. NDIS has just let its contract but is envisioned to be a major departure for the National Library in that it will provide direct user access to

documents, rather than through the traditional interlibrary lending practices.

Participants then joined one of the three breakout groups, two of which had been arranged in advance. Discussion had led to agreement that these groups should address issues of governance, content, and financing. Unfortunately the breakout group leaders of the two pre-arranged groups had concrete ideas of the earlier topics of their groups and led the discussion to the topics they had previously set: small museums and the data elements for an initial survey of Australian museums. As a consequence, two of the groups elaborated on earlier ideas without really defining either the fundamental governance mechanisms or the major content issues. The third group, on financing, which I joined developed a very preliminary model of how private and public funds could go to each of the types of institutions involved as stakeholders, customers, or providers (clients). The model made it clear that further progress would depend on formulating a "business plan" for one or more of the possible scenarios as it would develop over the next several years.

The concluding panel, consisting of Margaret Coaldrake, Andrew Reeves, Andrew Moritz, and me, attempted to define next steps and place the workshop into the context of the process that would ultimately lead to an Australian Museum Information Network. Andrew Reeves explained that the meeting which we had just been taking part in was reviewing the same documents that would be passed, together with comments derived from the days proceedings, to the standing committee of the Council of Ministers responsible for its presentation in February (or June - there seemed to be some uncertainty) and then to the Council of Ministers itself. [Towards an Australian Museums' Information Network; Draft Submitted to the Cultural Ministers Council, Standing Committee, October 1994.] I suggested that the next year or two could be very usefully employed in establishing a number of pilot projects to test various discrete aspects of the ultimate system. These projects would not, essentially, be about technology but about organizational and financial arrangements and the definition of satisfactory outcomes. For example, one pilot project could test how a basic directory structure contributed by museums throughout the country correlates to descriptions of holdings. Another could develop of a model training or referral

service for a particular kind of material, such as numismatic collections or protected and threatened native flora and fauna.

At the end of the day, it was evident that the stated objectives of the seminar, "to progress the idea..." had been achieved, but it also seemed to me that a more directed working effort would have achieved more and that the reticence on the part of the working group to use the political clout of the museums community to "progress" its agenda was a serious miscalculation. I hope the organizers are able to complete the plans for the AMIS in time to convince the Council of Ministers; but the failure to jump on a number of opportunities that presented themselves within the meeting makes me worry that the tendency of Australians to wait for the government to provide will lead them to fail to jump start this effort. At a subsequent meeting which I attended in Canberra, I had the opportunity to speak with the Commonwealth Minister for Communication and Arts, Michael Lee. It was evident that he was interested in and supportive of the developments in cultural heritage information systems but that his view was limited to what Commonwealth agencies -- the National Gallery, National Library, National Film Board, etc., were doing and he didn't really understand a national government role as a partner in a distributed network serving local interests.

#### Endnotes

(1.) Working Paper: "A Distributed Z39.50 Database Model"

(2.) Working paper "A National Database of Heritage Items: Implementation Programs and Models for Regional/Local Museums Throughout Australia"

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## Coalition for Networked Information

The fall meeting of the Coalition for Networked Information which was held in Orlando, Florida, November 29-30, 1994, attracted nearly 350 participants. The meeting was convened by Paul Evans Peters, Executive Director, who introduced a panel consisting of Jerry Campbell (University Librarian, Duke University and President of the Association of Research Libraries), Jack McCredie (Vice Provost for Information Systems and Technology, U.C. Berkeley), Carla Stoffle (Dean of Libraries, University of Arizona), and Ann Stunden, (Director of Academic Computing and Networked Services, Northwestern University).

Campbell emphasized the need to manage differently and to release resources previously dedicated to one purpose so that they can become available for new objectives. He particularly stressed the challenges presented by fair use, risk management in an environment of online information assets, and managing the transition to new types of organizations. Contemporary organizations, Campbell noted, are too often characterized by hierarchical management which discourages new ideas, vertical information flows or "silos," and work done by individuals rather than teams. Successful future organizations, he predicted, will empower staff, be flexible, develop means for organization-wide communication, used team-based work methods, be improvement oriented, and manage funds in a fluid, fungible fashion.

McCredie focused on the problems of implementing technology in a way that supports the organization. Joking that "if it works, it's obsolete," he issued two challenges: to senior administrative planners at universities to understand and incorporate the worldwide networking vision and computing opportunities in their plans, and to technologists to understand what the university is doing as an organization and use the technology to address those goals. Envisioning the university as an "anchor" tenant in an urban network, rather than the operator of a discrete network located accidentally in a community, enabled McCredie to imagine how this would affect people in their homes, change the teaching and learning process, and force the university to develop systems and policies around selling, insuring, and buying data.

Carla Stoffle related that her university, like others, was confronted by the usual shortage of funds, old technology infrastructure, and cut-backs in staff, but that through re-engineering the organization she has made changes that better serve the customers. Members of the staff have been empowered to make decisions and to focus on the customers rather than the collections. She noted however that flattened organizations do have some problems: they need very clearly spelled out goals and directions because staff member need to interpret policy on their own without supervisors. People want to have information and want to share it. Managers (the few there are) need to have data for decision-making which is generally not the data we've been making.

The final speaker of the panel, Ann Stunden, described a series of issues being confronted on the Northwestern University campus. They range from flaming on the network to use of network accounts for business. They have required a redefinition of campus community values and establishing policies and procedures for campus-wide information. Because she showed all her bullets against a background scanned from a Maurice Sendak print, both appropriating his intellectual property and violating his moral rights as an artist by obscuring it, I found myself in stong agreement with her argument, if only because she represented a case in point.

Following the plenary session, participants had an opportunity to follow up with the plenary speakers or join a number of other project briefings and "synergy" sessions. Update reports were given by representatives of the Electronic Site Licensing project (READI), Humanities and Arts on the Information Highways, GILS, and the Berkeley Finding Aids project. Discussions were held among people interested in networked access to and delivery of dissertations and theses and creating new learning communities via the network. I attended the session on Architectures and Standards chaired by Cliff Lynch who introduced the CNI project on "Networked Information Retrieval and Discovery (NIDR)" on which he is working with Cicilia Preston (UCB), Avra Michelson (Mitre), and Craig Summerhill (CNI). The purpose of the project is to examine how best to construct methods to exploit metadata about heterogeneous objects in the networked environment so as to facilitate access.

Lynch also reported on the new network prototype, Harvest, which he felt was worth close attention. Harvest engages in the same systematic data collection activity as tools such as Archie, Veronica, and WebWalker but without the overhead impacts and does a kind of autoindexing of resources. Lynch reported that the Internet Activities Board retreat in October should result in a series of RFCs involving downloading standards and data required for permissions, costs, and administrative clearance in access. He noted that the Uniform Resource Locators standards are now essentially done from a standards point of view, although much remains to be done in implementation and that resolving URLs may be a continuing problem. Finally, he reported on the Uniform Resource Characteristics work which is building on a set of "usage scenarios" that the IETF has issued as an informational draft. Syntax and attribute set issues are still being worked out, but progress is being made. On all these matters, and especially the use of metadata of various types in managing objects on the network, there was audience participation and obvious interest.

The lunch speakers included Toni Carbo Bearman (Dean, SLIS, University of Pittsburgh and a member of the U.S. Advisory Council on the National Information Infrastructure) who reported that the Council has established "Mega-Projects" in three areas: (1) goals of particular application areas (this year in life-long learning); (2) universal access and service; and (3) privacy, security, and intellectual property. She called for comment and participation from CNI members. Jim Williams (Executive Director, FARNET) described the transition from the NSF backbone to a multiple backbone structure in three layers of architecture, noted that surprisingly few major problems had yet occurred in the switch over. Derek Law (Librarian, Kings College, London) described current projects under way in the UK to establish a "Distributed National Electronic Collection." Noting that "cataloging" the Internet may be impossible, joint collection building has not worked, and that ownership costs, especially if we want high quality documentation, are high, Law reported how the Joint Academic Network (JANET) in the UK is letting contracts to specific academic centers to serve as clearinghouses of electronic resources for the nation. The policies established are that the information should be free at the point of use, fees will be based on subscription or license rather than transaction, the community will be involved in the selection of resources to be supported, there will be

common interfaces, and the data will be provided on a low common denominator terminal (VT100).

The afternoon briefing and synergy sessions provided an opportunity to follow up with the luncheon speakers, hear reports on the Washington Research Library Consortium/OCLC partnership to use imaging and OCR to build electronic libraries, the Inforum project at Indiana University, Columbia University's proposal to deal with the crisis in scholarly publishing costs, an update on the CUPID consortium, a detailed report on the NIDR project, and a discussion of the WorldWideWeb as a means of scholarly publishing. I chose to attend the formation meeting for a "national image alliance" chaired by Paul Gherman (Kenyon College) and Chuck Henry (Vassar College). A large panel was assembled to report on various imaging projects underway, so as to stimulate interest in the idea of forming an alliance. Herb Becker (Library of Congress) reported on the problem of scaling up from American Memory to the National Digital Library -- could a national alliance help in building standards (fast enough) and improving networked delivery? Don Olson (Kodak) noted that PhotoCD has definitely taken off -- now there are new problems such as copyright, funding for imaging, and intellectual access. Jennifer Trant, Getty AHIP Imaging Initiative, noted that there are numerous unresolved issues in standards, intellectual property, and the education of users, and noted that Howard Besser and Goeff Samuels would address two projects underway within the Getty initiative to address these issues. Linda McCrae (Visual Resources Association) discussed a number of content description standards and urged harmonization of MARC, AITF, and CIMI efforts. Howard Besser reported on work underway in defining the metadata required to retrieve an image and be able to display it accurately, to know that it is the original image, and to use it on other platforms or at a later date. Goeff Samuels described the Museum Educational Site Licensing Project sponsored by the Getty and MUSE Educational Media which will bring content holders and content users into agreement on terms for licensing images. He noted that the costs and technical issues involved in bringing massive quantities of images to universities and schools need to be confronted. Jerry Neuralt (OCLC) discussed a project with Washington State University to build theater image databases. It illustrates the problems encountered in defining methods of linking images with other information and the possibility of extending TEI headers to accommodate image genres.

Finally, Stuart Glogoff (University of Arizona) reported on the astounding growth of the database of image libraries and collections on the University of Arizona gopher server.

After hearing all these accounts, the audience agreed that it would be useful to pursue activity collaboratively, but rather than forming a new organization, the consensus was to establish a Task Force within CNI to further imaging activity. David Bearman, Don Olson, Howard Besser, and Jennifer Trant agreed to formulate a proposal with Paul Gherman and Chuck Henry for the CNI and to host such sessions at future CNI conferences. As of this writing, the specific shape the CNI activity will take is still under discussion.

The final plenary session of the day was devoted to Internet Security and Privacy. William Ruh (Mitre Corp) noted that the growth of the Internet means we need to exercise more caution about who is out there and protect ourselves. Raman Khanna (Stanford University) reported on the Common Solutions Group Authentication Project involving seventeen institutions developing middleware for authentication and authorization, document sharing and interchange, and accounting and billing. Its decision is to build on the PGP approach of the MIT Kerberos system which it considers the de facto standard at the time. Peter Graham (Rutgers University) asked how to ensure that information will be available in the future and known to be authentic (intellectually preserved, in his terms) and urged the widespread adoption of hashing and the concept of a widely witnessed event following the approach of researchers at Bell Laboratories. Finally David Payton (Information Technology Association of America) presented a review of federal privacy and security activity. Security progress included the passage of the compromise PL103-414 (FBI wiretapping bill), the demise of the Clipper Chip, and the continued absence of federal agreement on digital signature protections. In privacy, there was agreement within the health care discussion that privacy measures needed to be addressed but not exactly how, and agreement about privacy risks of "intelligent vehicle systems" in transportation. He predicted that controls over monitoring of the workplace are likely to be introduced into bills in the next Congress and we can expect electronic marketing to be addressed soon too.

The second day of the CNI meeting was opened with a plenary session shared with CAUSE'94 featuring Jennifer James, an urban cultural anthropologist, who entertained the audience with an account of the myths and beliefs of different "cultures" in the electronic era. It was fun, but my notes and memory cannot reconstruct a particularly coherent message.

I attended the breakout session on describing image files co-chaired by Jennifer Trant and Howard Besser. Other sessions were devoted to fair use, a model for a library without walls, the National Learning Infrastructure Initiative (NLII), Princeton University's Electronic Card Catalog including images of 6 million pre-1980 cards, the Consortium for Interinstitutional Cooperation virtual electronic library project, and cost centers and measures in the networked information chain.

At the Image File Standards session, Howard Besser presented data that would be required to reproduce an image faithfully across platforms and at future times. This data included such issues as the scanner and setting, the color balance, the date and place of capture, and the nature of the original (if the digital image was taken from an original). Dozens of metadata items were identified and the reasons they were required were discussed. I introduced the concept of a "Reference Model for Business Acceptable Communications," a layered metadata framework for carrying "evidence" as required by the Functional Requirements for Recordkeeping (a draft of my proposal is available free from Archives & Museum Informatics; 412-683-9775 or from dbear@lis.pitt.edu). There was considerable discussion about how to ensure that layers could be developed independently over time by assigned agencies and how to segregate the content, structure, context, and history metadata from the identification and permissions layers. It was clear that these ideas will need to be developed further in the near future and that there was widespread enthusiasm for addressing them in a general context of recordness rather than specifically around each media type.

The closing plenary session was chaired by Paul Evans Peters who introduced Coalition members to report briefly on their projects. Robert Ubell reported that the READI project had developed a handbook on contracts and site licenses for networked information -- the draft is available on the CNI server. Gerry Bernbom reported on a retreat to be

held in October 1995 for library/information professionals which is hoped will be the first of many. Susan Perry reported on the New Learning Communities program; a database of projects submitted to the program are available on the CNI server. Judith Turner reported that the "purple paper" on advertising in the networked environment was complete and available. Chuck Henry described the National Initiative for Networked Cultural Heritage to be launched this year. Cliff Lynch reported again on the CNI NIDR project. Finally, CNI Assistant Executive Director Joan Lippincott reported on regional CNI/CAUSE conferences held in Philadelphia and Fullerton, CA, earlier in the year. Reports of these and most other CNI related activities are available from [gopher.cni.org](http://gopher.cni.org) 70 and [ftp.cni.org](http://ftp.cni.org). The spring meeting of CNI will be held in Washington DC, April 10-11, 1995.

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### **European Union, DG13, Workshop on International Projects, Brussels. January 24, 1995**

The background information to this meeting called for demonstrations and implementations of applications at a transnational level "to raise public awareness and so that governments and regulators are able to develop policies in the light of practical experience with feedback from real world advanced applications." The EU ACTS (Advanced Communications Technologies and Services) programme calls for cooperation with Japan and the USA, with non-EU organizations "receiving support from their own national or regional administrations as appropriate." The meeting was timed to provide concrete international project plans and direction prior to the February 25-26, 1995 Ministerial level meeting of the G7, which will deal with information society issues.

The meeting was opened by Peter Johnston of the DG13 staff who described the move from the RACE programme to ACTS as a quantum leap to higher profile and larger scale efforts with public impacts. One of the advantages of the ACTS programme that he pointed to was that it could involve non-EU partners especially from the other G7 countries.

Horace Mitchell, a UK consultant who has been managing the process of stirring up interest in these projects to date was then introduced. He described the invention of the concept in November 1994, his role in generating an initial awareness of the opportunity in December/January, and this workshop as foundations for defining the necessary applications, mechanisms, and platforms.

Mitchell noted that the influential Bangemann report of 1994 on , suggested that if we get it right, we can expect to see benefits of prosperity, education, development, cultural wealth and diversity, environmental improvements, universal access, and enhancements of the democratic processes. He noted that the threats of “haves vs. have-nots,” of economic concentration and of cultural convergence are to be overcome and asserted (with a faith I find typically European these days] that the difference between achieving good or bad outcomes will be a consequence of public policy.

He then tried to define the characteristics of the new information economy and hence the generic characteristics of successful applications. He asserted that:

- The price-performance curve (halving/doubling every 18 months) is unique to IT, with the implication that successful developments will aim for conditions that won't exist for a few years. He suggested imagining that telecommunications was universal and free as a tactic for planning applications that would in fact be suited to the year 2000.
- The value of applications will be determined by their use.
- Leverage will shift to small firms and individuals in an information marketplace.
- Innovation opportunities are pervasive.

Hence, he concluded, successful applications will be: evolutionary in concept and design, novel in relation to existing paradigms, and will change the current “supply and value chains” or relations of production. As an example, he cited how an application might today employ effective and accessible communications using modems and the Internet and might plan tomorrow to use technologies that are already available such as ISDN to deliver services to high value users. However, an application

proposed under the ACTS programme would need to project the use of future available, new technologies, involving broad band services for public users.

As an example of the change in value and supply chains he cited the traditional relations between Author - Publisher - Manufacturer - Retailer - Consumer in which there is no interaction. The new paradigm, he suggested, involves more interaction between creators and end-users who re-package the product nearly in real time and are interacting with the creators in the shaping of content. (In my opinion, even his model is not very radical because it is still too broadcast/publishing oriented)

Pierre Louis Biaggi, next introduced the DAVIC programme (an industry consortium to develop Digital Audio-Visual Interactive standards).

- DAVIC was formed because there is currently no vision of global standardization of audio-visual interaction. The proliferation of local field trial solutions (US West, Bell Atlantic, BT) has led to different, not common approaches. DAVIC seeks international standards.
- The benefits of DAVIC, he cited are that producers of DAV information will be able to reach the widest audience, users will have seamless access, carriers will be able to carry effectively, and manufacturers can create low cost equipment with interoperability.
- DAVIC participants include over 130 companies in all industry sectors -- content providers, service providers, telecom operators, software suppliers, data processing industry, international organizations, universities -- worldwide coverage is evenly divided among the US, Europe, and Asia. It will issue specifications for core services by December 1995; (these include broadcast services, delayed broadcast, telework, teleshopping, movies on demand, games and broadcast TV/radio). Initially DAVIC will use only existing protocols; new ones will be submitted to ISO. The potential standardization arenas include servers, users, delivery, clients, control and management and all interfaces between each physical and higher level.

Chris Yapp, ICL, reported on his firm's experience with education and life-long learning as an application arena. Based on market research, they determined that the life-long learning market was an area people would use and pay for. The fundamental problem, he concludes, is how to add IT and increase educational organizational effectiveness. Can we re-engineer education? (Do we know how?) ICL believes there is no "killer application" but that parity of access will be important. This conclusion emerges from reconsidering the education market as overlapping parallel markets rather than a set of discrete serial opportunities. Rather than a serial model of education, training, work, and retirement, we have an emerging education market with overlaying parallel processes in education, training, work, and leisure.

ICL believes technology works and has educational benefits. The problem, as they see it, is that our objectives have often been stated as providing PCs and networking but we don't do R&D on how to roll out pilots into production. Is what we are trying to do teacher substitution? Or is it enhancement of role? Is the problem now a shortage of subjects, the quality of learning materials, the absence of links to community, the need for new pedagogical models, assessment, the pace of change, or lack of funding? How can technology address special needs, gender differences, and the need for teacher support? What do we mean by educational benefits? Should our efforts be infrastructure- or content-driven?

ICL would like to see more extensive investment in research along the lines of their UK model which uses community based investment in schools and colleges as the method by which offices, homes, students, and others will access the network. The prototypes are all community oriented attempts to raise local consciousness about the investment requirements for community. They hope to put all secondary schools on network as a technology project.

Roland Hüber, Director of DG 13 B (the entity responsible for the RACE and ACTS programmes), thanked us for development of these ideas which he felt were already valuable. Ideas, he noted, are the basis of the global information economy and hence the subject of the G7 meeting. The fact that these ideas we are discussing have political profile is a result of a changing economy with new labor content in value.

Another reason they are interesting is that they are effective. For example in the future video meetings may be useful substitutes for personal, face-to-face encounters. He stressed that the problems were international by definition (in part because users are roaming the globe and need services wherever they are). He urged us to use our imagination to create new "playgrounds."

Hüber warned that in spite of political support and testbeds, we don't yet have hard core user involvement and commitment of funds by users. The ACTS programme will not fund anything that doesn't involve users within the prototypes and tests. He also warned that funding, even after G7 accepts these good ideas, will have to come from national sources; typically existing ones.

After a short coffee break, there was a panel chaired by Horace Mitchell.

Candace Johnson, Director of Europe Online (a consumer information service to start July 1 in German, French, and English), was introduced as a representative of the U.S. position. She acknowledged that she had spent the past twenty years abroad, held a Luxembourg passport, and had just learned about online information services in the past year. Nevertheless, she reported on a recent exchange she had with FCC Commissioner Hunt in which she told him how much "ahead" Europe was in implementation and how special their content (multi-lingual) is. She then asked participants to invest in and provide content for Europe Online (which she said has substantial private investment).

The chair invited Suzanne Neil from Massachusetts Institute of Technology to talk about the "U.S. National Host" for ACTS, which seems to be an ad hoc consortium of the University of Pennsylvania, University of Illinois, MIT, and the National Media Laboratory. In addition to serving as the telecommunications end of any U.S. involvement in ACTS, the "host" is working on interface standards, broadband networking, digital cash, and intellectual property rights, according to Neil. (I confess this was the first I had heard of this and further efforts to define the role of these national "hosts" was not very productive!)

David Taylor was introduced as the Australian representative. His organization, the International Association of Science Parks, plans to launch IASPNet which they hope will create an environment that supports collaboration between research parks and promotes industry. Essentially they are imagining a directory for all scientists in research parks that will provide them with a single network, value-added service including group working/video-teleconferencing/mail, etc. They are still seeking funding and an application definition. They plan that in Stage 2 (next year) there will be a 15-park prototype with X.400/500 and databases; Stage 3 will involve establishing policies (for parks, presumably).

The chairman asked me to comment. I noted that we need to be speaking about many networks, not just one, and that content publishing paradigms ignore the fact that these networks will be providing a facility in which subscribers are involved not as audiences and consumers but as creators, users, and participants.

Ronald Stephens (University of Portsmouth) urged the assembly to add using technology to assist those with special needs or disabilities as an application arena. Citing AccessNet, he proposed another application area discussion for those involved in special disabilities. The chairman agreed to designate such a space if interest was sufficient.

Andrew Cameron, (Canadian Embassy attaché, representing CHIN in its liaison with ACTS) followed up on the point about connecting lots of networks by describing what is going on in Canada. There is a soon-to-be-signed sci-tech agreement between Canada and the EU (The parties hope to complete it during the G7 meeting). Canada is also taking a lead in inter-connecting networks.

Erika Mann, a member of the European parliament, asked that EU attendees talk to their member of parliament, because this is important but MPs do not realize it.

Peter Johnston (DG 13) then stressed that the ACTS programme has offers from 17 EU countries including Switzerland and Norway to interconnect their best high speed infrastructures. He claimed that the strength in DAVIC multimedia protocols (ignoring that these don't yet

exist and that they are content-less anyway) was that they could interconnect schools, is underway throughout Europe. A consultative process during the last several months identified the three areas of cultural heritage, small business, and sustainable development as areas that the actors are most interested in. Four requirements were identified for success:

- (1) Obtaining the political commitment to work in these arenas — G7 is one way, but the commitment of the actors themselves is also important.
- (2) Completing a Memorandum of Understanding between the cultural heritage actors;
- (3) Acquiring resources needed from existing sources;
- (4) Securing management coordination of the vision.

The timetable, he noted, is short; projects in ACTS now need hundreds of active players, not dozens. June 1995 is the target for signing the overall memoranda of understanding and the establishment of steering and coordination groups. Johnson then introduced the chairs of afternoon sessions.

The afternoon session on Cultural Heritage attracted approximately 40 participants. The session was convened by Dominique Delouis of Telesystemes who defined its purpose as the identification of key organizations that will enter into a memorandum of understanding to link the world's cultural heritage by 2000 and the specification of the terms of their agreement. The structure of the agenda was to hear from Europe, Canada, and the U.S. and then to have panels on public-private relations, intellectual property, investments, and funding.

Delouis described his project, RAMA (Remote Access to Museum Archives) which began 1992 and involves seven collections in Europe. RAMA is oriented towards researchers not the public. As of 1995, the original seven museums are ready and RAMA has received expression of interest from North America and other European museums. The proposal before us will form an international museum network whose baseline is the RAMA system. It will have a wider information base and more standardized approach and needs to move to multimedia service provision. They have completed a marketing study and expect to dem-

onstrate by September 1995 how content can be repurposed. By 1995 RAMA expects to expand to twenty museums and from one "Teleservice" (TeleResearch) to TelePublishing, TeleLearning, etc.. It will also attempt to develop low cost ways for museums to participate.

Martin Kinsella, European Commission -- DG13 E3, next described nine EU library projects:

ELISE (Electronic Imaging);  
EURILIA (Libraries in Aerospace);  
FACIT (Fast Automatic Conversion With Integrated Tools);  
FASTDOC (Order and Delivery);  
HISTORIA (Heraldic Images Storing Applications);  
INCIPIIT (Bibliographic Records and Images of Incunabula);  
MORE (MARC Optical Recognition);  
RIDDLE (Rapid Information Display and Dissemination); and  
VAN EYCK (Visual Arts Network for Exchange of Cultural Knowledge)

Most of these projects are operational now and will be complete by end 1995. Problems they have encountered include the state of current Intelligent Character Recognition and the difficulty of high volume delivery. These problems persist despite lower costs. Other difficulties are posed by the adherence to standards, the availability of multiple scanners, the dropping costs of storage, and the greater availability of adequate compression standards. Intellectual property issues in all the projects remained unresolved, there was a crying need for architecture standards, and networking projects were still finding problems distributing wide bandwidth due to both technology limitations and costs.

Andrew Cameron, Canadian Dept. of Industry, (representing CHIN) reported that CHIN's current focus is to use Internet and common front-ends. He assured participants that projects which will be supported by Canada at G7 include:

National Research Council 3-D imaging process  
Telepresence - Canadian Museum of Civilization/Centre Georges Pompidou

TeleVirtualite - Virtual Gallery; with commercial realm/ Jurassic Park-like

Virtual Museum - Canada - France Accord and Communications Research within Department of Industry (review resources from other collections)

I was then introduced as representing the Getty Art History Information Program (and forwarding copies of my report to the Library of Congress, Smithsonian and CHIN). I described U.S. projects as follows:

AHIP projects of interest to Humanity 2000 include:

(1) The Museum Educational Site Licensing Project, commenced in 1995, which will involve seven universities and six museums in resolution of the intellectual property and distributed information delivery terms for having museum images and information made available over campus networks for educational purposes.

(2) The International Minimum Data Standard for Unique Identification of Cultural Properties which is being defined by police agencies, customs officials, insurance companies, and others who require unique identification of movable cultural properties.

(3) The Intellectual Integration project which is exploring how authority files and vocabularies can serve as front ends to a variety of data bases developed by different organizations and improve retrieval results.

Library of Congress efforts of interest to Humanity 2000 include:

(1) The nearly completed American Memory project which has, over the past four years, digitized 250,000 items from Library collections, ranging from manuscripts and photographs to sound recordings of political speeches, and made them available to elementary and secondary educators in a variety of optical publications (videodisk and CD-ROM).

(2) The ambitious recently announced Digital Library project which will digitize 5 million items from the Libraries 120+ million collections,

in concert with private sector funders, to make large portions of the Library's rarer materials publicly accessible over networks.

The Smithsonian Institution efforts of interest to Humanity 2000 include:

(1) Smithsonian Online, a project involving many individual Smithsonian museums and public access to their collections and expertise.

(2) Private sector cooperation in funding major digitization efforts.

I then described the Consortium for Computer Interchange of Museum Information, which is a US-based organization (despite support from CHIN, MDA, RAMA, and other non-U.S. partners) involved in testing two aspects of museum data interchange of interest to Humanity 2000:

(1) Project CHIO is demonstrating the interchangeability of SGML marked up data on folk art.

(2) The Cultural Heritage Catalog Linking Project is demonstrating the use of Z39.50 as a neutral search and retrieval protocol supporting access to archives, museum, and library catalogs of different structures.

Finally, I noted that Humanity 2000 participants would want to be informed about the National Science Foundation Digital Library Initiative which has funded six major university/private sector consortia to solve a variety of technological problems associated with large scale delivery of digital multimedia and the Archives and Manuscript database of the Research Libraries Group which has, over the past decade, compiled information about a huge quantity of archival material in repositories throughout the country. It also mentioned that current government records may be described soon in federal and state Government Information Locator Services.

Dominique Delouis then reported on a recent conference to deal with EU policy between DG13 (telecomms), DG10 (culture), and DG3 (financial). Apparently some progress was made in the effort to coordinate the EU Directorates whose interests overlap here. He then announced and introduced a "Technology panel" consisting of:

Vito Cappellini, Universita di Firenze  
Jacques Faule, Sygma, Paris  
Athanasios Ikonopoulou, Zenin, Athens  
Alvise de Michelis, Il Tridente, Venice  
Joël Poix, Reunion des Musées Nationaux, Paris  
Patrick Purcell, Imperial College, London  
Roger Roberts, RTBF, Brussels

Panelists made brief statements, but there was not time to discuss their contributions.

Joël Poix, of the Reunion des Musées Nationaux, which is in charge of publishing for 34 museums (Poix is in charge of the multimedia program) described their plans for dissemination of photographic collections of 600,000 images and recounted the success of their CD-ROM publication program which is in its third year. He reported that they are learning how to use their archives in low resolution for CDs. Having published six the first year at a fully recovered cost of FF3M, they did ten this year, always with private sector producers, at a cost of FF4M. Currently income from these products exceeds the cost of development. They believe that they have the market to sell more CDs if they could produce them. The projects have raised issues of the copyright of collections, the requirements of a distribution network, and how to encourage innovation and creativity, all of which Poix believes, are important areas for Humanity 2000 research and demonstration.

Jörn Sieglerschmidt, a German museum curator, suggested that there was a need to formulate a proposal for a concrete project that could stand for the Humanity 2000 initiative. Noting that most museum information is not digitized and that the small proportion which is still needs to be brought into the Internet/WWW, he felt that a practical project would be to develop mechanisms to bring existing museum digital databases into a networked environment. In calling for putting all the data online, he was aware that the fundamental challenge would be the lack of content standards and the problems this creates. But he noted from his experience at a meeting the previous day at which the staffs of the G7 countries met to formulate the G7 agenda, that there was little enthusiasm for the Humanity 2000 project in the G7 preparations and that unless there was a concrete proposal, and some nations took leadership in pressing the

issue to the other G7 countries, he believed the entire project would be doomed.

Vito Cappellini, representing a RAMA participant, noted that his project studied the cost-benefit of variety of different bandwidths for different educational applications. He believes such research is essential if we are to promote integration of educational and cultural heritage networking.

Alvise de Michelis, of Il Tridente publishing company in Venice argued that the objective should be to bring traditional publishing values to CD publishing (he sees this as a problem for the new market) and hopes that the Humanity 2000 project will focus on intellectual property rights.

Roger Roberts, of the Belgian television network, reported on a consortial project on broadband TV, called Televisual Interactive Terminal and Associated Networks (TITAN), which has partners in Belgium and Germany and involves universities, the private sector, and broadcasters in a digital networking and broadcasting marriage. The next stage of the project will involve 10,000 homes in customer premises equipment decoders. He urged European cooperation in the provision of content.

Patrick Purcell, of Imperial College, London, was invited by the chairman to comment on the role of the "National Hosts" who are providing platforms for all the ACTS projects. He asked rhetorically, "Is cultural heritage perceived as significant enough? Why might G7 not support it?" And answered that the Humanity 2000 projects need to reach the public. It will not do to make content available but not deliverable to end user. The National Hosts programme was developed to accommodate this -- their brief is to provide a platform for advanced technology applications. In his view, appropriate subjects for a research programme included new user interfaces, agents, and directories, and self-disclosing systems.

Athanasios Ikonopoulou brought to the group his international projects experience. He suggested that Humanity 2000 must demonstrate the need for collaborative work. The method which the EU

requires for this is an MOU (memorandum of understanding) with preliminary terms of reference. He described such MOUs from other projects and suggested that we get to work on ours.

Mr. Delouis then invited Dr. Wendy Sudbury of the Museum Documentation Association of the UK to comment. She argued that the role of museums is not to author or publish but to make information available in usable form. In her view, EU projects that have taken place so far have dealt with much of the "easy" material which is two-dimensional art and reminded participants that the cultural heritage is more than that. Noting that UK museums have already done a lot of what had been proposed as demonstration projects for Humanity 2000, including a virtual museum collection for archaeological teaching purposes and remote school access in Hebrides to the collections of the National Museums of Scotland, she agreed with Mr. Sieglerschmidt that at the other end of the scale, most museums aren't connected or even fully inventoried. Her concrete proposal for Humanity 2000 would be the internationalization of the UK museum standard SPECTRUM. She noted that the UK has a "Millennium fund" (apparently from the state lottery!) and is interested in participation in such mega-projects.

In response, Robert Creevy (Museon) seconded the need for content standardization and interchangeability. I noted that there are at least three aspects of standardization at issue here: knowledge representation, intellectual property, and the representation of the point-of-view of the users, and suggested that the final Humanity 2000 proposal should address each.

Melville Collier, Mountford University project manager of the EU ELISE project, stated the basic issue was how to include image information across the Internet. While acknowledging that involving a museum was an important aspect of the overall project he urged library, archives, and museum collaboration in the final form of the project.

Benjamin Heidersberger, of Ponton, an artists collective involved in developing 3-D interfaces for access interactive TV, suggested that the entire discussion sounded to him bureaucratic and uninteresting. He wondered what is going on? Was the topic itself a problem? Is culture not interesting per se?

Dominique Delouis cut off discussion as the day was ending to return to the Memorandum of Understanding, which he stated needed to deal with:

- (1) Digitization of collections: critical mass, scanning, cataloging;
- (2) IPR agreement: access control, billing;
- (3) Standardization: minimum data sets, formats, search and retrieval, human interfaces, terminal devices.

In further discussion, two more issues were agreed upon:

- (4) Audience analysis: educational marketplace, and
- (5) Integration.

There was considerable dispute about what the Memorandum of Understanding is and how it will come about. The consensus appeared to be that it is a draft that grows into an agreement with additional details accruing over time. But rather than allowing the meeting to work out details, Delouis invited John Pantelidis of L-Cube, one of the participants in RAMA to bring forward what was clearly a previously prepared proposal, and was later circulated in print.

The "Open Multimedia Heritage Proposal" was grounded in the premise that a market for publishing CDs exists in Europe. The Open Multimedia Heritage rubric appears to incorporate initiatives underway at EU and national levels (in Europe and the rest of world) related directly to culture and indirectly to technologies that are relevant to heritage like Interactive Tele-Presence (ITP) projects. The objectives of the program should be to create electronic archives, clear copyrights, and electronic payment, deliver in formats needed by publishers, and support retrieval across multiple archives.

At this juncture, staff members of the French Ministry of Industry suggested that Humanity 2000 was not important enough to the G7 and someone needs to come forward (e.g., a country) to lead the Humanity 2000 effort at the G7 meetings or there would not be any support. Jean Millar, a member of the staff of DG13, seemed extremely distressed that this breakout session was not leading to agreement on a Memorandum of Understanding and initial project steps. A German National Library

spokesperson articulated her support for Humanity 2000 and said her Minister would support it at the G7 meeting, but there remained considerable questions about how to proceed or what support the project had.

At the end of the day, agreement was secured for the five points in Delouis' proposed and amended Memorandum of Understanding, and he agreed to draft these for distribution to participants and solicitation of support for concrete projects. It remained unclear how a true project proposal would be drafted and what the underlying nature of the disagreements between participants really were. It seemed possible that Delouis was not perceived as an honest broker or that the Southern European countries had a fundamentally different agenda and would not subscribe to the various ideas put forward by English and northern European participants.

[Since then, Delouis has drafted and submitted a proposal for HOMER, a project of many facets incorporating most of what was discussed at the meeting. Funding decisions will be made in July. <ed.>]

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## CONFERENCE CALENDAR

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- ◆ **May 2-4** New York, NY, National Online Meeting & Integrated Online Library Systems '95 [Learned Information, 143 Old Marlton Pike, Medford NJ 08055; 609-654-6266]
- ◆ **May 2-5** London, UK, World Heritage and Museums Exhibition and Symposium [Museums & Heritage Show, The Town House, Leigh, WR6 5LA, UK; +44-1886-833-505]
- ◆ **May 10** London, UK, Museums and the Internet [Science Museum, Exhibition Rd., London SW7 2DD, UK; +44-71-938-8000]
- ◆ **May 21-25** Philadelphia, PA, American Association of Museums Annual Meeting [AAM, 1225 Eye St. NW, Suite 200, Washington DC 20005]
- ◆ **June 15-17** Regina, Canada, Association of Canadian Archivists [ACA, P.O.Box 2596, Stn.D, Ottawa K1P 5W6; 613-443-0251]
- ◆ **June 30-July 2** Berkeley, CA, Association of Systematics Collections Annual Meeting [ASC, 730 11th St., NW, 2nd Floor, Washington, DC 20001-4521; 202-347-2850; fax 202-347-0072]
- ◆ **July 1-7** Stavanger, Norway, ICOM 1995 [Arkeologist Museum, P.O. Box 478, N-4001 Stavanger, (47 51) 53 41 40, fax (47 51) 53 11 81]
- ◆ **July 26-29** Raleigh, NC National Association of Government Archives and Records Administrators Annual Meeting [Steve Grandin, NAGARA, 48 Howard St., Albany, NY 12207; 518-463-8644; fax 518-463-8656]
- ◆ **August 29-Sept. 3** Washington, DC, Society of American Archivist Annual Meeting [SAA, 600 S. Federal, Ste. 504, Chicago, IL 60605; 312-922-0140; fax 312-347-1452]
- ◆ **September 7-9** Saratoga Springs, NY, American Association for State and Local History Annual Meeting [LuAnne Sneddon, AASLH, 530 Church St., Ste. 600, Nashville, TN 37219; 615-255-2971; fax 615-255-2979]
- ◆ **October 9-13** San Diego, CA, ICHIM'95/MCN'95 [Lynn Cox, Archives & Museum Informatics, 5501 Walnut St., Ste. 203, Pittsburgh, PA; 412-683-9775; fax 412-683-7366]

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## INBOX

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### Reference Works

- \* **CIDOC Relational Data Model: A Guide**, by Patricia Ann Reed (November 1994).

The **Guide** is a new introduction to the relatively stable data model developed by committees within the Documentation Committee of ICOM over the past six years. Distributed by the Office of Information Resources Management at the Smithsonian Institution, the model has been attracting new attention as efforts to develop a Z39.50 data set for museums have become a focus of CIMI work. The data model allows us to envision how a number of different types of documentation can be represented through a common set of entities and attributes for retrieval.

- \* **Computers in Teaching Initiative Centre for Textual Studies, Resources Guide 1994**, compiled by Lorna Hughes and Stuart Lee (Oxford: Oxford University Computing Services, 1994).

This is a catalog of hundreds of tools and databases for education, largely developed by educators but available commercially or through free distribution. The products range

from games with Shakespearean plays to linguistic analysis tools. There are sections on Internet resources, on centers and clearinghouses of specialized information, and on bibliography.

- \* **Documents for the History of Collecting**, The Getty Art History Information Program.

This compact disc represents the database compiled over the past several years by the Provenance Documentation Collaborative, representing fourteen institutions in Europe and America. Updated versions of the CD will be issued to member organizations annually. The CD was demonstrated to the art historical community at a conference on "The History of the Art Market in Europe: 1400-1900" at the National Gallery of London, December 9-10, 1994. The first edition allows scholars to retrieve information from archives, sales catalogues, and museum records relating to the past four hundred years, but many more years of work by members of the collaborative and potential new members will be required for the database to be anything like "comprehensive."

- \* **Image Technology in Museums and Art Galleries Database (ITEM #8)**, edited by Isobel Pring (Ipswich, International Visual Arts Information Network, Nov. 1994) 199pp.

ITEM has published #8 in its regularly updated listing and description of CDs and installed multimedia programs. It features 56 projects that have been completed since first being reported in ITEM and 41 new records since the previous issue as well as 127 previously reported projects. At some point it would be useful to have a critical review of this growing universe of cultural information in digital form.

- \* **The Multimedia Yearbook 1995** (London, Interactive Media Publications, 1995) 956pp.

Massive. Expensive. Almost essential if you are really in the multimedia business. This year's volume (note that it is no longer the European Multimedia Yearbook, but worldwide) contains over 200 pages of 1000 word articles divided into sections of Interviews (12 industry computer industry managers), Market Focus (nine business application areas), Publishing Issues (five articles), National profiles 14 countries plus EU), Technology Focus (nine issues), plus a very basic introductory section on multimedia,

technology and platforms (20 pages) by Signe Hoffos, and a conclusion on multimedia and the Internet by Rockley Miller. While the articles are of uneven quality, the best of them provide insights into the evolving marketplace which are worth the over \$200 price tag. All this is followed by the listing and classification of over 2000 companies and numerous indexes to those listings. The listings themselves are company supplied blurbs, but include contact people and communications addresses as well as a classification of main business areas, platforms, and products. The CD version of the Yearbook was due out in February and has been included in the price of the volume. While it is unfortunately late (not arrived as of the end of March), it could be quite useful in doing company research, depending of the search and reporting facilities.

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## Reports

- \* ACLIS (Australian Council of Libraries and Information Services) **Task Force on the Preservation of Australian Electronic Information**, Position Paper, 1994.

This paper identified preservation of "library content" across software and hardware generations as the central issue for preservation of electronic information in Australia and established working groups to identify records, determine how much to preserve, and assign responsibilities. It recommended that libraries "concentrate on electronic information which is published" and available *only* (their emphasis) in electronic formats." Specifically they identified author's works in progress, cartographic records, research community information exchange, factual files, training packages and educational software as important types of electronic publications to plan for. They excluded CAD/CAM and expert systems as too difficult at the present and functional files of organizations as the responsibility of the Australian Council of Archivists.

- \* **Building Partnerships for Electronic Recordkeeping: The New York State Information Policies and Practices Survey**. Summary of Findings (Albany, University of the State of New York, August 1994). 21pp.

This is an extremely straightforward presentation of the rationale behind significant changes in the methods and practices of the major

state archives in the United States. It lays out the findings of a study and derives important implications for electronic records management applicable beyond New York state. I regard it, and the fuller study being printed now, as very important reading for professionals in archives.

- \* CTI Centre for Textual Studies Occasional Series, Number 1, **Victorian Periodicals Hypertext Project**, edited by Lorna Hughes and Stuart Lee (Oxford: Oxford University Computing Services, 1994). 48pp.

A full description of various aspects of an extensive, multi-faceted project to document aspects of the Victorian press and make them accessible for research and undergraduate instruction. Numerous authors collaborated in this coherent report, which shows some of the potential of hypermedia for communities that share intellectual interests and have diverse sources. Technical, social, and organizational issues are addressed along with the content dimensions.

\* Department of Defense, **Records Management Business Process Reengineering, Public Access to Government Information**, 28 October, 1994.

This study examines how best to satisfy the Freedom of Information requests received by the Department of Defense. In the best tradition of re-engineering, it concludes that the simplest way is to make more information publicly available to begin with and recommends upgrading the Hanscom server site through which much DoD information is electronically provided. Subsequent recommendations involve improved response methods, including storage of previous FOI requests and introduction of EDI facilities, proving that if you turn technocrats to a problem, they can arrive at solutions that completely escape those dealing with the policy dimensions and actually satisfy customers.

\* **Digital Imaging Preservation Technology: Proceedings from an RLG Symposium**, held March 17-18, 1994, Cornell University. edited by Nancy Elkington (Mountain View CA, Research Libraries Group, 1995) \$20 plus \$8.00 shipping in US, \$25 outside.

This report contains a valuable series of tutorials ranging from the

very basic to quite advanced, along with papers by Anne Kenney and Paul Conway, Stuart Lynn and Don Waters. It's the best basic framework document to be published as yet and can serve a host of planning and implementation purposes for any digital library/imaging project. Despite the title, the work goes far beyond preservation issues, as Peter Hirtle's tutorial on indexing structures and Pam Mason's workshop on systems standards reveal.

\* **Global Information Infrastructure: Agenda for Cooperation** (Washington DC, Information Infrastructure Task Force, Dept. of Commerce, February 1995)

This report, introduced by Al Gore and Ronald Brown, is the Clinton Administration's blueprint for the GII. As such, anyone interested in international issues in networking cannot overlook it despite its tendency towards bureaucratic phraseology. The document sets out the five basic principles which the U.S. advanced at the recent G7 meeting in Brussels: encouraging private investment, promoting competition, providing open access, creating a flexible regulatory environment, and ensuring universal service. Each is discussed

and actions are recommended to promote the philosophy on a global scale. Obviously the intention is to promote U.S. economic interests as well, but the principles sound reasonably good and the discussion is of value.

\* Higher Education Funding Councils (UK), Joint Information Systems Committee, Information Systems Sub-Committee, **Report of a Feasibility Study for an Arts and Humanities Data Service**, by Lou Burnard (Oxford University Computing services) and Harold Short (Kings College London), 29 November, 1994. 70pp.

Charged with exploring how best to provide information services to humanists in the universities and colleges of England, the commissioned authors explored how a broad and flexible Arts and Humanities Data Service (AHDS) might be established in the UK. They recommended that such a service should promote effective and low cost access to the widest possible range of digital resources. Its functions would include cataloging and identification of resources, development of applications and standards, documentation and training, archival preservation, creation of new resources and protection of intellectual property rights. The AHDS

would have a distributed structure so that through defining standard policies for description and encoding of resources, preservation, and dissemination, the actual work could be conducted by specialist data service providers. The approach to start-up, which has been approved for 1995, is to solicit bids from qualified institutions and acquire funding from governmental funds for the start-up period. The discussion of issues raised by the report is wide-ranging and firmly grounded in a serious assessment of the state of arts and humanities data worldwide, so the product is useful to anyone desiring an overview of the current digital scholarly environment.

\* National Archives and Records Administration, Technical Information Paper #12, **Digital Imaging and Optical Digital Disk Storage Systems: Long-term Access Strategies for Federal Agencies** (Washington, DC: NARA, July 1994). 295pp. Also available by ftp at: [ftp://ftp.nara.gov/pub/technical\\_information\\_papers/](ftp://ftp.nara.gov/pub/technical_information_papers/)

This report addresses long-term access to optically stored data and makes recommendations for image capture, in-

dexing, systems selection, information management, information retrieval, and standards. It then reviews practices at a fifteen federal agencies. Sections of the report discuss issues and progress to date, and typically end with a recommendation. For example, under the heading of image capture, there are discussions and recommendations regarding open architecture, defined requirements, document tracking, scanner specifications, resolutions, dynamic ranges, image enhancement, image file headers, compression techniques, and quality assurance. However, somewhere in the avalanche of data the fundamental features of this landscape are obscured. No more weight is given to the observation that vendors in this market are fundamentally unstable than to the discussion of transfer rates. Frequently the recommendations make totally impractical assertions such as requiring vendors to "provide a complete set of documentation, including source code with flow diagrams, object code, operations, and maintenance manuals" as if these would help the agency manage a system replete with special purpose chips, proprietary drives, and non-standard media recording methods. There is nothing to suggest that the authors can distinguish between fundamentally plausible and fundamentally implausible technol-

ogy forecasts which doesn't give the overall report much credence to me. □

### Articles

- \* Terry Cook, "It's 10 O'clock - Do you know where your data are?" **Technology Review** (January 1995): 49-53.

Cook provides an intelligent lay-person with an introduction to the dangers inherent in electronic records and of the approaches being taken by professional archivists. The article is replete with clear examples and is up-to-date about the field as it can be. As always, Cook explains the issues well and provides a valuable synthesis.

- \* Peter Enser, "European Research Letter: Image Databases for Multimedia Projects," **Journal of the American Society for Information Science** 46(1): 60-64.

This broad overview of European multimedia projects and EU funded programs in telecommunications, libraries, and cultural heritage provides a useful entree to the activities of a variety of

government-funded projects throughout Europe.

- \* Clifford Lynch, "The Integrity of Digital Information: Mechanics and Definitional Issues," **Journal of the American Society for Information Science** 45 (10): 737-744.

Lynch discusses a variety of issues relating to what makes records evidence. Although he doesn't cite archival literature in the area, the points he makes correspond well with those made by such systematic definitions as that offered by the Functional Requirements for Record-keeping of the University of Pittsburgh electronic records project. The issues he addresses here are now the focus of an important working conference to be held at OCLC in early March.

- \* Jeff Rothenberg, "Ensuring the Longevity of Digital Documents," **Scientific American** (January 1995): 42-47.

Rothenberg reviews a range of issues in digital archiving and concludes with a suggestion for meta-data encapsulated objects. In my opinion this is the first popular article covering issues raised by electronic records which does the subject justice and deserves to be in readings assigned in universities for archives and records managers.

### Newsletters and Journals

- \* **EDPACS: The EDP Audit, Control and Security Newsletter** (ISSN 0736-6981) has been attending to an increasing number of issues dealing with electronic records management. The Auerbach Publication (Warren, Gorham & Lamont, 31 St. James Avenue, Boston MA 02116, 1-800-950-1217) continues, of course, to focus on more traditional auditing issues, but the new attention reflects the growing importance of electronic records in daily business practice.

- \* **Interactive Content: Consumer Online Services Monthly** [Jupiter Communications, 594 Broadway, Suite 1003, New York, NY 10012; 212-941-9252; fax 212-941-7376; \$495 p.a.; no ISSN] covers the world of public oriented multimedia. Recent issues focus on developments in Nickelodeon, Time-Warner, Europe Online, Prodigy etc. with short blurbs from the marketplace. Annoyingly, there is no "how to follow up" information, so you are left at the mercy of the editors (the owners of the Consumer Online Services conferences).

\* **New Media** [ISSN 1060-7188] continues in most months to be a typical multimedia journal of advertising and hype, but in its Interactive Tool Guide and Catalog issue for 1995, published in January, there are comparative tables for over 800 types of software products in categories of Authoring, Graphics, Audio, Video, Optical, Display, and Computer Systems with numerous sub-categories.

\* **The Internet Connection: Your Guide to Government Resources** [Berman Press, 4611-F Assembly Dr., Lanham MD 20706-4391; connect@kraus.com; \$69/10 issues]

The eight pages are nicely laid out and have several interesting short signed articles, but it feels skimpy given what's going on in government information on the Internet these days. The first two issues failed to maintain a total sense of the range of Internet activity or the underlying policy and technology issues.

## Ephemera

\* "The End of an Era: 1994 Camp Pitt," **NAGARA Clearinghouse** (Fall 1994): 4-8, reports on the last of six years of summer insti-

tutes for state archivists on the topic of electronic records and the (to me) disappointing results in terms of state archival program implementation.

\* Donald Garfield, "An Electronic Banquet of Japanese Art," **Museum News** (Jan/Feb 1995): 44-45 is a brief, non-technical, review of a CD-ROM publication on Japanese art. As far as I can tell it is the first in Museum News.

\* **EU, Fourth Framework Programme for Community Research and Technological Development**, Preparatory Draft Work Programme, 1994-1998, Multimedia Systems (10 November 1994).

This eighteen-page document is particularly interesting for the range of categories of multimedia developments it envisions as required to create a consumer marketplace in multimedia in Europe by 1998. Specific efforts are detailed with respect to Multimedia Technology, Multimedia Systems Pilots, and Multimedia Support Centres. The technology projects focus on systems integration tools, multimedia standards and specifications, information appliances, multimedia information storage and access, multime-

dia presentation, multimedia transmission interfaces, and copyrights support. The systems pilots are imagined in industry and in the home, for content providers and for consumers. Multimedia Support Centers and a Multimedia Forum are envisioned as infrastructure to support the emerging disciplines and industries.

National Archives of Canada, Information Management Standards and Practices Division, Electronic Work Environment (EWE) Vision (Exposure Draft October 1994); Guidelines on the Management of Electronic Records in the Electronic Work Environment (Exposure Draft March 2, 1995)

These two documents lay out the picture of a distributed work environment of the future and how records management will take place across virtual record stores. They are valuable both for their clear exposition of the architectures and functionalities that are driving the electronic work environment and for the focus on managing work (and therefore records) rather than records by themselves.

\* National Archives and Records Administration, **A Strategic Plan for NARA: 1995-2000 & Beyond** (Washington D.C., NARA, March 2 1995) □

This handsomely printed pamphlet lays out NARA's three goals (ensuring public access, serving customers, and reducing overhead costs) and strategies designed to achieve them through "process improvement", staff development, technology/modernization and advocacy. As presented the objectives and program steps seem like apple pie though many apples were probably sacrificed in the making.

\* **Getty Art History Information Program, Education and Cultural Heritage: Solid Partners for the NII. Current and Emerging Projects and Approaches.** January 14, 1995

This distribution package contain descriptions of dozens of networked access to cultural heritage projects throughout North America. Informative and free. [Contact: Susan Siegfried, Getty AHIP, 401 Wilshire Blvd. Santa Monica, CA 90401 or [SSiegfried@getty.edu](mailto:SSiegfried@getty.edu)]

## District Court Issues New PROFS Ruling

On December 14, **Public Citizen and the American Historical Association, American Library Association, Center for National Security Studies, National Security Archive, Organization of American Historians, Scott Armstrong, and Eddie Becker**, sued Trudy Peterson in her capacity as Acting Archivist of the United States over the agreement signed by Don Wilson and George Bush which gave Bush control over electronic records created by White House officials during his administration. The agreement at the time it was executed was immediately criticized by most of these same groups as a violation of the Presidential Records Act of 1978.

Judge Richey of the U.S. District Court issued a ruling in this new element of the PROFS case early in March, dealing an additional blow to the government. The ruling came in a suit initiated in 1989, at the end of the Reagan Administration, to prevent White House officials from destroying the electronic mail records of the NSC and other agencies within the Executive Office of the President. On August 13, 1993, United States Circuit Court of Appeals for the District of Columbia held that the White House's practices were unlawful because they permit the destruction of historically valuable electronic mail information. It also upheld an injunction prohibiting the government from destroying magnetic tapes and computer hard drives containing electronic mail written by officials of the Reagan, Bush and Clinton administrations.

The Court of Appeals also remanded the case to the district court to decide whether the NSC was evading the records laws by classifying many of its records as "Presidential records." Unlike other government records, Presidential records are not subject to the Freedom of Information Act and are not subject to the same protections against improper destruction.

On March 25, 1994, however, the Clinton Administration declared that, although prior administrations had acknowledged that the NSC

was an agency, it maintained that the NSC is not an "agency" under the federal records law and, therefore, could not be required by the courts to preserve its electronic mail records in accordance with the Court of Appeals' ruling. The Clinton Administration also announced that it was discontinuing the NSC's program for making records available to the public under the Freedom of Information Act.

In his ruling, Judge Richey rejected the Clinton Administration's sudden change in policy as unlawful, and held that the "NSC is an agency subject to the FOIA, and that it must maintain and preserve its records in accordance with the Federal Records Act, except when high level officials of the NSC are acting solely in their capacity to advise and assist the President." The Court ordered the NSC and the Archivist to adopt new recordkeeping guidelines to ensure that NSC records "are preserved under the Federal Records Act and not destroyed under the guise of the Presidential Records Act." The Court also directed that the new guidelines be prepared "forthwith" because "this case is important to the nation and the very credibility of this and future administrations."

Michael Tankersley, an attorney with Public Citizen Litigation Group and the lead counsel for the plaintiffs, hailed the ruling. "By rejecting the Clinton Administration's effort to exempt the NSC from the records preservation laws, this ruling assures that important records documenting national security policy will be preserved." *[For additional information, contact Michael Tankersley at: tankers@essential.org. To receive posting related to the PROFS Notes Legal Case, send mail to ebecker@cni.org. In the subject line put "briefs" In the text include your name, & E-mail address]*

## SAA Responds to PROFS Case

*In a "Statement on Archival issues raised by Information Stored in Electronic Form," issued on March 23, 1995, the Society of American Archivists finally took a position, of sorts, on the issues in the PROFS case. The step seems important enough to me that I've quoted their position in full below, even though it is not as direct as it might have been and still does not commit SAA to take the role of "Friend of the Court" in the case.*

Increasingly individuals and organizations use computers and telecommunications technologies to communicate and conduct business. The rapid change in recordkeeping technologies and practices raises concerns about the retention, access, and preservation of information stored in electronic form.

The most widely publicized legal case that addressed these issues, known as the PROFS litigation, was initiated by a Freedom of Information Act request for access to electronic documents maintained by the White House.(1)

The PROFS litigation has caused judicial review of questions surrounding the legal status of information stored in electronic mail systems and authority over the disposition of federal records, presidential records, and personal materials of federal officials.

The PROFS litigation raises many specific legal issues concerning the Freedom of Information Act, the Federal Records Act, the Presidential Records Act, and the Administrative Procedures Act, as well as specific technical concerns regarding the design and configuration of information systems.

The litigation also raises fundamental questions about the nature of information generated, transmitted, and stored in electronic form and the independence and authority of archivists in carrying out their responsibility to identify records, to determine their value for administrative, legal, fiscal, and research purposes, and to recommend the most appropriate methods to ensure continuing access to electronic records. The implications of the legal cases reach beyond the particular records, individuals, and institutions involved in the legal actions. Their resolution will have a lasting impact on the nature of the historical record in the information age and on the ability of present and future researchers to use electronic records as reliable and authentic evidence of past events, facts, and actions.

Therefore, The Society of American Archivists, the largest and oldest association of archivists in the United States, representing

more than 3,000 individuals and 500 institutions, proclaims its position, as follows:

(1.) Electronic communications that are created, stored, or transmitted through electronic mail systems in the normal course of activities are records.

Organizations -- large and small, public and private -- and individuals create records for a wide variety of purposes. Records document transactions and decisions, provide evidence of past actions, and keep track of rights and obligations. Organizations and individuals rely increasingly on electronic systems to communicate, transact business, formulate and develop policies, and disseminate regulations, policies, and directives. The records created, transmitted, and stored as a result of the use of these systems must be subject to the same statutes, regulations, standards, policies, and professional practices that pertain to records in all other formats. Organizations should review policies governing access, privacy, security, and retention of records to ensure that consistent standards are in place for all records regardless of format. The use of electronic systems to create and store records should not diminish organizational control over records, adequacy of documentation, processes for establishing accountability, individual rights to access records, or protection against the inappropriate or unauthorized use of records.

(2.) Professional archivists should have exclusive authority to determine the long-term value of records and the most appropriate methods for ensuring preservation and continuing access to records. In determining the long-term value of records, archivists should be shielded from undue political or personal pressures. Archivists must have sufficient authority and independence to determine the adequacy of documentation, the effectiveness of recordkeeping systems, and the continuing value of records. Archivists should not be pressured into approving the destruction of records because they may implicate, embarrass, or expose the originators or subjects of the records to unfavorable publicity.

These decisions must be based exclusively on professional judgment, guided by a professional code of ethics which forbids professional archivists from revealing or profiting from information they encounter in the course of their work.(2) Professional judgments regarding the long-term value of records should not be influenced by the presence of access restrictions. The Society of American Archivists recognizes that access must be restricted to some records with archival value to protect personal privacy, national security, identities of informants, trade secrets, and information obtained in confidence. The presence of private, confidential, or restricted information is not a reason to destroy records. Archivists are professionally competent to meet the challenges presented by the existence of private, confidential, or sensitive information in the archival materials they administer, and accept the responsibility to administer access restrictions as an integral part of professional work. Professional archivists also accept the responsibility to consult widely with the research community when determining the long-term value of records.

(3.) Preserving electronic records and providing continuing access to them will require significant changes in recordkeeping policies and practices and an enhanced role for archivists in designing recordkeeping systems, appraising records, and setting standards for retention and preservation of records.

Electronic records pose significant challenges to the archival profession. The PROFS litigation is only one of many examples that illustrate the need for new methods and approaches to the long-term preservation of electronic records. The effective management of electronic records requires a clear definition of what is a record and what is not, a mechanism to segregate records from other types of information, and administrative procedures and technical means to manage records over time. Recordkeeping systems must be designed to make appropriate distinctions between records and non-record material so that such distinctions are made systematically, consistently, and as automatically as possible. Defendants in the PROFS litigation are now attempting to segregate records from other types of information after the fact from materials stored indiscriminately on back-up

tapes and hard drives. This process is time consuming, labor intensive, and very costly.

To reduce the risk of legal actions, loss of valuable records, and expensive recovery procedures, recordkeeping requirements must be identified so that systems can segregate records from non-record material automatically. Organizations must then take appropriate measures to ensure that records with continuing value are not corrupted inadvertently, or intentionally deleted, lost through system failure, or rendered inaccessible from hardware or software obsolescence. Professional archivists can provide advice that would allow for the creation of systems able to:

- (a.) segregate automatically records from other forms of information;
- (b.) maintain the integrity and authenticity of records;
- (c.) ensure the accessibility of records over time;
- (d.) protect their confidentiality;
- (e.) ensure appropriate flow of records in relation to administrative processes;
- (f.) maintain proper documentation of systems, records, and transactions; and
- (g.) administer the regular and orderly disposition of records with no continuing value.

Archivists can provide advice on storage media for short-term and long-term preservation, on retrieval systems, and on proper procedures of control, audit, and review of recordkeeping practices.

Archives must expand their capabilities to advise others in the maintenance and preservation of electronic records, and archival institutions must make an active effort to acquire, preserve, and provide access to electronic records when the originating organization or individual is unable or unwilling to preserve records with long-term value.

The Society of American Archivists believes that meeting the challenges presented by the widespread use of electronic records systems will require significant changes in archival practices and

in the relationship between archivists, their parent institutions, and allied professions.

In the Society of American Archivist's Strategic Plan, Goal Three states that the SAA will position itself to lead the archival profession and represent the interests of the profession in shaping policies and accepted practices for identifying, preserving, and using electronic records." To achieve that goal, Society of American Archivists is developing guidelines and services aimed at preparing archivists to meet this challenge.

In 1993, Society of American Archivists Council endorsed curriculum guidelines for automated records and techniques which recommend that all professional archivists are exposed to the basic concepts of electronic recordkeeping and automation in archives by the year 2000. In 1994, Society of American Archivists established an Electronic Records Strategies Task Force to provide further guidance to the profession on electronic records issues.

Notwithstanding the many initiatives that the Society has taken, is taking, and will continue to take, the challenges presented by the ever increasing use of new information technologies and by the rapidity with which they change are too formidable to be dealt with in isolation. A larger collective effort is needed to ensure that individuals and organizations acting on behalf of society remain accountable for their actions and that future generations will be able to look to the records of the past for inspiration, warning, guidance, or simply to reflect on the past.

The Society of American Archivists reaffirms the ultimate importance of creating and maintaining reliable and authentic records for administrative and historical accountability. The Society of American Archivists seeks support, cooperation, assistance, and advice in this endeavor from allied professions and everyone who are concerned about preservation of the historical record in information age.

## Endnotes

(1) Scott Armstrong, et al, plaintiffs v. Executive Office of the President, et al, defendants; Scott Armstrong, et al, appellees v. George Bush, et al, appellants; and American Historical Association, et al, plaintiffs v. Trudy Peterson, Acting Archivist of the United States, defendant. All three cases refer to information in the PROFS electronic mail system in use in the White House.

(2) SAA Code of Ethics

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## NEWS BRIEFS

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◆ In mid-October, the **National Archives** published a new draft regulation on electronic records which appeared to permit the destruction of all word processing and electronic mail files without scheduling. Some NARA watchers cried out in horror imagining that NARA had entirely reversed course because the draft of General Records Schedule (GRS) 20, which allows for destruction of routine by-products of data processing systems, was amended to encompass items previously covered by GRS 23. My reading of the regulation is that NARA recognizes that word processing systems and electronic mail systems are not "recordkeeping systems" and authorized the destruction of records from word processing and e-mail systems when they are copied to recordkeeping systems (or onto paper or microfilm as long as structure and context data is retained). Evidently it would help if NARA wrote a more coherent interpretation of what it was trying to achieve and defined recordkeeping systems as part of that guidance. The objections raised by Michael Tankersley of Public Citizen at the least indicate that there is widespread confusion about what NARA intended. [For more information, contact Michael Tank-

ersley at [tankers@essential.org](mailto:tankers@essential.org) and Jim Hastings at [jhastings@nara.gov](mailto:jhastings@nara.gov)]

◆ **The Villanova Center for Information Law and Policy** announced that its web site would be maintained as a one-stop jumping off point for all federal agency web servers. [Try them at <http://www.law.vill.edu>]

◆ **The Program for Art on Film** has moved to Columbia University. In February its staff will issue the first electronic edition of the Program's database: Art on Screen on CD-ROM with G.K.Hall/Macmillan. [Contact Nadine Covert, Program for Art on Film, 2875 Broadway, 2nd floor, New York, NY 10025; 212-854-9570; fax 212-854-9577]

◆ **The Intergovernmental Program** staff of the National Archives is developing a framework for evaluation of the recordkeeping practices of OMB Priority Systems (huge systems involving billions of dollars of federal expenditures). The initial draft report of the project outlines a series of questions designed to identify "best practices . . . on the integration of records management into Federal electronic

systems design and management," according to project manager Marie Allen. They incorporate a top down functional analysis with risk management, technology futures sensitivity, and functional requirements for recordkeeping. I found them quite valuable. [For further information contact Marie Allen, Director, Intergovernmental Programs, NARA, Washington, DC 20408; 301-713-7100 x.224 or [mal-len@nara.gov](mailto:mal-len@nara.gov)]

◆ **The Research Libraries Group** has announced receipt of a \$600,000 grant from the Mellon Foundation to be spent on improving infrastructure and broadening services. Almost simultaneously, RLG also announced that it is moving its online services to Internet Protocol based networking (TCP/IP) and will phase out its older, X.25 packet-switching network. Currently users can search RLIN's 67 million records via the Internet and CompuServe but the X.25 network supports nearly all the terminals used by members to create and update records. Within the next 18 months, RLG will bring into place three new ways to retrieve and catalog: over the Internet, via frame relay through CompuServe, and by dial-up. RLG also announced that the Russian State Archival Service (Rosarchiv) will join RLG and establish an elec-

tronic link making Russian archival material available throughout the world and RLG data available in Russia. Cataloging and access to Russian materials will be facilitated by an NEH grant to the Hoover Institution which is cooperating in the project.

◆ On October 13, the **Library of Congress** announced a project to create a National Digital Library. The effort will be collaborative with other libraries throughout the country and will be funded in a large part by private funds. It was announced in conjunction with a celebration of the receipt of \$13 million in foundation support from the Lucille and David Packard Foundation, John Kluge, and the W.K. Kellogg Foundation to be used to digitize unique historical collections in the Library of Congress. By the year 2000, the Library of Congress and the 60 libraries that are members of the Association of Research Libraries hope to have digitized 5 million items from the major research collections in the nation. Collaborative technical and fund-raising efforts are underway. [For further information, contact the Library of Congress Public Affairs Office at 202-707-2905.]

◆ Six professional associations representing most of the nation's photographers formed the **Electronic Picture Roundtable** in October. The Advertising Photographers of America (APA), Advertising Photographers of New York, American Society of Media Photographers (ASMP), American Society of Picture Professionals (ASPP), National Press Photographers Association (NPPA) and Picture Agency Council of America (PACA) joined forces to study issues relating to the secure and licensed digital transmission of images. [For more information, contact PACA, the Image Works, P.O. Box 443, Woodstock, NY 12498; 914-246-8800]

◆ The **National Telecommunications and Information Administration (NTIA)** and the **Universal Service Working Group of the Information Infrastructure Task Force (IITF)** hosted a large-scale virtual conference the week of November 14-18 to stimulate discussion of issues and policies relating to networking and to demonstrate the power of networking technology. The topics of the conference included redefining universal service and open access, affordability and availability, interoperability, intellectual property, privacy, and access for people with disabilities. To allow for broad participation, "Pub-

lic Access Points" were designated for individuals without computer access of their own. [Contact Charles Franz at 202-482-1835 or [cf Franz@ntia.doc.gov](mailto:cf Franz@ntia.doc.gov)]

◆ **Minnesota State Government** launched **Project North Star** in November. The project is designed to place large quantities of valuable governmental information on the Internet for public access by the fall of 1995. Each Minnesota State agency was asked to nominate content and technical personnel to the task. Public feedback will be assessed and the results will help structure further expansion of the program. [For further information, contact Thomas Satre, Executive Director, Government Information Access Council, [tom.satre@state.mn.us](mailto:tom.satre@state.mn.us)]

◆ On December 7, the federal government officially launched the **Government Information Locator Service (GILS)** with high ranking Commerce, OMB, and NIST official on hand, a demonstration by Eliot Christian, and concluding remarks by Acting National Archivist Trudy Peterson and representatives of library and lobbying groups. Sally Katzen, OMB Office of Information and Regulatory Affairs, announced the issuance of the OMB

Bulletin to implement GILS and Ray Kammer, Deputy Director of the National Institute of Standards and Technology, announced the promulgation of the Federal Information Processing Standard (FIPS) for GILS. Ultimately, the GILS should provide citizens with knowledge of all records systems of the government and of all publicly available information products and how to obtain them. [For more information, contact [gils@cni.org](mailto:gils@cni.org)]

◆ On January 17, the **Canadian National Aviation Museum** announced the receipt of its third major award for the Silver Dart Project. The Silver Dart Electronic Encyclopedia is a collaboration between the museum and an industry partner, Stentor, to make multimedia information on the museum available over telecommunications channels. Ultimately it is hoped in this way to reach schools, other museums, and homes. Three kiosk sites have been established -- at a high school, a downtown visitor information center, and at the Ontario Science Center using BellCanada installed fiber optics from the National Aviation Museum. User satisfaction was measured with different types of interfaces and telecommunications connections. Two Silver Dart workstations are also available in the museum itself. [For more information, contact Victoria Dickenson, Direc-

tor Public Programs, 613-990-5881.]

◆ The **Center for Electronic Texts in the Humanities** has received a \$300,000 grant from the National Endowment for the Humanities to enable it to establish a greater presence and move to consortium supported status in the future. [CETH's WWW address is <http://cethmac.princeton.edu>.]

◆ The **National Moving Image Database (NAMID)** announced that as of February 28 a significant portion of its database (about 80,000 of its 300,000+ records) will be publicly accessible by dial-up modem with future plans for Internet access. The data will include records from the major film archives and libraries of the US, will be fully searchable by keyword, or limited by institution. [Dial in at 213-962-6518.]

◆ The **Time Warner Full Service Network** was "opened for business" on December 14 in Orlando. FSN, which has been under development for more than two years, is a testbed of a series of advanced technologies that together deliver digital, interactive television to the home market. The FSN partners -- Silicon Graphics which provided video

servers, Scientific Atlants which established the cable infrastructure, and AT&T which developed the ATM switch -- encountered a wide range of technological hurdles on the way to opening the system. At the time of the roll out, these technological hurdles had largely been overcome but installation (initially intended for 4000 homes by June) was complete in only four houses and content services were still thin. The partners were not at all chagrined, indeed they celebrated what they each described as significant achievements to date. Silicon Graphics CEO Ed McCracken noted that his team had developed a transparent interface and instantaneous response time and had done it with a technology they expect to be affordable to the average home by 1996. Other companies involved in different aspects of the service (including HP, SGI, Toshiba, AND Communications, Anderson Consulting, Ikonc Interactive, Medior, Objective Systems Integrators, and Warner Brothers) also expect to be forced to design in new ways and solve new problems by the field test -- indeed that is the primary reason most are involved. Ultimately the test will be consumer acceptance. In the meantime the technologies being deployed need to be studied carefully for their potential implications for any interactive multimedia services in the future.

#### ◆NTIA Announces 1995 Grant Competition

The National Telecommunications and Information Administration of the U.S. Department of Commerce has announced a second round of grants to assist nonprofits in demonstrating innovative ways to use the National Information Infrastructure (NII) to serve the public interest. This round will expend \$64M (or \$34M if the proposed 1995 revisions are approved by Congress and not vetoed) on projects that improve the quality of, and access to, education and lifelong learning, reduce costs of health care and other social services, promote accessibility of government, enhance public safety, or promote economic development. Awards will be made in October 1995. Last year awards were made to the Consortium for Computer Interchange of Museum Information and the Consortium of Free-Standing Natural History Museums.

#### ◆NHPRC Issues Electronic Records "Suggestions"

The National Historical Publications and Records Commission has issued new "suggestions" on how to apply for its electronic

records grants. The new title (no longer "Guidelines" because Federal Agencies are under constraints about issuing rules) take into account developments in electronic records since the publication of the 1993 guidelines and reflect the evolution of the research agenda reported from the 1991 NHPRC sponsored working meeting. While mostly instructions on the application process, thoughtful reflection is given on the progress made and issues still needing to be resolved. [For further information contact: Lisa Weber, NHPRC, Archives 1, Room 607, Washington DC 20408; 201-501-5610 or Lisa.Weber@arch1.nara.gov].

#### ◆Task Force on Archiving Digital Information

The Research Libraries Group and the Commission on Preservation and Access have formed a joint task force on digital preservation with representatives of the national libraries, archives, major universities, publishers and networks. The group, co-chaired by Donald Waters (Yale University) and John Garrett (Corporation for National Research Initiatives), will meet primarily electronically and expects to report by the end of May. [For further information contact Richard Kohn, RLG, 415-691-2255 or the co-chairs by e-mail].



### GENCAT Version 3.1

*Company:* Eloquent Systems, Inc.

*Address:* 25 - 1501 Lonsdale Avenue, North Vancouver, British Columbia Canada V7M 2J2

*Telephone:* 604-980-8358 or 1-800-663-8172; *Fax:* 604-980-9537

*Price:* from \$950 (for single user base system) plus annual support from \$450

*System used for testing:* stand-alone IBM compatible, 486, 33MHZ, 8 MB RAM, SuperVGA color monitor, DOS 6.0 and Windows 3.1.

*Printer:* HP LaserJet IIP

by Marion Matters

#### INTRODUCTION

One of the participants at an SAA MARC workshop, when asked what he or she planned to do with the information acquired at the workshop, responded, "Hire a cataloger." My advice after working with GENCAT is "Hire a developer."

This is not out-of-the-box-and-into-production software. Like any other database development product, you have to make it do what you want. With GENCAT there is one big difference -- it has some very intelligent features designed specifically to handle "collection" databases.

The GENCAT introduction states "Each collection database is structured by defining all the fields for describing the items in the database. This will result in the automatic creation of an item entry screen, a research screen, a display format, and a report format. That is all there is to it unless you wish to create additional item entry screens, research

screens, sort sequences, display formats, or report formats." If that's all you intended to do, it would be a pity. GENCAT's best features are the ones that enable the developer to go significantly beyond this basic configuration. Those features, however, are not intuitively easy to apply. While I am impressed with GENCAT's power, the GENCAT user interface is clunky, and, for a person now used to the common user interface of Windows software, frustratingly idiosyncratic. (The Mac people were right all along.)

Besides generic GENCAT, I also explored the Archives Prototype developed for the University of the West Indies by information systems consultant Nicolas Maftai. Brian Speirs, archivist at the university, prepared specifications that incorporated compliance with Rules for Archival Description (RAD). Maftai was very helpful in answering my questions, both about the Archives Prototype and about GENCAT itself. Finally, I installed and used the MARC import and export module, but did not spend much time with the sample MARC collection provided with it.

GENCAT was too feature-rich to explore in all its detail for this review. I did not work at all with: the hierarchy support file module; making global changes; defining columnar, merge, and label report formats; defining application menus; defining users and passwords; ASCII import and export; and image retrieval. GENCAT can be networked, but not from my computer.

#### OVERVIEW AND SYSTEM CHARACTERISTICS

GENCAT was written using Advanced Revelation™ (AREV), a relational database development system, from which it derives much of its "look and feel." From previous exposure to Advanced Revelation™, I recognized many of the same features.

With GENCAT's base system you can define databases (GENCAT calls them collections) that include pointers to value tables. In GENCAT parlance, a table is one kind of support file. By installing extra "modules" for a particular collection, you can define additional support files (hierarchy files and authority files), item pointers, collection pointers, and MARC import/export protocols. Item pointers provide links between

individual records in the same collection database; collection pointers provide links to records in another collection database.

The program, along with the Archives Prototype, sample MARC collections, and another modest test database, occupied 5.8MB.

I had some initial problems loading the Archives Prototype, getting a surprising “out of memory” message -- surprising because my 8 MB of memory has been enough for everything else I do. After a call to Eloquent’s helpful customer service representative, Lynne Hunks, I found out that Advanced Revelation/GENCAT requires about 1MB of expanded memory to handle databases with large numbers of fields. For Windows users, this is not normal. Windows programs do not use expanded memory but extended memory. I had to make changes to my config.sys file in order simulate expanded memory to run GENCAT reasonably. It turned out to be relatively simple (once I interpreted the online DOS documentation), and I should have no trouble returning my system to normal when I’ve finished with GENCAT. But I didn’t appreciate having to do it.

GENCAT runs as a task under Windows, as long as you have enough extended memory masquerading as expanded memory. It is possible to use a mouse for navigation and selection of some options, but the interface is keyboard-oriented. Screen display formats seldom have scroll bars, for example.

Oddly, the program doesn’t have a good “quit” or “exit” method. You are supposed to press <escape> repeatedly until you exit. Shouldn’t this be a menu option? I inadvertently discovered that as a SYS (system manager) user I could access an Advanced Revelation menu bar with drop down menus, including an “exit” option. Now that is something that GENCAT could have used. GENCAT’s menus all start from a single initial menu, which means you end up navigating up one menu tree and down another to get from one function to another.

Another peculiar thing happens when I deleted a collection. The system took me back to DOS, not to an initial GENCAT menu screen. If that’s the way it is supposed to work, it doesn’t suit me.

## DEFINING THE DATABASE -- FIELDS, SCREENS, SUPPORT FILES, MENUS, USERS

Defining a database in GENCAT is more work than with some other software I have used. That is partly because of the already-mentioned clunky interface, but mostly a function of the number of options available, especially in defining fields. Wow. You may specify for every field: key (unique code), short and long names, description, entry type (optional or required), uniqueness check, single or multiple values, type (edited, pointer, synonym, user, symbolic), and help text. For text fields you may also specify display length, use of special or global stopwords in the field index, use of synonyms in the field index. “Edited” fields require that data entered meet certain defined rules -- which you specify (most of them have to do with numbers and dates). Symbolic fields may be used to generate information by manipulating data from other fields. For example, rather than editing a series-level statement of extent every time I got a new accrual, I might want to have a symbolic field that calculated the quantity of all accruals associated with a series (provided, of course, that I had a separate, linked, record for each accrual). Custom definition of a symbolic field, however, is best left to GENCAT staff or a consultant familiar with Advanced Revelation™.

Besides the primary fields described above, you may define group research fields and group display fields. These allow you to associate two or more fields so that research or display screens will treat them as one field. The group display fields can contain literal text as well as data fields -- very useful if you want to maintain separate fields for data management (or MARC compatibility) purposes.

You might, for example, define separate fields for title and inclusive dates, with the values Speech files and 1948-1964. Then, using a group display field, you could make them display as Speech files, 1948-1964 (which follows the APPM convention).

And there are some undocumented enhancements, which I discovered when talking to Nicolas Maftai. I remembered that Advanced Revelation™ provided for associated multi-valued fields (see the description of the test database, for examples). I couldn’t find such a feature mentioned in the documentation, but Nicolas knew it was there, in the

popup of “softkeys” (Revelation terminology for shifted function keys) available when you define data entry screens.

Menu definition, although I did not work with it directly, allows the developer to tailor and control all menu screens for a particular database, or for a particular user or user class (also subject to definition in GENCAT).

GENCAT’s use of pointers -- to separate authority files, to items in the same collection, and to items in other collections -- is significant. It’s really a relational database feature, but implemented in terms that make sense in the context of collection databases. In the Archives Prototype, when you display a fonds-level record, you have the option to move immediately to a display of all the series linked to it, or all the files linked with a series. During the field definition process GENCAT can automatically make the links reciprocal (that is, if you define a relationship from file to series, GENCAT can automatically generate the link from series back to file). If you display a series record, you have the option to move to a display of the fonds to which it belongs. This is definitely the way things should work. The only problem is that the displays aren’t windowed; you can’t view two levels at once.

## ENTERING DATA

The GENCAT/Revelation editing capabilities are limited; and when it comes to entering multi-valued fields, quite inelegant. Here is a representation of a portion of the data entry screen from my test database of administrative histories (I have used line numbers here only for reference; they are not on the screen):

1	Record no.	320
2	Name	1 Minnesota. Banking Division
3	Authority	Text
4	1925 Minn. Laws	Cha [text of law]
5	Function	Charters, licenses, and supervises financial insti
6	Established	1925
7	Ceased	1983
8	Subordinate to	26 Minnesota. Dept. of Commerce.
9	Successor to	50 Minnesota. Dept. of Banking.
10	History	The Banking Division succeeded the Depart. of Banking
11		The division is the chartering, licensing, supervi
12		The division conducts regular examinations of the

Line 5 is a text field that contains more than the single line of text displayed. To enter or edit the entire contents of the field conveniently, you have to press <CTRL><e> to bring up an edit window. Otherwise, your data entry line would scroll to the left and out of sight. In lines 10-12 each paragraph (represented by the single line displayed) is a separate value of a multi-valued field (as it was in the MARC source record). There is no way to edit them all at once. When you press <CTRL><e>, you only get one at time.

And would you believe there is no way to cut-and-paste anything other than an entire field -- and that capability is currently undocumented? (Nicolas Maftei let me in on that one, too.)

Note: the numbers in the third column of several fields are record keys (unique record numbers) for the associated authority records; the ubiquitous appearance of keys on entry screens is an unmodifiable feature that I find distracting.

## INDEXING

The type of indexing, if any, for each field is specified in the field definition, where you can also define field-specific stopwords and

synonyms. In a separate process, you can define global stopwords and synonyms that apply to all indexes (GENCAT comes with a default set of stopwords). The synonym feature means that you can index the existing words in narrative text fields and still have some of the advantages of an authority file. Good idea.

You do have to be careful to force the updating of indexes before searching if you want the search to use the most current data (you do this using search screen definition workforms). If you don't update indexes before a search, results could be misleading or confusing.

When you import a large number of records, you can choose to have the imported data indexed immediately, or you can save on import time by turning off indexing during the import (later you rebuild the indexes in a separate process).

## SEARCHING

In describing database definition, I mentioned that you could define group research fields. You can also define custom research screens as necessary (GENCAT provides a default). This way, you can make the research process either transparent or explicit to users, depending on their research skills and preferences. You can mask Boolean operators and set up the screen so that the user only has to fill in the blank(s). You can restrict searches to subsets of the database.

Such flexibility can occasionally lead to problems. I was momentarily taken aback when I got 14 hits on a search using one search screen and 5 hits using the same term(s) on another search screen. It was perfectly logical when I finally figured that the underlying search protocol might have been different. (I was experimenting with screens intended for different purposes and different users, so ordinary users probably would have been spared the confusion.)

The result of a search is first displayed in brief form, one line per record (this display can be customized by the developer). The user may select from it any or all records for detailed display; if a record contains pointers to other records, the linked records may also be displayed by the same process.

Indexing in GENCAT does not have quite as many options as I remember from Inmagic (reviewed previously), and search screens aren't quite as easy to set up and use, but it is still very, very good -- better than many existing online catalogs. I believe that, with care, GENCAT could be used to create a reasonable public catalog. If only the displays were a little easier to navigate (and maybe they could be made so with a little more tinkering than I was able to do).

## DEFINING AND PRINTING REPORTS

Ugh. All report definition must be done using text parameters, not even remotely close to "what you see is what you get." Having dealt with enough of this kind of report definition in life, I decided that I would take it mostly on faith. Yes, it looks as if you can define any kind of report you might need and there is a quick test or preview feature.

I did try one report format, specifying a double-column format in a proportional font for my Postscript printer, mainly to see how badly it would work. Pretty bad, since the report specifications call for margins and column widths in characters rather than ruler measurements. I should have stayed with monospaced fonts.

When I tried to suspend printing after seeing enough to recognize my error, I eventually ended up at the Advanced Revelation system prompt, with no way to get back into GENCAT. (This happened two other times when I was in the midst of searching and displaying records, although I can't quite manage to reconstruct the process.) The system responded to a logoff command (when in doubt, I always try quit, end, exit, logoff, or logout) -- and I was back at DOS, safe, but not happy. Having a Postscript printer can be interesting.

## MARC IMPORT/EXPORT

GENCAT's MARC import/export module has all you need -- as long as you know what you're doing with MARC (and that isn't GENCAT's responsibility). The system provides field by field mapping capability. You tell it what GENCAT field is equivalent to what MARC field or subfield (or vice versa), which fields to ignore, and that's about it. You can combine MARC fields/subfields to create a GENCAT field. You can

“stamp” fields with constant data and you can specify an overflow field in which the system will dump data from any incoming field you failed to specify in the mapping. It all worked very well for my test involving a few fields extracted from a 300-record MARC source file.

If you import data into a field that is defined as a pointer, the data actually goes into the table or authority file to which the field points. This allows you to create authority files automatically, a very useful feature. The portions of the documentation dealing with support files don't make this quite clear (or I missed it). This capability is mentioned in vendor publicity, however.

Using GENCAT screen definitions, the developer can show or hide MARC coding, as appropriate for different users.

## AUTHORITY FILES

GENCAT has a predefined -- and fairly simple -- authority record format for its authority support files. It includes the established term, see from and see also references, a description, and synonyms. When you add see from or see also references, GENCAT can automatically create reciprocal references.

It was disappointing at first to discover that the fields in this file were not definable as in the collection database, because this format would not accommodate complete MARC authority records. However, I understand that GENCAT is in the process of further developing the authority file and a true thesaurus that will do so.

## RAD PROTOTYPE

The prototype is intended to show how a GENCAT application can support multi-level archival description according to RAD. This it does, but the prototype is just that -- not a “finished” application. The real value of the prototype, to me, was the demonstration of record linking through pointers -- tables, authorities, and hierarchical levels.

There are some things I might change if I were developing the application further. The prototype has a hierarchical fond/series/file/item number-

ing rule, but it appears that the user must follow the rule when entering data manually. I'd prefer that the system built the number according to the rule, or at least let me know what the next number in sequence would be, or of any gaps in sequence. This might require a symbolic field developed by someone knowledgeable in Advanced Revelation™.

The prototype entry screens have lots of fields, most of which will be very seldom used. In the short time I thought about it, I couldn't come up with a way to have a basic data entry screen and allow the user easily to add to it only the fields actually required for the record. But that might be what I'd want.

Incidentally, the prototype allowed me to enter a duplicate accession number, which I think perhaps it should not have done.

## TEST DATABASE

After poking through menus, trying various program functions, exploring the Archives Prototype, and consulting the sometimes mystifying documentation, I finally was ready to create a test database of my own. I decided to concentrate on administrative histories linked to series, using data on Minnesota agencies.

First I set up authority files for corporate names, personal names, and forms of material. Defining authority files requires little more than naming them, since the fields are predefined.

Then I defined a limited number of fields for administrative history, series, file, and item records (keeping it simpler, for my own testing, than the seven-level structure of the Archives Prototype).

I puzzled over how to deal with citations to statutory or other legal “authorities” (yet another use of the word) that govern agency operations, and how to deal with agency heads (directors, commissioners, etc.). An agency could have more than one legal authority, which would call for a multi-valued field. But I wanted to have separate fields for the citation and the text, and they needed to stay together. Similarly, an agency would have multiple directors over time, and I wanted to have separate fields for the name (authority-controlled) and for period of

tenure. The answer turns out to be in associated multi-valued fields, the currently undocumented feature I mentioned earlier.

It's like having a database within a database. Associated multi-values are presented horizontally on data entry screens. (See lines 3-4 of the example above, which shows the position of the associated multi-value entry prompt for Authority and Text, but with no real data in Text.)

Then I used the MARC import module to import administrative history data and established forms of agency names; this populated both the administrative history records in the database and the authority support file.

## DOCUMENTATION

The major problem with the documentation is shortage of examples. This is particularly obvious in the sections on defining reports and defining research screens.

At least one function is described without giving a clue to its utility. For example, the function "Linking to an Existing Database" in the system maintenance section "establishes the link to the pair of subdirectories of an existing collection." Why would I want to do this? The documentation is silent. (Later I found out that it might be used for testing and development purposes.)

## SUMMARY

GENCAT is a powerful program whose linking and searching features and variable length fields records make it one of the best for developing "collection" applications, such as are required in archives and museums. It has strong data import and export modules, and potentially better MARC compatibility than most other generic database software (depending, of course, on how the database is designed). Its text-based interface, which any application would inherit, does not meet today's expectations for ease of use. (I am told there is a Windows version on the horizon.) Development is a time-consuming, but there is no actual programming involved. You must work with the manual open, and the manual lacks sufficient examples. The RAD-compliant Archives

Prototype provides a developer with an interesting place to start, but it isn't a "finished" application.

Who would be most likely to find GENCAT worthwhile? An institution that wanted an integrated collection management system and OPAC, could afford to invest in development as well as in the software, and could live with the DOS text-based interface. I would really like to see a Windows version if it becomes available.



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## SOFTWARE NOTES

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### CD Publications

•**ZCI Publishing** [1950 Stemmons, Ste. 4044, Dallas, TX; 800-POWERCD] has published *History Through Art* for about \$25 each. The many titles in this series -- Ancient Greece, Middle Ages, Renaissance, The Baroque, The Enlightenment, Pre-Modern Era, Twentieth Century -- promise a full survey of Western Art but the visuals and search system are weak and the result, according to *CD-ROM Today* reviewers, is good for high school students in an introductory course but not suited to colleges or interested adults.

•**Art-ROM Ltd.** [14015 N. 94th St. Suite 1116, Scottsdale AZ 85260, 800-278-7661] has blanketed the museum community with offers to publish profiles of museums and their collections, along with images selected by their museum staff, on a collective CD-ROM entitled the *ART-ROM Museum Series*. I haven't seen any product yet, but they claim museums are signing up in droves.

•**Dorling Kindersley Multimedia** [New York, NY 800-356-6575] has published an interactive version of *The Way Things Work* by David Macaulay (\$99.95) and

Stephen Biesty's *Incredible Cross-Sections Stowaway!* (59.95) which shows the inards of a ship. These titles are particularly interesting to museums, I think, because they demonstrate how info-tainment can explain complex technical history. In addition to the simple explanation by detail, they contain games, timelines, and explanation by animations.

•**Accessible Archives Inc.** [697 Sugartown Rd., Malvern, PA 19355; 215-296-7441] is advertising *The Civil War: A Newspaper Perspective* containing the full text of 2,500 issues of newspapers published between November 1, 1860, and April 30, 1865, in two Southern papers, the *Charlestown Mercury* and *Richmond Enquirer*, and the most important Northern paper, *The New York Herald*. Other Accessible Archives CD products include two Pennsylvania newspapers through 1870.

### Digital Videodisc

Just as Sony and Philips unveiled their digital videodisc (DVD) technology at the Winter Consumer Electronics Show,

Toshiba and Time-Warner announced the support of virtually every other major industry player for an alternative. The Toshiba/Time-Warner SD (super-density) DVD will be a double-sided 5" disc that holds 5GB of data (135 minutes of variable rate MPEG2 video) on each side, provides a minimum of three language channels and four subtitle channels (capacity eight languages and 32 subtitles) as well as Dolby AC-3 sound (5.1 channels, the same dynamic sound as in movie theatres). The new format, already in production at costs equivalent to that of other high density discs, can hold HDTV when the blue-laser required for it is available. It also includes parental lock-out to permit adults to limit viewing by children. SD products and players should be expected by the fall of 1996 at around \$500 for players and \$30 for titles. Expect Sony and Philips to throw in the towel.

□ **Apple Computer, Inc.**, has announced terms for licensing Quick-time VR 1.0. Run-time licenses will be available for Apple Macintosh, Power-PC, and Windows machines with authoring licenses on Macintosh as of March 1995. The authoring tool will be priced at \$2000 per single user. Royalties for run-time copies will be \$0.80 or \$0.40 per

unit (based on number of uses of VR) for commercial distribution. Non-commercial run-time royalties will be waived. Currently the run-time software requires HyperCard 2.0 or later or Macromedia Director 3.1.3 or later. A "C" language programming interface will be available later in 1995.

□ **Artifact, Inc.** [1130 Ten Rod Rd., #E104, N Kingston, RI 02852; 800-278-3228] announced version 1.5f (fine arts) which has added 60,000 new entries and 2,000 additional images as well as several new auction houses to the prior edition and version 1.5d (decorative arts) with an additional 150,000 records and over 4000 new color images. All Artifact databases now incorporate the full Art and Architecture Thesaurus and allow for its search.

□ **Inmagic, Inc.** [800 West Cummings Park, Woburn, MA 01801] has announced the availability of INMAGIC Scan, software to link scanned Group II and IV TIFF images with INMAGIC databases. In addition, it is now distributing maintenance re-

leases, freeware, tip sheets and other such information over the Internet by ftp. The new software was advertised as an introductory special at \$99 per user in increments of 1-, 5-, 10- and 20-user licenses.

□

**OpenText Corporation** [180 Columbia St. W., Waterloo ON N2L 3L3 CANADA, 519-888-9910; ifo@opentext.com] has released **OpenText5** a system for rapid retrieval of large volumes of full text in native word processing, database, and spreadsheet file formats as well as in SGML. The client/server system is designed for searching words, phrases, and SGML elements; runs on a wide variety of platforms; and provides multi-lingual support including scripts of Asian languages.

□

**CGI Group Inc.** [275 Slater St., 19th Fl., Ottawa ON K1P 5H9; 613-234-2155] has implemented its **AMICUS** system at the National Library of Canada. It is also adapting it to serve the National Research Council and the National Archives as their primary cataloging facility. **AMICUS** is client/server software with an SQL-based RDBMS for structured data and as text manager for unstructured data. It supports

Z39.50 for information retrieval, TCP/IP and OSI protocols, and the standard ISO 8646 and 8859 character sets. It provides a fully bilingual user interface, but the National Archives is, apparently, investigating its own interface to support more hierarchical display of records documentation.

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### Continuum Name Change

**Continuum Productions** changed its name to **Corbis Corporation** in 1995, apparent reflecting a change of strategy in licensing images at the same time. Reports from the community suggest that the rights acquisition arm of Corbis (**Corbis Media**) is offering more acceptable terms and a more business-like approach to rights. In addition, the publishing arm of Corbis (**Corbis Publishing**) has released its first CD on the **Barnes** collection (rights to which were acquired by Continuum). I suppose we owe them thanks that they have been so outrageous in their efforts to acquire rights in the past that they have mobilized the museum community to think about the terms under which it is willing to provide licenses (see the **Museum Multimedia Study Group** entry under **Standards and**

the **MESL** report under **News** in this issue). [*Corbis Corporation, 15395 SE 30th Place, Suite 300, Bellevue WA 98007; 206-641-4505; fax 206-746-1618*]

□

### TULIP Project Spawns Commercialization

**Elsevier Science**, the sponsors of the **TULIP** experiment in electronic journal distribution, has launched a commercial, though still "experimental" **Elsevier Electronic Subscription** service for its traditional research journals. Bitmapped pages and ASCII files will be provided to be used with the software available on university campuses. The service will initially be available to a small group of invited universities, but is expected to grow as experience is gained. [*Contact Roland Dietz, 212-633-3945; fax 212-633-3935*]

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### Intellectual Property Rights Control System Test

**The Intercom Ontario Consortium**, a group composed of over 60 public and private organizations in Ontario, an-

nounced early in March that it was launching **IVY**, a system designed to provide accountability for intellectual property of the information highway. The software, jointly developed by **Disus**, **SOCAN** and the **CulTech Collaborative Research Centre** addresses concerns of content holders for protection and distribution of royalties. The first implementation will be at **York University** as a test site. The tests will develop realistic models of use patterns, how users interact with applications, how long they use what content, and what they are willing to pay for it. [*For further information, contact Paul Hoffert, Intercom Ontario, York University, 230 York Lanes, 4700 Keele St., North York, M3J 1P3; 416-650-8011; fax 416-736-5404; polibop@yorku.ca*]

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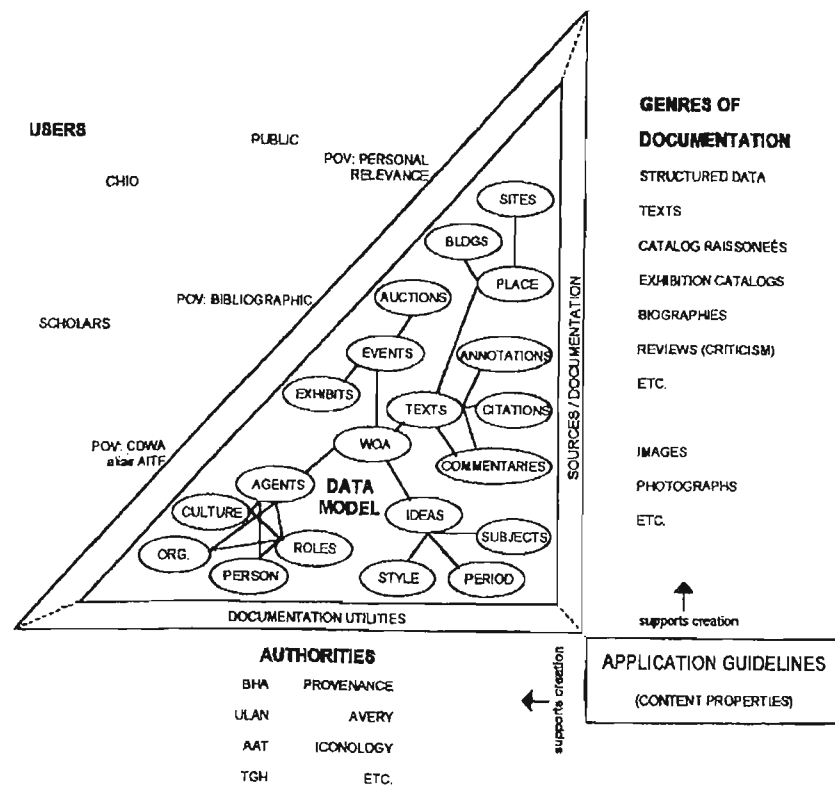
## CIMI Entertains New Framework

In late November, at a meeting of various working groups of the Consortium for Computer Interchange of Museum Information (CIMI) in Napa, California, a series of conceptual problems arose in framing the role of the Art Information Task Force's Categories for Description of Works of Art (CDWA) and relating them to two different draft SGML DTDs being proposed for project CHIO. Could the CDWA provide criteria by which the two DTDs could be assessed? What was the relationship between the CDWA and the way museums should document their collections? What was the relationship between the CDWA and the Z39.50 attribute set that would be used in querying museum databases? How should work on the SGML DTDs and the Z39.50 attribute set proceed?

At a December meeting of some of the project participants and consultants at the Getty AHIP offices in Santa Monica, a suggested framework for understanding the relationships between different standards in the project was elaborated. According to this framework, the universe that we must deal with in documentation of cultural objects can be conceptualized as a triangle. On one side of the triangle is the universe of primary and secondary documentation, consisting of texts, images, sounds, artifacts, and object databases. On another side is the universe of tertiary documentation consisting of reference files or authorities, such as vocabularies, bibliographies, provenances, and classification schemes. Along the hypotenuse are the users, who wish to look through the refractive lense from their own "point of view" and see the universe of cultural documentation according to criteria relevant to their intellectual perspective. The challenge is to identify the standards for description of primary documentation, construction of secondary knowledge bases, and formulation of points-of-view that will enable access by different users to the information they need.

This picture (see opposite) helped the participants to place several vexing issues confronting project CHIO into perspective. These were

Fig. 1 CHIO INFORMATION REFERENCE MODEL



the role of the Text Encoding Initiative guidelines in the formulation of the CIMI DTD, the role of data standards such as the CIDOC data model, the relationship between tertiary documentation and the universe it portrays as well as between tertiary documentation and the user query, the search for data elements that should be incorporated into a Z39.50 attribute set, and the specific question of how best to understand the Categories for Description of Works of Art. Beginning from the realization that the Categories for Description of Works of Art were, as the AITF had always insisted, not a data model but a scholarly point of view, it was possible to generalize that other points of view also needed to be defined in order to identify the elements that would be required in a Z39.50 attribute set to support multi-database searches. If we could

define concretely a set of points of view that we needed to satisfy, we would have a user requirement. These could then be mapped to the CIDOC data model in order to identify the data elements that would satisfy the perspectives we identified.

How then could we ensure that the data needed by users would be found by their queries? First, we needed to understand the dual role of the tertiary databases: (1) to uniquely identify, by all the names by which it might be known, a single entity or concept; and (2) to provide additional data about that entity and references to the sources in primary and secondary documentation in which this data was found. This definition made it possible to see that queries about a bibliographic entity should be “passed through” a tertiary bibliographic authority and those about persons through a tertiary biographical authority. This will enable the identification of the unique entity about which the user is asking and identify other terms that might be used for it in the primary and secondary literatures. By this means, and by passing the results back through the tertiary databases for recombination under the appropriate heading, we achieve “intellectual integration” between diverse sources.

The second requirement for satisfying user queries is to recognize that primary documentation takes the form of “genres” in text, sound, and image. These genres are recognizable to us by formal properties even before we assess their content. A speech, a song, and a chat between neighbors are as easily distinguished as a letter, an auction catalog, and a review of an exhibition. These formal properties of documentation were the subject of the Text Encoding Initiative (although the initiative did not address sound and image genres and was less specific in the distinctions between textual genres than we might wish to be in defining types of cultural documentation). In addition to documenting formal properties, our secondary sources and databases document content of the primary objects, images, and texts we have. Each documentation program does this according to its own “application guidelines.” Thus museum registrars document objects according to one broad “application guideline” which, while differences will be found in what they record, will have more in common with the documentation created by other registrars than it will with the documentation produced by the application guidelines governing bibliographic documentation centers, photo agencies, customs and police bureaus, or archives. In principle,

these application guidelines can also be mapped to the CIDOC data model (or, if necessary, to an extension and elaboration of it), and thus to the tertiary literature and to the users point of view.

We recognized that primary documentation has a genre aspect and that secondary documentation programs operate according to “application guidelines” that can be identified and occasionally are embodied in their own standards. This enabled us to focus on the primary and secondary documentation itself as the source of information about the structure of the DTD. Rather than defining a framework for markup from the CDWA, which was the end user point of view, we realized we needed a framework for markup that satisfied the application guidelines of the documentation sources we were using and reflected the formal properties of the genres we had to mark. We were able to propose as a next step for Project CHIO that it acquire the documentation which its members possessed concerning the folk art objects that are the subject of the prototype/demonstration project, and that from these sources the SGML experts and subject content experts together could determine what markup was required on a genre-by-genre and application-guideline-by-application-guideline basis. The markup would take its expression from the concepts in the data model and then could be mapped both to the tertiary documentation and to the end user perspectives. We recommended that, at the same time, work continue in documenting points of view so that when the content markup proposals were completed we would be able to validate their ability to satisfy the points of view and thereby be in a position to define the Z39.50 attribute set.

This proposal was put to a working group of Project CHIO and SGML consultants convened by CIMI Project Manager John Perkins in Washington, DC, in early January and received their support. The following two days AHIP staff held a workshop to determine how best to tease out “points of view” and what aspects of points of view would be necessary to document. The results of that workshop are discussed in the following report by Jane Sledge and Mary Case.

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## Looking for Mr. Rococo: Getty Art History Information Program Point-of-View Workshop

Jane Sledge, Getty AHIP and Mary Case, (QM)<sup>2</sup>

On January 10-11, 1995, the Getty Art History Information Program (AHIP) and the Consortium for the Computer Interchange of Museum Information (CIMI) held a meeting to examine underlying assumptions about museum information, to study existing demands on data by users, to examine how museum staff respond to users' requests, and to consider potential audiences and their points of view.

This meeting hoped to begin a discussion leading to development of a museum attribute set for the Z39.50 exchange protocol, an important part of the CHIO Access project: "By implementing the Z39.50 standard, CHIO Access will demonstrate the ability to use many local user systems to search and retrieve information from each of these databases singly and concurrently from two or more."

While the importance of the development of a museum attribute set for retrieval purposes (Z39.50) is clear, little has been done in the way of a needs analysis to provide a firm basis for the development of the attribute set. Originally the meeting was planned to bring a key group of museum data managers together to compare data sets and develop a preliminary list of categories. After some thought, AHIP recommended that it would be useful to examine the requirements from other perspectives rather than leap to the obvious answers. The meeting evolved into a seminar that examined closely held assumptions about the information that audiences ask of museums and how museums should respond to the requests. The discussion focused around a theme of "points of view" as a starting point for information gathering about the needs and interests of our publics. An article in *Wired* by Paul Saffo, entitled "It's the context, stupid" notes: "It is not the content but context that will matter most a decade or so from now. The scarce resource will not be stuff, but point of view .... The future belongs to neither the conduit or content players, but those who control the filtering, searching, and sense-making tools we will rely on to navigate through the expanses of cyberspace." The participants gained a strong sense of the significance of developing

the right tools, access points, and an understanding of different points of view during the meeting.

Participants were invited to bring 20-25 questions that had been asked of their systems by the general public or specified target groups. Participants spent most of the first day of the meeting analyzing the complex information contained in the questions and examining the potential answers. It became evident that many of the questions that had been brought to the meeting as evidence were "pre-digested" questions that had already been slightly changed or generalized by the participants. It was suggested that we back up even further to carefully study the original user questions in light of the system and the software to which they were posed. Overall, however, the questions initiated much discussion and led to startling and interesting revelations.

One often asked question: "What works do you have by a particular artist?" (in the actual question the artist would be identified) demonstrated the difficulty of developing an attribute set. The meaning of "works" must be known. Does this include attributed works? The importance of the more study of linking terms or relators, i.e., "do you have" and "by," was evident to the participants. Does the phrase "do you have" mean the site being asked the question or "existing in museums" or "known" or "on display right now?" Does "by" include "in the manner of?"

It was also evident that we need to know more about the intended use of the answer. For example, the favorite question of the meeting was: "Do you have any pictures of interiors designed by Mr. Rococo that are suitable for framing?" If this question was posed against an online database that searched the artist-maker-cultural group field for the term "Rococo," no response would be found for "Mr. Rococo." Another important part of the question; "suitable for framing," indicates an intended use of the answer. The question requires a response that points beyond database information to a sales catalog and may include reproduction information. This question raised a discussion about the importance of a mediated dialogue, the institutional cost of providing an information desk service, and the importance of the design of the user interface.

The questions demonstrated a need to link to other databases. For example, it would be useful for the responder to know of research projects developing databases of gay art to formulate an answer to the question: "What images of women are there that are created by gay men?" Research into the provision of information tool sets to assist responders is important. This question also started a discussion about the political correctness of recording sexual preference information. Most museums are only now beginning to record the gender of the artist while religious and political affiliations are rarely noted, despite the fact that users often ask questions about these.

The question, "Do you have any film of the last V- 1 to fall on London?" requires an understanding of the type of object implied by the "V-1" title and an understanding of the cultural context in order to understand the event hidden in the question. Participants said that time relationships were frequently implied yet often hidden in the questions. Notions of time suggested by last works, late periods of artists, earliest known, first public sculpture ever erected, etc., were very difficult to quantify. "What was served at the Last Supper? Don't know, haven't had it yet." Many questions include other, unasked questions. Even if the answer to the V- 1 question is "Yes," the questioner may be looking for licensing, copyright, and reproduction rights information.

Participants felt that they could easily devise an attribute set yet fail in the larger aim of providing appropriate access. The usual suspects -- object class, creator, subject, materials, etc. -- were listed on flip charts during the meeting. Participants stated that data sets had been discussed at length over the past decades and that projects to establish core data sets and data models for museum information exist. They also felt that for CIMI purposes, the attribute set had to be developed in tandem with an examination of the source documents. The participants felt that a broader focus on the actual user questions was very useful. A mapping of common attributes would have not disclosed the importance of the "relating" terms embodied in questions. It would have also failed to study the expectations of the information users, the capabilities of the information providers, and the user interface requirements.

If one could distinguish points of view, one could build special-purpose user interfaces, and one could begin to make decisions about

mark-up structures for primary materials. Participants suggested that distinguishing between types of creators might be less important, for example, while understanding more about the relating phrases might gain in importance.

The meeting examined the challenges of responding to user needs in unmediated search sessions. Museums have typically thought of databases as supplying the answers to users requests. Participants suggested that we consider the impact of users accessing a variety of electronic resources (encyclopedias, essays, bibliographies, biographies, auction catalogs, exhibition catalogs, and vocabulary authorities) and human resources (curatorial telephone calls, personal electronic mail discussions) besides databases. What impact will this have on the development of the attribute set? Are different attribute sets required for different genres of information?

Responses to user questions may also take different forms. The user should be able to indicate the form of the expected results such as a list of information, a complete object record or bibliographic or biographic citation, an image accompanied by a license agreement for rights and reproductions, the ability to order a reproduction from the museum store catalog, etc.

It was not thought possible to characterize a point of view through a generic attribute set. Rather participants suggested that a point of view indicated a relationship to the intended use of the answer to the question. Knowing the point of view of the questioner will contribute to providing an answer because it says something about how the answer will be used. Educators, university or K-12, may have different points of view and different intended uses for the answer than a curator or art historian will have.

Systems should be enhanced to gain more information about the questioners at the moment of inquiry. The questioners may also require information to judge the responder's ability to provide a competent answer.

The meeting highlighted areas for further research. The participants suggested:

(1.) We must know more about (a) the questioners, (b) their questions, and (c) their intended uses of the answer(s) to:

- understand the access points required;
- develop the filters which might be applied;
- determine the levels of granularity in data to be recorded, tagged, and made available;
- make sense of the questions in order to provide relevant answers.

The collection and analysis of actual untranslated user questions is a first step towards this understanding. More research into the issue of points of view, related audience evaluation work by other disciplines, and the means by which points of view were characterized as necessary.

(2.) We need to inventory and evaluate existing tool sets to assist audiences and information providers understand:

- what search engines and retrieval tools could aid users of cultural heritage information;
- what special purpose user interfaces can be applied to enhance access and retrieval;
- what available tools are we not using, or are under-utilizing.

(3.) We need better tools and information resources. This requires advocacy at national and international levels to engage experts and organizations to support, enrich, and enhance projects and tools.

Beyond the technical interchange standards, what are the critical resources needed to link information together? We need to encourage the development of shared tool sets, the extension of authority databases, and enhanced data repositories. The ability to provide reference points to other database resources is increasingly important. A knowledge base of databases and related electronic information resources for the arts and humanities is a necessary product.

(4.) We need to understand the ecology of the questions. Examining the questions provides insight into structuring the answers. It was evident in the meeting that the initial query -- the actual user question -- is much more complex than we had previously understood. While the original

question must be the focus of further research, learning how to deliver an appropriate response is also important. During the analysis of the questions, it appeared that many questions are not answered by the obvious responses. In addition, questions and indications as to expected responses lie buried underneath the surface of the original question.

(5.) The relationship between the expectations of the questioner and his or her understanding of the resources and purpose of information repository being searched also needs to be addressed. How does the “public face” of the information repository influence the framing of the question. Could more be done at this level to assist the user? Do users send the same question to many information resources and compare the answers?

In summary, the meeting demonstrated a need for research into the concept of “points of view” of information users and information providers. Research efforts might fruitfully continue with more study on this theme, accompanied by further discourse concerning user profiles, additional examination of intended applications of the answers, and more investigation into the users’ understanding of the data resource being searched.

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## STANDARDS NOTES

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### GILS Standards

Changes to the Stable Implementers Agreement on the Government Information Locator Service Profile were discussed at the Open Implementers Workshop, SIG-LA meeting in mid-January. Changes proposed to the Profile included adding "Document Review Date" and "Scheduled Disposition" as non-mandatory elements and making a variety of corrections to bring the document in line with terminology and guidance in other standards. The agenda included discussion of progressing the GILS Profile as an International Standardized Profile and developing a profile for spatial metadata. The standard on which the profile is based was published by the National Institute of Standards and Technology as FIPS Publication 192 and will go into effect June 30, 1995. The profile is a content interpretation document that may change and will be maintained by the OIW-SIG-LA. [For further information contact Eliot Christian, [echristi@usgs.gov](mailto:echristi@usgs.gov)]

As required under the OMB Bulletin 95-01 which established the GILS, the National Archives has developed a draft of the guidance it is planning to issue on GILS content. The proposals include identifying

agency of origination by its full hierarchical name rather than the names found in the Government Organization Manual, clarifying the relationship between when an information resource was created and stopped being created and what portions of it are available, and making sense of the initially proposed MARC mapping. While it is good to see NARA finally involved, it must be said that these problems have been present since the initial drafting of the data content for GILS, and NARA could have easily made these clarifications at an earlier date if it had been engaged in the process and involved members of its staff who understand cataloging and description rules. The draft guidance is available from the NARA gopher ([gopher.nara.gov](http://gopher.nara.gov)) under the path/information for archivists and records managers/GILS Guidance. [For further information, contact Peter Hirtle at 301-713-6730 x.238 or [peter.hirtle@arch2.nara.gov](mailto:peter.hirtle@arch2.nara.gov)]

### A Guide to the Description of Architectural Drawings

G.K. Hall has published *A Guide to the Description of Ar-*

*chitectural Drawings* by Vicki Porter and Robin Thornes. It reflects the standards for recording, structuring, and controlling information on architectural records adopted by the Architectural Drawings Advisory Group and its successor, the Foundation for Documents of Architecture, which were funded for many years by the Getty Art History Information Program. The relationship between these guidelines and other rules for describing architectural archives still await clarification and it will therefore be difficult for the average professional to determine how to use this book, but it will nevertheless prove interesting to those examining their own systems or considering documenting architectural records for the first time. Hopefully in the next year efforts will be made to define the differences and commonalities between various documentation standards for architectural materials and bring these into harmony.

### Museum Standards

Two documents on museum standards have recently become available on the Internet: "Data Modeling: A Bibliography" (prepared for the CIDOC Data Modeling Group) by Jackie Zak and Linda Kincheloe (Getty Conservation Institute) and "Developments in International Museum and Cultural Heri-

tage Information Standards" by Jane Sledge (Getty AHIP). Both will be placed on the CIDOC-L archive sites. They can be retrieved from there with standard suites of Internet tools and used freely as long as credit is given.

### Electronic Signatures

The U.S. Food and Drug Administration (FDA) proposed rules for electronic signatures and electronic records validation in the Federal Register (vol.59, #168 pp.45160-45177). In July 1992, the FDA had published an "advanced notice of proposed rule making" (ANPRM) and reported that the 53 comments it received from trade associations, pharmaceutical and medical device manufacturers, computer systems developers, private organizations, and consumers were generally supportive. The FDA noted that comments it received assumed the use of signatures within "closed" systems whose users were known, but its expectation was that such secure and authoritative communications would soon be needed in general electronic networks. Most commentators provided examples of pharmaceutical industry documents, but FDA noted that its proposed rules would apply

to many other record types. The FDA opted, after discussion of alternatives such as electronic identification using biometric/behavioral identification, to use the term electronic signature reflecting the assumption that many technologies would support unique and legally binding identification of individuals. The signature is really defined by its purpose which (1) is to identify the actor and assert his authority to act, (2) to document the action in a legally binding, non-repudiable manner, and (3) to create a record that would be admissible in court. The comments generally concurred with the notion of stratification of the acceptance of a signature alternative based on the significance of the electronic record (the principle that technical means should be commensurate with risks), but the FDA did not take this position and ended up, as a consequence, really only speaking to the methods for "closed" systems. The FDA noted that its current Code of Good Management Practices (CGMP) for the drug industry does not allow for electronic signatures (though some commentators had felt it did). There was considerable sentiment in favor of accepting electronic signatures under the provisions of the Prescription Drug Marketing Act and FDA agreed to examine this. There were also suggestions to revise the Good Laboratory Practices (GLP) code.

The FDA found "merit in the premise that the integrity of an electronic signature is derived more from the systems controls used to generate it than from the technology used to apply it. The stratification of controls, the FDA stated, should be codified.

Ultimately the FDA acted to fully implement electronic signatures in areas where the companies it regulates are required to maintain records but not to submit them to the FDA. It will implement them less rapidly in areas where submission to the FDA is required because it is not prepared to accept all records in electronic form (although it promised it will move quickly to do so). The FDA did not require document encryption or digital signature standards, but simply the implementation within closed systems (those available only to employees) of standard security controls -- passwords combined with cards or bio identification. They required that the meaning associated with the signing be indicated in the text and that the person's name appears in the electronic text, thus "In witness of: John Doe," or "By my authority: John Doe." The signature needs to be inalterably "bound to" the document by writing to optical disk or logically associating it with the

remainder of the contents of the document in such a way that it cannot be removed (cut and pasted elsewhere or written over). The signature system must then ensure uniqueness of signatures, authenticity of the individual using the signature, validity of his or her authority, and binding to the document. The FDA requires certification of these characteristics of such systems to it. In general the FDA preferred signatures based on biometrical/behavioral links because these cannot in any circumstances be alienated from their owner while the signature elements based on what a user owns (card) and knows (password) can be taken from him. Nevertheless they stopped short of requiring such links at the present time.

### **Data Standard for Record Description Record**

The National Institute of Standards and Technology announced its intent to develop a Federal Information Processing Standard for Record Description Records (metadata required for evidence), in the Federal Register February 28, 1995 (p.10832-835). Although the preliminary description of the scope and purpose of the standard suggest that their current thinking is narrowly confined to satisfying the

Federal Appeals Court decisions in the PROFS case and similar concerns about the contextual documentation of e-mail, the process, which includes this period of public comment through May 30, should result in discussion of the general issue. A recent report by me entitled "Towards a Reference Model for Business Acceptable Communications" (December 6, 1994), and a paper "Virtual Archives", both of which are available from the SLIS WWW server at the University of Pittsburgh, or from my office, provide a context for the metadata encapsulation of objects as records. Work this spring at the University of Pittsburgh is intended to define a full model which will be proposed to the NIST group. Other efforts, such as the Research Libraries Group/Commission of Preservation and Access Joint Task Force on Archiving Digital Information, and the Coalition for Networked Information Discovery and Retrieval Task Force are addressing similar issues. I hope for some resolution around the definition of the metadata required for recordness during this calendar year, and this FIPS could provide another impetus for agreement.

## Museum Educational Site Licensing Project

On December 23, the **J. Paul Getty Trust** announced the formal launch of the Museum Educational Site Licensing Project (discussed in previous issues) with the selection of participating institutions. Museum participants are the Fowler Museum of Cultural History at UCLA, the George Eastman House, the Harvard University Art Museums, the Museum of Fine Arts Houston, the National Gallery of Art, and the National Museum of American Art. The university sites participating are the American University, Columbia University, Cornell University, the University of Illinois at Champaign-Urbana, the University of Maryland, the University of Michigan, and the University of Virginia.

The first face-to-face meeting of the institutions involved took place in Washington, D.C., February 7-9, 1995. The meeting was tremendously productive, as testified to by the formation of half a dozen working groups with concrete charges which are taking the work forward over the next few months. Reports of the general meeting and the charges to the individual working groups are available from the Getty AHIP WWW server at [www.ahip.getty.edu](http://www.ahip.getty.edu).

Overall the meeting revealed that there are probably fewer problems associated with conflicts over terms and conditions for use of cultural materials by educational institutions than were anticipated. In part, this reflects the willingness of institutions to participate in an experiment. It also reflects the fact that the parties are both potential suppliers and potential consumers of digitized primary materials from our cultural heritage, even though they were organized as a group of museums and libraries (providing) and a group of educational institutions (consuming). In the end it may be that the largest problems are technical and organizational rather than philosophical or economic.

After the meeting, the Library of Congress asked to join the group, bringing the total pilot project up to seven universities and seven museums and libraries, expanding the range of content to include a larger number of 2-D primary materials in cultural history as well as sound recordings. Involvement of the Register of Copyrights proved extremely beneficial in formulating initial terms for the pilot licenses. [For more information, contact Jennifer Trant at [JTrant@getty.edu](mailto:JTrant@getty.edu);

or Geoff Samuels at [Geoff-Sam@aol.com](mailto:Geoff-Sam@aol.com).]

10th fl., New York, NY 10022-4101; 212-688-8280; fax 212-688-0409]

## Model License Agreements for Museum CD-ROM Co-publishing

The **MUSE Museum Multimedia Study Group** completed a phase of its work this month with the preparation of *CD-ROM Model Agreements for Museums*, a pamphlet to be distributed at the American Association of Museums meeting in April. The model agreements lay out terms and provide discussion of issues involved in contracting with the commercial sector for publication of museum intellectual properties. The agreements were drafted to give all museums an equally strong foundation, regardless of the experience that their own general counsel might or might not have in electronic publication. They were drafted by museums and legal staffs working on behalf of museums. Hopefully they will shift the balance of power somewhat more towards a level field. But they should be regarded as positive by the industry as well since they ought to allow museums to better articulate their real concerns and therefore feel more comfortable signing agreements. [Free from Geoffrey Samuels, Museum Multimedia Study Group, *Museum Educational Media*, 1 East 53rd St.,

## Cataloging Digital Documents

The Proceedings of a seminar on cataloging digital documents held at the Library of Congress, October 12-14 1994, are available on the WWW: [http://lcweb.loc.gov/catdir/sem\\_digdocs/seminar.html](http://lcweb.loc.gov/catdir/sem_digdocs/seminar.html). It includes papers, pictures, and a directory of participants which dealt with the perplexing problem of capturing the digital document, including those floating out in Cyberspace, and making them accessible.

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## CONTRIBUTORS

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**David Bearman** has been President and Senior Consultant at Archives & Museum Informatics in Pittsburgh, Pennsylvania, since 1986. Previously he served as Deputy Director of the Smithsonian Institution Office of Information Resource Management and Director of the National Information Systems Task Force of the Society of American Archivists. He will co-chair ICHIM'95 to be held in conjunction with the Museum Computer Network in San Diego in October 1995.

**Mary Case** is a partner in QM<sup>2</sup> (Quality Management for Quality Museums), a DC based consultancy. Previously she served as Registrar of the Smithsonian Institution and her seventeen year career in museums includes similar roles at the IBM Gallery of Science and Art and other museums. She has served as editor of *Registrars on Record*, reviewer for Institute of Museum Services and NEH grants, and has consulted internationally with museums of all sizes. She has an MA in Museum Studies and extensive training in strategic planning, managing diversity, problem solving, and team development.

**Marion Matters** is head of technical services at the Minnesota Legislative Reference Library. Her experience encompasses practical and theoretical work with descriptive standards and automation in libraries and archives, including several years of active consulting in these areas. She has been an archivist at the Minnesota Historical Society (working primarily with state and local government records), automation program officer for the Society of American Archivists, and automation coordinator for Minnesota state agency libraries.

**Xavier Perrot** is an information scientist specializing in interactive multimedia and hypermedia for museums. Perrot lectures at the Hypermedia Department at the University of Paris, where he is pursuing his PhD., and is a research fellow of the Studio for Creative Inquiry at Carnegie Mellon University. He also serves as an independent consultant on interactive multimedia content production and systems design and as a regular columnist for Archives and Museum Informatics.

**Jane Sledge** is a project manager at the Getty Art History Information Program. Previously she directed the library and information service of ICOM in Paris, served on the staff of the Smithsonian Institution and the Canadian Heritage Information Network and has held positions in the private sector in museum software and insurance firms. Presently she is involved in working on the integration of international cultural resources through vocabulary coordination and planning for the Global Information Infrastructure.

**David A. Wallace** served as the Records/Data-base/Systems Manager at the National Security Archive in Washington, D.C. from 1988-1992. While at the NSA, he also acted as Series Technical Editor to their "The Making of U.S. Policy" series. He is currently pursuing doctoral studies at the School of Library and Information Science at the University of Pittsburgh and serving as staff to Dean Toni Carbo Bearman in support of her role as a member of the National Information Infrastructure Advisory Council.



