ARCHIVES AND MUSEUM INFORMATICS

Cultural Heritage Informatics Quarterly

VOLUME 8 • NUMBER 2 • SUMMER 1994

Archives and Museum Informatics: Cultural Heritage Informatics Quarterly (ISSN 1042-1467) is published by Archives & Museum Informatics, 5501 Walnut St., Suite 203, Pittsburgh PA 15232-2311; (412)683-9775, fax 412-683-7366.

The journal is edited by David Bearman, whose authorship may be presumed for all items not otherwise attributed.

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Archives and Museum Informatics
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Volume 8 Number 2 Summer 1994

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EDITORIAL

PromisingDevelopments on the Path to a Critical Mass

A skeptical observer will note that while billions are being spent to acquire the backlists of film studios to feed the presumably voracious and unquenchable appetite of hundreds of future interactive multimedia channels, the content being acquired in these deals is old, trite, linear, unchallenging and often below today's exacting production values. Will tomorrow's consumers really want to buy thousands of hours of this stuff? Probably they will. And I even imagine they may buy enough of it to pay back these seemingly preposterous investments. But surely they won't find in this content all that they want. There will still be news, sports, retail sales, public interest television, and arcade-like games, but I suspect, and recent surveys bear this out, that most of the public will want more substance. In fact, many will want real content to chew on, think about, discuss, and explore.

They'll want the primary assets of our cultural heritage repositories. The best representative objects and specimens of our civilization and natural world, surrounded by important knowledge about them and interpretive context, made more real in an environment that gives us the experience of them. The primary asset of the library, archives, and museum which cannot readily be bought by QVC or Sony is the combination of their collections and knowledge of them. Private interests, whether Bill Gates' Continuum Productions, Kodak's Picture Exchange, Knight-Ridder, Digital Collections, or numerous others will try to acquire licenses to disseminate information and images from archives and museum collections. But they have not been very successful yet at convincing archives and museums to part with control over their holdings. If they do, they may be surprised to find that the most valuable part of the assets they have gained is the value which has been added through documentation, interpretation, and indexing. Despite the hype about licensing rights to digital images, the long-term future of cultural repositories lies in the information they add to interpret and provide access to our heritage. If the control over access and interpretation passes into other hands future role of museums, archives, and libraries as providers of rich cultural experiences will be ceded to others.

There is reason to believe that this could happen. A small number of universities are beginning to experiment with making their art slide resources available over campus networks and beyond. Recent announcements in-

cluded Duke University, Columbia University, three campuses of California State University (San Jose, Long Beach and Chico), and Kansas State University among them. These institutions have evidently decided that if the photographers of the works of art (typically members of their faculty) give them permission to use the images, then they have all the permission they require. If this reasoning prevails, we could expect to see tens of thousands of images available on the Internet within a few years. Alternatively, museums could choose to make the definitive images and data available which, while it would not end the practice of putting privately made images online, would probably be more desirable to users. The time for repositories with collections of primary materials to organize a Rights and Reproductions Organization (RRO) to provide ready access by publishers, broadcasters, and authors to licenses and content of archives and museum collections and data is here, and passing quickly.

Fortunately progress is being made. Several encouraging developments in this area are reported on in this issue.

- A coalition of public interest groups in the arts and humanities has issued a report on the needs of cultural heritage information providers in the new National Information Infrastructure. The report seems likely to significantly effect public debate over the next several months and to launch an even broader coalition, page 131.
- I was pleased to see the importance with which this issue was treated at the PROMETHEUS conference in Athens, even though the Greek government appears to be taking a very difficult position with respect to making digital data available. At a minimum, the political requirement that the government document the national patrimony opens the way to its collecting the data that will ultimately be required to enable licensing, page 134.
- The Minister of Culture of the Commonwealth and state governments in Australia have given a major boost to national and ultimately international cultural heritage information systems by adopting a framework for distributed access to such resources, page 141.
- Finally, a study group is being formed by museums and universities to examine the licensing issues separating them in the non-commercial dissemination of image and information from museums. If these issues can be resolved, and museums and universities come to an understanding about academic site licenses, it would create a de facto knowledge-base of licensable digital cultural heritage data, page 156.

The call issued by the Getty Conference on Image and Information in the Arts in March for a "critical mass" of quality cultural information may be answered sooner, rather than later, if initiatives like these keep popping up around the world. Progress will be even faster if the efforts can be kept in touch with each other and coordinated in a general way.

LETTER TO THE EDITOR

From Toni Petersen, Director Art and Architecture Thesaurus

Having shared David's experience in giving workshops on vocabulary control [see "Vocabulary Control", Vol. 8 #1, pp. 6-7], albeit centered on the Art & Architecture Thesaurus (AAT), we understand his frustration concerning the inadequacies of the controlled vocabularies his group was searching. I would like to question his expectations, however, and ask him to consider the function of a thesaurus for the cataloging of museum objects.

The question of a thesaurus's adequacy hinges on its responsiveness to accommodating the need for new terms as users do their work. The concept that a thesaurus on day one of its appearance can answer everyone's needs is slightly idealistic. Take the case of the AAT, for example. Even thought the second edition, which was published in February, 1994 has the largest number of terms ever assembled for art and museum object cataloging (almost 90,000, including about 25,000 preferred terms and the rest being references of one kind or another), we would never assume that it covers the universe of its knowledge domain. The terms that are included made up the pool of terms that were the most obvious and could be dealt with by a limited staff working against a publication deadline.

Our daily mail refutes the comprehensiveness of the AAT constantly, for we receive terms from our users at the rate of 80 or so a month. In addition, we are working collaboratively with a number of museums (and the number keeps growing) that have requested that the AAT absorb all the terms they need for objects in their collections. The AAT has taken on this burden precisely for the reasons so clearly bought out by David in his workshop report. There is no point in producing a thesaurus if it is not a growing and changing tool that represents terminology required in its domain. A closed vocabulary is a candidate for extinction. How quickly we can meet all these needs, gives the obvious limits on resources, is perhaps frustrating to all of us, but we continue to work on it.

Having said all this, what about David's specific frustrations in the workshop under discussion. The AAT has a huge holding file of potential new terms from many sources that could not be included in the last edition. Each time a candidate term comes in, we check this file first and pick up on any work already started on the term. Since David was devilish enough to bring refrigerator magnets to his workshop as the objects to be cataloging

examples, and since the workshop group did not find them in the AAT, we treated them like candidate terms. Indeed, both magnets and refrigerators were in the holding file and we have retrieved them, finished the work on them and input them into the AAT database. Another term searched by the workshop, kitsch, actually was already in the AAT, but somehow was not found. Perhaps whoever keyed it in spelled it improperly. David noted that "plastic," "collectibles," and "models" are in the AAT; so is "kitchen" if that term might have been useful.

Evidently the group wanted to use the term "Pop Art" in relation to these objects and were surprised not to find it in the AAT. Actually, this concept has been the subject of much discussion among our staff over the years. After a great deal of research, we decided that the term had to be "Pop" because it is a term that can be combined with many other terms, such as "art," "design," "architecture," "artists," "culture," etc. If the post-coordinate nature of the AAT had been stressed in the workshop, and the term "Pop" had been searched, the needed term "Pop Art" could have been made. I grant you that this is an aspect of the AAT that requires training on the part of the user--to truncate as much as possible, and to think about combining single terms from the AAT into more complex concepts. We need to do a better education job on this point.

The bottom line, and the reason I have taken so much time and space here, is to urge archival and museum staff not to become too frustrated with their controlled vocabularies of choice, but to work with them to make them what they need. That's the only way it can happen because there is no perfect thesaurus in this most imperfect world.

ARTICLE

Strategies for Cultural Heritage Information Standards in a Networked World

David Bearman

Introduction

The rapid growth of an international, networked information environment presents some novel challenges to those of us developing standards-based strategies for interchange of archives and museum information. Many of the assumptions on which our approaches to standardization have been based for the past twenty years need to be reexamined, revised, and in some cases discarded. With this reassessment will come the need to adopt some new methods. I believe we can undertake this reassessment using the framework for analyzing information standards which I introduced a decade ago.

At the most basic level of knowledge representation we find *data values* such as "5th Century, BC" or "Athens, Greece." Data value standards specify the terminology or format of data that may be recorded in a given data category or field. Above the data value level are *data contents* such as "Date of Creation" or "Place of excavation." Data content standards specify all the categories of information expected or allowed on a system. Data content is organized in *data structures*. Data structure standards specify the ways that groups of data categories or fields will be linked and how those linkages will be formally expressed. Finally, data structures are processed according to rules and methods of *information systems*. Information systems standards regulate how software and hardware operate.

In efforts to make information interchangeable between cultural heritage information systems and between our systems and others with which they may interact, we, as a professional community, have been actively involved in standardization efforts on all four of these levels. In the rapidly evolving networked information environment in which we must participate, some of these efforts will be more valuable than others and some serious lacunas in our efforts to date will become painfully obvious. In addition, some of the approaches we have employed in implementing these standards will be seen to be counter productive or unnecessary.

I. Data Value Standards

Over the past twenty years, numerous efforts have been made to standardize terminology and formats of information recorded about cultural objects and the content of their creation, use, and signification. These can be roughly categorized as of three types -- classifications, naming, and data typing or format control. These three types of data value standardization efforts have had quite different degrees of success in arriving at agreement and enjoyed very different degrees of acceptance. But they have shared a basic premise which has been shown to be relevant and of some value in the development of interchangeable bibliographic information in the library profession: i.e., that the role of controlled vocabulary is to provide catalogers or documentalists with "approved" or "preferred" terms for synonymous concepts so that they, by using the recommended value in constructing the surrogate records by which they represent the objects in their collections, will introduce terminological consistency into their databases. The second premise they have shared is that the museum profession should seek consensus within its ranks on what language should be used to describe cultural objects.

I suggest that we have emphasized the wrong aspects of data value standardization and that the purpose for which consensus is being sought is inappropriate. I'm afraid that this helps to explain why most of our previous efforts at terminology control must be judged on their own terms to have been failures.

First, let us consider the numerous efforts at standardizing vocabulary on their own terms. Those having to do with data format can only really succeed if they take the path of adapting data value format standards from other disciplines or fields. Thus, data format standards should conform to ANSI time conventions YYYYMMDD.hhmmss [in which Y = year, M = month, D = day, h = hour, m = minute, s = second]. If they depart from this widely adopted standard they cannot take advantage of data processing routines adopted to manage time-based data nor link with other databases created outside of the cultural heritage management field. The most compelling data value standards from outside museums include ASCII for text representation, CCITT Group 3 and 4 for representation of images as bit maps, and CD-Audio for sound representation.

Museums and cultural heritage institutions have paid too little attention to these potential standards because they have rarely considered how their databases could be linked to those of others. Thus we do not use standard forms of time-referencing such as ANSI time, geo-referencing such as Spatial Data Transfer Standard (SDTF), formatting of weights and measures, or coded identification of organizations, countries, products, or professions used by the world of commerce and statistics. This is highly unfortunate because by adapting these easy to implement data tying conventions we could be typing cultural heritage knowledge to maps, demographic, trade, or political data.

The second approach to data value standardization has also received less attention than it deserves. This involves adapting standard proper names for people, organizations, events, and places. Here again the advantage to cultural heritage databases is the links which these data value standards could provide to other information sources. Because the standards followed by the preponderance of such information sources are those dictated by the library profession with which museums especially have a competitive relationship, we have too often ignored the self evident value of standardizing proper names.

Instead, museums and cultural heritage professionals such as conservationists and archaeologists, have concentrated their attention on the third type of data value standard, classifications, which are the most problematic and generally least useful. Classifications reflect not only an effort to define data value standards but an effort to capture a world view -- this is their theoretical strength and their practical weakness. It is also the source of their attraction to museum professionals.

In practice, almost none of the many classification schemes proposed for managing terminology of object description have been developed by a broad enough community of professionals to escape from being the idiosyncratic world view of one individual or profession. As such, instead of assisting us to link objects described with such schemes to objects described by others or to data not related to objects at all, they capture the data that follows their approach on an unreachable island.

In recent years, there have been a few efforts in vocabulary and terminology control that have avoided the pitfalls of most data value standardization efforts. These have been the products of the J. Paul Getty Trust, Art History Information Program, Vocabulary Control Group: the Art and Architecture Thesaurus, the Union List of Artists Names, the Thesaurus of Geographical Names, and the Provenance Index. Because they have been adequately funded to permit involvement of hundreds of diverse professionals in their formulation and have been tested for many years in a wide variety of institutional implementation contexts, they have escaped the dilemma of idiosyncrasy. And because staff involved have been keenly aware of data standards from outside the cultural heritage field, they have provided links to terminology used by other professions.

But to me the most important contribution of these standards has not been their breadth and scholarly authority, but the innovation in implementation guidelines reflected in the Union List of Artist Names (ULAN). For political reasons, the ULAN project was forced to abandon a vision of the proper role of vocabulary standards which has been prevalent in libraries and museums but which is essentially outdated in a world of electronic networked

information. This approach to vocabulary control views the controlled vocabulary as a source of information to be used by catalogers and documentalists who are writing catalog records, inventories or other information surrogates for objects in order to ensure that these records will contain consistent terminology in each field of information to which vocabulary control applies.

This practice has three very fundamental shortcomings which make it essentially a negative rather than a positive force in cultural heritage information systems. The first is that it requires the cataloger to substitute a term from our contemporary lexicon for an essentially synonymous past or local usage found in textual records associated with the cultural object or in the text of the object itself if it has text. This distorts the past.

The second shortcoming is that such term substitution does not assist users who are searching for information unless they came to their search with the "authorized" or "preferred" term. If they do, the practice will "co-locate" all records containing their term. If they do not, the practice (by itself) will ensure that they get no responses. (Of course, it is recommended that they then use the same authority list used by the catalogers to locate terms or synonyms for terms they would bring to a query and substitute these terms in formulating their query).

The third and fatal flaw of the practice of term substitution rests in the presumption that surrogate records created by catalogers and documentalists comprise the bulk of data about cultural heritage that we would want to access. Not only is it fallacious as a practical matter to think this is so -- or will at some future date be so -- it is not even what we should be aiming to achieve. Most of the documentation of cultural heritage is contained in records created by contemporaries to its creation, who planned and participated in it, and by the generations since then who have appreciated and even collected it. In travelogues and essays, letters and diaries, poetry and prose, the successors to cultural heritage have created a great wealth of primary documentation which is itself part of the cultural heritage. What we should be aiming to do is not simply to provide access to recently creatly cataloging surrogates but to provide immediate access to the wealth of contextual information and the knowledge added to it over time.

The method by which data value standards should be implemented, if broadly based vocabularies can be developed, is as an intermediary knowledge-base between a query and the documentation, not as a rule for rewriting the documentation of our cultural heritage using a defined set of terms. The effect of interposing data value standards between queries and cultural heritage information resources is the same as that of transposing data values into databases of cultural heritage surrogates from the perspective of the searcher, but fundamentally different from the perspective of the role of documentalists.

Instead of laboriously creating new surrogate records for every book, manuscript, sculpture, building, or tool in our collections, documentation will consist of gathering sources of information reflecting on objects in our collections and "marking" the data in them according to its data content. Data value co-location will be performed by the computers program which looks under each possible term in a cluster of synonyms and retrieves all information sources described by any of the terms in that cluster. Thus in the case of a search mediated by the Getty ULAN, not only will a query for Leonardo retrieve information sources which refer to him as Da Vinci, Leonardo da Vinci, and Leonardo, it will identify possible meaningful differences between those who use the different names.

Such meaningful variation can be quite critical to understanding. For example, the term "asylum" has at different times in history referred to religious sanctuaries and mental institutions, while "sanatorium" refers to both mental institutions and tubercular facilities. Scope notes reflecting different usages can be helpful in understanding the results of retrievals of information sources with this term. Imagine that different scholars believe artist X was born at place A and B. Those who cite place A, tend to set the artist's birth date as year Y, those who identify B as the birthplace find evidence for a birth date of W. Different meaningful hypotheses about the artist's childhood follow from how the name is given. If catalogers have substituted all forms of the name for one, these meaningful clues are buried in the original documentation and must be discovered by serendipity.

One of the major limitations of "authority files" in the form of vocabulary or terminology lists as they have been implemented in the past is that they focus on providing information about the term itself and not the thing to which it refers. For things in the real world, with proper names, it is the "additional" data that facilitates linkage between information resources; data on people, places, events, and things may be used to link existing information sources through cascading searches like identifying the artists exhibiting in a particular city during some period of time or locating music traditionally performed in wedding ceremonies.

Before leaving the subject of data value standardization, let me point to the need in the cultural heritage information world for one vocabulary standard which has not been developed and suggest strategies for making better use of those we have and abandoning other efforts to construct more. The terminology we lack is the most basic one in material culture -- object names. We do not have it because professionals have been arguing endlessly over what terms are correct or preferred rather than trying to construct non-normative term lists which could help identify synonyms and virtual synonyms. Such lists could also point to product names and identifiers for mass-produced commercial objects of modern society, thus linking to trade catalogs, statistics on industrial production, and popular methods of referring to things.

To make progress on this front means to abandon the futile and misused object classifications of the Social History Information Classification (SHIC) and Chenhall (now revised as the AASLH Nomenclature). Because these attempt at classification reflect the world view of their creators and insist that any given object can only be located in one place in a classification scheme, they have been "adapted" rather than "adopted" in almost every institution in which they are used. The result is to make a double mockery of standards because not only is the resulting data not standardized (the classification cannot be used to search across databases) but the labels given to things are not the names by which they are commonly known. Indeed one promising place to begin is with studies of regional dialects which frequently are distinguished by local usages of object names.

To use the data value standards which we do have, cultural heritage information professionals will have to acquire information retrieval systems in which queries are first put to an intermediary file of authority data which returns all equivalent search terms to the query program and puts all resulting queries to the source database. With this they will need to move from making documentation to marking documentation to take advantage of the natural language richness of cultural information sources. This last point is elaborated and given a concrete method in the discussion of data content and data structure standards below.

II. Data Content

Substantial professional effort has been expended on defining the "fields of information" or "data categories" that are employed in cultural heritage documentation. These efforts have begun to coalesce and to produce a large measure of universal agreement just as developments in network access make them essentially irrelevant.

In the 1970s and 1980s, dominant museum information systems attempted to impose their data definitions on others. The Canadian Heritage Information Network (CHIN) largely succeeded with two huge lists of possible fields for cultural and natural history because it allowed museums to use its automated systems with any combination of these fields they deemed relevant. In England, the Museum Documentation Association adopted a more schematic and prescriptive structure with fewer fields. By issuing data cards, it achieved large measures of compliance with its categories. Non-commercial and commercial systems with relative hegemony in their communities tried to impose similar standardized data structures to simplify systems support and, secondarily, enable interchange of information.

In the late 1980s, I launched a major data modeling project at the Smithsonian Institution which eventually engaged Roe Thompson, Mary Case, Jane Sledge, and many others, and resulted in definition of data categories and data relationships for all kinds of museums and all the activities of those museums. Similar efforts elsewhere came together in a subcommittee of CIDOC devoted to data models and "reconciliation" of data. All these efforts had in common the desire to provide a comprehensive model of any and all museum documentation data content.

In disciplines of the natural sciences, similar efforts were underway which have since been given a tremendous boost by huge amounts of funding for biodiversity research by governments world wide in the wake of the Rio Treaty. In the arts, the Getty Trust AHIP program and the National Endowment for the Humanities funded some successful efforts such as the Art Information Task Force which will report in final form in 1995 and some unsuccessful ones like the Foundation for Documents of Architecture (FDA). But because cultural heritage includes everything in the world and anything that might be done to it, the success of universal, logical, knowledge-representations or integrated data models has been modest at best. Not only can such models not be completed (as the FDA debacle illustrated) but they are designed to be neutral with respect to why the user looks at information they way he does.

Data content standards, however, are intended to define the categories of information which cultural repositories and programs should collect in order to do their work. As such, they are not neutral but have concrete and measurable benefits in terms of how adequately they help us to do our work. It was for this reason that in a generalized model I proposed in 1984, I divided the work of museums into supporting research and interpretation and managing collections, facilities, staff, and programs, and identified one group of entities (people, organizations, events, places, and dates) which had relevance to understanding cultural objects and their provenance and another set of entities (staff, agents, locators, actions, and times) relevant to managing the organization even though in some logical sense staff were people, agents were often organizations, locators were places, actions were events, and dates were times.[1]

The Art Information Task Force has taken the view that the "business" which needs to be supported by art object documentation is scholarship. As a consequence they arrive at a different set of categories and relations.[2] The critical point is that data structure needs to support business processes if it is to serve as a useful standard and not just be a philosophical curiosity.

Exploiting the relationship between data and business processes is essential to successful data standardization. In work I did for the Society of American Archivists' National Information Systems Task Force in 1981 and in the later study on Archival Information System Architecture, an effort was

1. See David Bearman, **Functional Requirements for Collection Management Systems**, Archives and Museum Informatics Technical Report No. 3 (Pittsburgh, Archives & Museum Informatics, 1987)
2. Art Information Task Force, revised by Jennifer Trant, Categories for the Description of Works of Art (unpublished, J. Paul Getty Trust, Oct. 1993)

made to document the business processes and information flows within cultural repositories and between cultural repositories and other organizations and subsequently to derive, from definition of the data elements required to support each business function, a model of data content. While these efforts involved formal modeling using IDEF (an internationally standard data and process modeling methodology), a similar but less formal effort has recently been completed in the United Kingdom which has resulted in revision of its data content standards.

An unstated and incorrect assumption of many data content standardization efforts has been that documentation systems serving different purposes could contain the same data categories. If they did, it would be possible to merge their data in union databases, migrate data from one system to another, and link data between databases within one institution but they would be poorly suited to support the requirements of each of a variety of applications. These three somewhat conflicting purposes of data interchange can, however, be achieved (as is reflected in one of the constant undercurrents in the data content standardization effort) by a minimum data set.

The search to identify a minimum data set, besides reflecting the frustration of those who have struggled long and hard with a universal logical data model or with gaining acceptance for a particular view of any given museum business process, points to a strategy for linking data bases (and a set of criteria for when data needs to be structured and when it could be unstructured). This strategy does not seek to merge different data sources into one but rather to leave each data source to enjoy its own peculiarities so long as it shares some commonality.

Unfortunately proponents of a minimum set of data elements have not been fully able to embrace programmatic criteria which would define adequacy of a data set only by its ability to make these links. Instead they have been confounded by the normative question of what data a curator, documentalist, archaeologist, or other cultural heritage professional would like to see recorded about every object in his custody or within his purview. By initially adopting the stance that the purpose of minimum data categories was only the unambiguous identification of cultural objects, it seemed that a project which is currently being sponsored by the Council of Europe might succeed in overcoming the normative spirit of standardization, but as of early 1994 they too seem to have succumbed to the temptation to be more than minimal and hence normative beyond the logical requirements of the application.

I would like to argue that our efforts to define data content standards beyond those needed to link distributed data sources for purposes of information retrieval are unnecessary. This is not to call for an end to data modeling and knowledge representation activity but rather the determination of when such efforts have gone "down" into the structure of the data far

enough. Previously we had no such criteria. It also provides us with other criteria based on whether, for a given business application, a particular minimum data set can do the work we need. This judgment can only be exercised by looking at how data content supports data structure and defining the ways in which data structure standards efforts can contribute to cultural heritage information interchange.

III. Data Structure

Data structures express the relationships between discrete elements of information and support the execution of system functions to be performed on the data. Data structures convey data between applications and/or systems.

In 1986, the Documentation Committee of ICOM (CIDOC), endorsed International Organization for Standardization (ISO) 2709 as the data structure for museum data interchange. The U.S. based Museum Computer Network decided in 1988 to explore, with other U.S. museum associations, the viability of the CIDOC recommendations in order to make a strong push towards interchangeability of museum and other cultural heritage data. From 1989 to 1993, the Committee on Computer Interchange of Museum Information (CIMI) analyzed museum applications, museum data, the potential for use of existing information standards in museums, and the specialized information requirements of museums, and made a series of recommendations for future standardization in a document entitled *Standards Framework for Computer Interchange of Museum Information*.[3]

The CIMI Standards Framework identifies some significant opportunities for museums to take advantage of standards, only a few of which involve new work on the part of museums. Those which do involve new activity relate to the adoption of data structure standards effectively used by others which require museums and cultural programs to define only the way in which they will be employed with respect to particular applications required by cultural heritage programs. Technically speaking most of these are Application Portability Profiles (APP's) -- they are definitions of the data content, sequence of commands, and data required for the receiving application to execute the functions expected of the application, and the requirements for end-to-end system performance.

When CIMI looked at the various applications for which museums must manage information, it located numerous ways in which museum uses of data are exactly the same as those of all other organizations. For example, the use of electronic mail by museums must employ the same standards that are employed for electronic mail by any organization or they would not be able to receive messages. It is self-evident that museums cannot establish special

3 David Bearman and John Perkins, **Standards Framework for the Computer Interchange of Museum Information**, 1st ed., May 1993 (Silver Spring, MD: Museum Computer Network, 1993), published in **Spectra**, Vol. 20 #2/3.

standards for file transfer, data encoding, or object encapsulation when standards like the file-transfer-protocol (ftp), JPEG, or Open Media Framework (OMF) are widely adopted in industry. On the other hand there are some activities which are central to the work of museums which require special data and functionality. For example, museum loan objects and exhibits with special requirements for end-to-end management -- arrangement of appropriate environments, insurance, shipping, couriership, custom brokerage, conservation inspection. This requires specific data and systems which have special programs to execute the data correctly.

The CIMI Committee identified three special areas of data and functionality that can exploit existing standards. The first can use SGML, a standard for "markup" of existing and new information (whether structured or unstructured,) that is text, sound, or even video, so that any necessary data content is identified. The second available standard is ANSI Z39.50 (ISO 10162/10163) through which a person using one museum catalog could retrieve information from another museum catalog even though it may be structured differently, run on a different hardware and software platform, or support different query functionality from the originating system. The third standard, Electronic Data Interchange (EDI), allows an organization to conduct business with other organizations and enter into contractually binding relationships using electronic transactions. Museums could use such facilities to conduct loaning activity, arrange for third parties to perform a variety of services, or run fulfillment activities such as mail order operations.

A fourth category of standards that museums could exploit are standard methods of system design, such as Hypermedia Design Methodology (HDM), to make information objects to which museum added value available for a wider variety of end uses. The CIMI Committee did not identify this opportunity because it did not explicitly address interactive multimedia and because when it completed its deliberations in June 1992, the hypermedia standardization arena was very murky. Although it did identify a need for multimedia object handling standards, since fulfilled by the Open Media Framework (OMF) and the Interactive Multimedia Association (IMA) recommended practices, no standards had yet succeeded in gaining adherence that addressed the higher level structural issues. The opportunity and need for standards in this area was made evident by the paper by Franca Garzotto and Costis Dallas prepared for ICHIM '93 and by discussions at that meeting, particularly at the closing plenary panel.[4]

A final opportunity for the cultural heritage community to develop an application protocol to support an exceptionally critical function of this emerging networked information environment is in intellectual property

4 Costis Dallas and Franca Garzotto, "Dynamic Hypermedia from a Museum Database: The Gold of Greece Application", in Diane Lees, ed., **Museums and Interactive Multimedia** (Cambridge, UK: Museum Documentation Association, 1993), 131-139.

management. While museums and cultural sector institutions are not at all alone in requiring such protocols, they are currently poised to take advantage of opportunities for electronic commerce in intellectual property if such protocols can be developed, so they could play a critical role in their definition. This ought not only incorporate minimum data sets for item identification, ownership declaration, plus terms and conditions of use specifications, but also end-to-end functionally for information retrieval, permission clearance, provision of licensed data, payment, payment distribution, and use monitoring at a very low level of granularity.

Each of these data structure standardization efforts could be taken up in the next few years by the newly formed Consortium for the Computer Interchange of Museum Information and others. Each involves the definition of some museum-specific content and functions as part of an APP but is firmly grounded in standards which are implemented in numerous other settings. Unlike the library community which had to create the MARC (ISO 2709) protocol 25 years ago, the museum community does not need to invent new standards *per se*, nor would our doing so serve our broader interest in preserving our investment in museum information. Any special standard that would be developed by museums will only make it more expensive for the community to support standardization and less likely that other interest with larger information systems investments will underwrite first copy changes for whatever large scale system modifications are required. Unfortunately, the CIMI Consortium will only be able to take up as many standardization efforts on behalf of the cultural heritage community as it has resources to conduct. I would, therefore, urge museums and cultural programs throughout the world to join the CIMI consortium and to pressure their information systems providers to join it so that the large agenda can be tackled expeditiously.

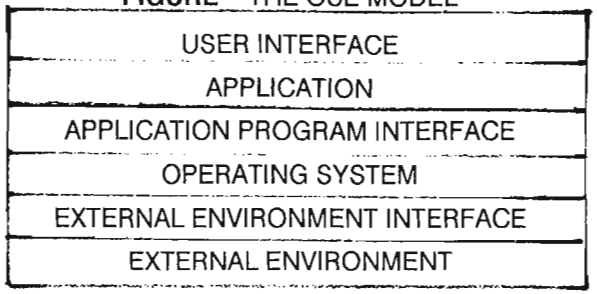
IV. System Standards

The discussion over the last few years of museum standards has been heavily influenced by the articulation of the Open Systems Environment (OSE) model by the information technology community, and by the evolution of the Internet. The former provides a conceptual framework for identifying where specific standards might best be located in order to achieve their desired outcomes. The latter requires us to always plan standards which will work on a worldwide scale to take advantage of the distribution of resources and functionality. We recognize that prescription will be exceptionally difficult to enforce across disciplines, countries, and technical environments. At its heart, our information systems standards strategy must be based on openness not uniformity, pointers not central services, and operating agreements not arbitrary rules which have no immediate payback to institutions that obey them.

It is useful at this point to explain both OSE and the Internet environment and its standards. The Open Systems Environment model, like its predeces-

sor OSI, is a conceptual framework for understanding how layers of hardware and software could be insulated from changes in layers above and below them by agreements governing their interfaces. Modularity could be achieved if the inner workings of each layer was kept as a black box. The OSE model is an improvement for planning standards over the OSI model because it explicitly recognizes two layers which are critical for insulating applications: the Application Program Interface and the User Interface.

FIGURE - THE OSE MODEL



The OSE model helps us because it is not rigid about exactly how services of the operating system and external environment are to be supported. As such it begs the question of whether all such services will be provided by OSI conformant software. This has become necessary because after more than a decade the full OSI conformant suite has yet to be implemented in production environments. Other standards, especially those of the Internet, have become *de facto* methods. The information environment which is of most interest to cultural institutions at the present time is the Internet because it links government and academic users worldwide. Because this is an environment which is on the verge of being expanded to reach commercial interests, educational settings, and ultimately the general public throughout the world, it is also the ideal information delivery structure for the future.

The Internet is a network of networks, presently loosely governed but soon to become more heavily administered. Its salient characteristics from the perspective of cultural heritage interests are that it is international, supports wide bandwidth interactive communication, and takes advantage of current economies of scale in computing by making it much more efficient to keep information on local systems accessible to others through client-server protocols than to build large scale centralized data repositories.

This is a radical change in the conditions of information sharing and has profound implications for all information systems planning. It makes the evolution of Internet-based standards of great interest to museums and in this respect shifts our gaze from OSI activity to the less formal mechanisms of the Internet Engineering Task Force. (I am keenly aware that not all countries are as fully impacted yet by the Internet as we are in the U.S. and

that the commitment to OSI conformance is and has been stronger in the European Union than in the U.S. Nevertheless, I am quite convinced that the shift in emphasis as described here as governing our information system standards efforts is as strategically critical for Europe and the rest of the world as it is for the U.S.).

Among the developments we have witnessed in the past year which are of extreme significance to museums are the evolution of the URL/URN scheme for machine-independent addressing of information resources, the successful implementation of the ANSI Z39.50 (ISO10162/10163) standard for cross system information retrieval as the basis for the Wide Area Information Service or WAIS, and the rapid promulgation of the Mosaic user interface as part of the WorldWideWeb. (Again, because these developments have been so recent, they are not among the information systems standards referred to and discussed in the CIMI Standards Framework).

The need for a method to uniquely identify both the millions of computers now on the Internet and the information resources available to others on those computers led to the definition of a standard for naming both machines and, separately, data resources so that one could address an information resource and reach it on the Internet even if its owner reconfigures their local network and the resource moves from one server to another. This scheme, called Universal Resource Locator (machine) and Universal Resource Name (data) or URL/URN is now being implemented throughout the Internet.

The URL/URN scheme makes possible the creation of directory services, but the rapid growth on the Internet means any such services dependent on people building central databases will be constantly out of date. One approach to solving this problem was the development of the "Gopher" information retrieval protocol and its full-text cousin "Veronica" which searches the contents of all the gopher servers in the world and reports their results. But not all information resources are located on Gopher servers, the functionality of gopher and Veronica searches is very limited, and resource naming is inconsistent. Therefore there has begun an effort to use the Z39.50 protocol to cascade searches from one network service to another and use it to provide higher functionality direction services. The Government Information Locator Service in the U.S. federal government and the many Z39.50 compliant library online public access catalogs (OPACs) are instances of this approach.

Finally, cultural repositories and programs have been very attracted to the potential of the Internet graphic user interface, Mosaic, which makes it possible now to experiment with delivery of multiple media information in windows of clients running protocol conformant software. While it is too early to say very much about use of this environment, it is already clear that information systems standards requirements in this milieu will be critical to museum information systems.

Users of the limited facilities currently available on the Internet are keenly aware that it is a chaotic information environment with inadequate retrieval tools, and a lack of enforced content definition standards. Depending upon ones research interests, there are either too few or too many directories and all have inadequate coverage to provide users with a comprehensive view of the spotty universe of network accessible data. As more data comes online on the network, the problems are becoming greater rather than fewer. Without metadata standards and systems that can link resources across many hosts, the information universe of the future will make less of more. The standards strategies for that future are changing.

Conclusions

Standardization continues to be an essential strategy for preserving the investment we make in cultural heritage information and ensuring us the best possible chance of being able to interchange this information between systems within our organizations, between systems we currently operate and those we might acquire in the future, and between ourselves and others with an interest in our data. But the relative importance of different levels of standards and the appropriateness of different strategies for their implementation must be continuously reassessed. In light of the rapid evolution of the Internet and the opportunities it provides for international access to distributed information resources maintained by a vast array of cultural programs and repositories, it is particularly crucial for the cultural heritage information community to evaluate how it can best move forward in exploiting information standards for our broader aims.

Upon doing this we will no doubt discover that low-level data encoding standards and data value standards for naming of cultural heritage entities will continue to be important but that these vocabularies should be implemented as search intermediaries between information sources and users instead of as cataloging terminology. We will find fewer benefits to classifications, especially since search systems cannot manage their concatenated effects. We will continue to need some data content standards but will derive less benefit from the attempt to model all data in cultural institutions than we once imagined. Instead we should find that using the data markup standards of SGML we can interchange and link just a few concepts between existing information resources. By providing Z39.50 paths between distributed museum and cultural heritage knowledge-bases we can access records from distributed systems. With attention to the data we do standardize, we should exploit distributed systems as effectively as the large scale centralized data repositories of the 1970s and 1980s. Finally, we will discover how critical it is to exploit the information system standards of the Internet environment and the telecommunications standards of its successor networks.

Listservs

David A. Wallace, University of Pittsburgh

Introduction

One of the true benefits of the Internet is the facility it provides for communicating with professional peers. Listservs are discussion forums which revolve around a particular topic (see Appendix A for a sampling of those which may be of interest to readers of this column). According to recent statistics compiled at LISTSERV@AWIIMC over 12,000 known listservers are hosting more than 5,000 public listservs accommodating over 1.1 million users, and an additional 300,000 individuals are subscribers to some 8,000 private listservs.

Listserv communications are made possible through electronic mail technology and are enabled through a file distribution software environment. Messages sent to a list are handled electronically and require no human intervention. Messages submitted to a list are automatically forwarded to the accounts of all subscribed users -- this feature of the listserv software operates the same as would an enormous alias list.

An important distinction exists between the listserv address and the list address. The listserv address is the address of the host system and is used for subscribing, unsubscribing, and submitting searches to archived list files. It is also used for obtaining a listing of all the subscribers to a particular list and to access help files specific to a particular list.

The listserv software allows for postings submitted to lists to be digested, archived, and searched. Be sure to save the initial message you receive from a list confirming your subscription -- it will contain basic reference information that will facilitate your use of the list. The list address is used to send interactive communications to other subscribers to the list. These messages are distributed to each list subscriber.

Much of what occurs within these discussion groups is akin to a virtual ready reference desk, though instead of one professional behind a desk there are, in some cases, up to one thousand professionals with a range of expertise and knowledge. Once a professional connection is made, subscribers can go "offline" and conduct detailed private one-on-one communications if they so

choose. It is not uncommon for a subscriber to a handful of lists to be confronted by over one hundred messages a day. What is apparent to any frequent list user is that many subscribers are not reading the appropriate documentation -- lists are constantly barraged with public messages from individuals who are either trying to subscribe or unsubscribe to a list.

Using Gopher and Veronica to Research Listservs

Employing the Gopher and Veronica search-and-retrieval interface, (discussed in Vol. 8 #1), it is possible to access a wide variety of listserv-oriented materials, including listings of available listservs; reference tools addressing discipline-specific listservs; search interfaces which will allow you to search for specific types of listservs, as well as capabilities for searching archived listserv messages; documentation on the listserv software; and, other useful instructional materials.

For example, to search via Veronica, I used the University of Illinois at Urbana-Champaign (UIUC) root Gopher menu.

* Searching "documentation and listserv" (minus the quotation marks) allows you to access:

Documentation on Listserv

This menu heading will present the user with a 5 item sub- menu providing detailed descriptive information on Listserv, including:

/1. *Starting out with Listserv.* This 10K February 1993 document provides an outline of listserv including, among other things, a description of what listserv is and the scope of its coverage; where the key listserv sites are located; how to subscribe, unsubscribe, and send messages to a list; how to retrieve a listing of all known lists; how to retrieve a listing identifying all subscribers to a particular list; and where to turn for other listserv documentation. A copy of this file can also be obtained by sending an e-mail message to: LISTSERV@EARNCC.BITNET. In the body of the message type either: GET LSVSTART MEMO (for a plain text copy) or type GET LSVSTART PS (for a Postscript version).

/2. *Quick Reference Card.* This 11K document, also dated February 1993, provides a listing of LISTSERV commands and syntax that can be employed by users, including subscription commands, informational commands, and file and filelist commands. A copy of this file can also be obtained by sending an e-mail message to: LISTSERV@EARNCC.BITNET. In the body of the message type either: GET LSVQUICK MEMO (for a plain text copy) or type GET LSVQUICK PS (for a Postscript version).

/3. *Listserv User Guide.* This 140K file dated July 29, 1993, provides a comprehensive booklet-length description of listservs. Included in the text are descriptions of Listserv servers, Mailing List functions, File Server functions, Database functions, Information functions, and Troubleshooting. A copy of this file can also be obtained by sending an email message to: LISTESERV@EARNCC.BITNET. In the body of the message type either: GET LSVGUIDE MEMO (for a plain text copy) or type GET LSVGUIDE PS (for a Postscript copy).

/4. *Listerv User Guide [postscript file].* This is simply the postscript version of the User Guide.

/5. *File Server Functions.* This 20K October 1992 document provides introductory information on listserv file-server functions.

* Searching "resource and guide and listservers" allows you to access:

Resource Guide to Listservers, BITNET, Internet, and Usenet

This menu item is a heading for a 35 + page paper, dated September 1991, written by Dennis W. Viehland of the University of Arizona. Viehland has composed an excellent straight forward informative booklet which discusses: listservers, lists, list features, tips for using lists, list netiquette, advantages/disadvantages of lists, types of lists, as well as information on identifying what lists are available, and a listserver help manual. This resource should be read by all individuals who use listservs. This file can also be obtained by sending e-mail to: LISTSERV@ARIZVM1.CCIT.ARIZONA.EDU In the body of the message type: GET LISTSERV GUIDE

* Searching "global and list" allows you to access:

Global List Information/

This heading will present the user with a five item sub-menu providing descriptive information on all known listserv lists, including:

/2. *Search List Titles?* This allows you to keyword search titles of known listservs. For example, entering the term "records" retrieves four lists: the Adirondack Medical Records Association List; the KU Student Records Information System Staff list; the Management & Preservation of Electronic Records list; and, the Records of Early English Drama Discussion list. For some odd reason the records management list was not retrieved, indicating that there is probably no such thing as a truly global list for the Internet. Searching "exhibits" yielded only the Exhibits and Academic Libraries Discussion list.

/3. *Search List Contents?* This allows you to keyword search the contents of descriptions of individual listservs. For example, entering the term "records and management" retrieved three listservs: HealthQuest Products

Discussion list; Management & Preservation of Electronic Records list; and a private list entitled SUNY NHPRC Project Discussion List, which is reserved for members of the National Historic Publications and Records Commission's electronic records project team in New York State. Searching the term "museum or museums" retrieved four lists including the private Association of Art Museum Directors list, the public ARGUS Collections Management List, and the public Museum discussion list. Readers are encouraged to use this search interface in order to identify lists relevant to their professional interests.

/5. *All Lists sorted by name/* This sub-menu item provided a 275 screen alphabetical listing of roughly 5,000 individual lists.

* Searching "listserv and lists" allows you to access:

Listserv Lists/

This provides a 19-item menu which alphabetically lists all known listservs. This is similar to the previous item, however, it provides for easier access. For example, sub-item /19. W-Z provides an 8K file of all listservs whose title begins with the letters W, X, Y, or Z.

* Searching "kovacs and scholarly" allows you to access:

Kovacs, Diane; Directory of Scholarly Electronic Conferences (8th../

This heading will present the user with a 14-item sub-menu for the Directory of Scholarly Electronic Conferences (8th revision, March 1994). Edited by Diane K. Kovacs and associates, this the best descriptive listing of electronic conferences available, if not the most comprehensive. Though compiled for an academic audience, it can be advantageously exploited by any Internet user. This reference work is divided into nine files covering ten subject classifications: Education and Library and Information Science; Humanities; Social Science; Biological Sciences; Physical Sciences; Business; Economics; Publishing and News; and Computer Science (Social, Cultural, and Political Aspects). For each item, the following data are provided: name; subject matter; subscription information; whether or not the source is edited; whether or not the source is archived; who is the moderator/editor/listowner/manager/coordinator; the submission address; and, keyword descriptors for the group. This guide also provides general subscription instructions, a glossary of key terms, and instructions for accessing a conference's archives if they exist. A print version of the work has been published by the Association of Research Libraries. Be advised that the 8th revision is the most recent version available. For some unknown reason copies of previous editions of this tool continue to reside all over the Internet (Note: This is a typical problem).

* Searching "listgopher" allows you to access:

Search library-related LISTSERVs (LISTGopher)/

This heading will present you with a five item sub-menu, including:

/1. *About LISTGopher.* This provides a description of the LISTGopher utility, which is designed to "facilitate the searching and retrieval of archived LISTSERV messages." Created by Eric Lease Morgan of North Carolina State University, LISTGopher "includes all the library-related lists in Charles Bailey's guide, Library-Oriented Lists and Electronic Serials" (see description below). This utility accommodates Boolean and nested searching. Based on the response that Morgan receives, he may create LISTGophers for other disciplines. Morgan can be reached at eric_morgan@ncsu.edu]

/2. *Thomas, [Introductory Manual to LISTSERV database functions]* This 92K manual, written by Eric Thomas and dated September 3, 1988, is intended to serve as an introduction to listserv database functions for users "with little or no knowledge of database systems." This guide will help users to send a search to a listserv, have the search performed, and receive a file of relevant hits. Since most lists do not provide simple user-friendly search and retrieval interfaces to their archives, this manual will help users tap into the potentially rich mine of previously transmitted messages. While a perusal of the type of program that must be written in order to search a listserv may seem daunting at first, Thomas' manual provides step-by-step guidelines.

/3. *Bailey, Library-Oriented Lists and Electronic Serials (8/18/93)* This is an 18K listing and description of BITNET and Internet lists and electronic serials relevant to librarianship. Compiled by Charles W. Bailey, Jr., of the University of Houston, this work also contains useful information on subscribing and obtaining list server documentation.

/5. *Search library-related LISTSERVs (LISTGopher)* Selecting this item will pull up a search screen which will require you to fill in your name, email address (since responses are e-mailed to you), the listserv you want to query, and your search statement.

The above noted items are by no means comprehensive of the types of basic and in depth information about listservs that are available on the Internet. They do, however, provide practically all of the information you will ever need on this topic.

Employing the VERONICA search engine to access Internet resources presents a number of retrieval problems that the user should be cognizant of. Menu and sub-menu headings are frequently unclear, often redundant, and are not controlled through a standardized vocabulary. The compilation of retrieved items into a series of menus and sub-menus almost always ignores identifying from which gopher site individual items are culled, leaving the user no means for directly accessing a particular site to see what else it has

to offer. Furthermore, as already noted for the Kovacs work, different retrieved items may provide the searcher with different versions of the same electronic reference source or instruction manual, often leaving it up to the user to determine which is the most current. Perhaps most troubling is that Veronica searches have the tendency to retrieve a different set of menu items each time you submit a specific search, even when you immediately re-submit your query. In some cases, submitting the searches as instructed above may result in no hits, depending upon which server is selected. When this occurs just resubmit the search as it is written out and sooner or later you should hit pay dirt. These difficulties represent only a few of the troubling aspects of the Internet. Unfortunately, they may also serve as a notice of the troubled waters ahead given the Internet's expansion at breakneck speed. Hopefully, the National Information Infrastructure will address such complications and try to impose greater rigor -- yet this road is likely to be extremely contentious and dauntingly complex. If anything, such issues are clearly a call to the information professions to assert their special skills and techniques as organizers of information.

Museum-L and Archives

To provide a flavor of the scope and tenor on the discussion on listservs that are relevant to the archives and museum professions, I have retrieved a sampling of the index notebooks from the Museum-L and Archives listservs for the dates June 1-10, and July 1-10, 1994.

Museum-L. One way is to send an e-mail message to listserv@ unmvma.unm.edu which reads "INDEX MUSEUM-L" in the body of the message. This will send you a listing of archived files and the date range they cover. For example, sending the message: "GET MUSEUM-L.LOG9406" to the listserv address (listserv@unmvma.unm.edu) will retrieve a copy of messages from June 1994. To structure your query to retrieve messages for July 1994 just change the date in the GET command to read: "GET MUSEUM-L.LOG9407". The introductory message you receive when you subscribe to this list will provide you with the information you will need to perform this task and to figure out how to structure the date range of your request, as well as information on how to read more about structuring precise search queries. This list's 1994 archives have also been made available via gopher:

Gopher ucmp1.berkeley.edu [then select]

/6. Mailing Lists: Mollusca, Micropal, Museum-l/ [then select]

/3. Museum Listserver Archive/ [this will pop-up a two item menu:]

/1. Museum Listserver Archive. [This is a 2887K file of all of the lists messages for 1994. Do not attempt to retrieve this file - it will take several minutes to deliver it, and the result will be a large continuous text file which is of no use unless you want to browse through it.]

/2. Search the Museum Listserver Archive? [This will present you with a search interface screen. Entering "multimedia" here retrieved 29 messages. The layout of the search results provides information on the name of the sender and the title of the message.]

This list is heavily trafficked and exhibits an eclectic range of topics of interest to museum professionals. Over the course of June 1-10, 1994, over 110 messages were posted, discussing the following: announcements of exhibits, conferences, and workshops; exhibit labelling; user fees; entrance fees; access issues; art news headlines; software concerns; announcement of online accessibility to institutional databases; announcement of the Art and Architecture Thesaurus listserv; photographic preservation; journal issue announcements (The American Ceramic Circle Journal); job vacancy announcements; announcements of museum internet resources (the Roy Lichtenstein exhibit on Mosaic); differing cultural attitudes towards museums; a computer virus alert; collecting digital artifacts; collection policies and manuals; authenticity and reproductions of museum objects; using listservs for museum studies education; gender representations in exhibits; and, an announcement of an opportunity to produce an educational multimedia curriculum.

Over the course of July 1-10, 1994, over 100 messages were posted, discussing the following: using manuscripts with high school students; related listservs; museum architecture; announcement of new exhibits; announcement of new online exhibits; conference announcements; NEA funding; making museum workers visible to the general populace; taxidermy courses; announcement of the gopher availability to museum-l archives; pest/pigeon control; the National Museum of Taiwan; disaster manuals; manuals of curatorship; museum tour and reservation software; public access; scholarship availability; bulletin board maintenance; professional referrals; classical antiquity; herbaria; advice on handling decades old canned goods; proposed AAM sessions on computer and network technology; creation of a comprehensive e-mail directory of museums; museum degree programs; and, announcement of the availability of shareware for accessioning and cataloging small museum collections.

These postings range from simple requests for information to extended conversations.

Archives. This list is also heavily trafficked. To access the archives of this list send an e-mail message to listserv@miamiu.muohio.edu which reads "INDEX ARCHIVES" in the body of the message. This will send you a listing of archived files and the date range they cover. For example, sending a message reading: "GET ARCHIVES LOG9406A" to the listserv address (listserv@miamiu.muohio.edu) will retrieve a copy of all messages from June 1-14, 1994. To retrieve the messages from July 1-14, 1994 just change the get command to read: "GET ARCHIVES LOG9407A".

Over the course of June 1-10, 1994, over 110 messages were posted to this list, discussing the following: political correctness; user fees; the proposed transfer of New York City's Department of Records and Information Services; multimedia opportunities; donor relations; announcement of the LCSH-AMC archival cataloging listerv; ethical dilemmas posed by collections containing photocopied documents from other collections; announcement of a library support-staff electronic journal; local government records surveys; announcement of internet access to Columbia University's oral history holdings; documentation from the International Council on Archives General International Standard for Archival Description; job queries; the state of the archival profession; storing and conserving videotape collections; reference queries on locating specific collections (i.e., Barnum and Bailey Circus archives); collecting digital artifacts; job announcements; staffing in special collections repositories; announcement of an internet workshop; the handling the papers of University Presidents; archival exhibits; a New Yorker article about internet etiquette; copyright issues for videotapes; request for submission to the MicroMARC:amc Users Group (MUG) SAA Roundtable newsletter; Association of College and Research Libraries fileserver files on special collections; archival appraisal; and, the privacy of electronic mail.

Over the course of July 1-10, 1994 activity dropped off a bit and only about 50 messages were posted to the list. Over the course of these ten days the following topics were discussed: locating particular collections; information regarding SAA's upcoming annual meeting; maintaining student records; converting paper records to electronic formats; request for submission to the African American and Third World Archivists Roundtable (AATWAR) newsletter; access restrictions to Congressional collections; cataloging software; using hand-held scanners; job announcements; collections on mental illness; workshop announcements; using archives for organizational anniversary celebrations; the National Library of Medicine's online image database; archival exhibits; museum degree programs; compilation of a comprehensive email directory of museums; photo restoration software; and, the announcement of a World Wide Web Home Page at the Washington University Archives.

Like Museum-L, postings to the Archives list range from the general reference question to an exposition of concerns facing the profession. Unfortunately, the level of discussion on the Archives list can often become rather acrimonious, at times bordering on the juvenile. Fortunately, only a spare few of the subscribers choose to participate in this sharp-tongued traffic, which seems mostly aimed at denigrating archival education and publication. Sadly, many leaders of the archives profession remain absent and/or silent on the archives list. This is unfortunate since it is students at universities, the next generation of professionals, who make up a significant portion of the listserv community.

Conclusion

Despite the claims of some, listservs do not supplant the need for professional print journals. Most messages are short (5,000 bytes, the equivalent of one single-spaced page, is considered lengthy) and revolve around useful day-to-day professional information exchanges. This type of information is valuable and extremely useful -- where else can one post a plea for advice which will be read by hundreds of professional peers within 24 hours? However, there is no reason why this same vehicle cannot be used to substantively examine the professional literature and facilitate reporting on talks and/or sessions from professional meetings. Given the wide scope of cultural and organizational institutions employing list subscribers, listservs provide a fertile forum for communication on user populations. A more robust understanding of our clientele and the sharing of data about them will allow our professions to more propitiously position ourselves both within society and with those with the power of the purse.

As before, please e-mail me regarding any internet projects you may be involved in or feel should be covered in future columns. (DAVIDW@LIS.PITT.EDU).

Listservs for Archives and Museum Professionals

The following listing of listservs was culled primarily from the various reference sources cited above. This group is by no means comprehensive and readers are encouraged to further explore the above cited sources to locate lists that may have been overlooked. To subscribe to any of these lists send an email message to the address in the parentheses, leave the subject line of your message blank, and in the body of the message type:

Subscribe Listname Firstname Lastname

For example, for the ERECS-L listserv your subscription message would be phrased thus:

Subscribe ERECS-L John Doe

And this message would be sent to: listserv@uacsc2.albany.edu

78-L Music and recordings of the pre-LP era (listserv@cornell.edu)

AAT-L Art and Architecture Thesaurus (listserv@uicvm.cc.uic.edu)

ADA-LAW Americans with Disabilities Act (listserv@vm1.nodak.edu)

AGOCG-IP Art image processing (mailbase@mailbase.ac.uk)

AI-CHI Artificial Intelligence applications to Human-Computer interface design (wiley!ai-chi-request@lll-lcc.llnl.gov)

ANN-LOTS Announcements of subject-oriented meta-lists, catalogs, and indices... (listserv@vm1.nodak.edu)

ANNOUNCEMENTS Computer-Human interface CHI (registrar.chi@xerox.com)

ANTIQUARIA Rare book dealers (listserv@aol.com)

ARCAN-L Archival Issues in Canada (listserv@vm.ucs.ualberta.ca)

ARCHIVES Archival theory and practice (listserv@miamiu.muohio.edu)

ARLIS-L Art Libraries Society (listserv@ukcc.uky.edu)

ART-SUPPORT UK art community discussion list (mailbase@mailbase.ac.uk)

ARTCRIT Art criticism (listserv@vm1.yorku.ca)

ASIS-L American Society for Information Science (listserv@uvmvm.edu)

AUTOCAT Library Cataloging and authorities (listserv@ubvm.cc.buffalo.edu)

BIB-SOFT Personal bibliographic database management software (listserv@indycms.iupui.edu)

BIBSOCAN Bibliographic issues (listserv@vm.utcc.utoronto.ca)

BIG-DB Large database issues (contact moderator at big-db@midway.uchicago.edu)

BIG-LAN Designing and operating Campus-Size Local Area Networks (listserv@suvm.acs.syr.edu)

BIODIV-L Establishment of a global biodiversity network (listserv@bdt.ftpt.ansp.br)

BOOK_ARTS-L All facets of book arts (binding, printing, papermaking, etc. (listserv@cornell.edu)

BRSZ BRS Z39.50 Full Text Development Project (listserv@cni.org)

CAAH Art and architectural historians (listserv@pucc.princeton.edu)

CADUCEUS History of Medicine/Medical history collections (listserv@beach.utmb.edu)

CASE-L Computer aided software engineering (listserv@uccvma.ucop.edu)

CARISUSE CARIS Geographic Information Systems Users (contact moderator at roger@sun1.cogs.ns.ca)

CDPUB CD-ROM publishing (mail-server@knex.via.mind.org)

CDROM-L Design, production, and use of CD-ROM's (listserv@uccvma.ucop.edu)

CDROMLAN CD-ROM's and Local Area Networks (listserv@idbsu.idbsu.edu)

CETH Center for Electronic Texts in the Humanities (listserv@pucc.princeton.edu)

CNI-ARCH Coalition for Networked Information's Architectures and Standards Working Group (listserv@uccvma.ucop.edu)

CNI-COPYRIGHT Coalition for Networked Information's Copyright and Intellectual Property Forum (listserv@cni.org)

CNI-DIRECTORIES Coalition for Networked Information's Directories and Resource Information Services Working Group (listserv@cni.org)

CNI-LEGISLATION Coalition for Networked Information's Legislation, Codes, Policies, and Practices Working Group (listserv@cni.org)

CNI-Coalition for Networked Information's MODERNIZATION Modernization of Scholarly Publication Working Group (listserv@cni.org)

CNI-PUBINFO Coalition for Networked Information's Access to Public Information Working Group (listserv@cni.org)

CNI-Coalition for Networked Information's TRANSFORMATION Transformation of Scholarly Communication Working Group (listserv@cni.org)

COMENIUS Library and information services via information technology (listserv@earn.cvut.cz)

COMP-PRIVACY Computer Privacy Digest (comp-privacy-request@uwm.edu)

COMSOC-L Impact of computers and other technology on society (listserv@auvm.american.edu)

CONSERVATION Preservation of library materials DISTLIST (consdist-request@lindy.stanford.edu)

CONTEX-L Cross-disciplinary analysis of ancient texts (listserv@acadvm1.uottawa.ca)

CPRI-L Computerized Patient Record Institute (listserv@ukanaix.cc.ukans.edu)

CPSR-ANNOUNCE Computer Professionals for Social Responsibility announcements (listserv@cpsr.org)

CRETA-PILOT Program developing a machine translation system for European languages (mailbase@mailbase.ac.uk)

CW-MAIL Campus-Wide electronic mail systems (listserv@tecmtyvm.mty.itesm.mx)

CYBERIA-L Computer network policy and the law (listserv@listserv.cc.wm.edu)

DATA-PROTECTION Data protection issues (mailbase@mailbase.ac.uk)

DESIGN-L Basic design and applied design (listserv@psuvm.psu.edu)

DISTOBJ Large scale distributed object systems (distobj-request@hplb.hpl.hp.com)

EPP-L Albert Einstein Papers Project (listserv@buacca.bu.edu)

ERECS-L Management and preservation of electronic records (listserv@uacsc2.albany.edu)

ETEXTCTR Discussion on developing electronic text centers (listserv@rutvm1.rutgers.edu)

ETHICS-L Ethics in computing (listserv@uga.cc.uga.edu)

EXLIBRIS Rare books and special collections (listserv@rutvm1.rutgers.edu)

FINE-ART Use of computers in the Fine Arts (listserv@rutvm1.rutgers.edu)

GILS-FORUM Discussions of the Government Information Locator Service (listserv@cni.org)

GIS-ARTICLES Research reports and publications re: Geographic Information Systems (mailbase@mailbase.ac.uk)

GIS-CONFERENCES Workshops, conferences, etc. relevant to the Geographic Information System community (mailbase@mailbase.ac.uk)

GIS-L Geographic Information Systems (listserv@ubvm.cc.buffalo.edu)

GIS-NEWS News for the UK Geographic Information Systems community (mailbase@mailbase.ac.uk)

GOVDOC-L U.S. government documents (listserv@psuvm.psu.edu)

GUTNBERG Discussion on electronic texts (listserv@vmd.cso.uiuc.edu)

HCFNET For managers of humanities computing facilities (listserv%ucsbvm.bitnet@cmsa.berkeley.edu)

HEADER-PEOPLE Formatting of electronic mail message headers (header-people-request@mc.lcs.mit.edu)

HELP-NET Helping users with utilities and software problems related to the Internet and Bitnet networks (listserv@vm1.nodak.edu)

HERITAGE Interpretation and preservation of the world's heritage sites (listserv@massey.ac.nz)

HUMANIST Application of computing to scholarship in the humanities (listserv@brownvm.brown.edu)

IAML-L International Association of Music Libraries, Archives and Documentation Centers (mailserv@nrm.se)

II.CHI Intelligent interfaces between computers and humans (ii-request@chi.xerox.com)

IMAGE-L Image processing and applications (listserv@vm3090.ege.edu.tr)

IMAGELIB Imaging projects (listserv@arizvm1.ccit.arizona.edu)

INDEX-L Indexing (listserv@bingvmb.cc.binghamton.edu)

INETUSE Internet use discussion group (listserv@emuvm1.cc.emory.edu)

INFO-FUTURES Information technology forecasting (info-futures-request@comp.society.futures)

INFO-LAW Computers and the law (info-law-request@brl.mil)

INFO-NETS Networks and inter-network connectivity (listserv@bitnic.educom.edu)

INFO-ODA+ ISO Standard 8613 "Office Document Architecture" (info-oda-request + @andrew.cmu.edu)

INNOPAC Innovations in Online Public Access Catalogs (listserv@maine.edu)

INTERPEDIA Proposed Internet Encyclopedia (interpedia-request@telerama.lm.com)

IR-L Information Retrieval (listserv@uccvma.ucop.edu)

IRVC-L Institute for Research on Virtual Culture (listserv@byrd.mu.wvnet.edu)

ISDN ISDN Standard (contact moderator at per.sigmond@teknologi.agderforskning.no)

ISO9000 ISO9000's quality standards (listserv@vm1.nodak.edu)

JESSE Library and information science educators list (listserv@arizvm1.ccit.arizona.edu)

LCSH-AMC Discussion of archival description (listserv@asuvm.inre.asu.edu)

LDBASE-L Listserv database search facility (listserv@ukanvm.cc.ukans.edu)

LIBADMIN Library administration and management (listserv@umab.umd.edu)

LIBER-PILOT European research libraries (mailbase@mailbase.ac.uk)

LIBEX-L Exhibits and academic libraries (listserv@maine.edu)

LIS-RAREBOOKS Systems and standards for rare books librarians (mailbase@mailbase.ac.uk)

LIS-X500 Library based applications for the X.500 standard (mailbase@mailbase.ac.uk)

MAIL-BBONES Constructing electronic mail backbones for organizations and campuses (contact moderator at mail-bbones-request@yorku.ca)

MAPS-L Map librarianship (listserv@uga.cc.uga.edu)

MEDTEXTL Analysis of Medieval texts (listserv@vmd.cso.uiuc.edu)

MHSNEWS CCITT X.400 Message Handling System protocols (mhsnews-request@ics.uci.edu)

MLA-L Music librarianship (listserv@iubvm.ucs.indiana.edu)

MULTICAST Multicast and broadcast issues in an OSI environment (multicast-request@arizona.edu)

MUSEUM-L Museum issues (listserv@unmvma.unm.edu)

MUSIC-RESEARCH Application of computers for music research (music-research-request@cattell.psych.upenn.edu)

NAHUAT-L Aztec studies, including Aztec language manuscripts (listserv@acc.fau.edu)

NET-HAPPENINGS/NET-RESOURCES Announcements of new Internet resources (majordomo@is.internic.net)

NETSCOUT Information re: servers, ftp sites, Filelists, etc. (listserv%vmtecmex.bitnet@cunyvm.cuny.edu)

NETTRAIN For individuals who train others to use Bitnet and Internet (listserv@ubvm.cc.buffalo.edu)

NEW-LIST Announcements of new public mailing lists (listserv@vm1.nodak.edu)

NEWJOUR-L Announcements of electronic journals and newsletters (listserv@e-math.ams.org)

NISO-L National Information Standards Organization (listserv@nervm.nerdc.ufl.edu)

NL-KR Natural language and knowledge representation (nl-kr-request@cs.rpi.edu)

NNEWS Library and information sources on the Internet (listserv@vm1.nodak.edu)

NREN-DISC National Research Education Network discussions (nren-discuss-request@psi.com)

OCLC-NEWS Press releases and official communications from OCLC (listserv@oclc.org)

OPT-PROC Optical computing and holography (listserv@taunivm.tau.ac.il)

PACARC-L Pacific Rim archaeology (listserv%wsuvm1.bitnet@cunyvm.cuny.edu)

PACS-L Computer systems and services that libraries provide to their patrons (listserv@uhupvm1.uh.edu)

PERSEUS Use of Perseus, an electronic multimedia resource on the ancient Greek world (listserv@brownvm.brown.edu)

PHOTO-L Photography (listserv@buacca.bu.edu)

PRIVACY Privacy in the information age (listserv@vortex.com)

PROTOCOL Formats for various archiving programs and applications, encodings for transferring binary files thrugh electronic mail, and networking protocols (listserv@vmd.cso.uiuc.edu)

PUBLIB-NET Use of the Internet in public libraries (listserv@nysernet.org)

RECMGMT Records management (listserv@suvm.syr.edu)

RLIN-L Use of RLIN services (listserv@rutvm1.rutgers.edu)

SCHOLAR All aspects of natural language processing (listserv@cunyvm.cuny.edu)

SCIT-L Communication and information technology (listserv@qucdn.queensu.edu)

SGML Standard Generalized Markup Language (mailbase@mailbase.ac.uk)

SHARP-L History of the printed word (listserv@iubvm.ucs.indiana.edu)

SOFTREVU Small Computer Systems Software Reviews and Related Issues (listserv@brownvm.brown.edu)

SRVREQ-L Local Area Networks servers and workstations (listserv@indycms.iupui.edu)

TEACHART Use of museum resources for education (listserv@sivm.si.edu)

TEI-ANA Text Encoding Initiative - Text Analysis (listserv@uicvm.uic.edu)

TEI-L Text Encoding Initiative (listserv@uicvm.uic.edu)

TEI-META Text Encoding Initiative - Metalanguage Committee (listserv@uicvm.uic.edu)

TEI-REP Text Encoding Initiative - Text Representation (listserv@uicvm.uic.edu)

TESLA Technical standards for library automation (listserv@nervm.nerdc.ufl.edu)

TQMLIB Total Quality Management for librarians (listserv@cms.cc.wayne.edu)

TXDXN-L State of Texas and federal government information (listserv@uhupvm1.uh.edu)

UIGIS-L User Interfaces for Geographic Information Systems (listserv@ubvm.cc.buffalo.edu)

USMARC Discussion of USMARC formats (listserv@sun7.loc.gov)

USNPLIST United States Newspaper Program Discussion List (listserver@leo.vsla.edu)

VIRTU-L Virtual reality (listserv@vmd.cso.uiuc.edu)

VISUAL-L Visual design aspects of Human-Computer Interaction (listserv@vtvm1.cc.vt.edu)

VPIEJ-L Creation, storage, and access issues related to electronic journals (listserv@vtvm1.cc.vt.edu)

VRA-L Visual resources collections curatorship (listserv@uafsysb.uark.edu)

XIMAGE Image processing with X Windows (ximage-request@expo.lcs.mit.edu)

XVIDEO Using live and still video within X Windows (xvideo-request@expo.lcs.mit.edu)

Z3950IW Z39.50 implementors workshop (listserv@nervm.nerdc.ufl.edu)

Use of New Technologies in the French Museums

Xavier Perrot, University of Paris

Laurent Setton, head of the public programs department of Direction des Musées de France (DMF), has defined a role for the DMF in helping to "increase support to interactive multimedia products design and development, and to make their distribution easier." In keeping with that mission, the DMF organized a training session for approximately 200 professionals on new technologies and their use in museums on 26 April 1994.

The meeting opened with a presentation by Bernadette Goldstein on the findings of a study conducted in July 1993 to identify computer-based image and text pilot projects. One hundred thirty museums working with the Ministry of Culture were surveyed, as well as 20 museums working with the Ministry of Education. The study, since published, identified 99 interactive applications, of which approximately 1/3 were completed, 1/3 under development, and 1/3 planned.

Ms. Goldstein reported that interactive applications in France are generally conceived as a tool to provide additional information to the public (36%). Typically they address publics of all ages (81%). Generally, the preferred display locations are exhibition rooms (73%). A plurality are didactic, or at least have pedagogical intent (45%). Today, only ethnographic museums don't have projects related to this matter. The survey found that only 8% of interactive applications are aimed at a specific section of the general public, and those are directed at children. By and large, there are no particular targeted users which means they are required to have a multi-purpose script. Strategies for script writing don't always follow the original intentions and generally revert to a documentary approach.

Welcoming interactive kiosks are often a light version of collection management software adding little more than a rough map concerning location of works in the museum, but sometimes interactive pieces are exhaustive databases that display several applications. Bernadette Goldstein stressed that "they are first directed to professional users, and then are put at the disposal of the wider public." If a more friendly approach appears in a primarily pedagogical product, it tends to be a minor component: games, for example, are featured in only 2% of the projects. Probably an extensive evaluation program will be necessary to assess the degree to which these products have achieved their objectives. Although ethnography accounted for only 3% of the interactive applications, other topics were distributed in a reasonably balanced way: 27% archaeology, 21% sciences and technologies, 19% fine-arts, 14% history, and 16% toward other collection types.

One-third of the cited interactive products were distributable, and another 21% of surveyed museums want to get involved in electronic publishing. Among available products, the format most often used was videodisc (34%), closely followed by CD-ROM (28%). CD-I was third, ranked with only 7%. A particularity of the situation in France was the high proportion of MS-DOS and Windows PCs used as multimedia platforms for museums. This is not a reflection of technical choice, but a consequence of hardware policy decisions taken either at a State department level (Culture, Education), or at a town council level. Many town computing departments have "forbidden" Macintosh!

Assessing the survey, Bernadette Goldstein emphasized that it is "itself too partial to give a precise idea of the introduction of new technology in French museums." She noted a great interest among professionals in employing interactive multimedia in an educational role in museums. On the other hand, the DMF regrets that the design of the products doesn't adequately exploit the full knowledge of the multi-skill teams available in a museum. Too often participation in the production stage is confined to those with computing skills. Evaluation is also insufficient when it is not simply forgotten. Few videodiscs were characterized as satisfying a broad audience. To conclude, Goldstein suggested a coordinated program by museums of certain types "to create ranges of multimedia publishing products in a position to mobilize publics and initiatives." Such a program might be similar to the Science Videodisc Consortium in the U.S.

Attendees at the 26 April seminar were given the survey report which contains Goldstein's analysis, a list of interactive applications currently available to museum goers which was compiled by Cindy Renard, a detailed presentation of 10 applications, and an excerpt of a statistical study by Moise Ndeye. [*Note to readers*: This ring-bound volume is being distributed by the DMF; see In-Box in this issue.]

Following the report, Evelyne Lehalle (DMF) chaired a panel entitled "Interactivity: A New Means of Using Information." Isabelle Goetzman from Musée D'Art Moderne et Contemporian de Nice showed visitors a welcoming kiosk. The technology was old: based on a Sony LPD1550 videodisc driven by a PS 8555 computer with a touchscreen. The bilingual English/French content is very classic and offers a presentation of museum collections, temporary exhibits, and an event calendar. This kiosk, made in 1990, is located in the museum entrance lobby, close to the reception desk. The numerous reliability problems met at first seem to be solved today. The design of the built-in furniture is well executed and was conceived in harmony

with the museum graphic theme that one finds again in a monochrome image on the screen.

Heléne Meyer, curator of the Museum of Fine Arts in Dijon, presented two applications developed in 1993 on OS2 IBM 8557 computers with the Artway Company. The first one was a welcoming kiosk to the museum whose content includes: a history of the buildings, a history of the collections (by object types, by art schools, with a display of masterpieces), and general information. The last part included a presentation on the museum staff, showing people and their functions. The second interactive application was produced for a temporary exhibit on the golden age of Flanders and Holland from the collections of Catherine II in the Hermitage (St. Petersburg). Used from June to September 1993 on two kiosks, the application offered four themes: the history of the building (tsars' winter palace), the history of the collections, famous people (such as the tsars, Catherine the Second's entourage which included Diderot and Voltaire, and others), and a presentation by themes and genres of Flemish and Dutch painting. Neither of these products are anticipating publication.

Following the papers, Serge Pouts, director of the observatory of educational technology and Isabelle Goutte from the Cité des Science et Industrie led a discussion. It became clear that in addition to learning from the few pioneers who were presenting their products, the participants had numerous basic concerns to address. Their need for information in fact demonstrated the importance of the session. A curator from one major museum rejected the idea of using kiosks to welcome visitors because she was afraid that interactive application would completely replace the service provided by human staff. Jean-Pierre Larrieu (DMF) was amazed that evaluation tests had not been scheduled from the outset in the projects shown. He urged that the term "informatique" be banned in the public names for kiosks, as it disturbs the potential casual users. The representative of a small museum suggested that the DMF could provide a rental service for hardware that could be used for temporary exhibitions; while this might be a good idea, it demonstrated the degree of ignorance of the relative cost of content versus the (marginal) hardware cost.

The second panel of the day, on potential uses of interactivity in museum and prototype design concepts, was chaired by Elizabeth Caillet (DMF). Bruno Jacomy of the Musée des Arts et Metiers (which is currently closed for renovation works), showed a prototype for an electronic album. It presents 500 objects from the collection, selected in relation to "main objects" chosen for the museum, to compare with the collection of 80,000 objects, almost entirely input in the database. The album was developed with Supercard on Macintosh. It is expected to be completed in 1994 and recorded on CD-ROM. The content is organized into seven main categories and four major periods, like a museum. Style is encyclopedic, the three information access modes are: query of an objects image, use of a dictionary made of technical sheets, and finally a "virtual" visit of the museum. While wandering in the museum rooms, the user is provided with direct graphical access to a selection of objects that are actually on display. The CD-ROM will be sold to the public and used in the permanent exhibit.

"Apprendre à voir" "Learn how to see" is the title of an educational application of Musée d'Orsay which Anne Guiheux discussed. Unfortunately the prototype, which was developed on a DEC workstation, couldn't be demonstrated because the hardware was not available. This program is aimed at students older than 15 years of age. It consists of two courses on painting analysis: one teaching concepts in light and color and the other on space. In the prototype, a Jean-Camille Corot painting "Jeune fille pensive, une mandoline a la main" (1865-Musée d'Orsay) is analyzed in six stages. The first five sequences are made up of questions which might lead the user to understand the difference between a color and a value, and between several contrast types, and define "chiaroscuro." The last part offers a comparison with other paintings by Corot on the same theme. The objective is ultimately to provide twenty studies of elementary concepts and forty painting analysis exercises. The formative evaluation of the prototype will be completed in June. The museum expects to publish the product when it is completed.

Laurence Tilard, curator of the Fine Arts Museum in Lyon, presented "THOT," one of the most impressive interactive applications shown. The project is named after the Egyptian god who invented writings, arts, and sciences. The project is still a prototype, made on Macintosh with MacroMind Director. Visitors can orient themselves by a study of a master painting, an archaeological art object, or a modern art object. In a game-like activity, directed by THOT's remarks and encouragements, the user first chooses an inquiry methodology for works. At the end of each exploring segment, the knowledge gained in the search is synthesized on a reminder screen. It then becomes possible for the user to access documentation cards featuring hypermedia navigation, although this second level has not been implemented in the prototype yet. Three visitor workstations are envisaged. The application was developed with the French CNRS and electronic publishing is planned.

Someone from the audience asked the speakers to indicate the length of their applications design and development stages. Laurence Tillard first noted how difficult it is to conceive an interactive application on paper. Her THOT project was launched 3 years ago and should be completed by the end of this year. For the Musée d'Orsay, Anne Githeaux recalled that the basic idea of their project was quite old and that they had been at work on it for four years. Bruce Jacomy explained that an impediment to rapid production is in the difficulty of finding efficient and concise authors for written texts which remain of primary importance in his electronic Album.

Michel van Praet, director of the planning committee for the Museum of Natural History, chaired the third session, devoted to the placement and physical arrangements for interactives within museums.

Marie-Christine Lebascle, from the Musée-Chateau d'Annecy, presented the information system of the regional observatory of Alps Lakes. It is made of six IBM compatible PCs with a touch screen, all integrated in the exhibition. They feature a common interface, but have different content: welcoming, ecology, ethnology, archaeology, geology, art, and literature. The furniture housing the interactives is well fitted to this castle museum. A decision was taken against providing seats: instead users are offered "uncomfortable stools," so that they won't stay too long using the computer! An original solution to visitor flow!

Jacques Pernaud, curator of the Prehistory Museum of Tautavel, presented a program that explains the different steps in human evolution to popularize scientific research. The user mode integrates a knowledge evaluation game that scores the user. The investment of the museum focused on the content of the work. All of the technical and equipment aspects are controlled by commercially available tools for the IBM PC. Although the computers create flow problems when too many people remain "stuck" to the kiosks, Pernaud is pleased that, since their implementation the average visit length has increased.

Maurice Fay, from the Museum of Natural History, demonstrated the prototypes of two applications using 16" touchscreens with millions of colors, developed with MacroMind Director ™and Phrasea™ on Macintosh. These applications are intended for permanent exhibition. The first one is about high mountain flora (a selection of 500 species with 3,000 photos), and the other gathers 1,500 documents on 500 species of vertebrates. Maurice Fay specially stressed the effort that has gone into documentation and methodology. He presented a stellar development model which, even if it is not always followed, is a useful reference.

To introduce the discussion led by Isabelle Goutte and Joelle LeMarec (an evaluation specialist of the Cité des Industrial Science), Michel van Praet played a video tape made with a hidden camera of users of interactive applications, both alone and in groups, showing how they tend to pass up their turn to kids accompanied by adults. Adult presence, it was found, increases the duration of consultation of interactives by children. Often fathers left the actual operation of the interactive to the child using the kiosk, but carefully explained aloud all of the available options. This conniving relationship appears often, always paced with little kisses as gratification for correct answers!

Joelle le Maarec emphasized that interactive applications increase the activities available to visitors in an exhibition, and that they allow museum goers to better understand the intentions of curator. Isabelle Goutte emphasized how important it is for museum professionals to clearly distinguish between an interactive application as part of an exhibition (with a use time of under 5 to 7 minutes), and an interactive application with encyclopedic content intended for use in documentation centers.

In the final session, Joel Poix outlined the policy discussed in my article in *Archives and Museum Informatics: Cultural Heritage Informatics Quarterly* (Vol. 8 #1) pp. 24-27. To conclude, Laurent Setton noted that the day marked an important step for the community. He expressed the hope that future meeting of this kind would be held on a continuing basis because the field is constantly changing and because many points need to be examined in greater detail, such as the semantics of the content of interactives or copyright issues. Given the satisfaction of the audience at this meeting, it can be anticipated that future meetings will be a success.

CALENDAR

August 28-31 Washington, DC, International Council of Museums [ICOM] Documentation Committee [CIDOC] [MCN, 8720 Georgia Ave., Suite 501, Silver Spring, MD 20910; 301-585-4413; fax 301-495-0810; Internet MDevine@cni.org]

August 31-September 3 Washington, DC, Museum Computer Network [MCN, 8720 Georgia Ave., Suite 501, Silver Spring, MD 20910; 301-585-4413; fax 301-495-0810; Internet MDevine@cni.org]

September 5-11 Indianapolis, IN, Society of American Archivists [SAA, 600 S. Federal St., Suite 504, Chicago, IL 60605; 312-922-0140]

September 25-29 Toronto, Canada, Association of Records Managers and Administrators [ARMA, 4200 Somerset Dr., Suite 215, Praire Village, KS 66208-5287; 800-422-2762]

September 29 - October 1 Nashville, TN, American Association for State and Local History [AASLH, 530 Church St., Suite 600, Nashville, TN 37219-2325; 615-255-2971; fax 615-255-2979]

October 11-13 New York City, RIAO'94 -- Intelligent Multimedia Information Retrieval Systems and Management [C.A.S.I.S. c/o Peter Brodnitz, 55 Perry St. #4A, New York, NY 10021; fax 212-741-1421]

October 15-18 Portland, OR, Association of Science Technology Centers [ASTC, 1205 Vermont Ave., NW, Suite 500, Washington, DC 20005-3516; 202-783-7200; fax 202-783-7207]

November 8-10 Canberra, Australia, Playing For Keeps: An Electronic Records Management Conference [Playing For Keeps, c/o ACTS, GPO Box 2200, Canberra ACT 2601, Australia; +616-257-3299; fax +616-257-3256]

November 9 AIIM Nationwide Videoconference, Re-Engineering with Document Managment: Build Your Business Case, 4:30 pm Eastern Time [AIIM Education Department c/o Michele Braxton, 1100 Wayne Ave., Suite 1100, Silver Spring, MD 20910-5603; 301-587-8202, fax: 301-587-2711]

November 14-16 Chicago, National Managing Electronic Records Conference [Cohasset Associates; fax 800-fax-7667]

November 15-19 Boston, Association of Moving Image Archivists [AMIA, c/o National Center for Film and Video Preservation, America Film Institute, PO Box 27999, 2021 North Western Ave., Los Angeles, CA 90027; fax 213-467-4578]

November 17-19 Atlanta, GA Seminar on Electronic Recordkeeping (2 days) and Workshop on Metadata (1 day) instructed by David Bearman; [Archives & Museum Informatics, 5501 Walnut Siute 203, Pittsburgh PA 15232; 412-683-9775; fax 412-683-7366]

CONFERENCES

Humanities and Arts on the Information Highways: A National Initiative, 14 July 1994

On July 14, approximately fifty representatives of arts and humanities agencies, professional associations, foundations, and coalitions, met at the Cosmos Club in Washington, DC, to receive and discuss the draft report of the National Initiative for Humanities and Arts on the Information Highways which was released for discussion.

The meeting was opened by Paul Evan Peters, Executive Director of the Coalition for Networked Information, who welcomed attendees and invited them to join with the Getty Art History Information Program, the American Council of Learned Societies, and the Coalition for Networked Information to "take up the challenge of caring for the cultural heritage in a digital world," "promote an 'agenda for action' regarding this challenge," and "build support for and progress that agenda." He expressed the strong sense of the National Initiative partners that the Clinton Administration is eager to hear from the arts and humanities communities on these matters and sincere in its declared willingness to act on the vision that these communities articulate for cultural heritage information. With that, he introduced David Lytel, Information Infrastructure Specialist in the Office of Science and Technology Policy in the White House.

Lytel presented a tailored version of a general talk on the National Information Infrastructure efforts of the administration, including the organizational structures that have been erected and the activities underway today that he felt would be of special interest to the humanities and arts community. He emphasized that the NII Task Forces -- which are the executive branch interagency groups established to further the NII agenda -- are interested in "having a structured discussion with a number of constituencies" of which culture and arts was one.

In particular he emphasized that they are dedicated to the notion that the NII should enable Americans not just to receive information but to be "creators as well as participants." The administration is devoted to the "symmetrical" model of a network, as opposed to the "500 channel" model. He stressed that openness will be one of the NII's most important characteristics, that the Internet "is as much an idea as a place," and that the NII is an idea about "broadly accessible, affordable, and easy to use" information

tools, available to a range of appliances extending well beyond computers and carrying a range of data well beyond text.

Lytel put great emphasis on the fact that the White House was leading by doing. He noted that:

- every piece of paper published and distributed by the White House for public consumption is also published electronically;
- the Federal Budget will be online;
- a "Welcome to the White House" space is being established on the WorldWideWeb;
- an inventory of government electronic information has just been created and will be made available by ACE (Americans Communicating Electronically);
- the White House is gearing up to answer its e-mail electronically.

Moving to the areas of greatest interest to his audience, Lytel introduced the "applications papers" published in May and the topics that will be covered in the second volume of "application papers" which include humanities and arts in the company of energy, environment, transportation, public safety, and disabilities. Noting that humanities and arts "missed" being included in that volume, he recounted how a paper on humanities and arts (which might end up being titled culture, or arts and culture) was prepared by White House intern Elizabeth Cohen, reviewed by staff of the President's Committee on Arts and Humanities, the National Endowment for the Humanities and others, and how it will be presented for approval on July 26. He expects the paper to be published on September 7 or 8 in conjunction with a meeting of the Council on Competitiveness.

In discussing the content of the paper, Lytel pointed out that it will go beyond the interests of the "copyright industries," although it will certainly emphasize the economic value of the humanities and arts, to stress that the NII is a new medium through which individuals can publish themselves and reach specialized audiences, empowering those who participate and democratizing the ability to engage in cultural pursuits.

In answer to questions from the floor, Lytel indicated that the next task for the NII Task Force Applications Committee would be to develop a budget "cross-cut" revealing expenditures on NII applications across the federal budget. He noted that the legislation currently moving through Congress in the area of telecommunication regulation may all be flawed but that the humanities and arts community needed to weigh in on the importance of symmetrical and open access. And he thanked those in the room who had worked on the humanities and arts application paper and reiterated his feeling that we would all like what we saw.

Following Lytel's comments, the meeting turned to discussion of the "Profile" paper from the National Initiative. Stan Katz, president of the American Council of Learned Societies, reviewed the history of the initiative. He recounted the meeting on Technology, Scholarship, and the Humanities held in Irvine, California, in 1992 and reviewed its nine major recommendations. The review reaffirmed the commitment of the partners to the nine points, emphasizing that over the past two years the agenda had significantly broadened: first because scholarship was now recognized to be only one of the uses for this information, along with enjoyment, K-12 education, and many others, and secondly because the focus on humanities was too narrow when the arts, and indeed all cultural heritage, should be considered at the same time.

The sponsors then reflected on the importance of this activity to their organizations. Paul Peters noted that he saw the broadening agenda as a reflection of the realization that the National Information Infrastructure represented a "new environment of thought and action." Eleanor Fink, on behalf of the Getty Trust Art History Information Program, emphasized that for standards, databases, and software tools such as those developed and promoted by AHIP to be useful, they must be developed in collaboration with the community and that the Getty "hopes to be best served by a collaborative vision" of international scope. Stan Katz, expressing the interests of the ACLS, also emphasized the international scope of cultural heritage information and of the networks themselves.

The floor was then turned over to Marilyn Schmitt (Getty AHIP) who explained that this report, "Humanities and Arts on the Information Highways: A Profile", was the beginning of a process, rather than the conclusion, and that with the help of those present it could launch a broader movement for cultural heritage documentation on the networks. She introduced Susan Siegfried who reported on the conclusions of the technical issues working group. These experts saw the humanities as substantial contributors to information systems technology, not just as users, particularly in the arenas of machine intelligence, machine vision, and natural language processing. They stressed the importance to cultural heritage information of standards, connectivity, and software tools and emphasized the complexity of humanities data.

Charles Henry (Librarian of Vassar College and co-chair of the Transformation of Scholarship Working Group of CNI), then reported on the resources working group which stressed the need for longer term funding and architectures rather than short-term projects. It also lamented the isolation of electronic resources that have been created, caused by a lack of adherence to common standards. He noted the issue for the field was the absence of a critical mass of usable content, and that this issue was equally critical for the NII as a whole since the public was not going to warm to an infrastructure but to its ability to deliver interesting content.

In the discussion which followed, the situation of telecommunication reform legislation and the need for the community to have a position was raised. The importance for this community to reach out to the education reform efforts and other related agendas was emphasized. Malcolm Richardson reported for the President's Council on Arts and Humanities that the application paper for the White House, in which they had a hand, would incorporate some prose and many ideas from the "Profile" draft report, including the comparison of cultural heritage funding with that for biological and ecological heritage. In general, the report was accepted as a basis for expanding the constituency and discussion turned towards how best to maintain communication and preserve momentum.

The current sponsors agreed to take some actions to further the agenda. Paul Peters agreed to establish a private list in which the discussion could be moved forward. It was agreed that the report itself should be provided in draft for comment by those attending and then made widely available soon. Goals for a broader collaboration would be published to the list and members solicited. The current sponsors reiterated their hope that by fall a broad based coalition could be assembled with an active voice for cultural heritage on the NII. *[Copies of Humanities and Arts on the Information Highways: A Profile are available from Susan Siegfried, Getty Art History Information Program, 401 Wilshire Blvd. Suite 1100, Santa Monica, Ca 90401; 310-451-6366; fax 310-451-5570; ssiegfried@getty.edu and will be posted on cni bulletin boards and ftp sites when released September 7.]*

PROMETHEUS: New Technologies in Culture, Athens, 14-16 April 1994

The Lambrakis Research Foundation, with support from the European Union and the Greek Ministry of National Economy, held a small symposium for international experts on cultural heritage information issues for three days in April. The meetings, at the foot of the Acropolis, debated new directions and opportunities for documentation and archiving, cultural information management, and intellectual property management. With the exception of myself, all the participants were European Union nationals.

During the first two days the three topical groups (each consisting of six to eight invited experts) met separately, hearing papers from its participants on topics which had been requested by the organizers. Toward the end of the second day, the small groups had open discussions to try to reach a consensus around the issues which had been presented. The morning of the third day was devoted to reports by the rapporteurs for each group and open discussion of the conferees as a whole. The papers and final discussion have since been published by the Lambrakis Research Foundation in a spiral-bound volume available from them. *[Contact: LRF, 3 Paparigopoulou St., 105 61 Athens, Greece; +301-323-7963; fax +301-323-0668]*

Participants in the documentation and archiving group included myself, and (in order of their presentations) Jean-Pierre Balpe (Dean of the University of Paris VIII, France), Costis Dallas (Director, Benaki Museum, Athens, Greece), Alice Grant (Standards Officer, Museum Documentation Association, UK), Fabrice Lemesier (Information Systems, Musee D'Orsay, France), Mersini Kakouri (Dean of Library School, Technological Education Institute of Thessalonika, Greece), Lambras Liaras (Director of the Museum of Ancient Folk Instruments, Athens, Greece) and Maria Pia Guermandi (Ministry of Culture, Rome, Italy).

One issue that was disputed in our group was the relative importance of projects versus architectures. The first paper by Jean Pierre Balpe argued that museums should engage in the production of "electronic editions." He saw CD-ROM publications designed for public and educational markets as the best way to disseminate information in the future and specifically dismissed the Internet as a publication environment. This seemed to reflect a general sentiment in Europe that is much more prevalent than in the US. On the other hand, he forecast interestingly that the culture of the networked world would be world culture in which national culture was but a component. He underestimated the transmutability of content, however, -- presuming that a product designed for universities could provide the content needed by one for schools or homes.

Costis Dallas countered with the importance of information architectures and standard methodologies for data modeling and information system design (including hypemedia system) over project-oriented products which he, rightly I think, saw as non-cumulating and requiring much investment in authoring for little payback. Fabrice Lemesier found a middle ground in embracing interpretive, authored products distributed on CD-ROM as the best way of reaching the public but saw databases with GUI search systems as the best way of serving researchers. Implicitly Lemesier testified to the value of systematic design methodologies and museum-wide data models because he was describing the migration from the first generation mainframe based collections information system at the Musee D'Orsay to a client-server architected workstation-based system. However, reflecting the politics of museum curation in France, he assumed each CD would require separate authoring by curators who wanted to impose quite heavy pedagogical interpretation.

Lambras Liavras gave a non-technical paper on the inter-relations between music, dance, poetry, and other forms of cultural expression and the significant link between these and cultural events, recognizing rites of pas-

sage and other significant personal events which was an eloquent argument for a rich knowledge-representation that could be shared beyond the individual institution and beyond the museum, especially into academic publishing. Like Ranjit Makuni whose work integrating Tibetan and Indian music, dance, and literature along their formal properties (rhythms, phrases, motions), Liavras presented an exciting vision of how an integrated cultural heritage knowledge-base could fundamentally transform our understanding of and participation in aspects of our cultural heritage. One important element of his perspective is that a culture continues to be elaborated in its diasporas and undergoes change during periods of relative "decline" as well as periods of intense creativity.

The second theme of the documentation and archiving session was standards. Alice Grant presented the first paper which reported the status of the now completed SPECTRUM standard, successor to the MDA Data standard. SPECTRUM, which stands for Standard Procedures for Collections Recording in Museums, is an intermediary between a process data model of museum practices and a data dictionary, but ends up being neither. The process model is a prose description of procedures for about 40 activities in the museum which are neither linked at a higher level to business functions nor to each other. They are not derivable from a logical view of some sort, and are assigned common names rather than normalized names that would enable us to specify their inter-connections. In short, the procedures as defined, if "implemented" in a variety of organizations, would look different and the data, if implemented in different systems, would be non-interchangeable, though mappable. The benefit of SPECTRUM appears to be that it is a community product and takes the consensus of the museum community as far as it now extends; the drawback is that it doesn't push the community further or provide a tool to transcend community differences.

I presented a paper (reprinted in this issue on page 93) which argued for us to shift the resources we are expending as a community on various types of standards efforts. Specifically, I argued that it was time to move away from developing data value standards (especially classifications) to implementing the ones we have as intermediaries between searchers and cultural information. I argued it was time to move away from data content standardization to using extremely minimal datasets to link dissimilar databases, to representing existing documentation with SGML mark-up over making new surrogate records, and to working on high level knowledge representation models against universal data dictionaries. I further proposed that the time had come to abandon special data structure protocols (such as ISO 2709 or MARC) in favor of widely accepted ones such as SGML, Z39.50 and EDI. Finally, I urged us to devote resources to using systems standards emerging in the Internet environment and to worry less about OSI conformance which seems unobtainable.

Not surprisingly the talks by Mersini Kakouri and Maria Pia Guermandi were diametrically opposed to mine. Kakouri saw Greece as a poor country, unable to afford virtual museums, virtual libraries, or electronic access to culture, yet she called for a massive program of national bibliographic control and library automation along the lines we experienced in the U.S. from about 1970-1990. Guermandi reported on over twenty years of inventorying which had to date generated detailed cataloging records for over 10 million objects. This year they have completed the specifications for a simpler recording system and a central electronic database with a front-end designed for public access. They have been active participants with France and the UK in a Council of Europe project to identify minimum data elements for a shared national, and perhaps international, database along the central cultural repository model. In summarizing her work, Ms. Guermandi likened the search for a minimum data standard to the search for the holy grail -- being American I first read this as meaning it was futile, but what she meant was that it was a religious obligation!

From reports on the other sessions, and the recently published Proceedings, it was evident that spirited discussions about intellectual property had floundered on matters of differences in national law as well as because of fundamental differences in attitudes. What was lacking, despite the presentation on the CITED (Copyright in Transmitted Electronic Documents) project, was a framework or mechanism for resolving the differences. The discussion of methods for cultural information management made more progress. Christian Lahanier explored how large-scale projects could lead the way in his discussion of NARCISSE, while Peter Looms explored strategies for smaller projects that have been tested in Denmark. Xavier Perrot looked at multimedia production within projects, and the Greek participants, J. Vokotopoulou and J. Savalanos, examined practices in Greek museums and the potential of the archaeological receipts fund which uses entry fees to support special projects. As a group, they were able to establish some job descriptions and recommendations for multimedia projects.

The final session of the conference, which consisted of summaries by rapporteurs for each group and a general discussion by all the participants revealed to me how much local institutional politics have to do with the choice of problems and solutions. Two strains of discussion were evident throughout the session: the international questions of how to standardize in a way that would enable cross-border information retrieval and the national one of who runs museums. The Greek nationals were, not surprisingly, very engaged in the local issue which came down to whether museums were storehouses for the study of archaeological finds (and thus appropriately administered by the archaeologists responsible for a given dig) or had larger social aims including education and recreation (and thus should be run by cultural and educational administrators). Speaking as a foreigner I think I can say that we were not always sure what positions on the local issues lined up with which positions

on the issues we were discussing, but it was always clear that another battle was being fought.

Working Meeting on Electronic Records Management, Pittsburgh, PA, 8-10 April 1994

This meeting of forty invited participants from around the world gave individuals who are deeply involved in working with electronic records their first ever opportunity to have an in-depth debate with experienced colleagues, to learn about the latest approaches, and to begin to formulate strategies that could carry them through the next year. The meeting lived up to its "working" title, with sessions that began at 8:30 am rarely concluding before 11 pm and almost 1000 pages of documentation distributed by the participants to each other in a tremendously popular exchange of background papers.

The meeting was organized around five workshops and a variety of informal sessions. Attendees represented local government (Laura McGee, City of Dallas), state and provincial governments (Manitoba, Alabama, Delaware, Kentucky, New York, Minnesota, Vermont), National governments (Australia, Canada, Netherlands, Switzerland, US), International Organizations (OECD, U.N., World Bank) and several private organizations and consultancies. It turned out that the mix of attendees, all of whom had substantial experience in electronic records but who work in different organizational and legal contexts, was the most exciting ingredient in the meeting.

Briefly, David Bearman (Archives & Museum Informatics) opened the meeting by emphasizing its character as a working meeting and expressing the hope that it would help individuals to fill in their knowledge of what others were up to and why. He then presented the University of Pittsburgh "Functional Requirements for Recordkeeping Systems" and the implications of these for defining metadata requirements for records documentation. Each functional requirement, he noted, can be satisfied (or fail to be satisfied) independently of the others. Therefore the method an organization chooses to meet one requirement does not determine the method it would employ in meeting the next. Since the project hypothesized that at least four "pure" methods of satisfying any given requirement were available -- by policy, by systems design, by implementation, and by standards -- one of the research questions being asked is how each requirement might be satisfied in a variety of different ways and what organizational variables (related to the dimensions of organizational culture, systems architecture, or business function) influence the choice of tactics. A second element in the design was to formalize the expression of functional requirements so that one could test whether or not a system satisfied any given requirement. The formal expression of requirements as "production rules" is a new idea to the information systems development process which is being tested here. If successful, the formal expressions will be equivalent to the prose expression of requirements; to date the work suggests that these formal rules can be expressed as metadata requirements. The effect then is to be able to define record-ness, or evidentiality, in terms of metadata that must be created and retained. Bearman led the group through some of the exercises that had taken the Pittsburgh project team to these conclusions and to the metadata model that results from them.

In the afternoon of the first day, Richard Barry (Barry Associates), previously director of records and information management for the World Bank, discussed how archives and records management could relate to the organizational activities surrounding re-engineering organizations. Noting that distributed computing has resulted in ratios of computers to users that in many organizations now exceed 1:1 and that many organizations are witnessing electronic mail traffic in the 10,000s of messages-a-week range, he emphasized the importance of coming to grips with where communication was flowing and why. This is where the re-engineering of organizations enters the picture because the re-engineering teams need to find out the same kind of information, determine the importance of different kinds of transactions (including, incidentally, the retention periods), and develop new information flows. Archivists and records managers can use these studies to develop document profiles and implement document management systems that appropriately file records, provide access to them, and dispose of them. Barry used numerous case studies to emphasize his points and illustrate the stages in the re-engineering process that were particularly suited to archival intervention or involvement.

On the evening of the first day, Liisa Fagerlund (U.N.), Alan Kowlowitz (NY State Archives and Records Administration), Dagmar Parer (Australian Archives), Peter Waters (Ministry of Home Affairs, The Netherlands), Angelika Menne-Haritz (University of Marburg), and Ron Zweig (Tel Aviv University) presented project reports. Fagerlund described planning underway for a document control system at the United Nations that would assign electronic communications "types" according to the transaction that generated them and automatically act on these "types" to determine filing and retention rules. Kowlowitz reported on studies of data dictionaries in end user information systems in New York State which established (no great surprise) that end users do not, by and large, create or manage metadata appropriate to archival control. Parer reported on the implementation of electronic records management policies in the Australian Commonwealth government based on distinctions between corporate, work group, and

individual workspace. Peter Waters presented the large-scale studies undertaken in the past two years by the Dutch government which have concluded that its best hope for implementation of accountable recordkeeping practices resides in developing process-based models of business functions performed by the Dutch government and to use these in controlling records. Angelika Menne-Haritz discussed archival education for electronic records and its implications for traditional education programs in Europe. Ron Zweig described the attitudes of contemporary historians to the desirability of information from electronic information systems as part of the data they would analyze about the modern world -- of special interest to me was the realization that the "noise level" or the degree of communication activity in a particular business function could be as important an indicator to contemporary historians as the content of records. Hence there might be evidential value in maintaining records of the fact of communications, even when the records of the communications themselves were disposed of.

The second day began with workshops conducted by Terry Cook (National Archives of Canada) and Michael Miller (U.S. Environmental Protection Agency). Cook introduced the elements of the National Archives of Canada's planned approach to disposition and the relationship between the adoption of this approach and the need to intervene early in the life of electronic records systems. He noted that the NAC assignment of responsibility to agencies conformed to the recognition in electronic records circles of the need to assign responsibility for systems management of recordkeeping systems to creators. Michael Miller introduced the elements of the Environmental Protection Agency's electronic records appraisal programs and led participants through some appraisal issues facing an agency with huge data sets, lots of public policy interest, and extreme exposure to liability.

After lunch, John McDonald (National Archives of Canada) presented a workshop on current records management approaches being recommended to government agencies by the National Archives of Canada. He reviewed the progress of the IMOSA project, guidelines developed for corporate filing systems implemented in personal computing networks, and functional requirements defined for office systems.

Sign-up sheets provided throughout the conference established the program for the second evening. The one hour discussion sessions scheduled were led by:

* Nicholas Buttikofer (Swiss National Archives) on "Metadata Models in Task and Document Management Systems" at which he discussed the approach to records documentation being taken by the Swiss government (which incredibly is an approach consistent with the functional classification of records that has been in place in Switzerland since the 14th century!);
* Liisa Fagerlund on "EDMS -- Configuring for ERM" in which the topic was how to formulate record-types and records management requirements in document management systems;
* David Bearman on the Government Information Locator Service (GILS);
* David Bearman on the "Open Systems Environment and Process Data Models -- Architecting Records Functions";
* Peter Waters on PIVOT and the reports on that project being circulated by the Dutch government;
* Marilyn McLennan (U.S. National Archives) on NARA's proposed e-mail guidelines;
* Ed Bridges (Alabama State Department of Archives and History) and Lisa Weber (National Historical Publications and Records Commission) on an "Agenda for Action and Research".

On the final morning of the conference, Margaret Hedstrom led an exciting workshop on reinventing archives which clearly stimulated the participants both in its presentation and content. Lisa Weber concluded the meeting by examining the needs and opportunities which had been expressed during the meeting and relating these to the NHPRC "research agenda" and the possible future agenda of the NHPRC and the profession.

[A more complete account of the proceedings of the meeting are being prepared by University of Pittsburgh Ph.D. candidates Wendy Duff, David Thomas, and David Wallace who between themselves covered all the many rings of the circus. The proceedings should be available from Archives & Museum Informatics by the end of the summer.]

Australian Heritage Collections Working Group, Sydney, 23-24 May 1994

A meeting of the Database Working Group of the Heritage Collections Committee (HCC), an entity established in December 1993 by the Cultural Ministers Council, defined an innovative framework for an Internet-based, distributed cultural heritage information system for Australia. The Database Working Group is one of two active foci of the work of the HCC; the other working group is devoted to a national conservation program. A third

program area, traveling exhibitions, was initially envisaged but has been placed on hold.

The Database Working Group meeting on May 23-24 in Sydney was attended by the six members of the Working Group, four other members of the twelve-member HCC, and over twenty individuals active in museum information management who were invited from museums throughout Australia. Working Group chair Andrew Reeves, Director of the Western Australian Museum, opened the meeting and, after appropriate introductions all around, we heard from three contractors who had written background papers for the Working Group.

Paul Hodgson (Informed Sources, Ltd.) had conducted interviews with museum personnel throughout Australia to obtain a picture of the nature of museum computing which he found to be relatively low technology, poorly standardized, and isolated. From this he concluded that the National Database project should aim to keep its solutions "simple, affordable, and manageable" and resist using it as an opportunity to fundamentally upgrade data quality or force thesauri on existing data. While he saw use of the Internet as inevitable for the larger museums, he proposed no way for the smaller museums to participate in that level of interchange.

Brenda Gerrie (Infoscan, Ltd.) analyzed the relevance of international standards for museums. She recommended against using MARC or investing heavily in authority control and generally endorsed the CIMI commitment to open systems environments and application protocols. She advanced both a centralized and a decentralized architecture as models, but did not recommend between the two.

Andrew Moritz (Museums Australia, Victoria office)argued the case for involvement of small and regional museums in the network and suggested some special requirements they had for training and support, ongoing funding, and a sense of ownership. He introduced the serious concern that small, underfunded institutions might find themselves prey to thefts in an environment in which their holdings were widely reported, and urged that the system address this concern. Overall his articulation of the fear that local institutions had of central power argued for a distributed system.

I then presented ideas from a position paper which discussed (among other things) the up-front conceptual framework that the HCC would need to address in designing a national information system for cultural heritage materials. Issues included:

* Formulating a Vision,
* Defining Audience and Participants,
* Defining the Scope of the Data, and
* Defining the Mechanisms of Delivery.

In the facilitated discussions that followed, the group identified seventeen objectives. Individuals ranked these and composed "vision statements" from the top several objectives on their lists. These vision statements were discussed by members who extracted from them clauses they found compelling:

* assists Australians to discover their distributed cultural resources
* adds meaning and value
* supports structures to manage their (collections') well being and creative use

By the end of the day, agreement had been reached on success measures for the year 2001 (the centenary of Federation and a major milestone in the history of Australia). The major unit of measure was public uses: success was measured by breadth of uses and numbers of uses. Secondary measures included:

* breadth of participation by holders of cultural heritage
* value of participation by for-profits in joint ventures to sell the data in value-added packages and for special markets
* degree to which local communities felt their heritage was enhanced by knowledge of the local materials held by museums throughout Australia

The first day also produced agreement on frameworks essential to the system, including:

* that it be available via common carriers
* that it be as decentralized as practicable
* that it require the minimum degree of standardization required for access
* that it support the maximum breadth of data and number of multimedia data types
* that there be a low cost, low technology route for contributors to buy-in
* that its implementation be accompanied by some high impact demonstration projects

On the second day of the meeting, the group reconvened to discuss issues I had identified in my opening paper under the rubrics of organizational, technological, and implementation issues. As a consequence of the first day's discussion, several of the issues addressed in the original paper were effectively resolved and others were determined not to be significant in the

Australian context, so three breakout groups formed to discuss the remaining issues and make recommendations.

The "management" groups focussed on

* the staffing and functions of a central office (including coordinating AARNET support, developing guidelines for users, training programs, contractual agreements including intellectual property contracts, conduct marketing, enter into joint ventures, and establish long-term funding mechanisms)
* cooperation with international developments (by seeking Australian membership in CIDOC and CIMI)
* planning/budgeting

The "technology group" accepted as implications of the previous day of discussion that:

* contributing organizations and end-users should to be able to participate from any platform, e.g., the system should be open,
* it should employ client-server architectures and public domain toolsets, e.g., it should be internet based, and
* it should be possible to output interchange format from virtually any software, including word-processors, e.g., it should use rich text format (RTF) conversion to HTML (hypertext markup language) with an underlying data model or Data Type Definition (DTD).

It then turned its attention to directory services (to be provided through Z39.50 protocols developed in conjunction with CIMI); minimum data sets (probably not to exceed institution, unique id, and a single name field) and a search-and-retrieve data set (to be based on CHIN field occurrence data for the top 10-12 fields for natural history and likewise for cultural history); and thesaurus support (with an intelligent front end query expansion facility).

The "implementation" group addressed how to articulate the vision of the system to the community, what initial data efforts to focus on in order to get a usable body of data up as soon as possible and lead all types of institutions to feel included, how to plan for data conversion, capture and front-end design, and what demonstration projects might be undertaken (particularly ones with an "Australian" flavor such as antipodean flora and fauna or Aboriginal culture). It also developed a timeline of possible activities.

In the final plenary session of the second day, before the meeting was summarized and concluded, the group engaged in a brainstorming session designed to shake loose any other ideas that had occurred to participants during the two days. Ideas for joint ventures (with the Olympics committee, tourist board, and environmentalists) and for audiences (in genealogy, hobbyists, and picture agencies) as well as for packaging of products (virtual culture kits for schools, the Australian online encyclopedia for the home, back of airline ticket museum events at your venue printouts, and dial an oral history) emerged that will need to be pursued in future planning sessions.

In the end, the Database Working Group was able to formulate numerous concrete recommendations to bring to the Heritage Collections Committee at its next meeting and has a blueprint of the systems architectures that it needs to pursue for the next six months.

Australian Society of Archivists, Annual Conference, Electronic Recordkeeping Session, 9-11 May 1994

The Annual Conference and meeting of the Australian Society of Archivists (ASA) was held in Townsville, North Queensland, 9-11 May 1994. While the Conference theme, "Archives in the Tropics," highlighted a range of issues of special relevance to archival work in the tropics, the program also covered sessions aimed at updating isolated professionals in recent archival developments. "Electronic Recordkeeping" was structured around aspects of work in progress identified for the special theme issue of *Archives and Manuscripts* (May 1994, Vol. 22 #1), "Electronic Recordkeeping: Issues and Perspectives" which was released at the conference. The context for the session was 'What is a record in the electronic environment and how do we manage it?.' The concomitant shift in familiar boundaries was addressed in short presentations by three speakers from different organizational sectors, followed by a commentary and interspersed with discussion arising from a range of questions from the floor.

Clive Smith (Archivist, The World Bank Group), provided a well- exampled exposition of the electronic document management system under development by the bank, highlighting a range of issues impacting on the integrity of recordkeeping processes. The Bank conducts its business transactions from a basis of highly structured forms of record (about 200 have been identified to date), most of which can have multiples of versions over the life of a project. The electronic documents have two components: the body of the document and the profile. They will have declared "additions" and could be made up of many parts which in turn could be comprised of any sort of electronic objects. Rules for ownership, custody, security, and other aspects of administration are to be defined across various identified document domains. Such a structured documentation trail provides good opportunities for intervention to ensure adequate recordkeeping for all business

activities, but it also highlights the need to engineer disposition functions into the vast quantities of documentation being generated electronically, not only to manage accredited versions of documents but also to help identify records of continuing value. The system that the multi-disciplinary bank team has envisaged would manage documents throughout their life cycle. The search for suitable software which can be developed to suit the identified requirements is currently underway, but it is apparent that the new system will be progressive and evolutionary over an extended period of time.

The next speaker, Anne Picot (Corporate Archivist, Roads & Traffic Authority of NSW) outlined the archiving strategy for DRIVES, the RTA's online driver licensing and vehicle registration system. DRIVES is a system which generates no paper other than the licenses it issues to drivers and registrations for vehicles. The fastest growing data in the system are the transactional records and these have been appraised and sentences [Ed. note: Australian for retention decisions or dispositions] agreed. Sentenced records no longer needed for current business processes are taken off the online system to near online storage (an optical disk system). Each record has its sentence attached to it and at the expiry of that period the record will be deleted entirely. An issue yet to be addressed is how to remove the core data from the system which has a range of complex legal and accountability considerations particularly as the lifespan of a driver as a customer in the system could be seventy or more years. Anne then moved on to cover a range of issues with electronic document management and her concern that institutional activity, in particular in the disposal area, seemed to be at the document level rather than at the activity or transaction level and the dangers that this held not only for effective recordkeeping but also for organizational accountability.

Adrian Cunningham of the Pacific Manuscripts Bureau followed with an outline of his paper in the May *Archives and Manuscripts*, "The Management of Personal Records in Electronic Form: Some Suggestions." The primary objective of his article and presentation was to encourage personal records archivists to think and to talk about an issue which they had to date ignored and which had not been covered in the increasing literature on electronic records issues. He expressed the view that a non-custodial strategy was not appropriate in the personal records area for the practical reason that relatives or friends could not be expected to maintain a deceased person's electronic records in an accessible form over time. Active involvement in the recordkeeping phase, or pre-custodial intervention, was identified as a vital strategy despite some identified barriers to success. The use of standard formats at both the pre-custodial and custodial stages was advocated while recognizing that this need may vanish with impending technological change. The options of conversion to other formats was also discussed. The presentation concluded with some thoughts on the impact of the advent of electronic records, by way of both convergence and divergence, on the sometimes strained relationship between mainstream and personal records archivists;

in the Australian context between government and corporate archivists and their colleagues working in collecting archives or manuscript libraries. This presentation sparked some lively discussion in particular about the granularity of change which it might be worth capturing and keeping in personal electronic records.

David Bearman provided the commentary, opening his remarks with an observation on the high level of electronic records activity in Australia and noting that Australian archivists were in about as big a mess as everybody else. He emphasized that the archival profession should be interested in managing records documenting activity: not in managing documents, not in managing information, and not in managing data. The problem to be faced in the electronic environment is that most information systems are not recordkeeping systems. The system described for the World Bank had a chance of succeeding as a very large percentage of bank documents are directly related to formal transactions or stand as proxies for formal actions so that by capturing documents over the lifetime of the system a relationship to a business activity is also being captured -- and that provides a document management system that bears some relationship to a recordkeeping system. He advised that archivists need to look at environments in which the relationship between the document or the data and the transaction can be maintained so that there is a record. This means that data will mostly have to be taken out of active environments where the application requirements have been dictated by business managers and moved into environments where the functional requirements can be dictated by recordkeeping. While saving data was a relatively trivial matter, saving records required considerable effort. The major difficulty was to make this of compelling interest to the records creator. With respect to the issues identified as of concern for collecting institutions, he warned, "Watch out, you might succeed," and that, if so, the institution would be faced with all the issues, particularly those associated with the resources to maintain software dependence, that archivists in the corporate world had been facing which resulted in the development of non-custodial strategies.

A number of questions from the floor throughout the session stimulated some useful discussion about user attitudes, the need for the ability to add comments to electronic documents while still preserving their integrity as records, how to deal with an electronic documentation system which will receive half its documentation (incoming) in non-electronic or non-compatible format, current strategies for dealing with electronic mail, where archivists legitimate interests lie in the mass of data on PCs, and who were archivists' new allies in saving electronic records. In the concluding discussion, David Bearman pointed out that not only do electronic recordkeeping systems have the potential to meet functional requirements for recordkeeping far better than any paper system, these functional requirements are quite meaningful corporate requirements. Externalizing the requirements by utilizing custodial strategies is not the solution, rather the archival role is to

assist in the corporate management of records, in a cost-effective way over time, by the business unit which created or is responsible for maintaining the records.

Both the publication of the theme issue *Archives and Manuscripts* and the session at the Townsville Conference have helped to bring forward the Australian electronic records debate and to document significant developments in thought and practice which are contributing to reshaping what is now often referred to in Australia as the recordkeeping profession. We look forward to the next chapter to unfold on our shores at the "Playing for Keeps" Conference in Canberra in November. *[Details of the theme issue May 1994 Archives and Manuscripts, and the published proceedings of the 1994 ASA Conference are available from g.acland@mailbox.uq.oz.au]*

Glenda Acland, The University of Queensland

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Reference Works and Directories

- **European Multimedia Yearbook 94** (London, Interactive Media Publications, 1994) 716p.

This telephone directory size volume has three major sections: 200 pages of articles on aspects of the industry, the leading players, and the scene in each European country; 400 pages of company profiles at four to a page; and 100 pages of indexes, bibliographies, and event calendars. There is a modest amount of advertising, but mostly it is compiled information that cannot be had in as compact a form from any other source. The first section alone would be a viable book and the second section alone would be a terrific directory. The indexes to companies, companies by country, developers, products, product distributors, and products by maker are very useful as are the bibliographies, periodical lists, and events calendar. Editors Jim Ayre, Jane Callaghan, and Signe Hoffos have managed the nearly impossible in improving on their 1993 Directory.

- **ITEM: Image Technology in European Museums and Art Galleries Database**, ed. by Isobel Pring. Issue 7, May 1994 (International Visual Arts Information Network, Ipswich UK, 1994) ISSN 0961-9259

The latest published catalog of the ITEM database contains 128 pages of description of titles published since issue #5 and 50 pages of new or updated projects since issue #6, in addition to a complete index to titles and projects going back to issue #1. The collaboration which is compiling the ITEM database continues to expand with the addition of the Documentation Committee (CIDOC) of the International Council of Museums.

Reports

- Department of Defense, **Records Management Business Process Re-Engineering Executive Level Report** (condensed) 26 May 1994 (prepared by ANDRULIS Research Corp., Contract # N66032-91-D-0001) *[Available from Captain Daryll Prescott, 703-614-0657; prescott @saf3.hq.af.mil]*

This report calls for development of standard DoD retention schedules, reduction of number of records retention periods, development of DoD-wide coding for all records, development of standard DoD functional requirements for records management, incorporation of records management requirements into automated systems development and design, and development of DoD system requirements for voice and e-mail records. The BPR is accompanied by IDEF models of information flow and functional requirement statements that make it evident that assigning disposition instructions and indexing are part of the records creation process. The functional requirement statements are designed to allow specification of an automated system. The report in-

cludes a section that reviews the NARA draft e-mail guidelines with excellent recommendations for its generalization to all electronic records, and sections discussing (1) system, security and routine backup requirements; (2) distribution lists and record requirements, and (3) electronic authentication, encryption and delivery, return and view receipts.

- Direction des Musees de France, **Les nouvelles technologies et leurs usages dans les musees: analyse de l'enquete "interactifs et musees"** (Paris, Direction Des Musees de France, 1994) 61pp.

This brief report and directory analyses a survey administered in July 1993 to the 130 museums in France under the Direction des Musees de France. In the first section of the report, Bernadette Goldstein analyzes the survey which asked five categories of questions dealing with the state of interactivity in the museum: the locales in which interactives were employed, the way the public interacted, the evaluation of the products, and the distribution media and methods being employed (if any). A directory of 84 brief project descriptions makes up the next section. The third section of the report consists of ten selected project descriptions in more depth. The final section is a statistical analysis of the survey. (See report by Xavier Perrot on a meeting presenting this issue on page 124).

- Information Industry Association, Joseph L. Ebersole ed., **Protecting Intellectual Property Rights on the Information Superhighways** (Washington DC, Information Industry Association, March 1994) 99pp. *[Available from IIA, 555 N.J. Ave., NW, Washington DC 20001]*

This report is the product of a team assembled with support from the Corporation for National Research Initiatives (CNRI) as part of the Digital Library Project. It identifies the problems posed by the new environment, the applicability of current laws, the requirements for copyright management in the new environment, the ways it is being done now, methods proposed for the NII, implications of these and recommended next steps. The volume is an excellent summary of the background to the Information Infrastructure Task Force report of August 1994 which proposes revisions in the copyright law as well as a useful context in which to read the MIT/IMA report of January 1994 on **Technological Strategies for Protecting Intellectual Property in the Networked Multimedia Environment**. Ebersole is straightforward and clear on a topic that is complex and in the hands of others has too often been confusing simply because the thinking or writing was poor. Strongly recommended for anyone trying to keep current on these issues.

- Information Infrastructure Task Force, Committee on Applications and Technology, **Putting the Information Infrastructure to Work: Report of the Information Infrastructure Task Force on Applications and Technology**, NIST Special Publication 857, May 1994 *[Also available from IITF gopher server or anonymous ftp to iitf.doc.gov or WWW, or IITF bulletin board by dialup modem to 202-501-1920 with settings of N,8,1 or telnet to FedWorld.doc.gov]*

This is a public comment draft report on how the NII might advance manufacturing, electronic commerce, health care, education, environmental monitoring, libraries, and government service delivery. Each application is discussed in the same format: what is the application area, what networked activity is going on now, where do we want to be, and how to get there. In the fall six additional application areas will receive the same treatment. Not only are they interesting in themselves, these papers are likely to have a significant impact on public policy debate about the nature of the NII and the functions it must support.

- National Federation of Abstracting and Indexing Services, Ann Marie Cunningham and Wendy Wicks, eds., **"Three Views of the Internet"**, 1993 NFAIS Report Series (Philadelphia PA, NFAIS, 1994) 105pp. *[Available from: National Federation of Abstracting and Indexing Services, 1429 Walnut St., Philadelphia PA 19102]*

This collection of papers from the 1993 NFAIS conference presents the views of Larry Learn and Martin Dillon from OCLC, Paul Peters of CNI, and Karen Hunter of Elsevier on the Internet. Complex but interesting discussion.

- National Museum of Natural History, Smithsonian Institution, **"Logical Data Model for Museum Collections Transaction Management,"** version 1.0, 20 May 1994. *[Available from: Janet Gomon, Asst. Dir. for Collections, NMNH, Smithsonian Institution, Washington DC 20560]*

In addition to an overall logical data model, all entities and attributes are defined and value tables employed by the museum are reprinted. The model itself is not fully normalized and very implementation oriented, but it would be a good place for others to start.

- U.S.Department of Commerce, National Telecommunications and Information Administration, **20/20 Vision: The Development of a National Information Infrastructure** (NTIA Special Publication 94-28) March 1994

This vision statement incorporates position papers by Lewis Branscomb, Craig Fields, Charles Firestone, Henry Geller, Brian Kahin, Mitch Kapor, and many others reflecting both the diversity of visions and their power.

Books

- Richard Cox, **The First Generation of Electronic Records Archivists in the United States: A Study in Professionalization** (New York, Haworth Press, 1994)

This volume (reprinted from an issue of *Primary Sources and Original Works*) consists of a series of six studies of how American archivists

responded to the challenges posed by electronic records in job descriptions, job advertisements, graduate education, and continuing education between 1976 and 1992. The volume is ground breaking for an American archival monograph in that it consists entirely of reports on research rather than the usual essays uninformed by systematic study. It catalogs the failure of the profession to adjust to the challenges of the information age in its recruitment or training. Perhaps this will prove distressing to some, but it can hardly be a surprise to those of us involved over the years in trying to influence the archival profession. The book is the closest thing to a history of the archival response to electronic records we probably will ever have, but it is somewhat disappointing because its focus is not intended to be on theory or methods of practice but on professionalization.

- Ian Johnson, ed., **Methods in the Mountains: Proceedings of the UISPP Commission IV Meeting**, Mount Victoria, Australia, August 1993; Sydney University Archaeological Methods Series #2 1994 (Sydney, Sydney University, 1994) 192pp. + bibliography

The articles in this unfortunately titled volume, reporting on projects in dozens of countries, contribute greatly to resolution of issues in archaeological data representation and use. CAD, GIS, and data structure debates raging in archaeology are presented in twenty-four all too brief chapters, fortunately accompanied by addresses and e-mail contacts for the authors. It is at once apparent both that computer applications are transforming archaeology and that interchange is a critical issue that needs to be resolved if these expensive investments are to serve the needs of more than a single investigator.

- Seamus Ross and Edward Higgs, eds., **Electronic Information Resources and Historians: European Perspectives**, Halbgraue Reihe zur Historischen Fachinformatik Series A: Historische Quellenkunden, Band 20 (Published simultaneously as British Library Report 6122) Max Planck Institut fur Geschichte, 1993 ISBN 3-928134-95-7

From the perspective of an American involved in electronic records management issues this volume is fascinating for its utter lack of contact with the questions deemed critical here. It contains a number of excellent and engaging articles by historians interested in electronic minutia that would never have survived records retention if in paper, some useful pieces on standards, and papers on "archives" entirely devoted to data libraries. The papers are all of a high caliber and well edited, it's just that in the end they have very little to do with the systematic preservation of evidence of business activity which is what I take to be the concern of archives. Hopefully in the future some common ground can be found between these views; in the meantime, this volume is of interest to locate a community of interested individuals who are having a discussion about something which sounds like it should be related but isn't very directly.

Journals/Newsletters

- **CSA Newsletter: A Quarterly Newsletter for Architectural Historians and Archaeologists** (Center for the Study of Architecture, POBox 60, Bryn Mawr PA 19010; 610-526-7925; fax 610-526-7926; e-mail "heiteljo@cc.brynmawr.edu") free, donation requested.

Despite the somewhat general title, the newsletter (now in vol. #7) covers CAD applications and databases in archaeology and architectural history and contains essentially informatics advice from editor and center director Harrison Eiteljorg II.

- **Electronic Education Report** [POBox 7430, Wilton CT 06897-7430; 203-834-0033; fax 203-834-1771; $319 for 24 issues], Vol.1 #1, 27 July 1994

This new newsletter (1st issue, 12p.) covers the infotainment and education businesses with a focus on big financial deals but not as much depth about them as other industry publications and little more than the *Wall Street Journal.*

- **Electronic Public Information Newsletter** (ISSN 1057-834X) [James McDonough, ed., POBox 21001, Washington DC 20009; 301-365-3621; fax 301-365-3621; e-mail: EPIN@access.digex.com] Subscriptions $249 for 24 issues; $130 for libraries; $65 for individuals.

Appears bi-monthly with news of mostly Washington-based developments in public information.

- **Multimedia Monitor Weekly Executive Alert** (Multimedia Monitor, POBox 26, Falls Church VA 22040; 800-323-3472; fax 703-532-0529) $395 yearly

A new weekly version of the Multimedia Monitor focuses on press releases type blurbs about developments of concern to the industry with contact information.

- **Technology & Media: The Report of Information and Entertainment** (Vol. #1, 1994) ISSN 1075-6922 (201 Spear St., Suite 200, San Francisco CA 94105; 800-978-5400) $595 for 12 issues

This relatively expensive industry newsletter has articles rather than timely news reports and, based on the first two issues, doesn't seem to me to have an obvious audience. Ask for a copy and judge for yourself.

Articles

- **David Bearman**, "The Implications of Armstrong v. the Executive Office of the President for the Archival Management of Electronic Records," *American Archivist*, Vol. #56 (1993), pp. 674-689

Examines the recent court orders in the "Profs" case and how they will influence the advice archivists will need to provide to their organizations on the management of electronic records.

- **Andrew Large, Jamshid Beheshti, Alain Breuleux, and Andre Renaud**, "Multimedia and Comprehension: A Cognitive Study," *Journal of the American Society for Information Science*, Vol. #45 (1994) p.515-528

The findings of this small, but well thought out study, should be disturbing and challenging to anyone involved in multimedia. Until subsequent studies find otherwise, we should think carefully about its implications for complexity in multimedia.

- **Museum International** (ISSN 1350-0775) no. 1, 1994.

Devoted to computerization with articles by Andrew Roberts (standards), John Perkins (introducing computers), Greg Spurgeon (managing change), Leonard Will (museums as information centers), Robert Leming (computers and the business side of museums), Valerie Chieze (computers and inventory in Africa), Zdenek Lenhart (documentation in the Czech Republic and Slovakia), David Bearman (the future) and Jane Sledge (bibliography). As always the issue is available in English, French or Spanish, from Unesco.

- **Brian Wallace and Katherine Jones-Garmil**, "Museums and the Internet: A Guide for the Intrepid Traveler," *Museum News*, Vol. 73 #4, July/August 1994, pp.32-36,57-62.

Besides being a standard "how to" guide to the Internet, this article reports on AAM activity in promoting museum use of the networks and the overall implications for museum of the networked environment.

Ephemera

- Farnet Inc., **51 Reasons: How to use the Internet and what it says about the Information Superhighway,** ed. Martha Stone-Martin and Laura Breeden (Lexington MA, Farnet, 1993). ringbound 124pp. [Also available as stories@farnet.org]

This is a nice example of propaganda at its best. It contains first-hand accounts from users about how their projects use the Internet. The stories are convincing in themselves and exciting in their diversity. The organization by state (and Washington DC) which explains the 51 number also makes this an excellent lobbying document.

- David Wigg, ed. with a forward by the Aga Khan, **Of Mosaics and Mosques: A Look at the Campaign to Preserve Cultural Heritage, World Bank Development Essays 3** (Washington DC, The International Bank for Reconstruction and Development, 1994) 49pp. $6.95 + shipping

This beautiful and intelligently written pamphlet raises a clarion call for the preservation of the world's cultural heritage resources made through case studies of the efforts to preserve the old walled city of Lahore (Pakistan) and the Roman mosaics in Pahphos (Cyprus).

- **Glossary of Australian Usage of Archival Terminology, Discussion Edition**, Compiled by Glenda Acland, Australian Society of Archivists, 1993. 52pp.

This compilation of terms and definitions drawn from 36 archival repositories in Australia is the working basis for a formal terminology document for the ASA. It is particularly interesting in revealing the range of meanings attributed to some terms among Australian institutions and the differences between Australian usage and that elsewhere.

- **The Art on Screen Handbook: Practical Guidelines for Using and Producing Films, Videos and Interactive Programs about Art** (New York, Program for Art on Film, 1994) 36pp Available from: Program for Art on Film, 980 Madison Ave., New York, NY 10028; 212-988-4876; fax 212-628-8963

This reworking of other evaluation guidelines used by judges in annual awards for films, videos, and interactives on art serves as a useful (if limited) set of questions and suggestions for developers.

- New York State Archives and Records Administration, **Guidelines for the Legal Acceptance of Public Records in an Emerging Electronic Environment** (Albany, NYSARA, 1994) 35pp.

This slim pamphlet is the best justification program managers have yet seen for keeping evidence. It locates the rationales in works that they will find authoritative and provides clear instructions with good examples. It is straightforward and doesn't preach. Pip pip.

- American Library Association, **Principles for the Development of the National Information Infrastructure** (brochure) 1994 [available from 312-280-4270; FAX 312-280-3257; Internet: U58552@uicvm.uic.edu]

This fold out "draft" from the Washington office of ALA lays out some principles considered important by most public interest lobbies involved in promoting open and equitable access to the NII.

NEWS

NII Intellectual Property Task Force Urges Copyright Changes

The Working Group on Intellectual Property Rights of the NII Task Force has issued a preliminary draft of its analysis of the intellectual property implications of the NII. The draft was issued early in July for comment prior to 7 September 1994, after which the Working Group will hold hearings and issue a final report.

The report makes substantial recommendations. While it finds the current copyright law applicable it proposes some "limited" amendments to:

Protect Transmission:

(a) Distribution rights, which it proposes specifically include "transmission" and be limited to the owner of the work;

(b) Publication, which it suggests be amended to include distribution by transmission;

(c) First Sale Doctrine, which should be amended so that it does not apply to works received by transmission.

Permit Technological Protection:

Specifically to prohibit importation, manufacture, and distribution of devices whose purpose it is to defeat technical means of protecting copyright.

Safeguard Copyright Management Data:

Specifically to prohibit fraudulent copyright management data and/or efforts to alter copyright management data.

Protect Digital Performances:

Amend the law to include rights for digitally transmitted sound recordings, but not for analog ones.

Explore Fair Use:

Specifically to hold additional meetings to clarify rights issues.

Permit Licensing:

Specifically to enable all kinds of licensing agreements acceptable to the marketplace to coexist with copyright protection.

Also, the report urges development of interoperable technologies for copyright protection and standards that support them as well as education of students and the public in copyright, including over the NII itself.

Museum and University Group to try Site Licensing

The MUSE/Museum Multimedia Study Group formed in the spring has produced two products from its two sub-projects. The first is model licensing agreements for CD-ROM derivatives which will be published widely this fall. The second, although more preliminary, will in the end prove more fundamental: it is a framework for a joint museum and university pilot project to site license digital works from museums for educational use. The pilot project will be supported by the Getty AHIP Image and Information Initiative in its first, or planning, year and will seek foundation support for a two-year test period. Under the proposed framework, museums involved in the test will agree to digitize at least 500 works (images and associated data on a collection object) and universities will agree to test uses and develop the distribution methods and protections which satisfy museum functional requirements. The anticipated outcome of a two-year pilot with limited numbers of participants would be a mechanism open to any museum or university. It would serve the needs of universities for a growing body of available study materials of high quality that are legal to use in teaching and of the museums for a modest but steady stream of income to support ongoing digitization. *[For further information, contact Goeff Samuels, MUSE Film and Television, 1 East 53rd St., New York, NY 10022; 212-688-8280; fax 212-688-0409]*

Administration Backs Down on Encryption

In a major victory for computer users (and the U.S. balance of trade), the Clinton Administration put brakes on its plans to implement the Escrowed Encryption Standard (ESS) using the Skipjack algorithm and the Clipper and Capstone microchips which would enable U.S. secret agencies to get a back door into virtually all communications. In a letter to Representative Maria Cantwell on July 20, Vice President Al Gore abandoned ESS computer applications and promised (for the next five months) to only study the use of the Clipper chip in telephone communications. The letter assured Congress, which has heard widespread opposition to the Administration plan since its announcement last summer, that any future encryption standards will be voluntary, unclassified, and exportable and that private escrowing would be an option. Most observers expect that at the end of the study period even the plans for telephonic ESS will be withdrawn.

NSF Backbone to be Closed Down

The fact that the NSF subsidy to universities participating in the Internet was to be phased out over four years beginning next fiscal year had barely been absorbed when it was announced that the NSF backbone network would shut down, possibly as early as late August 1994. In its place will be three "access points" operated by commercial carriers and an interchange service operated by a fourth commercial organization. Depending on your region, you will pass through one of the access points and be interchanged to others to deliver your traffic. Aspects of this plan remain unclear even as it is being implemented. Hopefully the transition will pass largely unnoticed!

Canadian Archives Sound the ALARM

The Alliance for Libraries, Archives and Records Management (ALARM), a joint endeavor of the Canadian Library Association, As-

sociation of Records Managers and Administrators, Canadian Union of Public Employees, and the Canadian Council of Archives, has proposed a Canadian national human resource strategy for the "information resource sector" (IRS) workforce. In a consultation paper issued in late May, the Alliance identified economic, demographic, social, technological, and regulatory pressures on the field and predicted that within a decade the roles of these professions would be taken over by information technologists unless the profession itself begins to act. It envisioned a future for the year 2004 that it preferred and identified steps towards achieving it which include: articulating the value-added elements of our services; enhancing opportunities for continuous learning and adjustment; and enhancing the diversity of our workforce. Among the major tasks that the Alliance foresees are development of education and training programs and changing the image of the profession. They identified stakeholder perspectives and future actions and their report asks for community consensus on next steps. Comments are requested in August for a final plan to be put forward in October.

In reading the generally insightful and blessedly pithy report I noticed three things:

(1) the archives and records management participants generally lacked e-mail addresses while those in libraries had them;

(2) the pressures listed, except for the regulatory ones, were identical to those facing other sectors of the society;

(3) the special focus of archives and records managers on records rather than information was overlooked.

[For copies or comments contact: Michael Moosberger, ALARM Executive, c/o Archives and Special Collections, Room 331, Dafoe Library, University of Manitoba, Winnipeg R3T 2N2; e-mail: moosber@cc.umanitoba.ca]

INVISION Multimedia Awards

The INVISION Multimedia Awards for 1994, given by *NewMedia* magazine, included a number of products of museums in the general consumer category, including gold awards to *Birdsong* from the Royal Ontario Museum which also won last year's AAM Muse award, and the *Microsoft Art Gallery* from the National Gallery of London, written up here two years ago before its CD release. A Bronze award was given to *American Visions* from the Roy Neuberger Museum.

AAM Lobbies for Museums on the NII

The American Association of Museums, the Association of Systematics Collections, and the American Zoo and Aquarium Association participated in hearings on Senate Bill 1822 (telecommunications regulation reform) with the aim of having museums included as the fourth class of institutions, along with libraries, schools, and hospitals, to be qualified for free access to network services. The various bills currently moving through Congress contain numerous contradictory provisions, but the museum community is aiming to have its right to connections enshrined in as many as possible to provide a better chance for inclusion in the final legislation expected this fall.

Foundation Supports Network Access to Public Informaion

The Bauman Foundation has undertaken a series of ten surveys and studies to identify what the public needs to know about public information in order to present a blueprint to the government for access to public information on the NII. It plans to convene groups active in environment, public health, community development, etc. to articulate their stake in the NII and lay the basis for future constructive pressure on the Administration and the private sector NII partners. Patricia Bauman, President of the Foundation, is cooperating in her effort with Sally Katzen, Director of the Office of Information and Regulatory Affairs of OMB. *[For more information, contact Bauman via e-mail: baumanp@rtknet.org]*

New York State ILS

The New York State Archives and Records Administration and the State Library is developing a prototype Information Locator System to work out policy issues and technical problems before launching a comprehensive finding aid to public records in the state. The prototype will use gopher rather than the Z39.50 model embraced by the federal government, but the objective is the same and doubtless when fully implemented they will employ parallel technologies.

In a related move in May, the New York State Archives awarded a $150,000 grant to Hudson Valley Community College to begin the first phase of a project to create a telecommunications network among local governments that will connect them to each other, to state government, and ultimately to the National Information Infrastructure.

Union Database of Photo graphy to Expand

The "union catalog" of photo graphs and photographer authority data being constructed by George Eastman House and the Humanities Research Center at the University of Texas, recently available over the Internet at hrhcc.cc.utexas.edu with the user name "guest," has proposed expanding in the next three years to include two more major collections. Presumably it is on its way to becoming a national resource now that it is also mounted through RLIN. *[For more information, contact Andrew Eskind at George Eastman House, 716-271-3361, or by e-mail to andy@hrhcc.cc.utexas.edu; for a write up see Visual Resources, vol.X, p.119-120]*

NHPRC Reports Decade of Electronic Records Projects

Since 1985, the National Historical Publications and Records Commission has awarded just over $1.5M to twenty projects dealing with

electronic records. While over $1M of this was awarded in the past three years to ten of those projects, it is still incredible that much progress is expected from the field with this level of funding. It's not NHPRC's fault -- they can only fund proposals and very few are coming forward from the field.

GENERAL NEWS NOTES

- With 48M of America's 122M workers mobile (from salesmen to management consultants), big money is riding on **cellular digital-packet data** (CDPD) and the mobile computing it will bring with it. Watch the smart money and the Baby Bells invest this year and a lot get killed by standards. *The Economist* 14 May 1994.
- Want to **read paper** back into your systems? Use Xerox Corporation's newly patented glyphs -- marks that look decorative, like shading, but carry data to identify the document (its retention period? sender? transaction? data content? anyone...). *New York Times* 10 July 1994.
- **Clipper dies** before it is withdrawn. While testing a Clipper protected system, Mathew Blaze at AT&T Bell Labs found out how to block the path that would allow the secret agencies to snoop. Whoops. *New York Times* 2 June1994.
- The Internet bites closed societies even though their secret agencies control access, in part because Howard Jonas (the guy who figured out how to avoid the cost of calling the U.S. from abroad by setting up systems here that make the connection from this side) has implemented a cheap American gateway with call back. *The Economist* 4 June 1994.
- I recall suggesting to the MIT Archaeological Materials Research Laboratory several years ago that they try using multiple wavelengths of light to decode the structure of complicated objects. The idea has recently been applied by Dr. Gregory Bearman (no relation) at the Jet Propulsion Laboratory to reading previously undecipherable fragments of the Dead Sea Scrolls. *The Economist* 23 July 1994.

SOFTWARE REVIEW

Inmagic Plus Version 1.0, release 4.0, Image Version and Inmagic Library Guide

Marion Matters

Company: Inmagic, Inc.

Address: 2067 Massachusetts Ave., Cambridge MA 02140

Phone: 617/661-8124; Fax: 617/661-6901

Prices: Inmagic Plus, single user, $1,250; network licenses from $1,950 (2 users); SearchMagic $395; Library Guide, $150; MARC Adaptor, $250. This is NOT a complete product or price list. Inmagic is also available for DEC VAX/VMS computers.

System used for testing: Stand-alone IBM compatible, 486, 33MHZ, 8 MB RAM, SuperVGA color monitor, DOS 6.0 and Windows 3.1. Printer: HP LaserJet IIP.

Inmagic is a flat-file generic database program designed especially for textual data, featuring variable length, repeatable fields. Its strong points are in indexing and searching that data. In other respects, its data management capability is surprisingly limited, especially considering that it is apparently actually used in special libraries for acquisitions and serials management. I find it usable, but less than ideal, for these functions and for the support of other archival functions, as I will explain in detail later.

The version I tested has the capability to include black-and-white images in the database structure. It seems to be intended for situations in which document page images are associated with document descriptions in an Inmagic database. This is not an image processing system, however. You can view the images and you can print them and that's about it, so I didn't spend much time on this feature.

Installation

Installation is easy and fast from a single 3.5" disk. System files take up only around 1MB of disk space (tiny, compared to the average Windows application).

I ran the program directly from DOS and also as a DOS application under Windows with no apparent problems. Inmagic can be run on a network, but I did not test the network version. The vendor representative I talked to said that a Windows version was in development, but didn't give a projected release date.

Starting the Program

My last experience with Inmagic was in its command-line days, when it seemed somewhat complex. Now, with its primary menu interface (although the command-line is still available), it seems much simpler.

The initial menu (actually a horizontal bar at the bottom of the screen) offers the following options: open database, define, utilities, help, and quit. From the "open database" option, you can choose a database from a pop-up list (assuming you have already created one or more databases), after which you are led to menus for searching and maintaining the database.

Under the "define" option you may define database structures, data files, field validation for data entry, search prompts (see the section on searching, below), and report formats.

Utilities control file import, image settings (display, printer, monitor), and program configuration (display, printer, and indexing features).

Context sensitive help is available for most features, but since you must toggle between help and the active screen, it can be frustrating to use.

Defining a database structure

This process is not particularly difficult, except for the indexing and sorting decisions. You give the structure a name, identify the unique key record ID field, and then name each field and specify how you want it indexed and sorted.

There are four index types (term, keyword, both, or none) and no fewer than nine sort types with options involving text, numbers, dates, letter-by-letter or word-by-word sorting, stopwords, leading articles, and case sensitivity! It can be daunting. You'll need to study about 20 pages in the manual and have a clear idea of how the data in each field will be entered.

The real work, of course, comes in deciding what the structure should be.

It took me about an hour to set up a 45 field "Archives" database structure. Basing it on *Archives, Personal Papers, and Manuscripts* (*APPM*) for description and MARC field equivalents for standard index headings significantly shortened the development time, I think. After using it for a while -- and knowing that Inmagic can't output MARC records anyway -- I would try again using fewer fields in a revised structure. I certainly would not try to distinguish between a corporate name main entry and a personal name main entry (such a distinction wreaks havoc when you try to sort and display the database in a logical citation order).

Incidentally, my database structure turned out to be very similar to the proposed province-wide "Fonds-level Alberta Database" structure based on the Canadian *Rules for Archival Description* (*RAD*), and to the Glenbow Archives' internal application of that standard. (Thanks to Douglas E. Cass, Glenbow Archives, for supplying me with a copy of the data structures and sample record.)

Access to any fields in the database may be password-protected. You can restrict them from view (in which case Inmagic acts as if they weren't even there), or merely from change. Significant public use of Inmagic databases, however, might be better managed through SearchMagic, an optional search-only module that runs independently of Inmagic itself. (I did not test SearchMagic.)

As I was experimenting, I discovered one prominent oddity. You can't delete a data structure or a data file from within in Inmagic once you've created it! You have to use DOS or a file manager to delete the unwanted file(s). I think it would be so much better had Inmagic have provided some way to do it, complete with appropriate warnings of the dire consequences of deleting the wrong files.

Building a database quickly: importing records

Inmagic can import data in ASCII text files. Unlike most database import utilities, Inmagic accepts data for any number of fields in a record. There might be 45 fields defined in a database (as there were in my test database), and Inmagic will accept a record with only 3 or 10 or 25 fields used. This is possible because the import format requires that each field be preceded by a field label, as shown here.

LABEL1 Data in one or more lines, each no more than 250 characters long. There must be at least one space between the field label and the data (additional spaces are ignored). Fields can contain more than one line. Second and subsequent lines must begin with at least one space (additional spaces, such as shown in this example, are ignored).

LABEL3 Fields in Inmagic are repeatable. The import utility accepts repeatable fields in one of two ways. Each occurrence may be numbered sequentially, or second and subsequent occurrences may be preceded by a semicolon.

LABEL10/1 Subject

LABEL10/2 D if fe re n t subject

LABEL10/3 Another subject or

LABEL10 Subject ; Different subject ; Another subject

You can even import the fields in any order, not necessarily the order in which they are specified in the database structure definition. You have the option either to leave the fields in the order in which they occur in the source file, or to let Inmagic rearrange them in the sequence defined in the database structure.

This makes it possible rather easily to import descriptive data originally created using a word processor, especially if unique formatting was used for different elements of description.

Using my word processor, I manipulated a file of about 30 archival descriptions to comply with the Inmagic import file specifications and saved it in plain ASCII format. I opted to have Inmagic rearrange the fields to match the order in the database definition. Inmagic imported most of the records without a hitch and created a "log" file of the three rejected records. In the log file Inmagic supplied a description of each loading error, which made corrections easy.

This one of the better file import utilities I have seen.

Creating and editing records

The data input form consists of a vertical list of all the defined field labels on the left side of the screen and it cannot be modified. Except for the field labels, which are constant, there is full screen editing and the Inmagic editor is sufficient for this purpose.

Inmagic provides for several kinds of data validation during input. It can check for valid dates, numbers, and data ranges; it can check data against a "lookup" file of valid values; and it can assure that a required field is never bypassed, that a nonrepeating field is not repeated, and that a unique field value is unique. All of these validation options are subject to user definition (and to manual override when authorized). In addition, you can set up default data for any field and you can use the entire contents of one record as the model for another.

There is no option to create context-sensitive help for any field, so any input rules other than the validation checks must be provided in external sources. For archival description, those might be *APPM* or *RAD*.

Inmagic handles only pure ASCII text -- no italics or boldface, no diacritics, no other special characters. There is no option to enter anything not available on the standard keyboard (at least I couldn't find anything in about it in the documentation under diacritics, foreign characters, or special characters).

Individual record editing works just like initial data entry. Global (or merely regional or continental) changes are fairly easy to make, but you really have to pay attention to what you're doing.

Indexing and searching

This is where Inmagic really shines.

As I mentioned above, there are nine different sorting options and four indexing options that provide the infrastructure for searching.

For each database you can define any number of "search prompts" -- on-screen forms for queries. I set up the following search prompt as the default for my archival description database:

Person (last name first): .....

Organization or agency: .....

Subject: .....

Type of material (e.g., photographs, diaries): .....

Place: .....

Time period: .....

Whenever anyone selects the search menu item when the Archives database is active, this form is presented at the bottom of the screen. The user can fill in any of the blanks on the form. Each search prompt form can have up to ten prompt lines, and there is an implied AND between them.

In defining a search prompt, you can specify the prompt text that appears onscreen as well as which fields will be searched. I experimented, letting the type of material prompt search the title fields, scope and content notes, and form/genre headings. Searching multiple fields this way worked pretty well for most searches.

You can set up several search prompts for the same database. I set up the search prompt shown above and another oriented toward management data, with prompts for accession number, donor or transferring agent, accession date, and other "identifying data" (a keyword search of several descriptive fields). One search prompt can be identified as the default for each database, but all the search prompts available for it are accessible from the "other prompts" item on the search menu.

While the concept of search prompts is not immediately obvious, they are easy to construct once you do grasp it, and they become rather fascinating. (I could imagine several interesting research projects!)

There is even more to searching than I have describe here, including truncation, relational operators, saved sets, and saved search arguments.

Reports

I spent several hours working with the "report designer" and still didn't feel comfortable with it. I managed to get the effects I wanted--sometimes--but wasn't always sure how it happened. I read the manual, I studied the examples, but I still couldn't figure out how to make page headings work right every time. I copied some of the sample reports provided, but in the process of modifying them to work with my database structure, I made hash. The documentation failed me in this crucial area.

Finally, I did manage to set up a report to display the main entry, title, and dates for each item retrieved in a search. Any report format associated with a particular database can be defined as the default display in response to a search. Then, if you want to see the entire record, you have only to choose the expand option on the display menu. You have no choice about the form of the expanded view, however; it looks just like the data entry screen. Hint: establish meaningful field labels in the database definition.

Documentation

This is not a program you can use without looking at the documentation. Few people were born knowing the difference between letter-by-letter and word-by-word sorting, or the difference between keyword and term indexing as Inmagic defines it (in the online catalog I use most frequently, term searching is a synonym for keyword searching).

The documentation is mostly adequate, except, as I mentioned, in the crucial area of report definition.

Authority files -- sort of

Any field many be validated against a "lookup" file during input. A lookup file is a separate ASCII file containing the valid values for the field. You can set up such a file outside of Inmagic using a word processor or text editor, or by writing the contents of an Inmagic field index to an ASCII file. During data input, you can browse the contents of the lookup file and paste an entry directly into the current record. But you can't really "manage" the lookup files in Inmagic. To add a value, you either have to exit Inmagic and use your word processor or ASCII text editor to add the value to the file; or you have to rewrite the Inmagic field index to the file. Lookup files, then, are really only useful when the field values are static -- an infrequently updated list of subject terms, for example. And they are simple lists only, not structured thesauri that lead you to broader or narrower terms.

MARC compatibility -- import but not export

Inmagic offers a separate MARC Adaptor module that is supposed to provide for import of MARC records. I was not able to test that module, but I expect that the process would require some effort. Inmagic does not support subfields or indicators and there is no standard Inmagic database structure

into which the MARC records would be imported. Therefore, for each Inmagic database, you'd have to decide what to do with every field in the MARC source file: either ignore it or map it to an Inmagic field. In some cases, you would undoubtedly have to put the contents of several different MARC fields in a single Inmagic field (types of main entry, for example).

There is no MARC export capability. You could create a report format to output an ASCII file of the Inmagic database contents with MARC tags preceding appropriate data. That is not a real MARC communication file, however. It would have to be further manipulated by some sort of conversion software. Because Inmagic does not support subfields and indicators, you'd probably have at least some nonstandard coding as a result of the conversion.

I'd be very wary of using Inmagic if I ever thought I might want MARC compatibility, unless (1) I was creating true MARC records in some other system and merely importing them into Inmagic for local manipulation; or (2) I accepted the fact that if I did want to have true MARC records at some future date, I'd have to do a lot of retrospective content designation (tagging).

On the other hand, if I didn't think I was ever going to want to output my Inmagic records in MARC communications format, I wouldn't worry.

Managing work functions -- a computer-assisted system

I said in the first paragraph that except for its searching and indexing features, Inmagic's data management capabilities were surprisingly limited. I should explain that, because, based on some of the literature I've read, many Inmagic users, not to mention the vendor, probably think otherwise.

It is true that with some effort, you can create report formats to display and print almost anything from the database. Within the report formats, you can imbed calculations based on the contents of numeric fields and some date fields. You can calculate the time between two dates, for example -- as long as both of them are after 31 December 1979. Using report formats, you can export data from one database and import it into another. But, in my opinion, none of this adds up to a good system for managing work.

Along with the basic Inmagic package, I also looked at the Library Guide, a separate add-on product. I was surprised to find that all it really contained was about half-a-dozen sample database structures; many, many report formats; and a manual that explained how to try to paste this together into a complete system. The sample database structures are for a catalog, acquisition orders, serials management, serials check-in, loans (i.e., circulation), borrowers, and loan history. If you used the sample library "system," you would have 7 entirely separate databases. You manage the data by exporting pieces from one database and importing them into another. This is what it might look like for just one process:

* Open the catalog database; using a report format designed for the purpose, export basic book information to a file.

* Close the catalog database and open the borrowers database; using a report format designed for the purpose, export the borrower index to a file to use as a lookup file for the loans database.
* Close the borrowers database and open the loans database; import the book records file.
* When a person borrows a book, look up the borrower data in the lookup file and paste it into the loans database; also record the loan date and the due date (which might have been created in a separate lookup file).
* When the book comes back, search for the book title, and edit the record: delete the borrower's name from the name field; delete the loan date from loan date field; delete the date due from the date due field.
* To create a loan history on a periodic basis, perhaps annually, use a report format designed for the purpose and export data from the loans database to a file.
* Open the history database and import the file; using a report form designed for the purpose, display or print a loan/usage history for individual titles, classes of titles, or departments.

This may be computer-assisted data management, but look at the number of steps that must be handled manually -- the separate exports and imports, the cutting and pasting of data. Is this really what you want to do?

Managing archival work functions -- only if you insist

Based on the example of the Library Guide, it would certainly be possible to define separate databases for inventory descriptions, container listings, agency histories, transfers, donors/transferring agents, retention schedules, users, shelf locations, and the like. It would be possible to define report formats to export data from one database and import it into another, to display and print it.

You could say that the resulting combination was an archival management system, and it might even be better than an entirely manual system. But the success of the system would depend so much on its users following procedures that are not controlled automatically from inside the system. It is thus subject to error and breakdown. And setting it up in the first place would not be easy.

Summary

Inmagic has been around for a long time and it shows. On the positive side, the program is reliable, does an excellent job of indexing and searching textual data, and doesn't require huge allocations of memory and disk space just to run. On the negative side, report writing is tedious, requiring the use of a specialized command language (definitely no WYSIWYG here), and data management is limited to a single flat-file database at a time.

I would hesitate to recommend Inmagic as a management tool for archival work of any scale or complexity.

I wouldn't hesitate to recommend Inmagic (maybe in combination with SearchMagic) as a possible option if DOS-based text searching was the primary goal -- provided MARC output was not also an issue.

Timeline: Understanding the Los Angeles Riots, A Review[1]

Katherine Jones-Garmil

Exhibit Site: Museum of Tolerance, Simon Wiesenthal Center, Los Angeles, CA

Exhibit Designer: New England Technology Group, Inc., 1 Kendall Square #200, Cambridge, MA 02139

System Components: Touchvideo™Interactive Videodisc and CD-ROM, Multimedia Systems

General description

"Timeline" is the centerpiece exhibit in the Tolerance Workshop. The New England Technology Group describes it as an exhibit "that deals with an authentic social dilemma that touches upon all major themes in the Museum...". The exhibit provides button-controlled interaction, with 105 interactive menus or information graphics throughout the program.

Components of "Timeline"

The visitor is always oriented to the exhibit by the title line which appears at the top of the screen. Instructions appear at the bottom. The "Timeline" consists of video, still images, audio, and graphics available to the visitor in linear order, forward or backward.

CONTENT

Originality of approach

The exhibit provides an approach to issues that are important to the understanding of hate and intolerance. Although the focus is on the Los Angeles riots, issues explored have a much broader impact -- stereotyping, bigotry, aggression, violence, social injustice, and minority viewpoints. While many interactive exhibits allow the user to consider several points of view or navigation paths, the "Timeline" also allows the user to log his/her profile (age, gender, ethnic background) and throughout the program to record his/her opinion on the major topics. Following each user poll, a screen appears with bar charts showing the range of opinions entered to date. This visitor profile/opinion poll is updated dynamically through the exhibits' networked computers.

Accuracy of information

The exhibit presents the information objectively while asking the user to make choices and consider his/her opinion. The staff of the museum and the producers ask questions of the user throughout the production that are precursors to questions asked so often today -- what is the role of the media in reporting events such as the Rodney King beating, the Reginald Derry beating, the subsequent trials, the riots, and even more recently, the O.J. Simpson case. The available information is presented accurately and objectively.

Text, image, sound quality

The exhibit uses video, images, and graphics produced for the "Timeline" as well as incorporating video footage from both news broadcasts and private sources. All visual and audio material is of high quality.

Integration with rest of exhibit/museum content

The exhibit was part of the opening installation at the Museum of Tolerance. It was installed in a central part of the museum in a quadrilateral arrangement using four interactive monitors. Two additional systems are installed to the left and right of the exhibit space. A large 25" slave (or echo) monitor allows for viewing by groups of visitors.

Quality of attract mode

The attract sequence is, in itself, dynamic. The user is invited to explore the events leading up to and following the Los Angeles riots through a layered graphic background of color and text utilizing the major topics found in the exhibit.

APPROPRIATENESS TO AUDIENCE

Appropriateness of interface tools and metaphors

The interface tools are direct in this exhibit.

Length/amount of content

Navigation through the exhibit is controlled by the user. The user can spend as much or as little time exploring a topic as he/she would like.

1 This review uses many of the evaluation criteria for interactive multimedia established by the AAM Media and Technology Committee's 1994 Muse Award Jury. The criteria have since been elaborated in a publication by Susan Delson entitled **The Art on Screen Handbook**. The publication is available from the Program for Art on Film.

Appropriateness and extent of help

The touch screen buttons and graphical help are user friendly and intuitive. The user can control the journey through the "Timeline" and can return to the beginning with relative ease. The program automatically returns to the beginning if there is no user interaction.

Complexity of navigation structures

Navigation structures appear to the user to be simple and easily directed.

Adequacy and techniques of feedback

One of the most original features of the exhibit is its capability for user polling and feedback. Beginning with the user profile, the system constantly updates the exhibit database as it asks the user for an opinion after each topic. The user's place in this opinion poll is shown using bar charts after each question is answered. As with all interaction with the exhibit, the user presses buttons on the touch screen to log his/her opinion.

This feature provides a richness to the exhibit but also provides exhibit demographics to the museum staff. Perhaps the opinions expressed and the overall views recorded can be used by the museum staff in the design of other exhibits or in updates to the "Timeline."

APPROPRIATENESS OF IMPLEMENTATION

Value added with interactivity

As mentioned above, the user gets an immediate "playback" through the opinion poll feature of this exhibit. This feature lets the user feel more of a true interaction with the exhibit. While one may be a viewer of the tragic events depicted in the "Timeline," the interaction involves the user on some level. Questions relate to how the user feels about each topic and often asks how the user feels about the issue in his/her area, e.g., "how safe do you feel in your neighborhood?"

Integration within space

As the centerpiece in the Tolerance Workshop, the exhibit is well integrated into the exhibit space

Appropriate attention to multimedia standards and delivery device

The New England Technology Group, Inc., used standard technology in the creation of this exhibition. This would allow the exhibit to travel (I saw it in Cambridge, MA) or to be incorporated into other CD-ROM-based educational products. All equipment is state-of-the-art and standard as of the date of installation.

GENERAL COMMENTS

The exhibit focuses on subjects that surround us each day. The treatment is sensitive and objective in its approach. Generally, the producers incorporated current standards for interactive multimedia. Judging from the exhibit, NETG worked well with the staff of the Museum of Tolerance. From my discussion with Jan Crocker at NETG, we can look forward to exhibits using this approach and to other educational products using this and other multimedia technologies in the near future.

SOFTWARE NOTES

New Cultural Heritage CDs

- **American Visions: 20th Century Art from the Roy R. Neuberger Collection** [Eden Interactive, 224 Mississippi St., San Francisco CA 94107; 415-241-1450]. $99.00 Mac only.
- **Anglo-Saxons** [Cambrix Publishing, 6269 Variel Ave., Suite B, Woodland Hills CA 91367; 800-992-8781]. $59.95 Windows only.
- **Charting a New World: Maps of Discovery** [On/Q Corporation, 395 Dowd St., Montreal QU H2Z 1B6; 1-800-463-3425; fax 514-393-3222 or Canadian Heritage Information Network, 365 Laurier Ave., W., Ottawa ON K1A 0C8; 613-992-3333; fax 613-952-2318]. $29.95 CD-I only.
- **Exploring Ancient Cities** [Sumeria, Inc., 329 Bryant St., Suite 3-D, San Francisco CA 94107; 415-904-0800]. $59.95 Mac and Windows.
- **Leonardo, The Inventor** [Interactive Electronic Publishing, 800-472-8777]. $49.95 Mac and Windows.
- **MindQuest: Medieval France** [Blue Mountain Software, POBox 1648, Port Angeles, WA 98362; 206-457-0024]. $79.95 Windows only.
- **The Haldeman Diaries: Inside the Nixon White House** [SONY Electronic Publishing Co, 2400 Broadway, Suite 510, Santa Monica CA 90404]. $69.95.

Site License Slides

ART on FILE Inc. [1837 East Shelby, Seattle WA 98112; 206-322-2638; fax 206-329-1928] markets digital files of "Public Art, Architecture, Landscape Architecture and Urban Design." They have site licensing arrangements with universities and a 60+ page catalog of images as of 1994. PhotoCD delivery. Digital collections begin at $3.80 per image/single workstation! Network rates and terms on request.

Hypercard Guides to Art Videodiscs

New Visions, Inc., Laser Learning Technologies and Films Inc. [NVI, 1 Colisus Way, Ste. 203 Paramus NJ 07652; 201-712-9500; fax 201-712-9887] have combined resources to release six HyperCard guides to the videodiscs: *Mary Cassatt: Impressionism from Philadelphia; Paul Gauguin: The Savage Dream; Frida Kahlo; Georgia O'-Keefe; Frederic Remington: The Truth of Other Days; and In a Brilliant Light: Van Gogh in Arles.* Alone they cost $49.95, with the videodisc they sell for $99.95.

Corporate Files Indexer

Cuadra Associates [11835 W. Olympic Blvd., Suite 855, Los Angeles CA 90064; 310-478-0066; fax 310-477-1078] has announced the availability of STAR/WorkSaver, an information management tool that automatically indexes the content of word processed documents for saving in "corporate memory." It is advertised as a tool for administrators "to manage the scheduled retention or destruction of word-processed documents more effectively, in accordance with legal, policy, or technical considerations."

WWW and Z39.50 Combined

VTLS [1800 Kraft Drive, Blacksburg VA 24060; 703-231-3605] has released a gateway from its OPAC to Mosaic and vice-versa that also allows the user to spawn a Z39.50 request from a WWW search if they have a VTLS Z39.50 client. In effect this overcomes some of the limitations of the fact that Mosaic is a stateless browser (which does not retain information from a prior search and cannot act on it).

Art Prices Online

Centrox Corporation [145 E. 57th St., New York, NY 10022; 212-319-4800; fax 212-319-4620] has introduced Art Price Index Online for Windows. This version of the Centrox database includes over 1 million works of art, with new input of about 2,500 a day (two-day turn around on pre-sale listings and post-sale results from about 500 auction houses worldwide). The online version includes full screen, 24-bit color images. Software is provided for free with a per minute connect charge for searches (at 9600 baud).

Digital Photography

Imaging Magazine, May 1994, reviewed Apple's new QuickTake 100 digital camera, the first to drop 24-bit color below $1000 (list price $749). They devote several pages and quite a few comparative photographs to it. But the bottom line is that this camera will do pretty well at its higher (640x480 pixel) resolution for object browsing, but not for documentation or identification purposes in museums. Considering the ease with which images can be transferred into computer accessible storage this way, the trade-offs are getting quite attractive.

National Moving Image Database Selects GENCAT

The American Film Institute has selected GENCAT from **Eloquent Systems** [25-1501 Klonsdale Ave., North Vancouver BC, C7M 2J2; 800-663-8172; 604-980-9537] to build the comprehensive database of film and video in the U.S. called the National Moving Image Database (NAMID).

Galacticomm Demonstrates 100 High-speed Lines on a Pentium

Galacticomm Inc. [4101 SW 47th Ave., Suite 101, Fort Lauderdale FL 33314; 305-583-5990; fax 305-583-7846; BBS 305-583-7808] has demonstrated how its inexpensive Major BBS Version 6.2 software can handle 100 serial communications channels locked at 19,200 bps data transfer rate using ZMODEM protocol on a single 16 MB RAM DOS-based Pentium with as little as 128K of caching on a 540 MB drive. This is like having 100 dial up 14,400 bps modems connected to a live bulletin board system and downloading files simultaneously.

STANDARDS NOTES

Minimum Information Categories for Museum Objects

CIDOC is circulating *MICMO: Minimum Information Categories for Museum Documentation* for comment and holding public discussions of it at the Washington, DC meeting in late August. MICMO is a "proposed guideline for an international standard," or so it says on the title page, but what exactly is a proposed guideline for an international standard? While this looks like a guideline for documentation it doesn't seem to be a guideline for a standard. Indeed, it doesn't seem very self-reflective at all.

For example, the background statement says that "its purpose is to identify and describe minimum categories of information necessary to identify, locate, and account for objects in museum collections," but when we open the standard we find data organized under the three headings "inventory," "physical description," and "contextual information" rather than the headings identify, locate, and account for that we would expect.

Further problems arise in the "guide to use" which states that "what MIMCO is used for" includes "an international statement of consensus of what information is required to uniquely identify, locate, and account for all types of museum objects" rather than using the term "minimum." Also "what MICMO is not used for" includes "a data structure for use in a collections documentation system," and why not?

It seems that the problem is that some members of the drafting team wanted to have all museum information fit into these categories while others were truly trying to find a minimum. The result is neither and not likely to satisfy anyone. A true minimum would be very useful to uniquely identify, locate, and account for objects, but it would definitely be expressed as mandatory fields for a database and it would have mandatory data value controls. This is something more, and therefore less. *[For copies contact Toni Petersen at the Art and Architecture Thesaurus, 62 Stratton Rd., Williamstown MA 01267; 413-458-2151; fax 413-458-3757; or Alice Grant at the Museum Documentation Association, Lincoln House, 347 Cherry Hinton Road, Cambridge UK CB1 4DH; +44-0223-242848; fax +44-0223-213575]*

The Fonds, Still

In November 1993, the National Archives of Canada, Archives and Government Records Branch, Archival Standards Implementation Office, issued version 3.2 of "Interpretation of the Concepts of Fonds, Collection, and Item in the Description of Archival Holdings: A Position Paper", compiled by Cynthia Durance. [Available from the National Archives of Canada, (395 Wellington Street, Ottawa ON K1A 0N3) in French and English, on request]. I think I will soon stop commenting on fonds because each further justification of this concept gets more confused, but I can't resist a last note.

This report grew out of a Control Evaluation Study which led in Autumn 1992 to the approval of *Rules for Archival Description (RAD)* in the National Archives of Canada. That report recommended "that the following definition of intellectual control be used throughout the department. Intellectual control consists of:

(a) *Preliminary control* which involves accessioning holdings in order to initiate intellectual access and maintain the intellectual integrity of the fonds.

(b) *Archival control* which involves arranging holdings, selecting holdings, describing them first at the fonds level, and then at the series, file, or item level, as appropriate, and producing research tools." (p. 5)

Given this utterly confused definition of what intellectual control is -- which makes it impossible to gain intellectual control before accessioning records and imagines that the focus of all intellectual control is records and not activity -- how could any exploration of the organizing principles behind such control produce an intelligible result? It doesn't.

We get in trouble almost immediately. In defining the criteria for corporate creators of records, the guideline appropriately includes, in addition to Michel Duchein's five criteria (a legal identity, an official mandate, a defined hierarchical position, a large degree of autonomy, and internal structure), Peter Scott's criteria that corporate records creators must have independent recordkeeping systems (see page 31). For individuals and families the criteria are (1) an identity, and (2) a recordkeeping system. But then they turn to tradition instead of sense in insisting that any given individual can only have one fonds; "separate careers or facets to the life of an individual would normally result in different series within that fonds." But this ignores the reality that many individuals have multiple legal identities and numerous separate recordkeeping systems. I, for example, am both a private individual and the sole proprietor of a firm and have completely distinct recordkeeping systems in each of these capacities. Only by violating the concept that records should be kept in the context of the creator's activity or functions could someone bring these records together. But the guidelines here propose that we artificially mix records from entirely discrete and legally separate recordkeeping systems -- why?

The same logical problem occurs in reverse also. The guidelines state that by fonds is meant "that part of the complete fonds which is resident in the archival repository at any particular time." Thus even if we know what records actually were produced -- and that some have been subsequently destroyed and others not yet accessioned -- we still describe only a portion of the records because this is what we have in holdings. But is holdings what a fonds is, or is the fonds really all the records that the creator produced?

I addressed the logical and practical bankruptcy of these ideas in my recent article on "Recordkeeping Systems" which I published in Archivaria specifically because I hoped it would influence the Canadian debate. Let me add only a final word - the concept of a fonds has no relevance in a world of virtual organizations and electronic records systems that reach beyond organizational boundaries. The insistence of NAC on this idea is only a prelude to a breakdown of their systems equal to that which has beset those using the record group concept since 1966.

Global Information Locator Service Proposed

Eliot Christian, the architect of the U.S. Government Information Locator Service, is circulating proposals for a global locator to the International Working Group within the IITF. Based on the same model as the GILS (final report to the IITF dated 2 May 1994) with decentralized servers running ISO 10162/10163 (ANSI Z39.50), it would be a first step towards a resource structure with more control (could it have less?) than presently available on the Internet.

In other GILS-related developments, the National Institute of Standards and Technology issued a solicitation for comment on the proposed Federal Information Processing Standard for an application profile for GILS on July 5. Comments are due within 90 days. *[To comment on either of these documents, contact Eliot Christian via Internet at echristi@isdres.er.usgs.gov]*

Electronic Messaging Study

On 1 April the Office of Management and Budget's Electronic Mail Task Force submitted its report on interagency electronic mail. It presented a vision of fully integrated services with high-level directories and a quality of service specified by the Department of Defense "business quality e-mail" requirements. It characterized government requirements and sponsored four pilot tests. It concluded that OMB should:

- *Promote the immediate use of e-mail as the preferred medium for the conduct of government business";*
- *Require agencies to implement government wide e-mail connectivity to support improved government performance;*
- *Work with the National Institute of Standards and Technology to adopt immediately the DoD Defense Message System (DMS) operational characteristics specifications as the basis for business quality government-wide e-mail*
- *Make public access must be a priority in the establishment of electronic government. Citizens must be provided with a consistent and agency independent e-mail interface to government (federal, state and local);*
- *Direct agencies to provide electronically, and regularly update, their existing internal directory information to the central directory;*
- *Provide within 90 days a 'model' e-mail policy which agencies should use in formulating policies to promote the effective and efficient use of electronic mail for the conduct of agency business" (refers to NARA proposed rules).*

The report also calls for a Program Office, an Interagency Council, and additional funding.

Open Media Framework Endorsed by IMA

The April 1994 meeting of the National Association of Broadcasters featured demonstrations of the Open Media Framework (OMF) by some of the more than 160 industry partners in the two-year-old development process. This led to endorsement of the OMF and Apple Bento container formats as underlying technologies for the Interactive Multimedia Association's Data Exchange Recommended Practice. OMF compliance is achieved using the Open Media Framework Interchange Toolkit which is available for a mere $499 with an unlimited license to the purchasing company. It includes object code, portable C source code, a reserved UID, documentation, and integration support. *[Contact OMF Developers Desk, Avid Technology, One Park West, Tewkesbury MA 01876; 800-949-6634]*

NARA Issues Draft Digital Imaging Strategies Report

In late April 1994 the National Archives circulated a draft Technical Information Paper entitled "Digital Imaging and Optical Digital Data Disk Storage Systems: Long-Term Access Strategies for Federal Agencies." Since the period for review was barely three weeks and I was out of the country, I didn't comment. Not surprisingly the draft contains no real answers. It suggests that managers select systems with open architectures (although they don't exist) and require source and object code documentation (which won't save them unacceptable costs if migration is ever required) and ultimately that data be shifted to newer generation devices on an on-going basis. It all sounds like good advice, but somehow it is given without accepting the obvious -- that the issue is a management more than a technology issue.

Archival Information Systems Architecture Working Group Throws in the Towel

With sadness, the working group established in 1992 to pursue the draft standards for information systems architecture developed by David Bearman, Richard Szary, and Thomas Weir during their terms as Bentley Library Fellows in 1991, gave up for good in June. It submitted a final report to the NHPRC that suggested the cause of failure was that the task required greater time commitment than volunteers could give. As a member of the group, one of the authors of the draft, and someone who has led the staffs of numerous organizations through these kinds of analysis efforts, I am sure that this is not the cause of the failure. The cause, very simply, is that "archivists" don't

agree about what they do and so a standard description of how they do it fails to achieve agreement. For a "profession," this is a far more damning conclusion.

Information Industry Association Fair Practices

The Information Industry Association released an update of its 1990 policy statement on privacy in the form of a comprehensive Fair Information Practices Guidelines in late February 1994. The guidelines encourage companies to:

(1) adopt and maintain written policies,

(2) protect private information,

(3) establish policies regarding personally identifiable information,

(4) attain highest practicable levels of information quality and consistency, and

(5) establish an inquiry and inspection (ombudsman) procedure.

[For copies, contact Steven Metalitz, VP and General Counsel, Information Industry Association, 555 New Jersey Ave., NW, Suite 800, Washington DC 20001; 202-639-8262; fax 202-638-4403, or send message "subscribe" to iiaipo-request@his.com to get on the Information Industry Association Information Policy Online]

RLG Completes Test of Preservation Assessment

Fifteen member institutions of the Research Libraries Group completed a field test of a preservation decision-making tool developed by the Commission on Preservation and Access Task Force on Archival Selection and concluded that the model is, at present, inadequate. The participants concluded that the survey did not gather enough specific, detailed, quantifiable information about preservation needs and could only be of use as an initial step in the assessment process for an institution with no existing preservation management program. They did however call for continued work on needs-assessment tools for archival preservation. *[Final Report of the Archival Preservation Needs Assessment Field Test, Document Supply Center, RLG, 1200 Villa St., Mountain View, CA 94041-1100 or bl.dsc@rlg.stanford.edu]*

Interleaf Free Guide to ISO 9000

Interleaf Inc. [Prospect Place, 9 Hillside Ave., Waltham MA 02154; 800-955-5323], is distributing for free *The ISO 9000 Guide*, an introduction to the "total quality management" series of standards which are having a major impact on U.S. corporations. The guide focuses on a major category of deficiencies found in companies trying to implement these standards -- inadequate document control or records management and documentation practices. Large sections of these standards emphasize traditional issues of intellectual control over records of business transactions for accountability, and the Interleaf guide helps companies understand these. It can also help archivists and records managers make their case in organizations undergoing re-engineering.

Worldwide Telephone to Modem Connections

Or so the ad said. So I answered it and **TeleAdapt Inc.** [Heritage Village, 51 East Campbell Ave., Campbell, CA 95008; 408-370-5105; fax 408-370-5110] sent me the secret to Communicating Anywhere! They are TeleDaptors -- 36! count them thirty-six, plug adaptors for foreign phones, sometimes more than one per country, which with little more that a screw driver and knowledge of telecommunications wiring, you can use to hook your modem to a foreign phone line. EuroPak, for example, consists of 18 TeleDaptors at a package price of $254.99; AmeriPak handles North and South America with only 6 at $99.99. The Ultimate Road Warrior includes all 36 plus other necessary devices for $899.00. Well, it's not the company's fault that I was hoping for some magic bullet, but telephone standards have a way to go.

NISO Standards

NISO has published *Computer Software Description* (ANSI/NISO Z39.67-1993) to describe off-the-shelf packages; *Guidelines for the Construction, Format, and Management of Monolingual Thesauri* (ANSI/NISO Z39.19-1993); the *Extended Latin Alphabet Coded Character Set for Bibliographic Use* (ANSI/NISO Z39.47-1993); the *Common Command Language for Online Interactive Information Retrieval* (ANSI/NISO Z39.59-1992); and the latest version of *Information Interchange Format* (ANSI/NISO Z39.2-1994) *[All available from NISO Fulfillment, POBox 338, Oxon Hill MD 20750-0338 or call 1-800-282-NISO]*

RLG and Standards

The Spring 1994 issue of *RLG News* describes the varieties of standards initiatives in which RLG is engaged making it clear that in some respects RLG is a standards developer for the research community, not unlike the Getty AHIP program. Among the standards featured, in addition to bibliographic ones, are Z39.50, UNICODE, and Preservation standards. They could also have discussed the Computer Interchange of Museum Information which they cosponsor with Getty AHIP and The Canadian Heritage Information Network.

Z39.50 Detailed

Information Standards Quarterly Vol. 6#2 (April 1994) pp.1-5 contains a useful portrait of Z39.50 by Clifford Lynch. While brief, it gets into much of the necessary detail while sparing the reader from technobabble.

UNIDROIT Draft

The International Institute for the Unification of Private Law (UNIDROIT) has issued a draft Convention on the International Return of Stolen or Illegally Exported Cultural Objects. The draft will serve as a basis for diplomatic meetings set to occur in mid-1995. The AAM is interested in comments

on the draft and willingness to become involved. *[Ask for Helen Wechsler, International Programs and AAM/ICOM, AAM, 1225 Eye St. NW, Washington DC 20005; 202-289-1818; fax 202-289-6578]*

Integrated MARC and Anglo-American Names

The Library of Congress has announced the publication of a new edition of *USMARC for Bibliographic Data: Including Guidelines for Content Designation*. The new edition supersedes all former editions and is the first to fully integrate the seven previous content formats. $60 *[CDS, POBox 75640, Washington DC 20013-5640; 800-255-3666]*

The Library also announced that with the addition of contributions from the British Library, the Library of Congress Name Authority File has been renamed the Anglo-American Authority File. Negotiations are underway with the National Library of Canada to expand even further.

END NOTE

Guidelines for Protecting Intellectual Property

It is now fairly clear that museums and archives wishing to protect their intellectual property rights need to take action. Eventually they will need to organize collectively to create a marketplace and mechanisms for acquisition of rights. Until then, I propose a few simple steps that will go much of the way towards providing the desired protection:

(1) Acquire rights to reproduce and transmit images of objects in any format when negotiating acquisition of those objects. If not possible, have clear terms regarding which rights are held by others, who they are held by, and the terms for application to license such rights.

(2) Establish a policy, post notices, and provide visitors with handouts explaining either that (a) photography is not permitted, or (b) that photographic images of objects taken by visitors (if allowed) may not be distributed, displayed, or copied. The best practice would be to post signs to this effect and require users wishing to take photographs to register by countersigning an agreement accepting the terms under which photography is permitted.

(3) In building an image and data repository, refer to it always as a "library" and to the information about each object (images and descriptive and/or analytic data) as a "work." Always license rights to reproduce a "work" and make it clear that this includes the image and the data associated with it as a whole. Subscriptions may be offered to access the library but never license the library itself. Do not refer to this as an imagebase, database, or knowledgebase and do not license a compilation or collection.

(4) Do not grant exclusive rights, perpetual (non-terminating) rights, or rights that are transferable. Do not grant rights to use digital images without museum-supplied minimal data or without displaying the museum copyright notice.

(5) Become involved in testing mechanisms for distribution and licensing of museum data from more than one source. Such mechanisms are essential for the market to be able to efficiently access and use museum data.

The developments that provide an underlying rationale for these steps are many.

(1) While it may be too late to protect rights except through restricting access for objects acquired in the past, we do not have to repeat this error.

(2) Restriction on the way others can obtain photographs and data from our collections is the best way to ensure that unauthorized copies do not flood the market. Adoption of such a policy even provides a small measure of protection retrospectively; it wouldn't hurt to send a "policy reminder" notice to university art history departments and general counsels' offices.

(3) Until the copyright act is modified, uses will continue to be considered "fair" if they use only a small proportion of a "work." As long as we recognize that a "work" consists of the image and data about an object in our collections, we will be saved from extensive appropriation of intellectual property under "fair" use. Protection of compilations is much less effective and the individual images and data may:

   (a) be considered a small proportion of the whole,

   (b) be seen as having limited economic impact on the value of the whole; and

   (c) be separated from each other (image and text) without regard for the 'moral rights' of the author (the museum) or the artist.

(4) Display of the copyright notice and data are in keeping with the definition of a work and the moral rights of the author. Prohibiting transfer of rights, insisting on defined time-periods for rights, and refusing exclusive rights agreements means the museum will be able to license the rights to works to others and will always know who has those rights and who doesn't.

(5) In Europe the DG III CITED project and in the U.S. the MUSE Film and Television project provide vehicles for testing rights issues with considerable advantage to participants.

CONTRIBUTORS

Glenda Acland is University Archivist and Head of Archives and Records Management Services at the University of Queensland, Australia. Her publications have covered post-custodial strategies, recordkeeping, accountability, and archival terminology. She was Reviews Editor for *Archives and Manuscripts*, 1987-1994, and guest editor of the theme May 1994 issue "Electronic Recordkeeping: Issues and Prospectives."

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

Katherine Jones-Garmil was the Data Processing Coordinator for Florida's Bureau of Historic Sites and Properties, and then joined the computer consulting company, DATABASICS, Inc., in Providence, RI, as Senior Consultant. She has consulted in the museum and government communities since 1985. Ms. Jones-Garmil is a former President of the Board of Directors and is currently the Program Director of the Museum Computer Network. She is the Documentation Manager at the Peabody Museum of Archaeology and Ethnology, Harvard University.

Marion Matters is head of technical services at the Minnesota Legislative Reference Library. Her experience encompasses practical and theoretical work with descriptive standards and automation in libraries and archives, including several years of active consulting in these areas. She has been an archivist at the Minnesota Historical Society (working primarily with state and local government records), automation program officer for the Society of American Archivists, and automation coordinator for Minnesota state agency libraries. She is also a regular instructor for the Society of American Archivists' workshops on "Understanding the US-MARC Format for Archival and Manuscripts Control" and serves as SAA liaison to the ALA Committee on Cataloging:Description and Access.

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

David A. Wallace holds a B.A. in Anthropology from the State University of New York and Binghamton and an M.L.S. from the State University of New York in Albany. From 1982-1992 he served as the Records/Database/Systems Manager at the National Security Archive in Washington, DC. While at the NSA he also acted as Series Technical Editor to their "The Making of U.S. Policy" series. He is currently pursuing doctoral studies at the School of Library and Information Science at the University of Pittsburgh.