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IN THE AETHER

Some ideas are in the air and rapidly reach realization as people everywhere seize on them and make them happen. The idea of international cooperation to construct and manage cultural heritage information systems is in the air and three very real opportunities to bring it about are before us. Will we, as a professional community, dare to take the risks it entails? Can we act now?

There is little disagreement that the future of scholarship depends on networked access to primary resource materials in multimedia formats. We all agree that to bring this information to scholars means that:

- local systems must be able to create, access and analyze this data whether it belongs to the local institution or any other institution in the world,
- that standards must be in place to support creation, access and use of such information, and
- that the resources will need to be found to enable the "re-creation" of representations of thousands of years of cultural heritage in digital form.

During the last quarter, the Research Library Group held a "Primary Sources Forum" in Washington DC in June at which participants reaffirmed the importance of these visions. The American Council of Learned Societies and the Getty Trust organized a follow-up to last years meeting on Scholarship in the Arts and Humanities at the Coalition for Networked Information meeting in November which called for a forum to carry these ideas forward. The Museum Computer Network published the Standards Framework for Computer Interchange of Museum Information and the Museum Documentation Association published the proceedings of its 1991 conference on European Museum Documentation Strategies and Standards. The Canadian government reorganized over a dozen departments into a Department of Canadian Heritage, and Peter Homulos, previously Director General of the Canadian Heritage Information Network took over as director of informatics for the new department. All these collective acts testified to the need for community action.

Yet, more than a year after developing a prototype Archives and Museum Information System (AMIS) that could serve as the technical conduit for such an international cultural heritage information system, the Research Libraries Group can't find the money to continue it or

partners willing to share in its development cost. Even though many other institutions will have to achieve this on their own if it is not done by collective undertaking, RLG cannot find development partners or foundation sponsors to contribute the \$1M required for its completion. Six months after the Museum Computer Network called for widespread industry and academic participation in a Consortium for the Computer Interchange of Museum Information, only the two original stakeholders (RLG and CHIN) have formally committed resources. Actors such as the Getty Trust, Kodak, Continuum Productions, major universities and ministries of culture throughout the world which have a vital interest in development of museum application protocols have not yet come forward. Several years after witnessing the predatory behavior of firms seeking to license rights to digital images from archives and museums have yet to take the initiative to organize Rights and Reproductions Organizations to pro-

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vide access to information and images and license rights for their communities.

These three opportunities are crying out for commitment and yet the community seems to lack the courage that big ideas require. Indeed everywhere in the cultural heritage information world large-scale initiatives are failing. The National Archives of Canada has just abandoned its overhaul of local systems, estimated at Can\$10M. The National Archives of the United States has issued an RFC for a system I estimate at \$10-15M which will probably never be contracted. The Large Systems Initiative in the UK (LASSI) has crept to the specifications stage in over three years of work; it's doubtful they will get beyond it. The EEC is abandoning its RAMA (Remote Access to Museum Archives) project after three years due to funding cut backs. The ten Free Standing Natural Sciences Museums and Botanical Gardens are not at the point of issuing any kind of joint requirement after four years of study with the Mitre Corporation. The Canadian Heritage Information Network has ceased to pretend that it will provide services to all Canadian museums and the National Museums are no longer participating. It needs a dramatic overhaul of its information systems to survive three more years. The closest thing to national archival information systems anywhere in the world is the RLIN support for MARC-AMC, and this is built on an old and outdated central model. The National Park Services in the U.S. and in Canada are both considering new systems to replace data collection exercises begun more than five years ago on isolated PC's. If these ventures were willing to spend a tenth as much each in a cooperative undertaking they could achieve success together in much less time than it will take them separately. But they won't.

The commercial vendors in the archives, museum and cultural heritage markets aren't able to provide the open solutions required by the cultural heritage community both because it is hard for them to keep up with the latest technological developments or capitalize on the potential of inter-institutional data sharing because they are all extremely small and undercapitalized and because it is not in their interests to develop non-proprietary solutions. The Internet community will develop tools such as Mosaic which enable network access to multimedia cultural resources but not the local systems, the standards of knowledge representation, the application protocols or the funds to capture digital information.

Foundations and governments have funded some work that contributes to using cultural resources, but these have been essentially technical research or publishing ventures not architectures, standards or economic mechanisms capable of transforming future access to international cultural heritage. Research efforts underway around the world on archives and museum informatics are heavily oriented to image handling and do not combine management of organizations with access to scholarly content. NARCISSE at the Louvre is interested in very high definition image capture along with the work at the Getty Conservation Institute and the National Research Council of Canada. Project Open Book at Yale and various Kodak

partnerships with Cornell and U.S.C. are all oriented towards scanning and storing document images (including visual documents) especially with an interest in preservation. The British Library R&D program has funded some studies as has the Library of Congress through its American Memory project VASARI, RAMA and the already defunct European Museum Network are/were oriented towards moving images on networks but did not provide mechanisms for enabling archives and museums to capture such data. The Text Encoding Initiative and the Getty Art Information Task Force project are interested in developing standards, but they address only a small part of the standards framework required overall.

Private sector interest in museum content will not pay for the necessary investment in information creation or management. Companies like Continuum Productions, AXS, Kodak, Visual Information Inc. etc. are making lots of noise by going to museums and offering to buy their image rights but the contracts being offered are ones under which museums are unlikely to ever get any returns. But the up front investments made by these firms have been very limited (less than \$100K in kind in all cases). Publishers are still thinking about issuing publications and not about enabling access to distributed research resources. The National Information Infrastructure is still too confused to provide any path for museums to take; very few museums yet have an Internet connection and only a handful (almost all natural science museums) are nodes.

The trend towards greater use of primary resources will continue in the scholarly community meaning that those with unique local collections will experience increasing pressure to demonstrate their stewardship and their responsible management of their holdings. Already it is clear that museums and archives have to account to a more stringent public: donors, tax officials and legislators are all determined to get the "best practices" out of every institution, placing a premium on the kind of procedural knowledge that will be built up in AMIS. Already it is clear that archives and museums need to convert representation of their holdings and documentation of them to digital form, and that to do so will cost huge sums of money which someone will very likely earn in income from distributing this information, but archives and museums haven't been able to make progress towards controlling rights and reproductions, information content and distribution vehicles for their intellectual property.

We are seriously lacking a large vision, a willingness to take big risks for potentially huge gains, and the spirit of cooperation. I hope the next few months, in which the future of AMIS, CIMI and image rights are at stake will prove me wrong and that archives and museums, their consortia and their representative associations, will indeed seize the opportunity to bring about international cooperation on these fronts. Too much is at stake to let it blow away in a wisp of smoke.

David Bearman

LETTER TO THE EDITOR

From: Bruce W. Dearstyne

I want to thank you for the notice of my new book, The Archival Enterprise: Modern Archival Principles, Practices, and Management Techniques, in the spring issue of "Informatics". I was disappointed with your note, however, because it seemed to miss or misinterpret several essential aspects of the book. This is of particular concern because it comes from someone who is so highly regarded and respected in the profession and by me.

...avoids the hard distinction between archives and libraries

It's impossible to know what you mean by that. The book has libraries and librarians as its primary audience and discusses historical records programs in library settings in Chapters 1 and 2 and throughout the book. It explains how historical records are different from books and other library materials. It has many library-based examples.

...ducks the critical methodological issues facing the profession

Chapters 3 (The Age of Archival Analysis) and 4 (The Professional Nature of Archival Work) discuss such issues in detail. Chapter 6 discusses approaches to identification and selection, including the latest methodological approaches. Chapter 11 discusses electronic records. I find it impossible to understand how anyone reading the book could feel that it "ducks" any major issues! You may not agree with my conclusions and recommendations, but that is another matter.

...in favor of a [sic] very traditional certainties of what archivists are about

Again, this is just not accurate. The Introduction and Chapters 1, 3, and 4 take just the opposite approach: they explain that traditional approaches have been questioned, changed, and modified. The book makes the point several times that the profession continues to evolve and adapt to changing needs and circumstances. The book is clear that "traditional" approaches have and will continue to change and that change is just about only "certainty" in archival work.

[Ch. 11, Electronic Records] was tacked on at the end of the book rather than where it belongs in Dearstyne's narrative

No, it wasn't "tacked on". It appears at a logical point in the book. Perhaps you know better than the author, editor, and publisher where it "belongs"? I agree that it doesn't offer anything totally new and appreciate (and agree with) the point that it is the only broad overview in print at the moment.

Nikons, Nets and the Bottom Line: Image Licensing in a Networked Environment

by Nathan H. Benn

The 1980s popularized computer hardware and software that enabled the decentralization of the commercial use of copyrighted intellectual property for education, entertainment and corporate communication. The technical revolution of the 1980's is only the prologue to the use of content as publishing, computing and telecommunications industries converge in the 1990s. The perspective offered by the author is that of a specific community of rights holders - the thousands of photographers and their agents who provide much of the visual content for the publishing industry. However, the experience and actions of the photographic community may be instructive to the owners and users of other types of content.

The democratization of publishing and communication is highly desirable; however, the limitless content appetite of the new digital technologies raises thorny issues for both the users and the rights holders of pictures. The following points highlight some of the problems that multimedia authors confront in acquiring pictures:

- **Insufficient quantity.** The need for hundreds or thousands of images for a single project, as opposed to just a few pictures required by publishers of conventional media.
- **Insufficient quality.** The limitations of commissioned pictures, clip art and public domain sources to fulfill those needs.
- **Inefficiency.** The prohibitively time-consuming process of finding the appropriate images, and the cumbersome rights clearance administration.
- **Price.** The lack of history with respect to pricing copyrighted images for electronic distribution.

In addition, photographers are deeply concerned about delivering images to a multiplicity of new users who often do not understand nor, do many want to copyright and licensing protocols. Off-the-shelf scanners with names such as "Rip-off Artist" do nothing to allay these concerns.

To understand the concerns of photographers and other rights holders requires an appreciation of the motivation for creativity. Photographers - similar to artists, composers, authors, and other creative people - are driven by a desire to solve a problem, to find an elegant solution, to show beauty and pathos, or to deliver other messages. For photographers, illustrators, or artists, the image is the only tangible expression of their efforts and creativity.

Unlike artists, professional photographers and illustrators earn most of their income by selling reproduction rights, rather than by selling tangible works of art. The royalties earned by granting resale or reproduction rights are, first, an acknowledgment and measure of appreciation for that work. Second, royalties provide the artist with income and also serve to capitalize new work.

Rights holders' concerns about digital technology and the emerging markets are part economic and part visceral. These concerns are magnified by unauthorized use in electronic media, where images can easily be scanned, transmitted, downloaded to other software, manipulated, and published. The new digital technologies pose a pressing challenge to the emerging content users and to the photographic community. Fortunately, models already exist for the acquisition of intellectual property, collection of licensing fees, and distribution of royalties in conventional and electronic media. The stock photography industry is the clearinghouse for pictures to commercial users. Some perspective on that industry, and photographers' initial reaction to digital image technologies, is valuable before suggesting how these models might be applied to picture distribution in a networked environment.

Evolution of the Stock Photography Industry

Photography or illustration specially commissioned for a production is expensive and the results are often unpredictable. Most existing photographs with commercial value are owned by individual photographers, who license their pictures through stock photography agencies. Photographers own their images because, more than twenty years ago, most publishers reduced their risk and investment in new photography by eliminating their large photographic staffs. Even venerable publishers such as Time, Inc. and the National Geographic Society, have traded away copyright ownership by using non-staff photographers on assignment, or by licensing one-time use of pictures through stock photo agencies.

Therefore, photographers have little job security and often produce new photography without any third-party economic assistance. Instead, photographers sell usage rights to their images, largely through hundreds of stock photography agencies. These agencies range in size from a few to a few hundred photographers each, and cumulatively transact about \$300 million a year in rights in North America. Although a handful are multi-million dollar enterprises, most agencies are mom-and-pop operations, and no single agency has the critical mass of pictures or capital to efficiently or realistically serve electronic markets.

Market Segments: A Few Big Spenders, And Everyone Else

Currently, the market for photographic images has three rapidly evolving segments. At the high end are approximately 10,000 serious users who regularly license photography. These users include book and magazine publishers, graphic designers, corporations, and advertising agencies. Stock photography agencies, which serve as agents for most of this market segment, license individual images for prices ranging to thousands of dollars, but averaging \$250 for editorial and \$350 for corporate customers. The license fees are usually negotiated individually, and are based on the value in use of the picture, based on such factors as application, press run, position, and

image placement, as well as the quality or rarity of the image. At the bottom of the market are an unknown number of users who do not license images from the stock industry, and may never be addressable customers. These users may find that the limited clip-art products are adequate, or willfully infringe copyright by simply using images without authorization.

However, the greatest economic opportunity, and the real battleground for market share, is to service the new users in the middle. These potential customers can neither afford the conventional license fees, nor the burdensome administrative costs associated with legally acquiring pictures. These users include specialty print publishers as well as many small producers and distributors of electronically distributed information.

It is economically imperative for image rights holders to capture the new markets as royalty generating customers. For success, the stock photography industry must make the legal acquisition of licensed pictures more satisfying to image users than using clip art or infringing copyright. It must give the customers what they want: tools to find the right pictures quickly, compelling content with depth and breadth, administrative efficiency, and value-based pricing.

1990-1993: The End Of Business As Usual

In 1990, the digital revolution started to impact photographers, their agents, and customers, both as a creative tool and as a distribution channel. By 1993, the transformation may not be complete, but a clear picture of a wholly digital image future has emerged. Recent developments have included:

Creative tools. New image manipulation software, such as Adobe's PhotoShop program, provides photographers and designers with a low-cost means of creating and enhancing pictures. These tools have swept through creative communities like wildfire, and desktop digital image enhancement is fast becoming second nature to many thousands of picture professionals. Digital image manipulation often raises thorny ethics and rights issues, which are discussed in Fred Ritchin's outstanding book, *In Our Own Image, The Coming Revolution in Photography*, published by Aperture, New York.

Industrial scanning and digital storage. The cost of high quality scanning has dropped dramatically since the late 1980's as manufacturers have introduced new tools; in addition, the cost of mass digital storage has plummeted. In 1992, Kodak introduced Photo CD disk technology, and is reported to have spent \$30 million to convince consumers that they want to view family photo albums on television sets. To date, Kodak has failed to achieve its goal of creating a large consumer market for the Photo CD. However, Photo CD is rapidly gaining acceptance in professional markets, and is poised for wide utilization in publishing and multimedia production.

Desktop scanning. In contrast to high cost industrial scanners such as the Photo CD workstation, medium quality desktop scanners are available for under \$2000. The implication for rights holders is that almost anyone can easily scan images directly off the printed page, resurrecting a publishable digital image with a few quick software commands. Controlling the original photographic film provides a negligible physical barrier against unlicensed derivative images, especially when high image quality is not essential.

CD-ROM catalogs. Replacing costly print catalogs, dozens of sources are now offering promotional image catalogs on CD-ROMs. However, the market acceptance has been slow, due to limited picture selection, unsatisfactory low image resolution, user-unfriendly search and retrieval, and insufficient access to CD-ROM drives.

Clip art disks. Clip art disks, sold at prices ranging from \$29 to a few hundred dollars, provide collections of digital images and a license for extensive, royalty-free usage. In spite of the limitations of picture selection, poor product quality, and user-unfriendliness, clip art is an attractive source of inexpensive images to some small and medium scale users. However, the content of clip art disks is largely decorative or ancillary to the substance of educational or informational products and services.

Dial-up Picture Libraries: Images To Publishers

Dial-up picture libraries have been a dream of museums, photography archivists, and picture users for some years. These digital image servers are now feasible due to advancements in image scanning, low cost storage media, fast modems, and intelligent search and retrieval. Several companies are in various stages of planning or building the new image utilities, including Kodak, Time/Warner, Bill Gates' Continuum, Knight-Ridder's PressLink, and Picture Network International, which is funded by Tribune Company.

Each of these networks aims to facilitate the acquisition of pictures by its customers, who are publishers and other commercial image users. Through these networks, the customer licenses pictures to produce a derivative work, such as a book, which is then distributed to a final group of end users. In these instances, the network is a "wholesaler" of the images because the network's customers are subsequently reselling the images as part of a derivative work.

Kodak's Picture Exchange (KPX) is marketed as an enhanced catalog, with the image licensing and fulfillment completed by traditional agent-to-customer methods. KPX helps automate only the search process, requiring the supplier and customer to conventionally manage the rights acquisition and fulfillment activities.

Picture Network International (PNI), founded by this author in 1990, will begin serving customers in early 1994 through its service, named "Seymour." Seymour will connect dial-up customers to a centralized server containing

hundreds of thousands pictures from diverse sources. The customer will navigate through Seymour's library using intelligent software. After selecting the image, the user can price the picture for specific usage, as well as order delivery of a high resolution digital image suitable for most publishing applications.

Television Broadcast Networks: Images To End Users

Television broadcasters have been distributing copyrighted video images on electronic networks for almost fifty years. With the proliferation of home recording VCR's, there is no physical barrier to widespread videotaping. The law courts have even blessed the home videotaping of copyrighted programming for personal use as a perfectly legal act. The fact that video rights holders and the courts have little chance of physically preventing home videotaping, whether legal or illegal, is a probable factor in the legalization of home videotaping.

Under these conditions of technical and legal permissiveness, should programmers be concerned that the viewers will repackage their broadcasts and resell them under a competing label? Should producers worry that hackers will paste Mr. Ed's head on David Brinkley's body? To the contrary, television programmers and other video rights holders go to great efforts encouraging the widespread electronic distribution of their valuable intellectual property.

The packaging, pricing and promotion of networked television broadcasts as entertainment and information increases the comfort level for the participating rights holders. CBS does not encourage its broadcast audience to make videotapes of the David Letterman Show for use in corporate communications. The general television audience - a group of end users - views the programming for personal entertainment or education, not for redistribution or other manipulation of the content. Television therefore is a "retail" distributor of the intellectual property encapsulated in the broadcast.

Pricing Images On The Networks: Wholesale Or Retail?

Television networks have predictable end user audiences; therefore, the economic value of the content in broadcast television is relatively easy to determine. In contrast, an attribute of the dial-up picture libraries is that the rights holders and the network operators are unable to predict the usage of the images until they are selected and licensed by the customers. When licensing images to dial-up picture libraries, photographers and museums can capture more of the economic value that will be earned by the image if they do not sell rights for a one-time payment but, rather, earn royalties whenever the image is licensed.

The 'wholesale' attributes of a dial-up network library, and the 'retail' attributes of a consumer network, lead to economic conflict when the wholesale and retail functions are not isolated, one from the other. Operators of consumer networks, whether television programmers or information networks such as CompuServe and America

On-line, have an incentive to pay as little as possible to content providers. Intellectual property on a consumer network is the raw material of programming; obviously a cheaper supply of raw material leads to greater profits for the network's owners.

On the other hand, content providers and dial-up network libraries may use commission structures, thereby creating the same economic incentives for both parties when pictures are licensed 'wholesale' to commercial customers. If the dial-up network operator earns a portion of the royalties returned to the rights holders, both parties benefit from increasing the markets and maximizing the valuation of the content. Furthermore, network libraries that collectively represent many content suppliers will have a greater critical mass than independent content suppliers. Sufficient critical mass is required to grapple with the complexities of licensing, negotiate favorable terms with the content users, and seek enforcement actions against willful infringers.

The Bottom Line In A Networked Environment

As technologies facilitate the editing, layout, and production activities integral to the creation of information and entertainment, the value added by the publisher will increasingly be in the area of product marketing and distribution to the customer. The value of images and other component content will increase, relative to current industry practice. Appropriate pricing structures for content need to be developed as the value shifts between content owners, packagers, and distributors.

Images have traditionally been licensed one-by-one for specific print products, and photography is a new arrival to the challenges of licensing content which is distributed electronically. However, looking to the example set by the music and cable television industries certainly provides instructive models for the photographic industry to consider.

The music industry collectives, ASCAP and BMI, license the performance of music to radio stations as a subscription service, based on the value of the music component to the station's broadcast. The music collectives also license content to nightclubs, restaurants, stores and other venues where music is considered to contribute commercial value. The music is licensed as a service, not as a product. Factors affecting the annual licensing fee for radio stations include the number of listeners, and the station's revenue. Factors not affecting the annual licensing fee include the radio station's musical preferences and the listener's habits.

The annual "blanket license" entitles the station to broadcast the entire ASCAP and/or BMI inventory of music. A single payment is made to ASCAP and/or BMI, and the net revenues are distributed to the music rights holders based on proportional usage, as determined by a statistical survey. Through the music clearinghouses, radio stations acquire performance rights to copyrighted

music, and royalties are collected and distributed efficiently.

The cable television industry provides another useful analog for licensing content on electronic networks. Television programmers syndicate their content through voluntary negotiations to the cable operators. The programming could either be priced and packaged for distribution to every subscriber of the cable system, or only to selected tiers for premium programming, such as Showtime, HBO, or the Disney Channel. Royalties are collected by the cable operators as part of the monthly service fee from each cable subscriber, and efficiently and equitably distributed to the programmers. Recent regulations in the cable television industry are intended to equalize some of the disparity between large and small operators when licensing content. However, most cable operators have a monopoly in their service areas, and free market pricing is more effective in competitive markets.

The radio stations' listeners and the cable operators' subscribers are limited to narrowly defined private use of the licensed content. The consumers are not entitled to re-publish or perform the content, nor use the content for any commercial purpose. Such incremental uses of the content in commercial applications require that a new license be acquired from the rights holders.

Conclusion

Music industry collectives were formed to track the many uses of copyrighted work, which, individually, held small value. In addition, these organizations serve to collect and distribute royalties for the work on behalf of a large number of rights holders. In ways similar to music, it is difficult to assess in advance, and prohibitively expensive to track, individual units of multimedia content that are performed, broadcast, or electronically copied.

The speed and access provided by electronic networks may argue for a new model of licensing by individual rights holders, which would eliminate the drawbacks collectives can present in representing the group over the individual. In reality, the complexity of negotiating multiple or myriad rights, securing licenses, and collecting fees for multimedia makes the direct participation of intellectual property creators (who are notably loath to spend time on business areas drawing them away from their creative work) less likely than it is currently. In the networked environment, the public requires efficient and value-priced access to quality, diverse intellectual property. Rights holders require fair compensation for the reproduction and performance of their content. By providing subscription or streamlined transaction licenses on behalf of many rights holders, intellectual property servers, such as Picture Network International, will benefit both suppliers and users of content in the networked environment.

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Multi-Level Description

by David Bearman

The holdings of archives and museums consist of collections, often organized in meaningful ways before their acquisition by the act of their creation, discovery or prior collecting. Items in collections derive much of their significance from this context and themselves often consist of parts which take meaning from their relation to the item. The documentation practices of archives and museums are, for this reason, often called "multi-level" description, where "level" refers to the level of aggregation of physical items in collectivities.

In translating the concept of multi-level description into information systems designs however, we often stumble into some serious errors. Specifically, we risk confusion between "levels" (part:whole) which exist in reality, "levels" created in representations of reality, and "levels" displayed and linked by the way information systems process our representation of reality. I hope I can sort out some of these issues here and that this will contribute to resolving some fundamental documentation problems.

To make progress in our clarification we need to understand two concepts: inheritance of physical characteristics and associational inheritance. Inheritance of physical characteristics refers one item taking on the value of the material attribute of another, as for example, when the porcelain tea cup is part of a porcelain tea set. Here the physical property of being composed of porcelain is a direct consequence of the relationship of the whole to the part. This case of inheritance illustrates what is called "downward inheritance" in which the attributes of the "higher" level item are inherited by its components. Inheritance can also work the opposite way. For example, the weight of the entire tea set is inherited from the weight of each of its parts. Inheritance of physical characteristics operates as a very strong link and it can go either up or down depending on the attribute.

Associational inheritance refers to two items taking the same attribute from an external entity because of their participation in a common historical act in conjunction with that entity. Thus we tend to assume that the tea cup and the tea pot were thrown by one potter in a single creative act and assign them the property of having been created on the date attributed to the creation of the set as a whole. It might seem that the tea cup inherited from the tea set the property of being created on that date, but in fact it acquired this property by our association of them with this historical event. Failure to distinguish this link from inheritance of physical characteristics causes many of the problems we see in archives and museum information systems. Associational inheritance often appears to function similarly to inheritance, but it is actually a quite weak link.

The source of the difference between strong and weak links is physical reality. Some relationships between things are physical part:whole relationships. A room is part of a house and a county is part of a state. Physical parts and wholes have very useful reciprocal relationships; some things which are characteristic of the whole pertain to all of its parts and some attributes of the parts can be collectively applied or added together and are true of the whole.

To illustrate how physical relationships are very strong and associational ones are weak, consider a bundle of parchment letters. The number of letters in the bundle will always inherit up from the individual letters and no matter what we do with the bundle, including adding to it or subtracting from it, this relationship will persist. The entire bundle is parchment and all the letters within it will be parchment and will remain so, again regardless of what we do. But ownership, which is an associational relation, is much more complex. The owner of the bundle can be said to own each letter in it, at this time, but ownership of individual items or the whole can be transferred while letters remain in the bundle, new letters added to the bundle will not take on this attribute, and letters separated from the bundle will not necessarily retain this attribute.

It is important that we understand in designing our information systems that not all relationships between large things and smaller things are a physical part and whole relationships. The chair may be inside the room but it is not part of the room or the house but rather an association created at an historical time. Reciprocity does not pertain to relationships which are not physically part to whole; physical and associational properties will not always inherit: so the blue chair does not make the house blue and the chair need not be owned by the owner of the house in the way that the room must.

Most of the relationships documented by archivists and museum curators are not part:whole relationships. While a number of things in the possession of an archive or museum may have no meaningful relationships other than being acquired at the same time and from the same source, they are considered parts of a "lot" or "accession". In archives and museum practice, such "lots" and "accessions" are often treated as if they were a physical whole. This does not always work very well because except for the inheritance of an accessioning action and its attributes, there are no necessary characteristics of the items in a lot that are inherited.

Beyond accessions, the relationship between things that were used at the same time, by the same people, or in the same way is definitely not a physical part:whole relation. While the relation between items created by the same agent is often seen as a logical or conceptual whole, called an "oeuvre" by art historians, a "fond" by archivists or a "product line" by business historians, its properties are that of an associational relation not of inheritance. Even the simplest of associations, such as the property of being part of a tea set implying creation at the same time, or with all the same artists involved, do not carry strong links. Some of the cups might have been created at

another time and other artists may have painted the glazes. Archivists are very familiar with the case of the same record system being associated with different organizational entities over time.

In addition, a variety of intellectual perspective can define numerous different conceptual wholes of which our objects are parts, but these objects may simultaneously each be parts of more than one discrete logical whole when they cannot be parts of more than one discrete physical whole. These relationships, of sharing attributes or properties, are classificatory relations. The things being classified by classificatory relations do not acquire inheritability although the concepts used in their classification may have semantic relations that are hierarchical. An organization has divisions, offices, teams, and individual employees in a person has arms, legs and torso.

In describing "facets" or intellectual perspectives on objects in their custody archivists and museum documentalists can now turn to the Art and Architecture Thesaurus for appropriate language to represent material, technique, function, form, style, and other properties. But when we classify something as "belonging" to a style or form we are not only not defining an inheritance relationship. Not surprisingly, if we try to use a single knowledge representation method and information system linking algorithm to represent linguistic and physical relationships in our knowledge structures, we risk creating anomalies.

But this is exactly what archivists and museum curators are in danger of doing when they engage in "multi-level" description of things which are not physical part-whole relations. We could, for example, say that all the things in department X are a whole, and each creator of objects "in" department x is a part, and each storage bin is a part of what was created by a creator, and each item in that bin is a part of that part but the result produces incorrect and useless information when this representation is operated on in the way we operate on part/whole relations. Storage bins are part of storage units not creators and creators are parts of a society in which they lived not of departments.

Often archivists and museum curators have represented such apples and kangaroos as parts and wholes because of the limitations of paper record keeping systems. Accession numbers are routinely assigned in museums to mix information about acquisition with information about physical parts and wholes; the classical structure Year of Accession - Accessioning Action Sequence Number - Item number mixes three concepts with totally independent referents. Similarly, archival inventories list files within boxes under totally independent concepts such as periods of a person's life or office subject file categories.

Because of the power of automation we no longer need to be as crude in the representation of different kinds of relationships as we were when we were limited by manual systems. In our designs, we need to correctly identify each type of relation and define appropriate functionality to each.

CONFERENCES

MUSEUMS AND INTERACTIVE MULTIMEDIA

The Second International Conference on Hypermedia and Interactivity in Museums (ICHIM '93) was held in Cambridge England September 22-24. Like the first ICHIM conference, which was held in Pittsburgh in 1991, this meeting was organized by Archives & Museum Informatics in conjunction with the Museum Documentation Association. Over 300 registrants from more than thirty countries attended the three day meeting, with the majority also participating in two days of pre-conference workshops on September 20-21.

The workshop program was a tremendous success; all were oversubscribed by pre-registrants, much to the disappointment of some late registrants. On the first day attendees could choose between two full-day and two half day workshops covering basics. The full days included Introduction to Multimedia organized by Signe Hoffos (Multimedia Ventures, UK) and a hands-on practicum entitled Design to Production run by David Clark (i-Media, UK). The half day sessions included Image Capture and Storage by Alan Newman (Art Institute of Chicago, USA) and Project Management by Phil Smith (New Media, UK).

The participants in David Clark's almost unimaginable soup to nuts, real time multimedia development process, were frantically running around in St. Catherine's college shooting video and capturing sound after a morning of planning their multimedia history of the College. By evening they were able to reflect on the joys and frustrations of the experience which included learning how not to do it for real. Most agreed, especially after a few days reflection, that it was a great experience, even if it violated nearly every rule of planning and designing a multimedia production.

I attended the Introduction to Multimedia Workshop because it is a topic I often teach and I was interested in how Signe Hoffos would conduct it. The day was structured so that Signe's lectures (slides presented using Aldus Persuasion) alternated with lectures and demonstrations by Robin Sewell (Cambridge Multimedia), Julian Harrup (North of England Open Air Museum), Nigel Rea (Cambridge Multimedia) and Tony Blake (Cambridge Multimedia). The concept of alternating lecture with demonstration and varying speaking styles was a good one but it didn't work because the staff of Cambridge Multimedia had not adequately prepared. Hoffos' presentations, on the other hand, were marvelously clear and direct and met the audience at precisely the correct level.

On the second day of workshops ICHIM attendees had the choice of an all day session on Imagebases by Howard Besser (Canadian Centre for Architecture) or four half day workshops: Museum Applications and Museum Evaluation conducted by Roberta Binder (Behind the Scenes, USA) and Designing On-Line Publications and

Hypermedia Authoring Systems by Paul Kahn (Dynamic Diagrams, USA). Kahn's workshops received rave reviews from the advanced software developers. I dropped in on the last hour of the Evaluating Multimedia workshop which had been developing criteria for evaluation and applying them to actual museum products and found the discussion quite valuable. Most of my day was spent at Howard Besser's workshop which raised important issues in the architecture of imagebases and their implementation, including standards and user interfaces while presenting a huge quantity of very basic information about capture, storage and retrieval. The immense amount of detailed information being communicated often left the audience somewhat dazed but those with a bit of background made good use of the occasion to fill in areas of weakness.

By the time the conference proper opened at the Babage Theatre Lecture Hall on Wednesday morning, most participants had met during the two days of workshops or at the delightful reception held in the grand hall of Kings College Cambridge the previous evening. Registrants received copies of the 436 page conference proceedings (available from Archives & Museum Informatics for \$50 plus shipping) as they entered the opening session. There the conference was opened by Wendy Sudbury, Executive of the Museum Documentation Association (the hosts and co-organizers), and Peter Wilson Chairman of the MDA who introduced Franco Mastroddi from DGXIII of the European Economic Community (EEC).

Mastroddi, speaking on the "Impact of Interactive Multimedia on Museums: A European Community Perspective", opened by asserting that the notion of using interactive electronic media within museums has been transformed from dream to reality in the past decade. In support of this premise, Mastroddi cited the Beaubourg Centre test of an image bank for the exchange of 150,000 images and the project of the Archivio General de Indias which has an image base of 9 million pages of historical documents accessed by 3000 visitors a week. He then asked what role interactive multimedia would play in overall information markets in the future, what areas of museum work this might serve, and what role the EEC would like to play. Trends in multimedia publishing show great gains from year to year in value of electronic publishing products and numbers of titles, awareness of the market and varieties of platforms supporting multimedia. Mastroddi saw JPEG and MHEG as important standards developments and noted that other technological requirements such as clock speeds and broadband ISDN services are being satisfied. The absence of a consumer market, the absence of European systems integrators, costs and unresolved legal issues especially regarding copyright, were still perceived as barriers. Nevertheless, Mastroddi saw strong reasons for optimism in the range of museum applications that could benefit from interactive multimedia. Specifically, he cited applications in managing collections, educational outreach, publication, exhibition, and research and noted the potential commercial value of museums as testbeds for public interfaces to multimedia,

compilers of encyclopedic works, and sources of information about the value of collectibles.

In 1992 the EEC received over three hundred proposals to participate in its IMPACT program. Fifty-two projects were given funding for an initial six month "definition" phase; of these seventeen were selected for further financing for prototyping. Many of these optical publishing projects were of direct interest to museums or involved museum partners along with traditional and electronic publishers including:

- the Museum of London project to develop a CD-I with historical tours of London
- the Videomuseum Association reference collection on modern and contemporary fine arts
- a project on early Flemish art
- a history of modern Europe
- a project to create an image bank on European cathedrals
- a folk culture library and sound archive.

Mastroddi used the ICHIM conference to make the first public announcement that the Museum of London, the Videomuseum Association, the Genesis of European Art, and Europe Live, the modern history program, had been awarded full implementation grants. Because representatives of these and of the unsuccessful projects were present in the audience, the announcement caused a bit of a stir! He called attention to several other EEC programs including ESPRIT which is conducting information technology research into video coding algorithms, high level application program interfaces (API's), authors workbench tools and point of service techniques; the RACE program which is conducting telecommunications research on interactive TV, multimedia distributed database access, open architectures for image communications, compression and decompression techniques and the RAMA (remote access to museum archives) project. Details of these and many other projects are available in the CORDIS database on the ECHO host in Luxembourg on the Internet or at tel.# (+352) 34.98.12.40.

Following the opening keynote, I chaired a plenary session introducing the themes, Applications, Technologies and Impacts, under which concurrent sessions throughout the 1993 program were organized. The papers presented by Xavier Perrot (Universite Paris VIII, France), Jim Hemsley (Bramour Information Technology, UK), and Kent Lydecker (Metropolitan Museum of Art, USA) set the tone for much of the remainder of the meeting by acknowledging that we are in the early phases of using these technologies, and don't yet have very great results to report. Each argued that we are struggling to find appropriate uses, adequate technologies and meaningful new roles. Because these papers, along with other papers presented throughout the next three days, are published in the conference proceedings, I will confine my report here to comments on particularly interesting or provocative ideas and to exhibits and museum demonstrations and panel discussions which are not reflected in the formal proceedings rather than trying to summarize over sixty presentations by authors from twenty countries.

Xavier Perrot emphasized that if we are to have true interactivity, not only the machine but the content must be interactive. Jim Hemsley suggested a new design paradigm in which users would be the drivers, noting that the best and most workable design ideas come from users. Kent Lydecker suggested that interactive multimedia had the potential to shape the whole concept of a museum in the way that museums have traditionally been shaped by their collections and imagined new job descriptions, new relations to society, and even new multimedia objects in collections. Each called for more examination, greater realism, tougher criticism of our own products, and learning from what we've done well.

In the three days that followed the most important contributions I heard all aimed at giving data objects (free text, structured text, audio, still and moving image) a longer life. Some dealt with standards for capture, some with knowledge representation and some with developing multimedia or hypermedia products using structured design methodologies. The rationale behind all these efforts was illustrated for me by a project to build a digital archive of the life and times of Candido Portinari (1903-1962), a major Brazilian painter. The project, directed by the mathematician Joao Portinari, son of the artist, has been underway for fourteen years. Most of this time the many-person staff has been locating and cataloging works of art, archival materials, publications on and about Portinari, and photographs, tape recordings and motion pictures. In addition they have been interviewing people who knew and worked with Portinari for what will, eventually be a digital archive. The project is using HDM (Hypermedia Design Methodology) for the front end design process since the important resource (and most expensive to create) is the raw data objects. Therefore they want easily modifiable and re-designable code in the front-end.

The same rationale lay behind a more technical presentation of HDM by Franca Garzotta (Polytechnic Institute of Milan) and an explication of its use in the Gold of Greece project by Costis Dallas (Benaki Museum) and Franca Garzotta. Costis Dallas pointed out the long term benefits to museums of being able to use information from a number of sources and to apply design templates developed for one application to another. Using HDM the links between data objects can be made consistent, extensible and robust while if links need to be individually authored they will tend to be inconsistent, fragile and expensive to maintain or extend. HDM based design involves three phases: authoring in the large (structural and navigational issues involving definitions of schema's and semantics), authoring in the small (populating link types) and visual design. Essentially the task is to determine user perspectives and make structural connections between data objects based on the entities. In HDM the means by which the user navigates the data are essentially defined by mapping the HDM schema against a relational database producing object oriented classes with typed relations.

I found the compelling arguments advanced by Garzotta and Dallas the most exciting part of the whole ICHIM

meeting and was fascinated to hear Oreste Signore of the Consiglio Nazionale delle Ricerche in Pisa present similar conclusions from a different starting point. Signore and his co-authors presented "A Hypertext for an Interactive Visit to a Science and Technology Museum" in which they addressed, in passing, almost every critical design issue unresolved in the literature on hypermedia. The most important work they presented involved a taxonomy of link types which related directly to authoring strategies which avoid hard-coding of the implemented links. A version of their paper is published in the proceedings and more detail on the work is available from the author by e-mail: oreste@vm.cnuce.cnr.it

Many attendees had brought with them works from museums that they wanted to display and discuss. After the commercial exhibits closed on Thursday evening the exhibit hall was devoted to "museum demonstrations" for the day on Friday. Demonstrations, scheduled in two time slots, included:

- Benaki Museum (Greece)
- Bible Lands Museum (Israel)
- British Golf Museum (UK)
- Canadian Centre for Architecture (CA)
- Canadian Heritage Information Network (CA)
- Carnegie Mellon University (USA)
- Early Medieval Spain (SP)
- Euritis
- European Museums Network
- The Exploratorium (USA)
- Getty Art History Information Program (USA)
- International Visual Arts Information Network (UK)
- Ipertere, Florence (IT)
- Liverpool Museum (UK)
- Malmo Museum (Sweden)
- Massachusetts Institute of Technology (USA)
- Minneapolis Institute of Arts (USA)
- Mitsubishi Research Laboratories (JA)
- Musee de la Civilisation, Quebec (CA)
- Musee de Louvain la Neuve (Belgium)
- Museo d'Amparo (Mexico)
- Museum Documentation Centre, Zagreb (Croatia)
- Museum of London (UK)
- National Gallery of Art, Washington (USA)
- National Museum of Denmark (Denmark)
- Pushkin Art Museum (Russia)
- Russian Museum (Russia)
- University of Ottawa (CA)
- Windee, the National Museums of Scotland (Scotland)
- York Archaeological Trust (UK)

The closing session of the conference was a panel discussion among members of the organizing committee chaired by Andrew Roberts. Discussants included John Burnett (National Museums of Scotland), Michael Ester (Luna Imaging, USA), Jostein Hauge (University of Bergen, Norway), Peter Homulos (Canadian Heritage Information Network) and myself. Andrew Roberts opened the session expressing hope that the discussion would bring together many themes introduced at concurrent sessions during the week and that if the discussion defined

the state of the current art, the progress of the profession on these issues could be examined in the 1995 meeting.

He suggested seven questions for discussion:

- * How to integrate interactive multimedia into core activities of the museum?
- * How to strike a balance between technology and content?
- * How to understand users well enough to succeed?
- * How to transfer research results from academia and education into our work?
- * How to disseminate the work we do?
- * How to identify and exploit appropriate standards?
- * How to continue to communicate among ourselves?

With respect to integrating multimedia into museums, panelists agreed with Michael Ester that it was time to stop talking about multimedia and talk about museum applications. Only in this way could curators and museum directors become interested. It was noted that we need to recognize what is best and make sure it is seen because most museum staff haven't seen good multimedia and there is no critical review literature to promote good examples.

Everyone agreed that the cost of multimedia is gathering content and therefore it is critical to view data as a long term asset. Other players in this field are desperately interested in museum content, and not simply the raw images but the enhanced, interpreted, identified museum artifact record. Strategic investments require planning and may require up front commitment to standards, but that senior management and major figures in humanities scholarship still don't appreciate the cost of documentation or the value added by primary materials as intellectual resources. It was suggested that perhaps a conference on Preferred Futures for Museums, bringing together leaders and visionaries, is needed.

It was generally admitted that we don't know our audience well and lack a field of museum pedagogy or a model of the cognitive processes of museum visitors and researchers. The diversity of our audience was seen as one problem in this respect, but even more it was felt that in the area of interactive multimedia, the user would continue to be a moving target for many years as broader society learns what it wants from this new mode of communication.

Taking advantage of what is known outside of museums was considered an important role for the museum organizations to play - whether CHIN, the MDA or ICHIM itself. One theme that the panel returned to was that this research was likely to be in very traditional areas of information science, such as information retrieval, storage and transfer. While it was agreed that the results of technology assessments need to be shared more widely, the theme of Internet access kept recurring, suggesting to some of us that forecasts (which all missed this critical factor a few years ago), might not be as important as simply keeping our tentacles out.

It was remarked that we have so many publics that dissemination is a very difficult problem. Of course, the absence of a mass market makes dissemination problematic, but schools were thought to be ripe for museum multimedia distribution and museums themselves were considered an important market. While it was agreed that the advent of high definition television will dramatically change the picture and that social institutions, whether museums or video rental stores, can't just wait around to see what happens. The ultimate lesson seemed to be that distribution methods and channels would change and that these resources will have to be developed in such a way as to be independent of their delivery platforms.

This, of course, led to a discussion of standards. Standards were considered critical by all the panelists in order to ensure the longevity of the information with which museums are entrusted and make possible the presentation of multiple experiences from the same raw materials. I presented the work of the Committee on Computer Interchange of Museum Information to update the audience on the status of standards developments for the museum community, and invited attendees to become participants in the newly announced Consortium for CIMI.

The conference concluded with a summary by Andrew Roberts of the issues raised in the panel.

The 1995 ICHIM Conference will be held in San Diego California, October 9-13 at the historic Hotel Del Coronado. The call-for-papers was distributed at the ICHIM'93 conference and is available from Archives & Museum Informatics.

SOCIETY OF AMERICAN ARCHIVISTS

Labor Day week and weekend the Society of American Archivists (SAA) came to New Orleans. The conference began for me with the day long meeting of the Committee on Automated Records and Techniques (CART) which took three actions that I thought were significant. First, it recommended to SAA Council that its' own charge be modified to focus solely on automated or electronic records and that "techniques" be assigned to a different group. This reflects the reality that over the past five years the emphasis of the group has turned towards electronic records and that few of its members are involved in software application development or evaluation any longer as well as the importance attributed by SAA to electronic records in its current strategic plans.

CART also met with the Committee on Archival Information Exchange (CAIE) for a free wheeling discussion of the implications of metadata management for archival documentation (and traditional description practices). It established a joint working group on metadata and archival description which I agreed to convene as an electronic forum on the listserv of the Electronic Records Roundtable. Other Joint Working Group members are Terry Cook (NAC), Peter Hirtle (NARA), Nancy McGovern (NARA), Tom Ruller (NYSARA), Marion Mat-

ters (Consultant), and Lisa Weber (NHPRC). Because the discussions will take place on a public listserv, others may participate in the forum which we hope will conclude with recommendations to CART and CAIE in the spring of 1994 [To subscribe to listserv, contact Tom Ruller, New York State Archives and Records Administration, (518) 474-6771].

Finally, the CART participants discussed the guidelines for archival graduate education proposed by the Committee on Education and Professional Development (CEPD). While members were extremely supportive of the move towards more formal education for archivists, they expressed concern that the proposed curriculum contained too little focus of general management skills, systems analysis, organization theory and other areas of study critical to training of information managers. This reflected the consensus at the CART meeting that the future of archives is as an information management focus within mid-level management, with special relevance to auditors, legal counsel and senior management who are concerned with organizational accountability. I was asked to, and did, present these views at a public forum held by the CEPD later in the meeting.

The meeting proper began on Thursday with the usual banquet of 6-8 concurrent sessions. I was particularly intrigued by the concept of "seminars" within the general program and attended two of them: one devoted to the concept of multi-level description and one on archival authority control. The first was led by Margaret Byrne of the National Moving Image Database and Sharon Thibodeau of the National Archives and Records Administration who also serves as the U.S. representative to the ICA Ad Hoc Commission on Descriptive Standards. The stated purpose of the seminar was "to provide an opportunity for experienced archivists actively engaged in multilevel description to analyze examples of their work" but the attendees, despite a pre-registration requirement, were relatively unprepared. Discussion didn't sort out the difference between the knowledge representation, physical data structure, and presentation issues. What was clear was that archivists want to see descriptions of items within the context of files and files within series, and some want series within fonds/record group or recordkeeping system as well as linked to organizational or personal creator authority records. What was less clear was what processing and knowledge representation issues this raised. Downward inheritance was generally envisioned to be simply a view and upward inheritance was scarcely imagined. Explicit levels were assumed by some while others made an equally unconsidered assumption of implicit or relative levels. At the end of the session the only thing which I felt emerged was the need for rigor.

The seminar on archival authority control led by Kathleen Roe and Jim Bower prepared background materials based on a study they, Rich Szary and Marion Matters conducted while at the University of Michigan on Bentley Fellowships this summer. The idea of the seminar was "for experienced archivists interested in authority control to engage in focused discussion . . . of alternatives for im-

provements in archival authority control". Although the group didn't reach any conclusions the discussion around various possible authority fields and approaches was lively.

I was able to attend more traditional papers sessions devoted to electronic records issues at virtually every time slot in the program. The first session, on *Users and Uses of Electronic Records* promised more than it delivered. Barbara Teague tantalized me by mentioning the statewide availability of metadata on current recordkeeping systems only to discuss the use in Kentucky of RLIN MARC-AMC, about which she had very little data. Carolyn Geda noted that the Inter-University Consortium for Social and Political Research which was founded in 1964 doesn't provide direct access to end-users because it provides tapes to its member institutions who then make the data available to end users. As a consequence, they cannot say anything about users or use. Peggy Adams showed graphs of the trivial amount of use made of NARA Center for Electronic Records data (136 orders last year including those within the government for copies of agency tapes being returned to agencies!). She then reported on one very problematic use by a researcher of data on WWII Japanese-American internees as an example of how the data could be useful. What it told me is that NARA doesn't respect the Privacy Act and that researchers wanting access to simple information, in this case the names of internees who described themselves as artists, have to purchase numerous tapes, mount them on mainframe computers, and use in-house programming support to get the data. When end-users need access to electronic records, we certainly don't have good tools for them to use, know what they want, or try to provide the information in a useful format. Users are a persistent, and not surprisingly tiny, community.

In the afternoon, I attended a session chaired by Marion Matters in which papers reported on the experiences of three archivists who were not involved in its development with the Archival Information Systems Architecture developed out of work Rich Szary, Ted Weir and I did several years ago. The first speaker, Rob Spindler of Arizona State University Library noted the novelty of the terminology we employed but did find the logical model of value in assessing the weakness of an in-house developed accessions database. Using the model he was able to think about issues in the redesign of that system which otherwise would not have been obvious to him. Terry Ellis of Utah State Archives did not understand the difference between a logical model and a linear sequence of events and found the difference between the order of presentation in the model and that in her situation difficult. In addition, since Utah didn't perform all the activities in the model, she found it hard to understand their presence in the generic presentation. Dave Klassen of the University of Minnesota was using the model to design a software package called Enlighten. His concern was with where the software functionality needed to draw the line. On the whole I found it refreshing to see people trying to test a logical model by relating it to local requirements.

The Archival Challenges of Electronic Mail was advertised as a briefing by Tom Brown of NARA. The session was attended by about one hundred people who heard what I considered to be the least well thought out approach to management of electronic mail that I have had to listen to for several years. Tom's position (which was neither presented as NARA's nor rejected by NARA staff including Ken Thibideau who were present) was that whether electronic mail is a record is dependent on its content, not on the traditional and legally mandated criteria of its being "made or received in the course of business" and "preserved or appropriate for preservation". As a consequence he spent his time thinking about how to determine whether the content was valuable by such imaginative proxies as variants on the fat file theory (is the record long) and on the importance of activities near the top of an organization. In the process he misinterpreted the concept of business transactions, evidence, recordness, and the strategies associated with satisfying functional requirements for recordkeeping which I and other archivists have been advancing for several years. I wish archivists would take NARA's utter failure to address these issues, even under court order now reinforced by the standing order of the US Appeals Court in *Armstrong v. EOP*, seriously.

Friday I attended a session on *Visual Images and Digital Technology* at which Tom Hickerson discussed the projects undertaken by Cornell and the University of Southern California in conjunction with Kodak that have been presented at other conferences this year and I have written up elsewhere. John Waiblinger of USC discussed the delivery of images, freetext and library data throughout the campus without intermediaries. The key potential faculty users were identified and involved in the project from the start and their requirements, such as the ability of users to annotate records, were incorporated into system designs. Most important they find the convenience of being able to browse images and the ability to select a type of display (involving choice of different depths of summary) for each session is highly desirable. At present they can acquire images from the slide library and photo cd's or public domain images from other sources. Eventually the project hopes to make images from local and remote imagebases on UNIX hosts available to clients under X windows anywhere on the campus.

Donna Romer, representing Kodak Picture Exchange (KPE), gave the most complete description of this new stock photography server which I have heard to date. It made it pretty clear to me that KPE is not for archives and museums, however nice it might be for advertising executives and magazine publishers. The search criteria one can use to locate images are geared to the needs of those user markets, including source of light, color dominance in image, location of blank space, framing, repetition, reflection, lines and specific image content such as names of things or people, while the interests of museums and archives are in sophisticated conceptual searches and provenance. While Romer suggested that the image base of the future might accommodate machine vision, semantic networks, pattern recognition and even time-based

data, the commercial service of the present, at least in this manifestation, is of no more interest to archivists than its predecessor, the stock photo agency, was in the past.

I missed the first part of *Automating the Descriptive Process*, but did hear Dan Pitti report on the University of California (Berkeley) project to define the Document Type Definition (DTD) of a "finding aid" using SGML. This far thinking and ambitious project assumes that a "finding aid" is a genre of literature with distinct rules in its construction and that by collecting many finding aids, and identifying the structural commonalities, the project can identify intellectually significant features to "mark-up" using SGML. If they can, the interchange of finding aids between heterogeneous information systems becomes possible without having to stretch the MARC AMC format which was designed in a general way to do this task but hasn't been implemented in multilevel descriptive systems in such a way as to make it real. The CIMI project envisioned just such uses of SGML and I was an early supporter of the effort. If Dan Pitti can keep himself from claiming more for SGML than it is capable of, the project is likely to succeed and we will have a new interchange mechanism that will bridge the differences between MARC AMC and MAD. What we need to remember is that SGML doesn't make knowledge representation any less of an intellectual problem, facilitate control, provide retrieval functionality except as this is provided by appropriate software, define communication mechanisms or solve the politics of data interchange although it is a great tool for software independent logical content designation.

The next session, on *Automated Techniques for Electronic Records* was actually about metadata documentation systems. The first paper, by Nancy McGovern described the National Archives' AERIC (Archival Electronic Records Information Control) system which records physical and logical structures of data sets received by the Center for Electronic Records and validates the definition during a load process. Basically a post-accessioning assistant and repository for documentation, AERIC is still under development and hasn't begun to be used as a front-end.

Tom Ruller (speaking on a videotape from New York State archives) described data administrators as key allies of archivists and the data dictionary tools as critical to the documentation of content, structure and context of electronic records. He proposed that metadata was required to use the data, find the data, and understand records and that archivists, more than the current generation of data administrators anyway, are best positioned to expand on the provenancial information that could be stored as part of systems documentation while the data processing community focuses on the technical information equally required to document records in themselves. He urged archivists to dive in and gain experience by doing it, but didn't report in any depth on what he is doing in New York State which sounded like more static representation of data structures that process documentation of organizational transactions. Commentator Cynthia Duranec noted that while the titles of the papers sug-

gested angst, the message was upbeat and provided some examples to demonstrate how conceptual, logical and physical access could be used to understand the issues relating to use of 18th century ship ledgers as well as twentieth century electronic documents.

One aspect of SAA this year which was welcome is not reflected in this summary of the meeting: the outgoing and incoming Presidents gave addresses which treated their audience like intelligent professionals, asked tough questions about the kind of futures we want to see, and put themselves on the line in terms of policy. Outgoing President Anne Kenney reported to the membership on her activities as a lobbyist and advocate for archival interests in Washington, even when it meant taking a stance essentially against that of the Archivist of the United States. Incoming President Edie Hedlin called on archivists to deal with the tough issues arising from electronic records in new and not necessarily comfortable ways. It was refreshing to see a leadership grappling with change. It makes it easier to imagine how the membership as a whole can be brought along.

CALENDAR

January 24-27, 1994 Washington DC; COMNET'94 [Rachel Winett, IDG World Expo Corp., P.O. Box 9107, Framingham, MA 01701-9107; (800)225-4698]

February 10-17, 1994 Providence, RI; ARLIS/NA Annual Conference [ARLIS/NA 1994 Conference, 3900 E. Timrod St., Tucson, AZ 85711; (602)881-8479]

February 15-19, 1994 New York, NY; Visual Resources Association Annual Conference [Leigh Gates, VRA Secretary, Art Institute of Chicago, Ryerson Library, 37 South Wabash St., Chicago, IL 60603]

February 21-25, 1994 Los Angeles, CA; Documation '94 [Frank Gilbane, President, PTM; (617)643-8855; FAX 617-648-0678]

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IN-BOX

REPORTS

Several recent reports of the IMOSA Project, a joint initiative of the National Archives of Canada, Government Records Branch and the Canadian Department of Communications, Canadian Workplace Automation Research Centre, are of exceptionally valuable to archivists attempting to develop strategies for electronic records management:

An Initial Analysis of Document Management and Retrieval Systems (January 1993), reports on the experiences of the Foremost implementations.

Functional Requirements for a Corporate Information Management Application (CIMA) (November 1992), builds on the "Checklist of Software Products Functionality", itself based on earlier drafts of the Functional Requirements.

Vendor Survey: Corporate Information Management Applications - Report on Survey Results (November 1992) is a state-of-the-market report and directory of software applications.

Standards for Office Systems: A Reference Guide (April 1993) introduces the OSE framework and its implications for office systems in a cogent and lucid way.

Information Management: Managing Your Computer Directories and Files (1993) is a popular brochure with explicit and valuable suggestions regarding the use of file extensions, directory structures, and naming conventions to manage personal storage areas in a corporate fashion. All these publications, plus other reports from the IMOSA project, are available from the National Archives of Canada, Government Records Division, 395 Wellington St., Ottawa K1A 0N3

Mitre Corporation, Analysis and Recommendations for Scientific Computing and Collections Information Management of Free-Standing Museums of Natural History and Botanical Gardens (McLean Virginia, Mitre Corporation, July 1993, 2 vols.)

These two volumes, the first a summary report and the second a huge compendium of recommendations and results for the eight participating institutions, represent the second phase of Mitre's study of the best architectures and standards for natural history museums to employ in the redevelopment of their information systems in the decade of the 90's. The first phase was a study of the National Museum of Natural History in Washington DC. The emphasis in these studies on client-server architectures and open system standards as well as on the details of transaction management requirements makes them important reading for any type of museum although they obviously are critical to any natural history museum since they are addressed to the ten largest institutions in North America [Both reports are available from Janet Gomom, Director for Collections, National Museum of Natural History, Washington DC 20560].

National Academy of Public Administration, The Information Government: National Agenda for Improving Government Through Information Technology (Recommendations from a Forum on the Role of Information Technology in Reinventing Government held at Airlie Conference Center April 23-24, 1994) 41pp. [NAPA, 1120 G. St. #850, NW Washington DC 20005; 202-347-3190]

The two day meeting to push forward Vice President Al Gore's initiatives for a National Performance Review developed eight categories of action items:

- 1) Customer Service Culture
- 2) Single Source Services
- 3) Intergovernmental Approach
- 4) Re-engineering Service Delivery
- 5) National Information Architecture
- 6) Incentives for Creative Use of IT
- 7) Pilot Projects
- 8) Clearinghouse for "best practices in information technology".

Conference on the Future of Government Information, "Reinventing Access to Federal Government Information" report of the Conference October 29-31, 1993 (Available from Prue Adler, Association of Research Librarians) 29pp.unbound

No one from NARA attended this policy meeting of government document librarians concerned with influencing Federal policy towards access to government information although the meeting was particularly important in shaping the position being taken by Depository Libraries towards the Government Information Locator Service (GILS) initiative by OMB.

BOOKS & PROCEEDINGS

Automation in Archives, Donald Fisher Harrison, Editor (Washington DC, Mid-Atlantic Regional Archives Conference, 1993) \$10 from MARAC or SAA

These proceedings from the Fall 1990 Meeting of the Mid-Atlantic Regional Archives Conference are unfortunately rather late in coming. The meeting was quite useful at the time, and some of the papers continue to be of value, although they have a bit of an historical flavor. Tom Ruller's report on the RLIN appraisal project "Putting Appraisal On-Line" and Debbie Pendeleton's "Can you take a Mob of Kangaroos for A Walk: Efforts by the RLG Government Records Project to Achieve Common Descriptive Practice" are valuable, if belated, reports on the RLG Government Records Project which was certainly one of the most important and but under-reported projects in the history of archives.

Electronic Records Management Program Strategies, edited by Margaret Hedstrom (Pittsburgh PA, Archives and Museum Informatics, 1993) Technical Report #18, 156p.

This volume is a compilation of papers prepared for a joint meeting of the SAA-Committee on Automated

Records and Technologies and the NAGARA-Committee on Information Technology in the spring of 1993 and several new papers prepared for this volume. Case studies include assessment programs at the Alabama Department of Archives and History, Australian Archives, Kentucky Department of Libraries & Archives, National Archives of Canada, New York State Archives and Records Administration, Penn State University Archives, State Historical Society of Wisconsin, United Nations, U.S. National Archives, and the World Bank. In addition, the book contains a report and analysis of the meeting, a critical assessment of the need to "reinvent" archives by David Bearman and Margaret Hedstrom, and an annotated bibliography of literature on archives and electronic records by Richard J. Cox.

Electronic Image Management: Case Studies, edited by Thornton May (Silver Spring MD, Association for Information and Image Management, 1993) 43p. \$25

This casebook contains studies of five public and six private sector implementations of imaging technology. The cases are not written using a standard list of issues so they are somewhat different in flavor and are brief, but nonetheless they provide some useful glimpses into why and how this technology is being used.

Interactive Multimedia in American Museums, research report by Stephanie Koester (Pittsburgh PA, Archives and Museum Informatics, 1993) Technical Report #16, 120p. plus bibliography.

This volume is a research report based on interviews with American museum professionals on their experience in using computer-based interactive multimedia technologies in museum settings. Ms. Koester looks at the museum as a learning environment and highlights interactive exhibit design issues. In an addition to Ms. Koester's report, the book includes a bibliography on Interactive Multimedia and Museums, compiled by David Bearman and Belinda Wright.

Museums and Interactive Multimedia: Proceedings of the 6th International Conference of the MDA and the 2nd International Conference on Hypermedia and Interactivity in Museums (ICHIM '93), edited by Diane Lees (Cambridge England, Museum Documentation Association & Archives & Museum Informatics, 1993) Technical Report #20, 436pp. \$50

This large volume contains over 60 articles by authors from twenty countries on every aspect of multimedia for museums from discussions of the range of applications, to research on design and development challenges and assessments of the impact of multimedia on museums internally and as institutions in the broader society. Although the editor chose a confusing numbering scheme for the chapters, the book is generally well presented and adequately illustrated for the text. The articles are mostly serious research reports, many developing ideas presented by the authors and others at the ICHIM '91.

Toward International Descriptive Standards for Archives; Papers presented at the ICA Invitational Meeting of Experts on Descriptive Standards, National Archives of Canada 4-7 October 1988 (Munich, K.G.Saur, 1993) 177p.

Those of us who participated in this meeting, which ultimately led to the formation of the ad hoc commission on archival description standards its creation of ISAD(G), had probably all assumed that these proceedings would never be published. Now that they have, they provide an historically interesting, but otherwise not very useful, picture of the state of description practices before the publication of the reports of the Working Group on Standards for Archival Description (WGSAD), RAD, ISAD, and ACPM.

JOURNALS

Bulletin of the American Society for Information Science, "Special Section on Archives and Electronic Records", October/November 1993, vol.20#1 pp.9-26

This special section edited by Nancy McGovern and Tom Ruller contains very brief reports on electronic records programs in NARA, National Archives of Canada, the archives of New York, Pennsylvania, the UN, and PennState University, and projects at the University of Pittsburgh and the offerings of professional associations including SAA, APDU, NAGARA and IASSIST.

CETH Newsletter, [published by the Center for Electronic Texts in the Humanities, 169 College Ave., New Brunswick NJ 08903; 908-932-1384; fax 908-932-1386; ceth@zodiac.rutgers.edu] appeared in the spring of 1993 reporting both on the Center and related activities in text archives and textual knowledge representation, especially using SGML. The two issues which have appeared to date include project reports, conference reports, announcements on work in progress and much interesting insight from editor and center Director Susan Hockey.

Museum Archivist vol.7 #2, September 1993, p.9-10
Maygene Daniels, Archivist of the National Gallery of Art, reports on the use of ZylIndex to achieve full text retrieval from the finding aids to the archives of the National Gallery of Art.[Maygene Daniels, National Gallery of Art, Washington DC 20565, 202-842-6175; you can also use this contact address to receive the Newsletter]

Southwestern Archivist, Vol 17#2, Summer 1993 p.6-8
Robert Spindler reports on the use of Q&A in a simple inventory and processing database established for the Department of Archives and Manuscripts of Arizona State University.

VRA Bulletin vol.20#2, Summer 1993 p.8-13 contains a valuable summary of contributions of speakers to the Visual Resources Association conference session on Electronic Imaging by Ben Kessler.

ARTICLES

David Bearman, "Interactivity in American Museums", **Museum Management and Curatorship** (1993) 12, p.183-193

Reviews the state of interactive multimedia in American museums as of January 1993.

Francis X. Blouin Jr., "The Historian, the Archivist and the Vatican Archives: A Case Study in Collaboration in the Age of Information Technology", **Archivi & Computer**, vol.3#2 1993 p.75-88

A detailed report on the cooperative project between the University of Michigan and the Vatican Archives to put records of the Vatican into the Research Libraries information Network.

Deborah Cooper, "Vive la Difference", **Registrar** (Summer/Fall, 1993) vol.10 #1, p.3-20

Registrars in the Art, History and Natural Sciences divisions of the Oakland museum compare their experiences and practices. They confirm the differences in a way that will be useful for systems designers.

Luvai Motiwalla and Milam Aiken, "An Organizational Communications Perspective on Knowledge-based Mail Systems", **Information & Management** vol.25 (1993) p.265-272

This analysis, review and critique of systems being developed to manage electronic communications with a knowledge of corporate rules and policies provides useful insight into the nature of the requirement and the models that can be employed to satisfy it. While the systems being assessed here are experimental, the questions asked by the authors will be faced by anyone trying to implement systems in real organizations.

Seamus Ross, "Special Feature on PhotoCD: From Conventional Photographs to Digital Resources", **Archaeological Computing Newsletter** number 35, June 1993 p.14-21 and Ben Booth, "Digital Image Storage: Today and Tomorrow", number 36, p.3-6

Ross provides a good non-technical presentation on Photo CD with some useful pointers to projects involving museum archaeological findings that are, or are about to, use the technology. Ben Booth's description of an in-house system developed by the National Railway Museum provides a critique of Photo-CD from the perspective of someone who has developed a local solution which while it might be better will not become a standard.

James M. Turner, "Subject Access to Pictures: Considerations in the Surrogation and Indexing of Visual Documents for Storage and Retrieval", **Visual Resources** vol.9#3, p.241-271

This is a very valuable review of the history of and issues in discussions of access to images. It includes the authors' suggestions on areas requiring further research, including standards for creating information about images which is an area also being addressed by the Art Information Task Force.

EPHEMERA

Organization of American Historians Ad Hoc Committee on Access to Lawyer's Files, "Historians and Access to the Files of Lawyers", June 1, 1993 11p. typescript

This report by an OAH Committee regarding a sensitive area of access judgments is particularly interesting in light of the reaction of members of the Supreme Court to the opening of papers of Justice Marshall and controversies over confidentiality as a principle in other professions. I am indebted to R. Michael McReynolds, Director of Textual Reference Division, National Archives who brought it to my attention and who would be interested in your views [contact him at 202-501-5380].

NARA, Center for Electronic Records, Appraisal Report # N1-305-91-1 "Bonneville Power Administration's Spatial and Image Data"

This report by Jim Whittington, formerly of NARA's Center for Electronic Records (CER), explores a variety of issues associated with the retention of geographic information systems data which have relevance beyond the Bonneville Power Administration and beyond the National Archives. In particular, he asks whether it is meaningful to save layers of the GIS developed and maintained locally unless the archives also saves layers brought in from outside sources. Of course the National Archives will also be archiving many of these layers from the agencies that created them, but not necessarily in the state as the record that was provided to Bonneville and integrated into their database. Worth reading; you can get it from NARA-CER.

SPECIAL NEWS

FEDERAL APPEALS COURT RULES AGAINST WHITE HOUSE IN PROFS CASE

On August 13 an unanimous U.S. Court of Appeals panel ruled that the electronic mail backup tapes created by White House staff during the Reagan and Bush administrations qualified as records under the Federal Record Act (FRA). Acting on an expedited appeal of a January 7 decision by U.S. District Judge Charles Richey, the three judge panel upheld Richey's ruling that the Executive Office of the President had violated the law by planning not to preserve the tapes and that then Archivist of the United States, Don Wilson, had failed to fulfill his duty under law by agreeing to the planned destruction.

The court ruled that

The government's basic position is flawed because the hard-copy printouts that the agencies preserve may omit fundamental pieces of information which are an integral part of the original electronic records, such as the identity of the sender and/or recipients and the time of receipt.

They added that:

in our view, as well as the district judge's, the practice of retaining only amputated paper printouts is flatly inconsistent with Congress' evident concern with preserving a complete record of government activity for historical and other uses. See 44 U.S.C. 2902(i) (listing first among the Act's goals the "accurate and complete documentation of the policies and transactions of the Federal Government").

In addition, they reversed the Richey decision regarding the Presidential Records Act (PRA) on a cross-appeal by the plaintiffs in the one area in which it had upheld the government, stating that:

Contrary to the district court, we conclude that the PRA allows limited review to assure that guidelines defining presidential records do not improperly sweep in non-presidential records. Accordingly we remand to the district court to determine whether relevant NSC and OSTP directives categorize non-presidential records as subject to the PRA.

Faulting the Archivist, they noted that:

Besides assigning specific duties to agency heads, the FRA prescribes the exclusive mechanism of disposal of federal records. See U.S.C. 3314 (no records may be "alienated or destroyed" except in accordance with the FRA's provisions)... Id.3301. If a document qualifies as a record, the FRA prohibits an agency from discarding it by fiat...Instead the FRA required an agency to procure the approval of the Archivist before disposing of any record.

And they added, in case the Archives felt it was off the hook:

Under the FRA, the Archivist's duties are not limited to judging the suitability of records for disposal. In addition, the Archivist must "provide guidance and assistance to federal agencies with respect to ensuring adequate and proper documentation of the policies and transactions of the Federal Government and ensuring proper records disposition". Id 2904(a)

And further:

Should the Archivist become aware of any "actual, impending or threatened unlawful removal, defacing, alteration or destruction of records in the custody of [an] agency" she must notify the agency head of the problem and assist the agency head in initiating an action through the Attorney General for recovery...If the agency head is recalcitrant, the Archivist herself is to (1) request the Attorney General to initiate actions and (2)

inform Congress that she has made that request. *Id.* 2905(a); see also *Armstrong I*, 924 F.2d at 295 holding that "if the agency head or Archivist does nothing while an agency official destroys or removes records in contravention of an agency guidelines and directives, private litigants may bring suit to require the agency head and Archivist to fulfill their statutory duty".

The decision was based on an important distinction made by the court and by archivists between the content of a document and the structure and context that give it meaning as a record. They stated, for instance, that:

Both the recipient and the author of a note can print out a "hard copy" of the electronic message containing essentially all the information displayed on the computer screen. That paper rendering will not, however, necessarily include all the information held in computer memory as part of the electronic document. Directories, distribution lists, acknowledgements of receipts and similar materials do not appear on the computer screen and are thus not reproduced when users print out the information that appears on the screen.

Pressing the point further, they noted that:

*First, assuming arguendo that the defendant agencies unequivocally informed their staffs to print out all on screen information of any electronic note that qualified as a federal record . . . that instruction was not adequate to meet the FRA's requirements because "electronic material . . . [is] qualitatively different than copy printed out in paper form" *Id.* at 341*

And dismissing the government's claim that information "rises to the level of a record" they restated the law in a way that was intended to facilitate NARA activism:

*To qualify as a record under the FRA, a document must satisfy a two pronged test. It must be (1) "made or received by an agency of the U.S. Government under Federal law or in conjunction with the transaction of public business" and (2) [be] "preserved or appropriate for preservation by that agency . . . as evidence of the organization, function, policies, decisions, procedures, operations or other 'activities of the Government or because of the informational value of the data in [it]". *Id.* 3301*

Adding:

Equally unconvincing is the appellants' suggestion that Congress' directive to preserve "adequate documentation" of agencies' "essential transactions" justifies their retaining only the "substantive information" displayed on the computer screen. The phrases "adequate documentation" and "essential transactions" are lifted from

44 U.S.C. 3101 . . . the purpose of this provision, by its own terms, is to place a general obligation on agency leaders to create and then retain a baseline inventory of "essential" records . . . other statutory provisions mandate that all records - again, whether or not related to "adequate documentation" of "essential transactions" - be managed and retained in accordance with explicit statutory directives.

In *Armstrong v. EOP*, the U.S. Court of Appeals, referring to the decision of the district court in *Armstrong v. EOP* 924 F.2d at 343 and 347, concurred with a view expressed by Judge Richey:

The court found a second flaw in the agencies records management practices: they failed to provide for any supervision of agency employees' electronic recordkeeping practices.

And they reaffirmed that:

Contrary to the appellants' assertions, the conclusion that agencies must retain and manage these electronic documents in no way collides with Congress' oft expressed intent to balance complete documentation with efficient streamlined recordkeeping . . . Our decision does not require that agencies, in appellants' words, save "every scrap of paper" they create. Not all scribbles and off-the-cuff comments will qualify as federal records. Nor do we saddle agencies with any new obligations to make additional documents in order to satisfy the needs of researchers or investigators . . . our decision leaves undisturbed the agencies' ability to purge incidental electronic records from their files by acting, with the Archivists' approval, to dispose of those documents that lack "sufficient administrative, legal, research or other value to warrant their continued preservation". 44 U.S.C. 3303(a) . . . In sum, we find the district court was fully justified in concluding that appellants recordkeeping guidance was not in conformity with the Act.

Now that they have accepted the findings of the court by the decision not to appeal the case, the Government is going to be required to develop and implement much more effective guidelines for electronic records management in the near future. This should provide American archivists with the opportunity both to test a number of approaches to the definition of and control over electronic records and to the administration of electronic records management programs. I hope that the National Archives uses the occasion of the resolution of this case to invite archivists to assist them in developing such an approach, just as they used the existence of the case for the past five years as an excuse to remove themselves from discussion of alternative approaches to electronic records management by archivists outside of NARA.

NARA RESPONDS TO COURT DECISION WITH DRAFT GUIDELINES

Throughout the fall, the National Archives exchanged numerous drafts of new guidelines with the National Security Council as it became clearer that the government was not going to appeal the case of *Armstrong v. EOP* any further. Unfortunately, although the guidelines became more and more consistent with the court decision, NARA appears to be avoiding committing itself to the new role wished on it by the court and continues to insist on interpretations of the Federal Records Act which the court has already ruled incorrect. In the latest drafts available to me, dated October 18, 1993, NARA proposes the following:

Definitions: Electronic Mail System

"As used in this guidance, a computer application used to create or transmit messages and other documents, conduct electronic conferences, and create calendars that can be accessed by multiple staff members. Excluded from this definition are file transfer utilities (software that transmits files between users but does not retain any transmission data) and data systems used to collect and process data that have been organized into data files or data bases on either personal computers or mainframe computers."

The effect is to define electronic mail as a software application, not as a utility employed in business applications, and thereby exclude communications taking place electronically but using software applications not called "electronic mail systems".

Definitions: Nonrecord Material "

Informational materials that do not meet the statutory definition of records (44 U.S.C. 3301), i.e., they either do not relate to Government business, are not "appropriate for preservation", or are specifically excluded from coverage by the definition."

The effect is to misstate the first part of a critical clause in the act, which states "preserved or appropriate for preservation". The "preserved or" aspect of this clause was explicitly referenced in the district court opinion which ruled that material on the system at the time of the injunction was in fact federal records because they had been preserved. The district court ruled that it was irrelevant whether the government felt that they were appropriate for preservation once the system captured them because of the "or" separating the two clauses. Hence we can conclude that all electronic mail is a record because electronic mail is a store and forward technology which requires capture and subsequent forwarding prior to end user viewing. The archival issue becomes one of appropriate scheduling of each e-mail transaction based on the business process in which it participated.

What are Federal Records?

"Documentary materials become records if the agency decides they should be filed, stored, or otherwise systematically maintained because of evidence of agency activities or information they contain (36 CFR 1222.12)."

This is utterly without basis in the law. Documentary materials become records if they are made or received by agency personnel in the course of business and are preserved or appropriate for preservation.

"The activities of some EOP components are heavily policy oriented and support the President in carrying out his functions. To a greater extent than in many other Government agencies, drafts, notes, calendars, background materials or working papers in those EOP components will document policy development, significant decisions, major activities or other matters basic to an understanding of the EOP component and its government role, and therefore should be considered Federal records. EOP component s shall apply the same criteria to e-mail, records that they apply to their paper records when they make determinations of record status (see CFR 1222.34). For further information on making these distinctions, see Personal Papers of Executive Branch Officials: A Management Guide published by NARA in 1992."

Why the last sentence? The paragraph has nothing to do with personal papers. Nor, by the way, does it provide a distinction between federal and presidential records which is what the lead sentence suggests it might.

Nonrecord Materials

"Agencies are not obligated to retain e-mail materials that fail to meet the criteria for Federal records. Such materials are considered nonrecord. Nonrecord materials either do not relate to Government business or contain Government-related information that is duplicative or so insubstantial that it is not appropriate for preservation. Nonrecord materials are not needed to fulfill the EOP component's responsibility to document adequately and properly its organization, functions, programs, or transactions. E-mail materials, therefore, that are non-record are not subject to the statutory provisions governing the disposition of Federal records and need not be retained."

This guidance introduces two incorrect interpretations of law. First it advises, contrary to the direct ruling of the district court, that duplicative **information** makes a record a duplicate **record**. Second, it repeats the error of misstating the rule on "preserved or appropriate for preservation" thereby leaving the mistaken view that any electronic mail could not have been preserved.

Transmission Data

"When the necessary transmission data is not part of the record itself, EOP component must ensure that the record and necessary transmission data are both maintained in designated recordkeeping systems, either electronically or in hard copy, for the same retention period . . . For example, in some e-mail systems users are assigned identification names or codes. For systems that use such shorthand names or codes, a record linking the codes with the names of users should be retained to facilitate identification of the senders and addressee(s) of records . . ."

NARA has failed to extend the concepts of structural and contextual links required for evidence beyond the examples given by the court. The court simply provided the examples in order to underscore that electronic records contain contextual and structural properties not associated with paper print-outs. It assigned NARA the responsibility to develop guidelines, but the guideline offered here fails to go beyond the simple examples provided by the court and does not illuminate the underlying principle.

"EOP components should provide guidance for determining what transmission data in e-mail systems is appropriate for preservation as a record."

NARA is responsible for providing guidance and not only about transmission data that resides within the e-mail application. The data might well be external to the application software yet convey the the structure and context required for recordness.

Disposition of E-Mail Records

"If e-mail records have not been printed on paper and appropriately maintained, or if they have been copied to an electronic record keeping system, they may not be deleted from the on-line e-mail system until a schedule has been approved by NARA authorizing their disposal."

Either they have left out a not in the second clause or they are being purposefully confusing. Why not just say whether or not records have been copied to a paper or a recordkeeping system, the agency requires a schedule to delete them from the e-mail system? And why do they keep pretending that paper is the only alternative to on-line. What happened to COM, off-line storage, optical storage etc.?

Overall, these guidelines are a vast improvement over earlier drafts, but they still have a way to go before they will be fully acceptable to the plaintiffs, and probably to the court. When they are finalized, the implementation of specific approaches by different Federal agencies will be interesting to follow.

NEWS

LIBRARY OF CONGRESS ACCEPTS CD-ROM FOR COPYRIGHT

On September 29, 1993 the Library of Congress accepted CD-ROM publications for copyright deposit under new model agreements established with the Information Industry Association (IIA), the National Federation of Abstracting and Information Services (NFAIS) and the Association of American Publishers (AAP). The works will be available at the Machine Readable Collections Reading Room, G22, Thomas Jefferson Building, Library of Congress. For further information contact the Register of Copyrights, Library of Congress, Washington DC 20540.

BISHOP MUSEUM HOLDINGS ON INTERNET

Honolulu's Bishop Museum has established an on-line system to access the museum's archives and library database through the University of Hawaii's statewide catalog, available throughout the world on Internet. Included in the resources made available in this way is the mele (Hawaiian chant and song) index, manuscripts relating to early Hawaiian culture and the Museum's research in anthropology, botany, entomology and zoology. The museum has witnessed 22,239 online searches in the first six months following the online availability of the system. [For further Information, Contact: Lynn Davis, Bishop Museum, P.o. Box 19000A, Honolulu HI 96817-0916; (808) 848-4147, Fax: 808-841-8968]

RLG DIGITAL IMAGE ACCESS PROJECT

The Research Libraries Group has launched a one year collaborative project to explore the capabilities of digital image technology for managing access to photographic collections. The project aims to streamline indexing methods and studies shared network use. Stokes Imaging Services (Austin TX) will employ state-of-the-art imaging technology to capture the 1000 photographs provided by each institution (Amon Carter Museum, Columbia University, Duke University, Getty Center for the History of Art and the Humanities, Harvard University, New York Public Library, Northwestern University, and the University of California at Berkeley). A parallel project aims to address issues inherent in accessing and preserving large photographic collections. [For information about either project, contact: Patricia McCung, Director of Member Support & Services, 1200 Villa St., Mountain View CA 94041-1100, v.415-691-2236 or e-mail bl.pam@rlg.stanford.edu]

ICA ELECTRONIC RECORDS COMMITTEE MEETS

On October 26-30, 1993 the newly formed Electronic Records Committee of the ICA held its first meeting in Ottawa, Canada. The objective of the meeting was to approve the terms of reference of the committee, confirm plans and allocations of tasks, identify its final products and build a work schedule leading to the 1996 Congress of

the ICA. The committee met and discussed a definition of the term "electronic record", requirements for electronic records management, and the compilation of reference sources including compendia of programs worldwide. Members of the committee include John McDonald, Chairman (NAC, Canada), Gertrude Long (International Monetary Fund), Ken Thibodeau (NARA, U.S.A.), Jan Boomgaard (Municipal Archives, Amsterdam) Niklaus Butikofer (Bundesarchive, Switzerland), Eddie Hicks (Public Records Office, UK), Michele Conchon (Centre des Archives Contemporaines, France), Pitt Kuan Wah (National Archives Singapore), Ivar Fonnaes (National Archives, Norway) and Steve Stuckey (Australian Archives). [For further information, contact Chairman John McDonald, Director of Information Management Standards and Practices, National Archives of Canada, Ottawa K1A 0N3, v.613-947-1510].

1992 NAGARA STATISTICAL REPORT

The compilation of statistics by members of the Program Reporting Guidelines Committee of NAGARA continues. This year the report identified sixteen states with "electronic records management programs". Of these eleven store electronic records (as do fourteen states that do not have electronic records programs) and four provide reference service for electronic records (along with six that do not have programs). More traditional measures of comparison, such as budgets, staff size, number of accessions, record center holdings, disposition microform services, technical assistance and reference are also provided. [For further information contact Dick Lankford Jr., N.C. Division of Archives and History, 109 E. Jones St., Raleigh, NC 27601-2807; (919) 733-7305]

CONGRESSIONAL FOIA REPORT ON INTERNET

A Citizen's Guide on Using the Freedom of Information Act and the Privacy Act of 1974 to Request Government Records, previously available only through the GPO, has been mounted on the Internet. If you have a gopher client, type Gopher eryx.syr.edu or, if you have telnet access type telnet hafnhaf.micro.umn.edu and respond to the login prompt by typing gopher (you will be asked for your terminal type, if unsure use VT100). The Citizens Guide is on the EGIS site in the directory Other Gopher and Information Service/North America/ USA/ General/ EGIS. On the other hand, the GPO has long sold the report for \$2.75! This may be an example of how being online will not make government information more available and especially not least expensive.

NEW YORK TIMES BOOK REVIEW ON HYPERFICTION

Well, it finally made the big time. Several hyperfiction novels are reviewed in a review starting on the front page of the New York Times Book Review section on August 29. While few readers of the Times are in a position to read the novels themselves, the reviewer, and the editors, clearly consider this a new literary genre.

MULTIMEDIA MATERIALS ACCESS GUIDELINES

MUSE Film & Television, a New York City based non-profit, has been circulating a proposal to organize a museum study group to explore issues of access, licensing and pricing of multimedia source materials. After gathering a number of professional advisors (including Brian Kahin, Howard Besser and myself) they have begun to line up museums to participate in a four month process in the spring of 1994. [For further information, Contract Geoffrey Samuels, MUSE Film & Television, 1 East 53rd St., New York, NY 10022; v.212-688-8280; f.212-688-0409]

LARGE (YES LARGE) ARCHIVES

The NASA "Mission to Planet Earth" is planning to launch its first earth observing satellites in 1998. Over the following fifteen years it expects to launch 18 more. Some will transmit more than a terabyte of data a day with the program as a whole generating an archive estimated as the size of the Library of Congress every ten days before it is over. Other Global Change related data projects such as the Consortium for International Earth Science Information (ceisin.info@ceisin.org) and the Sequoia Data Visualization Group (ftp from toe.es.berkeley.edu in directory/pub/sequoia) are among the many projects growing out of the \$1.3B FY'93 (proposed \$1.47B FY'94) U.S. Global Change Research Program and the Global Change Data and Information System.

LC MARVEL

The Library of Congress has opened a new gateway to the Internet which uses Gopher, the publicly available menu-based software program developed by the University of Minnesota, to provide access to LC facilities activities, services, databases and news. The menu item Federal Government Information, under which resources on Congress and the executive and judicial branches are located, is being added to regularly and one can easily see how it might ultimately contain catalogs of, or pointers to, Federal records throughout government as well as in the National Archives. [To access LC MARVEL, connect to marvel.loc.gov and login as marvel.]

SHAKY START TO CANARIE

The Canadian Network for Advancement of Research, Industry and Education Inc. received a contribution of C\$26M from Industry and Science Canada to launch the first phase of a national network with goals similar to those of the US NREN. Camelo Tillona, formerly national industry manager for IBM Canada Inc. was named CEO and president of the new non-profit consortium of more than 50 Canadian organizations, but resigned almost immediately. Pat Sampson of Industry and Science Canada is acting CEO in the overall C\$115M phase 1 effort which will upgrade the existing R&D network, establish some test networks for R&D for next generation applications, and prepare specs and business plans for phases 2 (1995-98) and 3 (1998-2000). Additional funds must now be raised from the private sector.

SOFTWARE

MCN VENDORS COVER ALL AREAS OF MUSEUM COMPUTING

Vendors exhibiting at the 1993 MCN meeting in Seattle covered a wider than usual range of museum applications which I consider to be a sign of MCN's revived health. The following brief notes are intended simply to identify those present and provide their addresses. Archives & Museum Informatics is presently compiling the 1994-95 Directory of Software for Archives and Museums which will have full page write-ups on over a hundred packages.

TICKETING AND CONCESSIONS

MuseumPASS, from Select Ticketing Systems Inc. [P.O.Box 959, Syracuse NY 13201; 315-479-6683; fax 315-471-2715] is a point of sale ticketing system with post analysis marketing tools used by numerous museums within the U.S..

Pacer Cats, a product from Wembley Plc [Denver office 303-649-9818 ext.320] integrates ticket and concession sales with advanced sale, consignment, tele-ticketing, and bar-code features integrated with a photo-id system for staff and members on an IBM PC Compatible system.

MUSEUM SHOP

Squareone [from Computac, Box 579, Hanover, NH 03755; 603-298-5721; fax 603-298-6189] is an integrated point of sale system designed for bookstores which is being sold to museum shops.

WordStock [69 Grove St., Watertown MA 02172-2826; 617-924-2636; fax 617-923-1699] is another typical bookstore management product, installed in 400+ locations with 1-110 workstations, that has moved into the museum store market. It provides extra modules ranging from mail order, credit card and cost-of-goods accounting to accounts payable module and inventory control.

FACILITY SCHEDULING

Reservit! [Peopleware, 1621 114 Ave. SE Suite 120, Bellevue WA 98004; 1-800-869-7166; fax 206-454-7634] tracks facilities, makes reservations, resolves conflicts, and prints schedules from IBM Compatible PC's running DOS.

IMAGE CAPTURE

Boston Photo Lab [20 Newbury St., Boston MA 02116; 617-267-4086; fax 617-267-8711] offered its professional services capturing high quality images for Photo CD output.

Continuum Productions Corp. [15395 SE 30th Place, Suite 300, Bellevue WA 98007; 206-641-4505] continued to confuse everyone by not exhibiting, ostensibly because they offer no product although they were certainly soliciting museums for rights to their images and their staff was

present in force to advocate allowing Continuum to serve as the museum's agent. They are still circulating contracts which require relinquishing transferable rights in perpetuity, which does not seem to me to be in the best interest of any museum.

Picture Network International [2000 15th St., North, Arlington VA 22201; 703-558-7860; fax 703-558-7898] distributed glossy brochures about their Seymour system, to become available in the spring of 1994, which is a rights licensing and access server for the rights holders. It may be of interest to museums as a vehicle for managing both rights and image distribution.

COLLECTIONS MANAGEMENT

Eloquent Systems [25-1501 Lonsdale Ave., North Vancouver, V7M 2J2; 604-980-8358; fax 604-980-9537] showed Gencat with customization by consultant Nicolas Maftci which is intended to make it RAD and ISAD(G) compliant, basically by implementing multi-level description and authority control over organizational structure as it changes across time.

Gallery Systems [221 West 82nd. St., New York, NY 10024; 212-873-9232; fax 212-769-1282]

Questor Systems [187 N. Hill Ave., Pasadena, CA 91106; 818-356-0808] showed ARGUS with only minor changes from last year.

Vernon Systems [P.O.Box 6909, Auckland NZ; (+ 649) 302-3147; fax (+ 649) 302-3150] showed Collection in its completed form, with collections management and information retrieval functionality.

Willoughby Associates [5241 S. Cicero, Chicago, IL 60632; (312) 284-6600] showed various software packages with few changes from last year.

GUI TO INTERNET RESOURCES

NOTIS Systems Inc. is offering WinGopher, its Microsoft Windows based client to Gopher as a stand-alone product for anyone interested in having a GUI view of Internet with local support for Archie and Veronica protocols and support for Telnet access. Single user licenses are \$69.95 with prices dropping to \$58.95 for 50-99 copies and site license and larger copy discounts available. [NOTIS Systems Inc., 1007 Church St., Evanston IL 60201-9712; 800-55-NOTIS]

HYPER TEXT TOOLS

HyperHelp is the name of a software package that supports hypertext help across Unix platforms. Help files can be edited originally in Microsoft Word, WordPerfect, Lotus Ami Pro or FrameMaker and compiled to run hypertexts. [Bristol Technology Inc., 241 Ethan Allen Highway, Ridgfield, CT 06877; 203-438-6969; 203-438-5013; info@bristol.com]

STANDARDS

ACPM - THE AUSTRALIAN COMMON PRACTICE MANUAL

A draft document entitled ACPM: Australian Common Practice Manual has been circulated by Chris Hurley on behalf of the Australian Society of Archivists as a first step towards establishing Australian national archival documentation standards. The six part manual consists of an introduction and sections on Context of Records, Provenance of Records, Description of Records, Contents of Records and Appendices. In addition, the report includes a tabulation of responses to the December 1992 questionnaire on archival practices by the Australian Archives and most of the state archives.

ACPM, like RAD, APPM, MAD and ISAD(G) is a manual of practice and not an interchange format like MARC-AMC. It was felt to be required because ISAD(G) was designed to provide for international data exchange in conjunction with a "national standard" and no such standard existed for Australia. Also its authors wanted to make a "descriptive" rather than "prescriptive" manual - one that would "codify differences and draw out the underlying similarities". One explicit clarification within ACPM is the distinction between rules for input and output.

In the final scheme, ACPM will consist of chapters on Context, Contents, Provenance, Records and Relationships. For the present the relationships discussions are subsumed within each entry in other sections. A graphic model of the types of data and their relationships is presented. Within each rule, the corresponding instructions of several widely used manuals of practice in use in Australian repositories are quoted when rules exist in those manuals for the information being discussed.

While this is not yet an official publication of the ASA, it can be expected to become one in time. Those who might have concrete recommendations to offer and are heavily involved in archival descriptive practices will probably want to get copies. [Contact Chris Hurley, P.O.Box 1073 City Rd., South Melbourne Vic 3205, Australia]

GOVERNMENT INFORMATION LOCATOR SERVICE (GILS)

The U.S. Office of Management and Budget, in concert with the Information Policy Committee of the Information Infrastructure Task Force, is developing a framework for a federal government information locator service to be provided through the Internet and by secondary distributors. They are inviting comments through publication in the Commerce Business Daily and Federal Register, distribution of the document on the Internet, and a public hearing to be held on December 13 in Washington.

HyperWriter 3.1 is true multimedia authoring and it runs royalty free along with HyperIndexer which adds Boolean search capabilities. The runtime version, HyperReader, can be distributed for DOS or MS Windows. Functions of HyperWriter, some available at extra cost, include videodisc control, linking into parts of pictures, screen editing, auto-document analysis and linking, training functionality like testing, user registration and background graphics management. [Ntergaid Inc., 2490 Black Rock Turnpike, Suite 337, Fairfield CT 06430; 203-380-1280; fax 203-380-1465]

SuperBook Document Browser 4.0 is a client/server designed hypermedia browser for large scale applications running across heterogeneous platforms which preprocesses word processing documents and accepts SGML data (although it is not a parser yet; this is promised for 1994). Clients may be MS Windows, Macintosh, OS/2, UNIX X/Motif or UNIX OpenLook workstations. Servers include SUN, IBM RS6000, HP, DEC, Pyramid, and Amdahl hosts running UNIX. [Bellcore, Room 3A184, 8 Corporate Place, Piscataway NJ 08854; 1-800-521-CORE; fax 908-336-2559].

DOCUMENT MANAGEMENT SYSTEM FROM XYVISION

Xyvision Inc. [101 Edgewater Dr., Wakefield MA 01880-9860; 1-800-333-8947] is offering a free publication entitled "What to look for in a document management system" to those who request it (ask for extension 4000 if phoning). Obviously, since they sell Parlance Document Manager, they have a vested interest.

MICROMUSEE IN ENGLISH

ORAC Information Systems Ltd [Molly Millar's Bridge, Wokingham, Berks RG11 2WY; (+ 44) 734-772-233; fax (+ 44) 734-774-541] is marketing MicroMuseum from Mobydoc in English language versions in the UK. To date no U.S. distributor is available for this system which is approved by the French Ministry of Culture and widely installed in French museums and galleries. The relational database with digital and analog image integration runs on IBM PC compatibles in single user and network configurations.

MAPPING INTERFACES

One of the challenges of many museum applications is to show the data on a map. This has been made easier by the prospects of integrating databases with a variety of off-the-shelf cartographic databases and software functions that enable linking of local data with maps. Two such packages which have recently sent me literature are:

Sure!MAPS from Horizon Technology Inc., 3990 Ruffin Rd., San Diego CA 92123-1826; 800-828-3808; fax 619-292-9439

MapInfo from MapInfo Corp., One Global View, Troy, NY 12180-9981; 800-327-8627; fax 518-285-6070

The proposal to establish GILS as part of the National Information Infrastructure (NII) follows on recent revisions to OMB Circular A-130 which state a policy for agencies "to disseminate information products on equitable and timely terms", "help the public locate information maintained by or for agencies" and "provide information describing how the public may gain access to agency information resources", among other goals. The document on which comment is being requested is a "vision statement" articulating objectives of GILS, key concepts, service requirements, and core data element definitions. The standards framework is to define a database in a distributed client-server environment that can be queried with ANSI Z39.50 (ISO10161/10162) protocols.

Throughout the current draft there is a tension between publishing an online government publications catalog (information products) and providing a directory to government record systems. Both objectives are loosely referenced throughout, but it is critical for the archival community that in the final definition the role of GILS in providing an inventory of government created and maintained information for public access, not the goal of selling "information products" be the central design principle. Unfortunately the U.S. National Archives seems to be losing out in defining the place of GILS in its documentation programs. In prior drafts, the basic form being suggested to capture GILS data was a NARA records schedule. In the latest draft the Core Requirement statement reads: "The GILS Core is also designed to support records management responsibilities of Federal agencies in reporting on agency information systems, codified in 44 U.S.C. Chapters 31 and 33. The GILS Core includes an entry for each Federal information system holding publicly accessible data or information." Nothing is said here about the role of GILS entries in the records scheduling process, the relationship to SF115's or the RACE system.

The current draft is the work of Eliot Christian (echristi@usgs.gov). Once the functional requirement is approved development of the specification for a Z39.50 search and retrieval application will become the responsibility of Charles McClure and William Moen at Syracuse University (cmclure@suv.macs.syr.edu) who have contracted to provide this specification. Readers may obtain ASCII copies of the draft by anonymous ftp on the Internet (@130.11.48.107 as /pub/gils.txt).

ICA AD HOC COMMISSION ON DESCRIPTIVE STANDARDS

At the September 1993 meeting of the International Council on Archives in Mexico City, Christopher Kitching, Chairman of the ad hoc Commission on Descriptive Standards presented a progress report on the Commission in which he reported that the Statement of Principles concerning Archival Description which attracted considerable heat at the Montreal Congress in 1992 would no longer be circulated because it had "served its main purpose in focussing international debate on these issues". Instead the Commission revised its International Standard Archival Description ISAD(G) draft and released it for a

five year "test period". During the testing period the Commission will not change the Standard but invited comments and observations germane to a second edition. In his paper, Kitching described some further steps which the Commission believes would be useful, such as guidelines on access points and the documentation of provenance and special instructions for non-textual archival materials, but as it has no further funding, it left in doubt how these matters would be pursued.

IMAGE-BASED RECOGNITION FORMS DESIGN

The Association of Information and Image Management has published its 1994 edition of Designing Documents for Image-Based Recognition which addresses layout, inking, paper etc. requirements for designing forms to be read by automatic recognition devices. [The \$35 publication is available through AIIM, 1100 Wayne Ave., Suite 1100, Silver Spring MD 20910; (301) 587-8202]

NISO PRESS

All NISO Publications are now available from NISO Press, P.O.Box 338, Oxon Hill MD 20750-0338; 1-800-262-NISO; fax 301-567-9553.

IMAGES AS EVIDENCE

The Canadian General Standards Board [Sales Centre, 222 Queen St., Ottawa C.A. K1A 1G6; 1-800-665-CGSB; fax 613-941-8705 has published CAN/CGSB-72.11-93 Microfilm and Electronic Images as Documentary Evidence.

The standard details functional requirements for an electronic imaging system including completeness, accuracy, authorization and maintenance as well as such "evidentiary controls" as audit trails, supervision and disposal. In addition it establishes minimum practices for authorization of such a program, assignment of responsibility, documentation of procedures and changes.

In releasing the standard at the CHIMS Imaging Canada'93 Conference, Vigi Gurushanta, chairman of the CHIMS Standards Committee introduced three speakers who addressed the structure of the standard, how to adopt it in an organization and the legal and business issues it presents. The paper by Ken Chase on the implications of the standard for legal admissibility was particularly useful to me in that it made clear how a standard of this sort, by establishing a baseline for practice, could "compensate for the vagueness and breadth of business records provisions in the Evidence Acts of Canada" or other countries in which a similar standard was adopted. Because it really discusses all record-keeping systems it addresses issues of relevance regardless of whether those systems are imaged. In addition, the author argues that following these standards would greatly reduce the risks associated with destruction of paper originals. In the absence of clarifying statutes and extensive case law, such standards of practice will be crucial to managing risks associated with electronic records.