Archives and Museum Informatics

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Archival Applications and Software

If the latest archival automation software is any evidence, the archival profession seems to have the relationship between the MARC format and archival description and control backwards. Minaret (reviewed in this issue by Glen McAninch), tries to give archivists the flexibility to view the MARC format through the eyes of their own institutions and processes. The software permits users to define local views of MARC data and yet export information as a true MARC record - precisely what Frank Burke called for from programmers in the last issue of *Archives and Museum Informatics*.

But Minaret's success as a tool for automating archives is limited. Minaret, like MicroMARC:amc, is a means of automating data entry and reporting from the MARC format. What archives need is software which helps them use information acquired as they schedule, appraise, and transfer records, and perform a variety of subsequent actions, as descriptive data to create finding tools, and to thereby provide for use.

Archivists still need a software package with a template of input and output screens linked together in a way that reflects the real processes that archives perform, and which provides easy to use tools for the customization of these screens and reports to reflect local practice. Minaret has correctly recognized that modified screens can still be output in MARC format, but it hasn't provided an application sensitive to archival practice. Until archivists encourage software designers to focus more attention on archival procedures and lavish less on data entry, we will continue to automate in order to exchange MARC data, rather than exchanging MARC data in order to improve archival practice and research access.

DAVID BEARMAN, Editor

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CIMI: Computer Interchange of Museum Information

DAVID BEARMAN

On April 28, the Board of the Museum Computer Network (MCN) voted to establish a Committee on Computer Interchange of Museum Information (CIMI). The MCN sees its CIMI initiative as a first step in a long process of advancing the internal automation of museums, bringing material culture evidence into scholarly research databases, and making museums accessible over the public information networks of the 21st century.

Museums in the United States are at a relatively early stage in automation of public and scholarly access to their unique cultural resources. Collections management, education, and exhibits and museum based research are following more routine data processing for membership and development, museum shop sales, and personnel management into the information age. Yet, the stage at which museum automation is poised is ideal for realizing the potential of information exchange. A variety of museum professional organizations are preparing to standardize their documentation practices, and the major vendors and networks are interested in reaching agreements before their investments in different approaches make information exchange more difficult.

Within the past two years, the International Council on Museums (ICOM) has endorsed a standard protocol as a framework for museum information exchange; the American Association for State and Local History (AASLH) has completed a study of the information needs of cultural history museums; the art museum community has launched the Art Information Task Force (AITF) to define exchange requirements of art museums; and the Association for Systematics Collections (ASC) has begun planning for a natural history museum data definition project. In response to the articulations of data requirements by each of these museum sub-communities, and in harmony with its own goals, the MCN has proposed the CIMI working group to guide the process of defining requirements and creating the protocol for the interchange of data between, as well as within communities.

MCN and CIMI

The Museum Computer Network is an eighteen year old professional association of more than 700 individuals and institutions that includes museum computing professionals from art, history, and science museums, as well as botanical gardens, zoological societies, living history museums, and archives. Its Board of Directors includes the directors of the national museum networks of Canada and the U.K. and the international Conservation Information Network, as well as leading museum automation vendors, consultants, and users from throughout the United States.

The CIMI project is central to the Museum Computer Network's mission. Each of the formally adopted objectives of the MCN relate directly or indirectly to the goals of CIMI:

To support the development and implementation of standards for automated recording and retrieval of information about museum collections;

To create mechanisms for interchange of information about museum holdings;

To encourage building data and image bases relating to museum collections;

To promote the development, and application of software to meet the full range of automation requirements in museums;

To publish and report on automation standards, techniques, and applications of relevance to museums;

To foster interchange of technical information among current and prospective users of computers in museums.

The Museum Computer Network is currently the recipient of funding for two related projects. The first, funded by the Council on Library Resources, has been assessing the applicability of the MARC Visual Materials (VM) format to three dimensional objects, and will be completed before CIMI would begin its work. The second project, funded by the New York State Council on the Arts, will result in the publication of a guide to planning for museum automation. Hopefully, that guide be able to point to the framework for interchange adopted by CIMI as a fundamental requirement of museum automation systems.

Nature of the Project

Enabling museums to exchange information about their holdings through national information networks would allow museum professionals to take advantage of the curatorial research of their colleagues, and permit researchers access to a universe of material evidence that is now seriously underutilized. As humanities scholarship in numerous fields finds itself looking towards non-textual evidence, the standardization of museum information interchange is the only path to building databases that can provide scholarly access to the cultural heritage.

Toward these goals, the CIMI committee will be charged with determining how American museums will use the communications protocol endorsed by the International Council on Museums (ISO-2709) as a framework for the interchange of museum information. CIMI will distinguish between structural standards for communication protocols, which will be the focus of its efforts, and upon which agreement can be achieved with relative ease, and discipline based content standards for description practices and vocabulary control, which are the appropriate domain of each discipline. The work of CIMI will be to define a structure that can accommodate present and future museum data interchange requirements. The CIMI protocol, like the MARC formats used to exchange information about library and archival materials, will provide a means for such exchanges to take place and for common databases to be created. Because it will belong to the same family of standards as MARC (ANSI Z39.2/ISO 2709), the CIMI protocol will be compatible with systems that process library databases and consistent with computer-to-computer dialogs using ANSI Z39.50.

The proposed work of CIMI is deliberately narrow in definition and modest in scope because standards efforts have had a checkered career in museums and elsewhere in the humanities. There has been a tendency to try to impose standards created out of a perceived need for standardization, rather than to implement standards developed by consensus. The CIMI project takes as its objective the establishment of an open and permissive standard. To be open, it is necessary that the standard continue under some auspices to be available for community amendment, especially as its use demonstrates unrealized opportunities. To be permissive, the protocol must be able to carry any information that a museum might wish to exchange between itself and another museum, or between its own computer systems. MARC AMC is an example of the sort of open and permissive standard envisioned by CIMI. Developed as a result of the SAA National Information Systems Task Force, and now maintained by the Library of Congress with participation from the archives community, amendments to allow the format to accommodate new needs are continually being proposed and adopted.

The CIMI committee will test the viability of its proposed protocol by shepherding two working groups, one representing disciplinary specialization (natural history museums, art museums) and one representing specialized activities within museums (registration, exhibits), through the process of defining the data that they need to communicate. Task forces to define what data is required by various disciplinary communities already exist. CIMI will work with these groups to model mechanisms for continued evolution of the protocol once the framework is established and accepted. For example, the Common Agenda for History Museums is a project of several years standing organized under the auspices of AASLH. It has received funding through the Pew Charitable Trusts to test its data models with ten museums in Philadelphia that will be cooperating directly with CIMI in planning for their information exchange. The Art Information Task Force (AITF), organized by the J. Paul Getty Trust, held its first meetings in June of 1989. The AITF selected MCN Executive Director Deirdre Stam as the coordinator of its forward planning group, and that group is now structuring AITF activities so that its data definition efforts can directly feed into the CIMI project. The Association for Systematics Collections (ASC) has long been a leader in the standardization of information for exchange. In 1990 it will be organizing a committee to define the data required to integrate library, archival and specimen records in natural history museums, and has invited the MCN to help define information exchange mechanisms. The products of the ASC committee will be provided to CIMI to assure that the broader protocol accommodates the natural sciences community.

In addition, the CIMI committee will map such requirements for information interchange as those

that are dictated by the standard facilities report, developed by Registrars Committee of the American Association of Museums, standard loan agreements, institutional certification reports, and by accepted museum community practices. CIMI also hopes to receive input from the Archives and Museum Information System (AMIS) of the Research Libraries Group, which is defining a system for nationwide exchange of museum data in an archival and bibliographic network, and to support the mapping of this data into an acceptable information exchange protocol.

MCN has been encouraged by the support museum professional associations have indicated for CIMI. The national museum networks of Canada and the U.K. have agreed to participate, which could help establish an international standard. Invitations to participate in CIMI have been accepted by the American Association of Museums, the Association for Systematics Collections, and the American Association for State and Local History. Invitations have also been extended to the Association of Directors of Art Museums, the Association of Science Museum Directors, and the Association of Living Historical Farms and Agricultural Museums. The Research Libraries Group, the Conservation Information Network, and the Canadian Heritage Information Network have agreed to participate at their own expense. Participation of museum community automation vendors in CIMI working groups will be actively pursued to assure rapid implementation of the consensus standard that results from the project.

Project Methodology

The project will be conducted under the overall direction of MCN Executive Director Deirdre Stam. The CIMI committee will be chaired by MCN President David Bearman. The MCN will conduct a nationwide search for a project officer to hired for the term of the project as the full-time staff of CIMI and its working groups. The project officer will prepare necessary background materials and briefings for the full committee and working groups, publicize the project to the museum community, and represent the project at professional association meetings.

CIMI will seek political consensus and technical solutions. The technical solutions will be proposed in briefing papers written by the project officer, the committee chairman, and outside experts. The political consensus will be sought through publication of CIMI working papers, and publication of excerpts, abstracts and popularizations in the literature of each of the participating professional organizations.

The committee will meet twice annually during the three year project. At its first meeting, the committee will receive briefings on the ISO 2709 protocol and the ways it has been used by others, and on its potential for museum information exchange. At its second through fourth meetings, CIMI will explore frameworks for structuring the protocol, so as to permit future growth into new areas of museum information and to assure that disparate communities of users and purposes of use will be able to exchange the data they require. During these first two years, CIMI will assess proposed frameworks using data that its working groups identify as necessary for interchange, and will take into account the views of vendors and networks about implementation difficulties. It will suggest approaches to disciplinary task forces, such as the Common Agenda Project, and networks, such as the Conservation Information Network or the Research Libraries Information Network, that are experimenting with information interchanges.

In the third year, the committee will agree upon a framework, and define strategies for its project officer to pursue in gaining acceptance for the framework. These strategies may include helping CIMI working groups to implement information exchanges using subsets of the protocol. At this point the committee will also take its proposals to the National Information Standards Organization (NISO) for approval. At its final meeting, CIMI will consider proposals for the long-term maintenance of the protocols and propose means to further elaborate the structures it has defined.

The working groups will meet approximately three times a year for two years. They will compile information about the data used in their specialty areas, and will forward to CIMI both data dictionaries and guidelines they propose for the clustering of data based on the way that it is used in automated systems. Since software vendors will be involved in deliberations of the working groups, and will be given an opportunity to respond to working group proposals, CIMI will have the benefit of a pre-test of implementation constraints while

conducting its deliberations. Since participants will be asked, for the purposes of informing CIMI, though not necessarily for their own larger purposes, to avoid judgements on the value of the data they find in systems, CIMI will have an opportunity to construct an open and permissive framework - one that permits any data to be exchanged, as well as one that will support agreed upon description standards when such standards for content are adopted within specific disciplinary communities.

The Final Product and its Dissemination

A communication protocol is not intended to be a popular text, but it is critical that its principles are understood and that the details of its application are clearly defined, have been tested, and can be used. Manuals for the use of MARC AMC and MARC VM are examples of the way in which a protocol can be explained, with examples of use, for the benefit of practitioners. Following the adoption of a protocol, MCN will publish a similar handbook of examples and guide to use.

The implementation of a communications protocol is more important than its publication. The Museum Computer Network will use its quarterly newsletter, *SPECTRA*, and its annual meetings, as well as other promotional avenues, to publicize implementation wherever it occurs. MCN will also incorporate materials to train professionals about the protocols into its workshops and publications programs.

The Museum Computer Network is currently seeking grant support for the CIMI project, and hopes to hold the first meeting of the committee in January 1990. For further information, contact Deirdre Stam, Executive Director, Museum Computer Network, Syracuse University, Syracuse, NY 13244-2340.

Real Archivists DO Use MARC: A Reply to Frank Burke

MATTHEW B. GILMORE

In his provocatively titled essay in volume 3, number 1 of *Archives and Museum Informatics*, Frank Burke discusses the archival profession and the MARC AMC format, considering especially the appropriate amount of effort archivists should make (and how much they have to make) to learn and use it. His title is deceptive, in that he is not against AMC per se, but against spending a lot of time and effort on it.

Actually Frank Burke is right, in part. Archivists shouldn't get all that worked up about MARC AMC. They should accept it, use it, and leave development of it to the experts, but archivists must make sure that development is informed by praxis. What is MARC AMC after all? A standard. It is a structure for information, that is all. And if archivists can get together and agree on how information about collections might be structured, all the better. (MARC AMC isn't that hard.)

Professor Burke considers MARC coding to be a programmer's problem. It is here he goes wrong. If archivists don't know and understand what it is their programmers are manipulating, how can there be any pretense to effective communication? And if the programmer says, "No, that is not possible" how could an archivist not up on MARC AMC be sure s/he was not just dealing with an unimaginative programmer?

Burke's suggestions of how much easier it could be to use well designed systems with pop-up menus, help files and online thesauri are very well taken. Systems are moving in that direction and various software already extant have some of these features. Cuadra's STAR system can already maintain an online thesaurus which will automatically provide the correct subject heading, for example. But we need Burke (or a willing archivist) to sit down and talk to a programmer and tell him what he needs

Matthew B. Gilmore is Public Services and Manuscripts Librarian, Special Collections, Gelman Library, The George Washington University, Washington, D.C. 20052.

and wants, and Burke (or whichever archivist) will have to know the MARC AMC format to do it.

Archival materials do present different, though analogous, problems in intellectual control and physical handling from bibliographic materials. However, the shared purpose of the information professions is to provide information, whatever its format. This is particularly true where archives are housed with or in close proximity to library collections. Burke clearly sees archivists as separate from other information management/information science professionals - librarians, etc. (Why is not clear, actually - librarians are "information analysts and describers" too.) This is a shortsighted perspective, and the consequences of continuing to partition archivists away from the rest will be sure to further upset Burke.

Archivists are struggling with their role, much as librarians have. Librarians have come up with various solutions, good, bad and indifferent, to problems they have faced: MARC formats, LCSH, OCLC, RLIN, WLN, local systems. In turn these have been modified and adopted by archivists. But wouldn't it be more profitable to be there when decisions are made?

Arguments, in addition to those mentioned by Burke, can and have been made against the treatment of archival materials in any way like cataloging books. The argument that each institution has unique needs is fallacious - the AMC format has, or should have, a niche for any bit of information that an archivist might need to express about a collection. The argument that the structure is either too structured (too many subfields) or too inflexible, has its merits - some archivists may not want to use all the subfields and some subfields may indeed be poorly designed.

Institutions can and will do exactly what Burke says they won't -have two standards - one for local information and one for the bibliographic utilities. Some institutions will create AMC records too big for OCLC and pare them down; similar circumstances may arise with RLIN. And the argument that MARC AMC is not needed because archival materials are unique information and shared cataloging is not an appropriate concern is dubious as well. In creating a database of archival and manuscript resources in the Washington, D.C. metropolitan region, we had to use AMC. We surveyed over 200 institutions, creating over 700 individual records for collections and archives. If there was no standard database structure, we would have been sunk. If it didn't exist, we would have had to create it, to coin the cliche.

One important use Frank Burke doesn't mention is the sharing of information within the institution. If there is no use of MARC AMC, how can records be put into local PACs? Libraries would have to use another MARC format - BKS one would assume - which is hardly an improvement! Don't the archivists want to be there when the local system is designed and installed? I assume they want some record of their holdings available.

It is quite ironic that Burke can stress accuracy and completeness of knowledge about the historical material an archivist deals with, but be content with recommending only a sketchy knowledge of how that information might be structured and recorded. The intellectual and physical control of the materials go hand in hand, whether creating a finding aid, filling out the NUCMC data sheet, or filling in MARC tags. MARC coding might seem an uncomfortable intrusion of a rigidifying standard, but such standards can be helpful and useful in gaining intellectual control.

Burke's ringing conclusion is worth quoting: "Archivists are discoverers of history, before it becomes history; they are the protectors of the past from the ravages of the present and future; they are proclaimers of significant and memorable human events; they are the eternal salvation of heroic deeds and lost causes; they provide solace to the living through the lessons of the dead; they are the keepers of the flame. That is the role of the REAL archivist. REAL archivists don't need to know, or use MARC." Frank Burke has been reading Cicero perhaps, but his arguments in the paragraphs preceding vitiate the defiance of his concluding sentence. His QED is not demonstrandum. REAL archivists know and use MARC AMC.

Editor's note: *The database of archival resources in metropolitan Washington, D.C. mentioned by Mr. Gilmore is described on page 16.*

CONFERENCES

ICA Symposium: Converging Disciplines in the Management of Recorded Information

From May 15 through 18th, and continuing with special events for two more days, the National Archives of Canada was host to an international symposium on Converging Technologies in the Management of Recorded Information. For three days twenty exceptionally distinguished speakers from archives, libraries, data processing, information management and other disciplines as well as policy makers from numerous countries and the United Nations, addressed the two foci of the meeting: convergence of technologies and convergence of disciplines.

The conference was opened by keynote speaker Basil Stuart-Stubbs, who remarked that "information" had been invented during his own life-time, superseding the earlier forms of records, as reflected in the discovery of "intellectual property" in place of copyright in the 1960's, and in the work of Fritz Machlup and his followers on the information economy. He then treated the audience to a review of the history of recording of information, whose major point was that organizations have been, and will continue to be, transformed by new technologies. Stuart-Stubbs was followed by Frank Evans, who expressed the belief that the previously divergent North American and European records management traditions might well be drawn into harmony by the electronic record, but then presented an historical treatise on archives which did not return to this potentially exciting concept.

Evans was followed by Ronald Weissman, Associate Vice President of Brown University for Academic Computing, who introduced many in the audience for the first time to the new world of the compound document and the user led revolution in computing. Following Weissman, David Wood of the British Library provided a view of grey literature and Maura Mulvihill of National Georgraphic reported on a visual information system in use in her organization. Ralph Smith of Metropolitan Toronto gave the audience a basic explanation of geographic information systems.

Thus, on the first day, the conferees heard spokespersons from each of the traditional record keeping communities - archives, libraries, image and cartographic collections - describe systems limited to the control of those separate modalities of information, while each ardently claimed that there was a convergence of the technologies and the erasure of traditional distinctions between informational modalities (sound, image, text) as well as between published and unpublished documents. Only Ron Weissman, whose roots were not in a specific discipline of information management, and who came as a user, showed no respect for traditional boundaries between types of records in his talk or in the technologies he displayed.

Similarly, claims were registered on that first day by every speaker that this technological convergence was revolutionary and that its necessary consequence was the convergence of disciplines, as the organizers had clearly intended. Again, only Ron Weissman struck a discordant note, by illustrating how the evolutionary trends in end user driven computing suggested that there would be considerable "collision" before there was much "convergence."

The second day was introduced by Claes Granstrom of the Swedish National Archives, who emphasized the need for archivists to be involved in the definition of national indformation policies in democratic societies which increasingly share goals of information access. Granstrom was followed by Helen Wood of the U.S. National Oceanographic and Atmospheric Administration, who gave a basic introduction to the standards development process which, while new to many partiocipants at the conference, was not directly in line with earlier discussions.

Disappointed that the claims of convergence were being made by those most obviously trapped in separateness, and that only a user could see the utter irrelevance of the separate technologies and disciplinary perspectives, I decided that my talk should emphasize the specific nature of the evolutionary trends toward dissolution of document boundaries, and suggest concretely what aspects of archival practice were bankrupted by the convergence, and what aspects of underlying archival perspectives were validated by new approaches to electronic records.

My talk examined pointers in databases, database state programming, artificial intelligence, links to remote sensing and other software programming innovations that are leading to a change in the attributability of electronic information, and are erasing the long held presumption that "documents" are authored by people and have distinct physical and intellectual boundaries. I then suggested that the fundamental approaches of archivists - form and function as the basis for access - were therefore even more relevant in an age of rapidly evolving cultural forms and data employed in functions that are spread in time and space, but that methods adopted by archivists in the paper world to implement these fundamental orientations were inadequate to deal with electronic records.

Following my talk, Angelika Menne-Haritz examined how the German archival community has implemented provenancial control over records, dynamically representing the organization and its functions, and how well this approach is suited to electronic records.

The second half of the conference was devoted to disciplinary convergence and information policy. Professor Neil McLean of Central London Polytechnic explored the failure to date of information science education to bridge the various disciplines. Peter Meinke, President of the University of Nova Scotia, asked participants to consider the history of technological innovations and ask why some technologies succeeded and others failed.

The final day of the conference opened with historical discussions of archives and rapidly got diverted into discussions on fee issues. In the final session, Diane Sangway reported on a new policy about to be issued by the British government, which sounded to me like a reiteration of the central claim that information must be managed. Ken Thibideau of the U.S. National Archives argued a counterpoint that technologies beginning with the word processor have transformed organizations, but offered no suggestions as to how to manage information.

The final panel, consisting of Celine Walker (United Nations ACCIS), Angeline Kamba (Zimbabwe national archives) Philip McClellan (Royal Canadian Mounted Police) and Franklin Reader (U.S. OMB) had the unenviable job of summarizing this non-converging, non-coalescing meeting. McClellan argued for celebrating small successes and continuing to focus on applications that could be managed. Ms. Walker noted the need for standards and the potential role of the UN report in leading the way towards tested solutions. Ms. Kamba pointed to the hope inherent in non-answers - the developing world for once was not behind. Frank Reader emphasized the need to distinguish between the value of information and public policy values that might lead to subsidies for certain informational activities. He pointed out that technology does transform the nature of information itself, as in the example of broadcasting legislative sessions, that we must pay attention to the ends we seek even at the risk of losing the specific structures through which we now work, and that we should examine our successes and find out why they work.

Concluding the conference, organizer Lee McDonald emphasized what the organizers clearly had in mind all along and which frustrated me immensely in the first two days - that convergence did not mean coalescence and that all the disparate information professions would need to work together, in teams, in order to achieve the complex projects of our information society. While I have promised myself I would think about this more, my initial reaction is that proposing to solve problems by teamwork is a cop out. Instead, we need to determine what informational traditions and methods from our separate practices work and which ones don't.

David Bearman

Treasury Board Briefing

Following the Conference on Converging Technologies in the Management of Recorded Information described above, the Canadian Treasury Board (equivalent of our U.S. Office of Management and Budget), gave a briefing on a new information management policy framework, about to be released for the Canadian government. Gerry Bethel, Peter Giles and Ed Acheson, senior officials of the information policy group within the Treasury Board Secretariat, reported. The policy is characterized by the degree of automony it gives agencies to define specific policy approaches, while insisting that the effect be to achieve specified objectives, including management of all formats of information as a corporate resource subject to inventorying, security, privacy, and information

access legislation.

The new policy addresses specific deficiencies of the host of previous, record type specific policies on records management, libraries, and EDP management, as well as the errors of micro-management and unproductive reporting so common in centralized information management policies. A senior agency official is charged with realizing the philosophical aims of the policies and provided with some guidance and tools, but allowed to pursue flexible implementation schedules so long as they take a strategic (3-5 year) perspective.

I was pleased to discover that Canadian law requires Government agencies to release software code under FOIA unless it is proprietary to a vendor, and that it requires agencies to create machine readable records from databases, even if such records did not previously exist in that form, as long as it is within the capability of the agency to do so. In these respects Canada has gone far beyond both the U.S. government and the recommendations of the state FOIA officers at the Massachusetts Secretary of State's 1987 conference on electronic records.

David Bearman

IASSIST 89

The International Association for Social Science Information Service and Technology held its annual conference at the Mount Scopus Conference of Hebrew University in Jerusalem in May. The meeting, which was co-sponsored by the International Federation of Data Organizations (IFDO), attracted over 120 registrants from 20 countries, including two dozen from North America. While it was highly informative on a variety of topics, the conference will be noted for marking a change in the direction of data archives and data libraries.

Although IASSIST is a leading professional association for individuals concerned with acquisition and administration of computerized information for secondary analysis, it began fifteen years ago focussed more narrowly on social science information. The 1989 program reflected this origin in its plenary sessions, which examined the central statistical agencies of eight countries and developments within each country regarding the availability and validity of governmentally produced data. The common theme here was the use of this information in policy formulation by businesses and governments, and the discussion was generally limited to the use of information by social scientists such as demographers, economists and sociologists.

During the five day meeting, however, there were strong indications that the organization was moving beyond the social sciences. The diversity of papers in the concurrent sessions, which dealt with such topics as Jewish Art, environmental data and medical information, revealed interests in other than numeric machine-readable data files. Papers were delivered on on-line bibliographic databases, full text systems and geographic information systems.

In addition, IASSIST formally acknowledged these new interests in a strategic plan approved in principle, and in draft, by the governing board. The introduction to that statement concludes that:

"Some IASSIST members are responsible for managing centers that support research across many social science disciplines as well as research in other fields. IASSIST will continue to focus on social science information services and techynology and will recognize the wide range of interests of its members. However, the expertise of its members in data management and the operation of information centers should be promoted among professionals working in disciplines and information centers outside the realm of social research."

In this vein, the board proposed the theme "Numbers, Pictures, Words and Sounds: Priorities for the 1990's" for its next conference.

Such an acknowledgement that data archives and data libraries are extending beyond social science data files into new areas of interests can only be considered a positive development. Information is not narrowly segmented into subject areas and the world of technology is not confined to magnetic tape. IASSIST's change merely reflect the information universe as it is, and is changing, today.

Tom Brown
Center for Electronic Records
National Archives and Records Administration

Editor's note: *Tom Brown is President of IASSIST.*

Archival Administration in the Electronic Age

Fifteen state archivists and records administrators spent June 4-16 in Pittsburgh at an advanced institute on electronic records and strategic planning sponsored by the National Association of Government Archives and Records Administrators (NAGARA). The intensive educational program was conducted by staff of the University of Pittsburgh and invited lecturers including John McDonald (National Archives of Canada), Margaret Hedstrom (New York State Archives), Edie Hedlin (National Archives), David Bearman (Archives & Museum Informatics), and Ed Levine (Florida State Legislature). With support from the Council on Library Resources, the University of Pittsburgh was able to have Liisa Fagerlund (World Health Organization) serve as moderator for the institute, Richard Cox serve as rapporteur, and John Prescott of the University of Pittsburgh Business School assist the participants in developing strategic plans.

Prior to the institute, attendees read background materials and answered numerous questions regarding the environment for electronic records in their states, including whether there was a central authority for information policy or for computer hardware and software purchases, what responsibilities the state archives and records masnagement programs have for electronic records and what factors are significant in shaping the situation within the state. The written responses to these questions from Alabama, Arizona, Georgia, Iowa, Maine, Minnesota, Mississippi, New York, North Carolina, Pennsylvania, and South Carolina are themselves and important step in understanding where we are in the management of electronic records and why.

The institute itself, attended also by Ken Thibideau, newly appointed Director of the Center for Electronic Records and Charles Dollar, Deputy Director for Archival Research and Evaluation at the National Archives, was felt by participants to be a considerable success. The 1989 institute is envisioned as year one of a two year program in which this year's participants will return next year to assess their progress and examine other issues affecting state archives in the 1990s. A report on this year's institute may be obtained from Richard Cox, School of Library and Information Science, University of Pittsburgh, Pittsburgh, PA 15213.

Electronic Records: A Strategic Plan for the 1990's

The National Archives hosted a meeting for government agency administrators on electronic records management in Easton, Maryland on June 21-23. Invitees heard talks by Archivist of the United States Don Wilson, Richard E. Barry from the World Bank, John J. Franke, Assistant Secretary of Agriculture, and Webb Castor, Senior Vice President of Xerox, and participated in working groups on:

- Organizational and individual responsibility
- Corporate management information systems
- Managing electronic records in the office
- Legal and security issues
- Records management in the design of systems
- Collection and dissemination of information

Meeting on Image Databases

An international meeting on Museums and Art Galleries Image Databases was held in London May 18-20 under the sponsorship of Apple Computer UK and the Museums and Galleries Commission. Two days of talks and exhibits of museum imaging projects, many marrying videodisc and hypercard stacks, were included. With the exception of the prototype DVI application, Palenque, developed by Kathleen Wilson of the Bank Street College of Education, none of the demonstrated projects yet employed CD technology, but some in planning stages were reported on during the conference. The Albert Kahn high definition videodisc project showed a high definition disc by Eduvision.

A similar roundup on museum imaging projects is scheduled for October 13th in conjunction with the Museum Computer Network Conference. Among the eighteen speakers appearing in four sessions during the day are: Howard Besser, University of Pittsburgh; Ben Davis, M.I.T.; Martin Ellis, National Gallery, London; Andrew Eskind, International Museum of Photography; Michael Ester, Getty Trust; Paul Kahn, Brown University; Alan B. Newman, Art Institute of Chicago; Jim Wallace, Smithsonian Institution; Kathy Wilson, Museum Education Consortium.

CALENDAR

July 26–29 Seattle, WA
National Association of Government Archives and Records Administrators. Includes one session on standards and electronic records and one on choosing a computer program. (Bruce Dearstyne, New York State Archives, 10A75 Cultural Education Center, Albany, NY 12230)

August 23–25 Arlington, VA
Interactive Videodisc in Education and Training, the 11th SALT Conference. (Society for Applied Learning Technology, 50 Culpepper St., Warrenton, VA 22186)

September 6–9 Seattle, WA
American Association for State and Local History Annual Meeting. Includes a session on Video in the Gallery, a report on Collection Data Fields from the Common Agenda Project, and a tour of Aldus Corporation, makers of PageMaker. (Annual Meeting Registration, 172 Second Ave. North, Nashville, TN 37201)

September 14–18 York, ENGLAND
3rd Annual Conference of the Museum Documentation Association. Devoted to issues of data and computing in and between museums. (Andrwew Roberts, MDA, Building O, 347 Cherry Hinton Rd., Cambridge CB1 4DH, England)

September 18 Washington, D.C.
NISO's 50th Anniversary: A Celebration of NISO's Past, Present and Future. A conference at the Library of Congress on the standardization process and NISO as an organization. (NISO 50th Anniversary, P.O. Box 156, Bethesda, MD 20817, 301-975-2814)

September 27–29 Milwaukee, WI
Museum Publishing Programs. Two day seminar includes sessions on copy and book production methods, magazine management, working with writers and marketing publications for museums. (Society for Scholarly Publishing, P.O. Box 53421, Washington, D.C. 20009, 202-328-3555)

October 12–14 Chicago, IL
Museum Computer Network Annual Conference. Devoted to computers in museums, with a day long vendor forum, two days of exhibits, a one day conference within a conference on electronic imaging, and contributed papers on all aspects of administrative and collection computing. (Deirdre Stam, MCN, Information Studies, University of Syracuse, Syracuse, NY 13244-2340)

October 13 Chicago, IL
One day meeting on museum imaging projects as part of Museum Computer Network Annual Conference. Includes sessions on electronic imaging tools and current projects. Attend as part of MCN, or register for the day. (Deirdre Stam, MCN, Information Studies, University of Syracuse, Syracuse, NY 13244-2340)

October 25–29 St. Louis, MO
Society of American Archivists Annual Meeting. Includes a wide variety of sessions on automation, on data standards and on descriptive practices and information exchange, as well as sessions on electronic records management practices and policies. (Society of American Archivists, 600 S. Federal St., Suite 504, Chicago, IL 60605)

October 29–November 2 Washington, DC
American Society for Information Science Annual Conference. (American Society for Information Science, Ben Franklin Station, P.O. Box 554, Washington, D.C. 20044-0554)

November 2–3 New York, NY
Exhibition of Books and Manuscripts: Practices in Registration, Conservation and Installation. Workshop for curators, registrars, preparators, conservators, archivists and librarians. (Stella Paul, Museum Workshop Program, Metropolitan Museum of Art, Fifth Ave. at 82nd St., New York, NY 10028)

PUBLICATIONS

Book Review

Bruce H. Bruemmer and Sheldon Hochheiser. ***The High-Technology Company: A Historical Research and Archival Guide.*** Minneapolis: Charles Babbage Institute, Center for the History of Information Processing, University of Minnesota, 1989, vi + 131 pp.

One of the greatest difficulties archivists face when making appraisal decisions is the lack of studies on the documentation of major areas of human endeavor. Archivists trying to identify and select records with continuing value often resort to a kind of archival triage in which appraisal decisions are made with minimum information and, sometimes by necessity, in great haste. Or the decision-making becomes bogged down in elaborate and painstaking analyses that stretch available resources to the point where other sources of documentation are neglected. Both problems are at least partially due to the absence of suitable documentation studies like *The High-Technology Company.*

The documentation of science and technology is the most thoroughly studied of all the major topical areas of human activity. This is attributable to the existence of a network of discipline history centers, led by the American Institute of Physics Center for History of Physics. This study, carried out by the staff of the Babbage Institute with partial support from the National Historical Publications and Records Commission, is part of an impressive series on the documentation of science and technology that includes *Understanding Progress as Process: Documentation of the History of Post-War Science and Technology in the United States* (1983) edited by Clark A. Elliott, and *Appraising the Records of Modern Science and Technology: A Guide* (1985) written by Joan K. Haas, Helen Willa Samuels, and Barbara Trippel Simmons.

The purpose of this new study is to provide advice about how to document the high-technology companies (such as aerospace, chemical, communications, computing, and pharmaceutical companies) that now cover the American and international landscape. According to the authors, these companies are extraordinarily difficult to document because of the large quantities of records they create and the rapidity of change in their marketplace. To provide guidance, this volume "presents a generic description of industrial activity in the high-technology environment, and introduces a probe technique for obtaining general historical and documentary information about these companies" (p.1).

The description of industrial activity is concentrated on seven basic business functions endemic to the high-technology company -planning, basic research, research and development, production, marketing, sales, and product support and enhancement. Each of these functions is given a definition, description of typical documentation, and observations on the documentation intended to guide appraisal. The authors note that this functional approach is based on the Haas, Samuels, and Simmons study. The description of functions constitutes the bulk of the book, and is extremely enlightening about the whys and wherefores of the creation of this business documentation. The authors' observations will be extremely valuable for others endeavoring to appraise the records of such companies.

Documentary probes are the topic of the remainder of *High-Technology Company*, building on earlier work undertaken by the American Institute of Physics. "A documentary probe is a product study that generates diverse historical, organizational, and documentary information from all facets of a company in order to aid in the selection of historically valuable records. A probe uses prior research, interviews, records surveying, and the description of industrial activity to identify historical issues that should be documented, to ascertain how well those issues are represented by extant documentation, and to identify other areas needing to be documented" (pp. 4-5). The value of this appraisal approach is clearly seen contrast to the technique of surveying records. "The primary weakness of surveying is that it is focused first on extant records, not historical issues. Probes reverse that emphasis by developing a picture of what should be documented even before records are examined" (pp. 5-6). The value of probes is illustrated in the inclusion of a case study of their use with the records of the Control Data Corporation.

There is no question that this will be a well-received publication, taking its place in a growing body of literature on archival appraisal. There are few weaknesses worth mentioning, except for two. First, the study focuses only on the records of individual institutions, failing to address adequately whether a high-technology company can be truly documented only by examining its own records. In discussing the use of documentary probes, for example, the authors noted that documentation should also extend to the "interaction of the company with important groups outside of the company. This includes products that may have been developed jointly with other corporations, academia, or government. These joint efforts are wide-spread in high-technology, and they greatly effect the type of documentation that is produced" (p. 106). Unfortunately, the authors never really explore the implications of this interaction. Second, *High-Technology Company* never addresses the matter of whether the archival records of these businesses should be handled by institutional archives or external collecting programs. This is an important issue that the archival profession needs to grapple with more forthrightly. The volatile nature of the products of these companies and the companies themselves should intrude into any discussion about their documentation.

Richard J. Cox
School of Library and Information Science
University of Pittsburgh

In-Box

Reports

Florida Legislature, Joint Committee on Information Technology Resources. ***Florida's Information Policy: Problems and Issues in the Information Age.*** [Tallassee, Florida], April 1989, 159 pp. plus appendices.

This thorough review of information policy legislation in a state that has been leading the way in its use is welcome. Included are copies of legislation passed in the 1989 legislative year to provide for electronic voting systems and the admission as evidence of optically stored records. The statement of the issues in the chapter on records management and archival concerns (pp. 135-141) strikes a balance between media, software, and information access issues, and compares expenditures for information technologies to expenditures for management of their products in a way that is quite compelling and could be model for other organizations.

Office of Records Administration, National Archives & Records Administration. ***Appraisal of Department of Justice Litigation Case Files: Final Report.*** Washington, D.C.: NARA, [April 1989] 49 pp.

An account of another massive records appraisal effort employing the sampling methodologies developed by Hindus and refined in the FBI appraisal project.

Books

Michael Cook & Margaret Proctor. ***MAD User Guide.*** Aldershot, Hants: Gower, 1989, 55 pp. $19.95.

This commercial publication of British Library R&D Report 5965 persents the rules from the *Manual of Archival Description (MAD)*, in a form in which they can be readily understood and implemented by archivists in the U.K., who are expected to be the audience. In my view, it succeeds in its presentation admirably, though I still have some reservations about the MAD2 rules themselves. The critical issue of the role played by levels of description in MAD2 is made considerably clearer in the *User Guide,* which articulates the differences between physical and logical units, between depth of description and detail of description, and between modes of listing and other output issues and data representation. Most importantly, the guide recognizes the distinction between description conventions and interchange formats and accepts the necessity of the latter, as reflected in the draft MARC-AMC for UK document reviewed below.

Charles R. Hildreth. ***Intelligent Interfaces and Retrieval Methods for Subject Searching in Bibliographic Retrieval Systems.*** Washington, DC: Library of Congress Cataloging Distribution Service, 1989, 120pp.

Hildreth's review of the status and problems of end user access to online public access catalogs

(OPAC's) is a tour de force, rich with examples and graphic illustrations, that will leave any systems developer with a much improved chance of designing a viable utility for the end user. The questions it leaves unanswered will be more clearly formulated than before. Anyone planning a public catalog should first read this volume carefully.

Articles

Robert A. Baron. **"The SWAP Project: Building a Museum Database from the Bottom Up."** *International Journal of Museum Management and Curatorship* 8 (1989):11-32.

Baron's report on the design of a museum database project developed in conjunction with the Getty Prototype Project was originally given at the 1988 Museum Computer Network conference. It will be useful to those interested in data architecture issues and strategies for database construction in museums.

Frederick L. Honhart. **"MicroMARC:amc: A Case study in the Development of an Automated System."** *American Archivist* 52 (Winter 1989):80-86.

This is a useful case study of the process of software development, beginning with requirements analysis and proceeding through product support and enhancements. Perhaps as a consequence of this article, archivists will better appreciate the magnitiude of the task of developing and maintaining a commercial software package.

Ben Shneiderman, Dorothy Brethauer, Catherine Plaisant and Richard Potter. **"Evaluating Three Museum Installations of a Hypertext System."** *Journal of the American Society for Information Science* 40 (May 1989):172-182.

This study of the use in three museum settings of a hypertext system designed at the University of Maryland discovered that patrons of hypertext presentation systems move between information sources more fluidly and more often using hypertext than using a traditional index. While very preliminary, it's nice to have some real research on hypertext systems in museums, now that commercial vendors are marketing hypertext based systems.

Deirdre C. Stam. **"The Quest for a Code, or a Brief History of the Computerized Cataloging of Art Objects."** *Art Documentation* 8 (1989):7-15.

The Executive Director of the Museum Computer Network has provided the most complete account of the intellectual and organizational issues that have impeded the development of object cataloging systems in the arts. While essentially historical in tone, it points to sources and projects that may lead the way to breakthoughs soon.

Newsletters

Data Conversion Newsletter (ISSN 0898-6509) is published six times per year by Image Publishing, P.O. Box 3149, 105 Valley Rd., Westport CT 06880-9702 ($90 US and Canada, $105 foreign). A recent issue consisted of eight pages largely reprinting some industry press releases and reporting on the meetings of the Digital Image Applications Group (DIAG), chaired by Bill Hooton of the National Archives.

Federal Data Report (irregular supplement to CD Data Report) is published by DDRI, 6609 Rosecroft Place, Falls Church, VA 22043-1828). The recent issue reprints some important public comments on proposed revisions to OMB Circular A-130. The final circular, incorporating comments, was published in early June.

The Records & Retrieval **Report** 5 (April 1989) is devoted to the topic of "Fourth Generation Records Management," or electronic records management. The special report by Fred V. Diers is somewhat short on generalizable guidance.

Ephemera

Michael Cook. **"MARC for Archives and Manuscripts: The AMC format as applied to the UK MARC standard."** Draft, May 1989, 54 pp.

Cook is distributing this draft document to North American colleagues for comment. It suggests a framework for implementing AMC within the UK MARC tradition and discusses the relationship of AMC fields to MAD2 rules. It is intended as the

first step in a full elaboration of AMC for UK users which will bring the MAD rules and the format into harmony. The virtue of Cook's view is that he recognizes the need for inter-record linkages and their implementation in a full record system, whereas American AMC usage has been confined largely to discussion of series level data.

"Art and Architecture Thesaurus. Colors hierarchy." May 1989, 266pp.

The latest AAT hierarchy, heavily influenced by the National Bureau of Standards *Color: Universal Language and Dictionary of Names,* has been distributed to users along with AAT User Update #18, consisting of 10 pages of updates including several new hierarchies created from single hierarchies previously established. To some of us now working with implementation of the AAT, the level of continuing change is distressing. Stability seems as far away now as when the first hierarchies were published, yet the need for some stability is now evident as we attempt to design systems to search pre-coordinated subject headings comprised of terms from a variety of AAT facets.

National Archives & Records Administration, Center for Electronic Records. **"Title List: A Partial and Preliminary List of Datasets in the Custody of the National Archives."** Washington, D.C.: NARA, April 1989. Available from the center reference desk on request.

This catalog reflects the only way of getting access to NARA electronic records - they are for sale at $90 per set for the first reel of 9 track tape, and $17 for subsequent reels, plus $5 handling and $.35 per page for documentation photocopies. The list short on description, so at one line per dataset, the user may want to inquire further about a file like the OPREA SUMMARY (Combat Air Summary) Nov. 1961 - April 1973, before buying it. On the other hand, survey data is often adequately described in the brief titles, so we have a reasonably good idea of what is contained in "Survey responses of enlisted men about race relations in the U.S. Army March 1943-Oct 1944," one of 138 public opinion surveys conducted in the military between 1942 and 1945.

Research Libraries Group Inc. **"Compendium of Practice: RLG-Seven States Project, RLG-Government Records Project."** 1989, unpaginated.

This compendium, following the model of the Evans/Weber compendium of AMC practice, reflects practices adopted by RLG participants in description of government records. Its purpose is to serve as a basis for standards development and for the identification of areas of practice requiring further standardization, along the lines suggested by the Descriptive Practices Working Group. It should prove useful to archives using MARC-AMC for government records outside the RLIN context.

Ronald F.E. Weissman, **"The Scholar's Workstation Manifesto: From Personal Computer to the Scholar's Workstation."** Academic Computing, 38pp.

This booklet, reprinted from *Academic Computing*, October 1988, is a call to the computer manufacturers to produce a vision considered essential to the future of academic computing - a scholar's workstation. The interest of archivists and museum curators in the success of such an undertaking is both as providers of the contents of the cultural archive, and as users of its rich graphics and intuitive interface in their own research.

Archives and Museum Informatics carries news, opinion and research on information technologies, techniques and theories relevant to archives and museums. Submissions of notes, letters to the editor and articles are welcomed, and should be addressed to Lynn Cox, Managing Editor. Copy is preferred typed, double-spaced. Longer articles may be requested in machine-readable form if accepted for publication. Authors assume full responsibility for accuracy and for any opinions or judgments expressed. Deadlines for submissions are the 15th of March, June, September and December.

NEWS

Canadian Center For Caricature Optical Disk Imaging Project

The Canadian Center for Caricature, a program of the National Archives of Canada, is placing its holdings on optical disks in order to reduce their handling, thereby conserving them. The project is currently digitizing its collection of line drawings, including some color cartoons, using an Eikonix 850 camera at resolutions required by the specific drawings, but usually 2024 bits x 1536 bits with 8 bits per pixel to capture gray scale, and 32 bits per pixel for color. The choice of resolutions reflects the fact that caricatures include written captions and blurbs containing lettering which the Center has found upon analysis is normally 1/100th of the size of the image itself.

The requirement established by the Center was to capture and store images at resolutions adequate to satisfy publication requirements of their clientele, thus reducing by over 95% the number of necessary retrievals (remaining retrieval requirements normally relate to exhibition.) To achieve this objective, the Philip Sylvain, Optical Disk Advisor on the NAC staff, chose to shoot one complete image of the entire cartoon and support and one image the size of the cropped picture as it was run in print. The two images together provide an archival view of the object and the image iself at high enough resolutions for printing or publishing purposes, while still requiring less storage than the higher resolution (4Kx3K) image that represents the next higher level of capture.

The scan process itself requires 60 seconds, and is controlled by an operator from a menu driven program setting resolution, bits per pixel, integration time, focus and scanner calibration. The program was originally developed for the Center by 5th Dimension, a Canadian CAD/CAM company. The program has since been acquired by Eikonix and is provided with their cameras. The scanned image is held on a VISTA board with a 4MB buffer for review before being recorded to an 800MB LaserDrive WORM disk attached to an 80286 PC.

Even with the large optical WORM disk, only 1000 images can be stored to a single disk. Because of this and the unacceptably slow retrieval speeds, the project is looking into recording the images from digital optical disk to analog videodisk in NTSC format. In order to preserve resolutions necessary to read the text in cartoons, 4 NTSC images will be created for each caricature (quadrant storage) and brought back together on high resolution screens. In this way the project will be able to store 20,000 caricatures to a disk (4 quadrants and one overview or full image per cartoon, with 100,000 frames per disk).

The project hopes to become operational for the public next year with a version that will use the videodisk. At the moment retrieval interfaces for the images are being explored, using links to the Center's MINISIS system (operating on an HP3000) and various DOS packages on the PC.

All in all, this is a very well thought out project, whose clear requirements and insistence on proven solutions have enabled it to be flexible enough to adapt new technologies, while avoiding the mistake of attraction to a new technology for its own sake. As Philip Sylvain emphasized, the cost of photographing and making a print of each of the caricatures accessioned by the Center is more than $11 apiece. At those prices, the digitization and optical storage on both analog and digital disk project, which costs about $3 per image and provides far greater functionality, were a true bargain.

David Bearman

AAM Communications Network

The American Association of Museums entered into a two year agreement with Telecommunications Cooperative Network (TCN) in June. The agreement will initially save AAM members telephone costs for long distance service, but its larger purpose is to use communications facilities brokered by TCN to provide public access to museum services and improve information exchange within the museum community. At the invitation of Scott Foote of TCN and Steve Pike of AAM, the Museum Computer Network is exploring the potential of some museum oriented electronic bulletin boards, mail, conferences, and data interchanges. A working session has been tentatively scheduled for the October 12-14 MCN meeting.

Collections: DC Database

Collections: DC is a new database product, a directory of primary research and archival resources (archives, manuscript collections, visual materials, and other formats) on the Washington, D.C. metropolitan region. Approximately two hundred area institutions are included, among them the area's universities, historical societies, and many of its churches and businesses. Records represent either individual collections or entire repositories, as appropriate. Records per institution range from one to over sixty. Records are being added and updated continuously, and new participants are welcome. The database is available at Gelman Library (George Washington University) and at the Washingtoniana Division of the Martin Luther King Jr. Public Library. It will soon be available at the Historical Society of Washington, D.C. A print version is due soon and will be sold by Gelman Library. The database was created under a United States Department of Education Title II-C grant. For more information, contact Matthew Gilmore, Special Collections, 207 Gelman Library, 2130 H St., NW, The George Washington University, Washington, D.C. 20052, 202-994-7549.

State Archives Automation Outside RLIN

The acceptance of RLIN by numerous state archives and NARA has overshadowed an equally dramatic adoption of automation by state archives of other networks and in-house systems. In recent months, Alaska has begun planning for integrated systems and has begun entry of data, using MicroMARC:amc into WLN; Florida has signed a contract with MIS Software Development, Inc. for development of an in-house system and for entry into OCLC; Maine has implemented an RBase application for records center tracking and MARC record creation; and North Dakota has entered data on its holdings directly into OCLC.

NARA Explore Expert System for Records Disposition

The Archival Research and Evaluation Unit of NARA has launched a study of the potential of expert systems to assist users in making appropriate records disposition decisions. The work is being directed by Avra Michelson, who hopes to have a feasibility study completed within one year.

SOFTWARE REVIEWS

Minaret. Cactus Software, Inc., 850 North State Street, Chicago, IL 60610, 312-642-8655; $595.

GLEN McANINCH, Kentucky State Archives

Minaret is a commendable attempt to provide the archives community with a flexible means of implementing the MARC AMC format as a local system on an IBM PC or compatible microcomputer. The product shows much thoughtful programming. While it meets only some of the requirements for a full-fledged archives and records management system, it does ease the burden of using the MARC AMC format and provides many necessary features to our profession. Temporary version 1.23 was used for this review.

Documentation

The manual is divided into four sections, "Getting Started," "Tutorial," "Reference," and "Appendix." The reviewer had no problems installing the software on the hard disk of an IBM AT clone using the "Getting Started" instructions. The "Tutorial" appropriately takes a first time user through software functions step-by-step. The "Reference" section covers most functions adequately, though the reviewer encountered some unexpected results that could not be diagnosed with the manual. In addition, the separate indexes for each section make it hard to locate particular features. The "Appendix" has very useful quick-reference, exception messages, RLIN/OCLC interfaces and glossary documentation.

Ease of Use

The menus are like Lotus 1-2-3, with the exception that the function key is used to bring up the menus instead of the backslash. There are frequent prompts for action at the bottom of the screen, and pop up screens for easier selection of some of the file or form names that are not readily apparent. The user can perform DOS commands without leaving the program. Editing of records is full-featured with word-wrap, insert/delete and repeat previous record features.

Reports Generation

The reports generator is somewhat primitive compared to many microcomputer database managers (R:BASE, Paradox, etc.), though it rates relatively well in the text based management developmental software market (AskSam, MARCON, INMAGIC etc.) Report layout is controlled by a forms editor that is better adapted for use in creating input and search screens. Though the selection and placement of particular fields in a multi-line column based report was not fully explained in the manual, I am told by Cactus Software that it can be accomplished with the product by removing the variable field designator. On the other hand, control of headers, page length, and file vs printer output are permitted and well documented.

Authority File

As one might expect for a product that focuses on the MARC AMC format, the authority control module is a key feature of Minaret. Each time data is entered, the user is prompted by a pop up screen to choose an entry from the authority file or make a new entry into the authority file. This is a valuable feature.

Actions Tracking

Though the manual refers to this feature as "records management," Minaret does not have the full scheduling, disposition, and records center control capabilities needed for life-cycle management. The sample application provided, patterned on the RLIN model, uses MARC AMC designated fields to track only accession activity. It is difficult to see how the user could convert these forms into a suitable full-featured system with inventory control, tickler (prompt for destruction) files, and other records management functions, though clever users might find a way to create such applications. The application creation is made more difficult by the need to coordinate information at various levels of description (agency histories, series descriptions and transmittal information), when Minaret mandates that these be in separate non-related databases.

Performance

Minaret appears to perform searches quickly with a limited number of records. Creation of indexes is also quite rapid. The reviewer managed to freeze or lock up the screen on several occasions with the version of the software provided in spring of 1989, but a newer version that promises to have some bugs fixed is being sent by Cactus Software.

Conclusions

Minaret is a rather complex developmental tool with great potential. Its structure (groups, environments, and views) and features will seem unfamiliar to those used to relational database managers or text based management packages, but it handles MARC AMC formated archival data and archival functional requirements better than most other products. The software's abilities to import ASCII data from database management software and to translate that into MARC records or export to a bibliogrpahic utility might justify the purchase price for medium to large institutions faced with a sizable data conversion project. The tremendous thought that went into Minaret should be applauded. Archivists and records managers will be well served if Cactus Software continues to market and develop this product. Future versions planned by Cactus Software with network and refined searching capabilities could make it a significant automation tool for our profession.

The Liu-Palmer Thesaurus Construction System: Basic Edition. Distributed by Pacific Information Inc., 2245 East Colorado Blvd., Suite 104, Pasadena, CA 91107; $150.

DAVID BEARMAN

The Liu-Palmer Thesaurus Construction System (TCS) is intended to "facilitate the design and building of controlled vocabularies" and "reduce the work of thesaurus development". Anyone who has ever tried to develop or maintain a thesaurus knows that it is an exacting task that could certainly use software assistance. But until now, thesaurus construction packages were extremely expensive and very limited. In TCS, we have an inexpensive package that promises to do the clerical work of maintaining term relationships and displaying them in the ways thesaurus developers and users require, and which delivers on this promise.

For starters, TCS requires a very modest platform. An IBM PC XT, AT, PS/2 or "100% compatible" computer with 640 KB of RAM and DOS 2.1 or higher, with one 360 KB floppy drive and any size fixed disk will be adequate. A demo disk with some sample files and all the functions except those for adding new terms and new hierarchies is available.

The documentation is generally clear, and teaches some thesaurus construction concepts as it goes. I originally had a problem getting the system to run because the CONFIG.SYS file which the documentation states is needed did not conform to the one on the distribution disk which it said to copy, but this will no doubt be corrected.

What the thesaurus construction package does is both simple and elegant. When you first log on, it asks you to name the hierarchy of terms that you wish to begin defining. From then on, you may create a new lower level term (the initial term is tied to the top of the hierarchy), and link such terms with related terms, still narrower terms, synonyms, and guide terms used to define thesaural branches, called "facet indicators" in this system. With each link, the system establishes the reciprocal link and displays the revised hierarchy.

With a function key, any term can be identified as the "current term", or the term on which you are focusing. Control key combinations permit editing the current term, and adding synonyms, related terms, facet indicators and narrower terms linked to it. All these editing functions take place in a window occupying the lower third of the screen while the hierarchy remains displayed above. Terms may be deleted, and whole sections of terms can be moved with a single keystroke. New hierarchies may be defined at any time, and relationships can be defined for terms across hierarchies.

All of these functions are achieved with one simple template of function keys and control key combinations using mnemonics. These are enumerated on the only help screen in the system, which is reprinted on the front cover of the manual. The manual itself describes and reproduces every screen and illustrates the three standard reports: an alphabetical display, an hierarchical display, and a very useful rotated display for multi-word terms.

The alphabetical display lists, for each term, its Scope Note, Broader Terms, Narrower Terms, Facet Indicators and Use For relations. The hierarchical display shows terms and guide terms or facet indicators in their indented positions just as they appear on the screen, but with all levels displayed. The rotated display is permuted around each word in a multi-word term, which is a very useful feature usually absent in systems that sort reports alphabetically only.

The Basic Edition of TCS is advertised as the first step in a family of products designed to provide for upward migration. The Professional Edition, intended to support larger thesauri and more flexible reporting, is announced for the fall of 1989 at a price of $450, and a multi-user Producer Edition is being slated for the fall of 1990. Because the creation of a thesaurus requires the definition and linkage of each term separately, I did not test the limitations of the Basic Edition. The developers contend that there is no size limitation imposed by the software. However, the system maintenance functions of "packing and indexing" new terms, which must be conducted in the foreground in this edition, take up to a minute at 8Mhz. with a very modest file of 35 terms richly linked. Presumably these functions will take longer as the file grows. I would appreciate hearing reports of user experiences.

Demo Disks Received

Collection EL. Vernon Systems Ltd., P.O. Box 6909, Auckland, New Zealand.

Collection El (Entry Level) is a more constrained version of the company's product Collection, which is distinguished by the extraordinary amount of customization that users can give it. Collection EL is constructed using Advanced Revelation. The demo disk consists largely of text with little interaction for users, and does not accomodate input of data. It comes without a database that could be used to test claims about how the system works for retrieval or reporting. A serious potential customer will need to spend about two hours with the demo, but will find that it leaves many questions unanswered. The $50 investment can be credited towards the cost of the $2850 single user system or $5700 four user system.

If I had never seen Collection, and had not recently been given a two hour demonstration of Collection EL in addition, I would be hard pressed to say much about the product from the demo, except to note that it has a rich data structure, lots of validation and authority control, and a generally friendly and very well documented user interface. Because I did see a demonstration, I know that Collection EL needs work on its query and report writing facilities and that the developers know this. Hopefully they will complete those portions of the product and release a demo disk that illustrates how they will function. At the moment, this product has great potential but is still rather raw. One of the modules planned for Collection EL is intended to address the needs of archives; a prototype has been built for comment, but the module is not ready for release.

Product Developments

The **Conservation Information Network** (4503 Glencoe Avenue, Marina Del Rey, CA 90292) reports that its host, the Canadian Heritage Information Network, upgraded its operating system in late June, resulting in recognition of both upper and lower case characters. A modest, but nice, change.

Gerber Scientific Products (151 Batson Dr., Manchester, CT 06040) sells a range of lettering and graphics packages that will print signs of all sizes on vinyl, metallic, paper and film stocks. Graphics 2 sells for less than $4000 for lettering up to 2"; Lettersmith sells for $7450 for lettering up to one foot high, with plotter.

Hypermedia Solutions (1886 Newton St. N.W., Washington, D.C. 20010) offers consulting and development services for museums and others needing low cost, high quality interactive information systems. Hypermedia creates almost all its products using Apple MacIntosh microcomputers to allow clients to update products on their own and to permit easy integration of text, sound, video, animation and graphics. The company is currently assisting museums which have received Apple Computer hardware grants.

Inmagic, Inc. (2067 Massachusetts Ave., Cambridge, MA 02140-1338) is entering the museum applications arena, according to a recent press report from Triad News in Australia announcing the interface of its INMAGIC software with LASER, a program used for accessing videodisk images on a separate monitor in the Photographic Archive of the Museum of Victoria (Australia). INMAGIC is being promoted by the Victoria Ministry of Arts, which has employed a museum studies graduate to teach its use. It is installed at the South Australian Maritime Museum, the Old Parliament House Museum and the Migration Museum.

InterroPoint Inc. (1845-A Terminal Drive, Richland, WA 99352) showed its TOUCHWARE and TOUCHCRAFTER software at the AAM meeting. The first is a delivery vehicle for interactive exhibits on an Apple-2G, and the latter is a do-it-yourself design environment permitting up to nine branches per touch screen, more than 500 screens per program, and interaction between user input and the logic of the appearance of the next screen.

Lasergate Systems Inc. (13787 Belcher Rd., Suite B4, Largo FL 34641) is showing its Patron Access Control System, a PC based rear end to its Gatepass Ticketing System and Lasergate scanners. The three components permit a museum to issue tickets and membership cards for specific events or benefit levels, scan these in turnstyles or electric eye monitored entrances or by point-of-sale cash registers, and thereby build databases of who among their constituency participates in what activities. The cards can also be given values that will be decremented by use, and could be used for employee time-keeping and space security functions as well.

Museum Research Associates (11 Spring St., Hallowell ME 04347), in response to a letter inquiring about this new "package", describe their REGIS System for museum information management as "customized museum-specific applications of an off-the shelf DBMS" (Microrim's R:BASE for DOS or R:BASE for OS/2). Ron Kley and Jane Radcliffe, principal consultants of the firm, base each customized product on a generic template reflecting their experience in museums, but each product is designed to uniquely meet the needs of the client institution.

NISC (National Information Services Corporation, 335 Paint Branch Drive, College Park, MD 20742) a CD-ROM publishing company founded by Fred Durr, formerly of AIRS, Inc., is announcing its current titles. The mission of the two year old company is "to provide the most powerful and intuitive access available to bibliographic and full-text databases." All NISC DISCS, as the company's discount edition databases are called, run on CD-Answer software from Dataware in both novice and expert search modes. NISC also offers a series of value added products and services for government published titles, and directly distributes various disks published by the U.S. Government.

Optech International Ltd. (321 North Front St., Wilmington, NC 28401) a U.S. office of a New Zealand firm, would like to interest science centers in employing a variety of user controlled microscopes and monitors to provide a vivid interactive view of the natural world. Seeing their immense magnification of living specimens and the associated teaching tools, is believing!

Poseidon Systems Inc. (1898 S. Flatiron Court, Boulder, CO 80301) is showing its Touchsource touchscreen directory systems with integral, outline based networking of menus, and graphic display of data from databases. The owners describe their system in the March/April 1989 issue of Optical Information Systems.

Select Ticketing Systems Inc. (P.O.Box 959, Syracuse NY 13201) has sold its PASS (Point Admission Selection System) beyond its original university performing arts origins into museums such as the Detroit Institute of Arts, the National Air and Space Museum, and the St. Louis Zoological Park in recent years. Their interest in expanding further was reflected in attendance at the AAM pre-conference workshop on selecting automated systems for museums (see what the client is being told!). Their VHS advertisement (itself an interesting marketing tool) describes a complex package with event and season ticketing, membership and accounting modules, and multi-site networking capabilities that should prove of interest to larger museums and those exploring the potential of membership and participation programs.

Slideware (P.O.Box 2626, Pasadena, CA 91102) is now selling VRMS, the Visual Resources Management System, a menu driven FoxBase+ package for managing a slide collection with artist, country, location and keyword authority control and slide label printing.

Vernon Systems Ltd. (P.O.Box 6909, Auckland, New Zealand) has sold its system, Collection, built on Revelation, to the Cincinnati Art Museum, the Getty Conservation Institute in the U.S., and to the Museum of Contemporary Art in Sydney, the National Museum of Australia in Canberra, and the Friends of the Auckland Art Gallery in Auckland, New Zealand.

Wang (Culembourg, The Netherlands, B.V.) has installed ARIS, the Archives Information System it developed in conjunction with the City Archives of Utrecht, in the City Archives of Rotterdam, and is marketing it as a package. The package uses a simple database to hold a document surrogate linked to an optical disk holding images of the records themselves.

Willoughby Associates Ltd. (266 Lindfen St., Winnetka, IL 60093) introduced MacMIMSY, a MacIntosh version of their Oracle based system in June. MacMIMSY uses Apple's Hypercard as a front end, and gives users a mouse and icon driven interface. About 25 copies of the IBM version of MacMIMSY have been sold in the past two years. Willoughby also installed its Minisis based QUIXIS system for the HP 3000 at three major installations this spring (the Moody and Getty Museums and the Dept. of the Navy) and has several other large installations planned for the fall.

STANDARDS

Object Management Group

Ten leading computer companies (including HP, Sun, Prime, and Unisys) have formed an organization devoted to making object-oriented systems interoperable. ("Object-oriented" here refers to a method by which an operating system handles data, not to museum objects.) The goal is to achieve international integration of object-oriented environments based on definition of industry standards. The group will adopt

Hewlett-Packard's New-Wave Object-Management Facility (OMF) independent of its user interface, as a working example of the kind of framework required, and will build upon it to support additional tools. (Contact Object Management Group, P.O. Box 395, Westboro, MA 01580.)

FOREMOST: Formal Records Management for Office Systems Technology

The FOREMOST design team, a project of the Canadian Department of Communication, National Archives of Canada, Comterm Inc. and Provenance Systems Inc., published a Draft Functional Requirements Definition for an office systems application meeting the needs of records managers on May 1, 1989. The FOREMOST document is not a standard, nor mandatory for Canadian Federal agencies, but it is intended to be incorporated into government RFPs to provide office systems. The requirements address office systems to be used to store records deemed of continuing value and to apply disposal schedules, without interfering with tools for creation of records, including independent (and incompatible) word processing systems. FOREMOST has been implemented by Provenance, Inc. in a software system called RECS, designed to manage paper as well as electronic records. (Contact John McDonald, Director, Automated Information Systems Division, Government Records Branch, National Archives of Canada, 395 Wellington St., Ottawa K1A 0N3, CANADA.)

Text Encoding Initiative

Clifford Lynch reports on the first meeting of the Advisory Board of the Text Encoding Initiative (TEI) in the June/July issue of the Bulletin of ASIS. The TEI project is one that should be of considerable interest to archivists since its objectives are to develop standards for the Standard Generalized Markup Language (SGML) encoding of historical texts. The SGML profiles of such texts are formal definitions of the properties that make them distinctive "forms of material," and thus might be the beginning of a language of formal document description that would facilitate the appraisal and description of archival records.

Descriptive Standards Working Group

The Archival Descriptive Standards Working Group met at the University of Maryland June 2-3, and discussed position papers prepared by group members Tom Hickerson, Marion Matters, Harriet Ostroff, Kathleen Roe, Richard Szary, Sharon Thibodeau, Vicki Walch, and Lisa Weber. Each paper addressed potential for standardization of one cell of the matrix of standards (internal/external, data systems, data structures, data content, and data values) developed in the group's first meeting in January. In two days of discussion the group arrived at a consensus of recommendations about the most promising and necessary directions for archival standardization. They also made a number of recommendations about groups to carry the work forward and roles that different professional associations and national organizations could play. The full discussion papers of the working group, together with its conclusions and bibliographies, will be published this fall. Project Coordinator Vicki Walch hopes to have the edited version of the papers available in time for the SAA annual meeting. (Contact Vicki Walch, 65 North Westminster Street, Iowa City, IA 52245.)

Common Agenda for History Museums

A meeting of museum, archives and library professionals concerned with issues of information exchange was convened on June 5 by Mary Alexander, Coordinator of the AASLH Common Agenda Project, at the National Museum of American History. The session was attended by 26 people representing institutions as diverse as the National Park Service, the Henry Ford Museum, the Utah Historical Society and the Research Libraries Group. Archival and library community reprentatives had some experience in information interchange and networking, but most of the museum representatives were still novices in these areas. The resulting exchange of views did not produce concrete results, but the group did recommend that the Common Agenda project continue its efforts at definition of the information required by historical museums. There was tacit acceptance of the Museum Computer Network's role in coordinating museum community data requirements in a communications protocol, so that the many kinds of data interchanges ultimately desired by communities such as historical museums,

archives and libraries could be facilitated. Since the meeting in June, the Common Agenda project has received funding from the Pew Charitable Trusts to pursue implementation of its database task force work in a consortium of Philadelphia institutions. (Contact Mary Alexander, Common Agenda, MBB-66, National Museum of American History, Smithsonian Institutions, Washington, D.C. 20560.)

Nomenclature Update

The AASLH has issued the first of its Nomenclature Subscription Service reports as one in the Association's established series of Technical Reports. "Clearing a Few Things Up: The Revised Nomenclature," by James R. Blackaby, explains some decisions of the committee which helped create The Revised Nomenclature for Museum Cataloging, and provides some guidance for old to new data conversion. Four additional update reports are planned. Accompanying the report is a notice that the National Park Service will revise its codes in the next release of its Automated National Catalog System (ANCS 3.4) to reflect the Revised Nomenclature. A table for converting Park Service catalog system codes and classifications into Revised Nomenclature codes and classifications is included as an appendix.

Artist Name Authority Workshop

The Vocabulary Coordination Unit of the Art History Information Program at the Getty Trust recently held a workshop for staff of its various art information projects to further definition of common practices in creation of artist name authorities. The workshop, which led to substantial new areas of agreement between projects, is expected to be repeated as an annual meeting. (Contact Jim Bower, Getty Art History Information Program, 401 Wilshire Blvd, 11th Fl., Santa Monica, CA 90401.)

Comparisons of Non-Standard Hardware

Comparing hardware features not controlled by consensus standards, but made more uniform by conformity to "industry standard" practices is exceptionally difficult because of the number of variables involved. Ted Durr, President of Interactive Support Systems Inc. (owners of MARCON) recently sent a set of feature comparison tables he has been using which he will be glad to share with others. For example, under Microcomputer Displays, he compares video signals (such as Analog or TTL), number of colors displayed (16 or 64), diagonal size (12",14",16" etc.), maximum band width (15, 23, 30), video card compatibility (CGA, EGA, VGA) and many other features. He also examines features of accelerator cards, multifunction cards, port cards, video cards, magnetic mass storage devices, optical mass storage devices, printers, and local area networks. (Contact Ted Durr, Interactive Support Systems, Inc., 575 Eighth Ave., 14th Fl., New York, NY 10018-3011.)

DAT Agreement

The Recording Industry Association of America, the International Federation of Phonographic Industries (London) and Japanese manufacturers including Sony, Panasonic, Sharp, Hitachi, Toshiba, Sanyo, Casio, and TVC have agreed on a standard that would permit digital audio tape players and recorders to be sold in the U.S. The agreement addresses the concern about protection from unauthorized copying by equipping recorders with a mechanism that enters a code signal on a tape after first recording to prevent re-recording. No American vendors have as yet joined the agreement, which is expected to impact the market within about six months.

Standard for Comment

The National Information Standards Organization (NISO) is circulating for comment a draft of ISO/TC46/SC4/N243, "Bibliographic Data Element Directory. Part 3: Information Retrieval Applications." The draft standard specifies and describes data elements required in the exchange of data between information retrieval systems, and would affect the way computer systems exchange queries to respond to remote users. Comments on the draft standard are requested by September 1st. (Contact NISO, National Bureau of Standards, Gaithersburg, MD 20899.)

Archives and Museum Data Model and Dictionary

by David Bearman

Archives and Museum Informatics Technical Report
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Over the past five years numerous data dictionaries and models of the logical architecture of archives and museum information systems have been proposed. Because they are largely unpublished or not yet commercially distributed, these models have been difficult to locate and have not been compared.

This report lays out a data model of the entities appropriate to archival and museum information systems, and discusses specific problems of data representation posed by the links between entities, such as chronological relationships and the hierarchical relationships between the attributes of parts and the whole. Existing data models and dictionaries are then compared based on their capacities to represent the entities and their relationships.

Available by subscription or as a single issue. Subscriptions are offered on a calendar year basis: $160 to addresses in the U.S., $180 airmail to foreign addresses. Includes a subscription to the quarterly newsletter *Archives and Museum Informatics* (ISSN 1042-1467). Single issues of *Archives and Museum Informatics Technical Report* for 1989 and 1988 are available for $35 each. 1987 issues, while available, will be provided for $20 each. A complete list of titles is available on request. An additional $5 charge applies to all billed orders. Payment must be made in U.S. currency.

Subscriptions and orders for individual reports should be addressed to Lynn Cox, Managing Editor.

Archives & Museum Informatics
5600 Northumberland Street
Pittsburgh, Pennsylvania 15217
(412) 421-4638