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

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EDITORIAL

Evolution

This year, after a decade of publishing Archives and Museum Informatics, I decided that the journal needed to be separated from my personality and that I needed a break from writing most of each issue. Fortunately, Kluwer Academic Publishers, a respected Dutch publishing house, expressed interest in taking over the title and continuing it as a peer reviewed quarterly devoted to the same issues in cultural heritage informatics that it has always addressed. This summer we were able to reach agreement on how to effect the change of publisher and of editor.

For volume 11, 1997, I will continue nominally as Editor-in-Chief. Jennifer Trant will assume the responsibilities as content editor beginning with volume 10, number 4. For those who are not acquainted with her, Jennifer Trant has recently been appointed Collections and Standards Development Officer at the Arts and Humanities Data Service, a UK national service funded by the Joint Information Systems Committee of the Higher Education Funding Councils, and housed at King's College London. She is responsible for developing frameworks for interoperability and retrieval for digital resources made available to UK higher education institutions through JANET. Previously she was Manager of the J.Paul Getty Trust, Art History Information Program, Imaging Initiative where she directed the Museum Educational Site Licensing Project, efforts to promote imaging standards, and imaging research and education. A specialist in arts information management and documentation, she has worked with automated documentation systems in major Canadian museums including the National Gallery of Canada and the Canadian Centre for Architecture where she developed and implemented common cataloging standards for the Prints and Drawings, Photographs and

Archives collections. In recent years as an independent consultant she prepared the report of the Art Information Task Force (Categories for the Description of Works of Art). As an active member of the ICOM-CIDOC Reconciliation of Standards Working Group and chair of the Multimedia Working Group, Jennifer has been actively involved in the definition of archives and museum data standards and intellectual integration of collections from many disciplines. Her current interests center around access to digital resources and use of information technology in higher education.

We have recruited an international editorial board to assist in identifying articles for the journal and to serve as peer reviewers with the intent that the journal to continue to provide timely and technical opinion, discussion and critique, and to serve as a review that is both international and interdisciplinary in scope. As in the past, the emphasis will be on representation of knowledge and management of information relating to archives, museums, and libraries. We will expect to continue to bring about fruitful interaction between the intellectual perspectives of different arts and humanities disciplines and between the methods and techniques used in different kinds of cultural institutions.

We would like to use this occasion to welcome the new editorial board and invite you to submit articles to the journal over the coming years.

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Electronic Imaging & the Visual Arts (EVA) Conferences, 1993-96¹

Introduction

Since 1990, Brameur Ltd. and VASARI Ltd. have organized a series of conferences in Europe under the common title **Electronic Imaging and the Visual Arts (EVA)**, which have come to occupy an important place in the dissemination and assessment of techniques in these fields. From the initial annual summer workshop and tutorials held in London, EVA has grown into a year-long program of events in London, Paris, Edinburgh, Berlin and most recently Florence and Athens. While each of the meetings outside London is more modest in scale, all are growing and the number of venues have been expanding with each year.

For the past four years, the EVA London conference has been the *de facto* place where European Union funded research projects in visual arts and telecommunication, have reported their plans and results. As a consequence, others from around the world who share an interest in these issues have found it useful to attend, and often report, at the EVA. Nevertheless, overall attendance has been modest, so I decided to review the published proceedings of the past several London meetings as a means of summarizing the important contributions which have been reported at EVA meetings and introducing new audiences to future EVA events including **ICHIM'97/EVA Paris**, September 1-5, 1997.

The EVA conference papers have been made available to attendees on the day of the sessions in a spiral-bound (and sometimes loose) form. They are organized according to the order of presentation at the conference and correspond all too closely with what the speakers actually say in their talks (to be fair, many of these speakers are presenting in other than their native language). Only the 1994-1996 Proceedings are still available for purchase, and even these can hardly be said to be "published."² However, VASARI Ltd. is now considering publishing a CD-ROM containing the full proceedings of past meetings.

This review takes the perspective of a reader of the Proceedings of EVA in the summer of 1996, which may seem a bit unfair to contributors to a rapidly changing field, but it strikes me as the only useful way to report on these conferences today. In retrospect, many reports on the state of various implementation efforts, however timely and exciting at the time they were given, hold little other than historical interest today. Ironically some papers reporting narrow technical results, which may not have been seen as the most interesting contributions at the time, hold up much better and aggregate into an impressive body of knowledge about how to image visual arts most effectively.

Overall I believe that the problem with EVA Proceedings, as with the presentations at the meeting itself, is the brevity of the papers. With too little time to speak, and no insistence by the organizers that the papers ought to be more thorough, few examine their hypotheses rigorously, or reveal detailed knowledge of prior or related work by citation where it would have been desirable. On the whole, the papers could have profited from greater editorial control and sometimes they really ought not have been published. For example, Harold Kraemer reported on terminology issues in

1 A complete bibliography of EVA London papers 1993-96 is available on request, email to dbear@lis.pitt.edu.

2 Available from VASARI Ltd., Alexander House, 50 Station Rd., Aldershot GU11 1BG UK, phone +44-1252-350-780; fax +44-1252-342-039.

1994, but from the bulleted version of his talk, as published in the Proceedings, it is difficult to determine what he meant. According to his abstract, Alex Werner described the specification for a CD-i "Journey through Nineteenth Century London" but the full paper, like many others, never appeared and the abstract is a placeholder of little use after the meeting. I'm sure that Vito Cappellini gave the same fascinating talk on the use of the Tuscany Metropolitan Area Network (MAN) to conduct color certification at remote sites in London that I heard him give in Florence earlier in 1996, but his printed paper is merely an abstract.

The organizers quite naturally try to attract people from all over the world. This sometimes contributes less to knowledge of visual imaging methods than to our appreciation of the situation in other countries. In 1996, for example, Matthais Artzt and Arno Fischer told the story of a homepage design project in the Brandenburg region, Lev Noll described the history of computing and multimedia in Russia, and his compatriots Nadezhda Brakker and Leonid Kujbyshev gave a quick tour of the history of the CD-ROM in Russia. Ora Haikin gave a fascinating paper on the collection of personal histories from victims and friends of victims of the holocaust in order to build the communal memory of that event among residents of Jerusalem.

By far the most common problem with papers at the EVA conferences (reflecting the newness of the field and the desire of the organizers to bring more players into the circle), is the prematurity of reports. Simply put, many of the authors had no results yet, so however interesting their project concepts were, they contribute little to our knowledge unless subsequently updated with a report after the project completion. In 1993, the Jeremy Rees (IVAIN) reported on the then planned Brancusi Project. Barriers to effective multimedia products at the time seemed to be copyright, proprietary operating systems and the limits of the MPC standard, and the absence of a distribution system for product marketing. Philip McEvansoneya from the Crookshank-

Glin Archive of Irish Art at Trinity College, Dublin described a plan to develop a database with interfaces specified by the Van Dyck project in 1995. David Shapiro's 1996 paper was presented so early in his Moscow based research project that we are, in effect, treated to a definition of virtual reality, not an application of it.

A second limitation of EVA project reports is that they are often little more than "how we did it" accounts. These show too little awareness of the experiences of others or perhaps too great a sense of the uniqueness of their own situation, and tell us less than we need to know about the decision making process from concept to realization of their multimedia projects. A general report of this sort was presented by Edwards and Buddle on the Royal House of Stewart database at the National Galleries of Scotland; hopefully the paper as presented addressed more specific issues. Such project reports are partially redeemed by including an objective description of infrastructure and IT content as in papers on the Louvre by Marie-Lucie Dequier, on the Sophia "electronic library" of Byzantine history and Art by George Tsakarissianos, and of several cultural kiosks-based, point-of-information systems developed in Italy by ABIS Multimedia by Mario Bucolo.

Finally, some EVA papers have simply been too superficial to be useful. The authors know and have learned a lot, but the papers they wrote described what they were doing rather analyzing what they learned. Lothar Spree introduced the Karlsruhe MediaComplex in 1996 but after a cursory description of the endeavors of its many institutional partners, his paper does little to further the understanding of how 3-D modeling is used at cultural heritage sites, which was the most fascinating concept behind the multidisciplinary teams formed at the complex. Also in 1996, Hermann Schaefer skimmed over the details to assert that interactive multimedia was transforming his German contemporary history museum and Oliver Vicars-Harris introduced the Guildhall Art Gallery (London) imaging project. J.Beavis et.al asked interesting questions but drew no conclusions from their experience in a

digital archive of an electronics museum. John Davies and David Edgar Booth described the Cartoon Arts Network, funded by EU to raise the profile of cartoons as art. Their product received a huge response from the web community (30,000 visitors in first three weeks without any advertising) but the paper doesn't help us understand why (unless it is simply the content!). Angeles Espinosa Yglesias and Alejandro Sandoval described the multimedia projects at the Amparo Museum in Puebla in their paper for EVA'94, but insufficient technical description of the systems made it impossible to learn any lessons. Ten researchers joined to present a summary of the VASARI color certification project undertaken by the Uffizi Gallery in 1995 - each aspect of the project is, unfortunately given about a paragraph of treatment.

An overview of the Cycladic Museum of Art by Kiki Bitacha and Nichos Dessipris in 1995 is illustrative of much of what is good and bad at EVA. The paper itself, which details how the museum is going about building a CD-ROM on the Cyclades has interesting detail on the experience, but the authors had just done it for the first time, and at that point had nothing theoretical to say, and no experimental knowledge of how the product worked. It may be an unfortunate fact of life that presenters are always speaking while the project is underway; in a practical, rather than academic field of study, there is often no one left to reflect on the project after it is fully completed.

I. Implementation

A. Making Interactive Multimedia

Examining these volumes in retrospect makes it possible to see that one of the great strengths of the annual conference is the number of speakers who appear in consecutive years, or whose colleagues report on the same project in its evolving phases.

In 1993, Mary Bryden's report on the Discovery Room of the National Museums of Scotland noted the value of the computer for browsing and discovery rather than education and training, and the value of Structured Video Recall techniques in the evaluation of such experiences³. At the same conference, David Clarke reported on plans for creating a new national history museum in Scotland. IT elements were important in the concept of the new museum and it was evident that prior experiences, such as those reported by Bryden, were shaping thinking about the way IT would be implemented in displays within the building. In 1994, Clarke returned to discuss the completed pilot project which looked at six topics in more depth to determine how multimedia might best address them. Michael Spearman's 1994 paper on the Scottish CLAN project discussed the politics and economics of developing a remote access prototype for teachers to use resources of the Scottish National Museum in a Highlands district. The lessons, as in many practical projects, were to keep it simple. In 1995 Michael Spearman updated his earlier account by adding that CLAN software had been debugged and distributed to select Scottish schools on a trial basis and went on to examine the project within the evolving framework for multimedia at the National Museums of Scotland, the 'MOSAICS conceptual structure' which is described in a 100 page internal vision and strategy document authored by Larry Friedlander and David Clarke. The principal features of the MOSAICS concept are described in the article. Overall, the cumulative effect of these reports is to share an institution's learning experience in a valuable way. Further reports in such a series are anxiously awaited because they build so usefully on the past.

Similarly the two paper sequence in which Holly Witchey and Alex Morrison presented plans for an interactive system for the San Diego Museum of Art in 1993 (itself based in many ways on

³ see her article in the *International Journal of Museum Management & Curatorship* vol.10 (1991) p.24-36.

the work Cognitive Applications had just completed for the National Gallery, London) and Ms. Witchey returned to show the completed product in 1995, reflected substantive changes between prototype and delivery which were the aspects worth exploring in depth.

The same effect sometimes happened within a single EVA conference by inviting multiple speakers with somewhat different perspectives on the same project. In 1996, for example, Paul Glenshaw of the National Gallery of Art (Washington, DC) and Rory Matthews of Cognitive Applications, each gave focused papers on aspects of the NGA Micro Gallery project. Glenshaw described a useful automatic method for color correction and Mathews offered his well illustrated professional opinion about design strategies and interfaces.

Oliver Watson reported from the Victoria and Albert Museum on a collaboration with the Corning Museum of Glass which emphasized the mundane problem of authoring a multimedia production, such as authoring huge quantities of appropriate text for segments of biographies, glossaries, an encyclopedia of techniques, etc. and the acquisition of video, especially video without copyright problems. The Corning side of the experience, reported by David Whitehouse and Donna Yemen, included making a production that would satisfy the requirements of the Americans with Disabilities Act and produce a spin-off CD-ROM.

Of course, good papers on a single project are able to make valuable comparative and analytic points. Carmen Vergara's 1994 paper on the Artequin Museum in Chile is an excellent account of what part interactive multimedia can play within a broader program to bring experiences of art to people who otherwise would not have them. The content and structure of the interactive product is clearly described and related to its purposes, making points of value to others without being technical. Implementation reports by Dessipris (the Museum of Dion) and Kure (teaching collections in Lillehammer) revealed both the extent to which resolution and

image depth, storage, and image management software limitations afflicted early projects and the importance of making long term investments, hence going to the limits of the technology even when it reduces the practicality of the implementation in the short term.

Charles Watson and Claudia Monteiro introduced the naive but energetic Contemporary Brazilian Art Project to EVA in 1995. The project intends to create a widely available archive based on the 6500 works by over two hundred artists for which it has collected documentation. Its first effort was to produce a CD-ROM but at the time of the conference, talks were underway to put the collection on the World Wide Web with the help of a high energy physics laboratory at the University of Rio de Janeiro.

Ben Booth and Dieter Hopkin reported in 1993 on a project to capture the 750,000 images of railways in the National Railway Museum, York which reviewed existing methods of capture in 1994 and led to selection of a Primascan high resolution scanning camera since Photo-CD was still unable to capture from the glass negatives common at the museum.

Nikolas Dessipris and Evi Varsou described their CD-i product on Mount Olympus in 1994. The major contribution, they felt, was demonstrating that small and medium size enterprises could develop CD-i products using existing and new data sources. The actual pathways available in the product were quite limited however, demonstrating how complex it can be to create large web narratives. Sjoerd de Meer's 1995 account of CD-i made by the Maritime Museum of Rotterdam for commercial sale also describes the simple pathways of that product and placed it in the context of how the museum hopes to augment the experience of visiting.

Robert Stone's project of twelve days duration to create a proposal for the "Virtual Lowry" museum will be difficult to match for sheer bravado and success. The paper introduces a

proposed museum, engaged in grant seeking, which undertakes a virtual reality public relations project that resulted in the award of a 127M £ grant! While the account itself does little to help us understand virtual reality technology but its appropriateness as a public relations ploy is hard to argue with when success is achieved on this scale.

Considering the title of the EVA conferences, it is astonishing that only one report in the four years I review here dealt with imaging as a visual art. Jennifer Lewis, of the Pacific Science Center presented the first EVA paper on cyberart at the 1994 conference. It would be exciting if EVA developed this track as a major element in future conferences. Of course, one problem with such a paper in a printed Proceeding is that even with the illustrations, we can't get a real sense of the art works being discussed.

B. Coming together, falling apart

Numerous papers over the years have reported on consortia and collaborations between institutions. Some of these projects reflected natural alliances of organizations joining to achieve common goals but many were fostered essentially by funding opportunities or requirements. The former may be more likely to survive than the latter, although the availability of research funding often permitted the 'artificial' groups to make important contributions to the field.

For me, one of the disappointments of the decade was the failure of the European Museum Network (1989-1992). As reported on in 1993 by Frisco Visser of the Museon, a leading Dutch science and technology museum, the project was described as a success and its major functions were detailed. These were quite radical for the time, but their implementation in a proprietary manner and the failure of member museums to carry on after the funded project drew to a close suggests limits of the model. The visitor evaluations reported by Langendijk in the appendixes of the paper made it clear that the primary objectives of the system -

providing easy to use access - were not reached. More importantly, the Network did not survive beyond its outside funding.

During the life of their EU funded project, Dominique Delouis and his colleagues reported regularly on the RAMA (Remote Access to Museum Archives) project, but I was frustrated that they did not explain in their presentations what the technical determinations of the RAMA group were beyond high level architectures or how others could (except by "joining" as it were) benefit from their findings. Some of the assertions of RAMA have been carried forward into the Aquerrelle project and others were repeated in the light of both CIMI and RAMA experience in Luc Sonke's 1996 paper on the promises of document engineering at the Musee D'Orsay, but the consortium itself is now history. Jan Van Der Starre reported in 1993 on the Van Eyck project, another EU art information linking program, but again except for systems architectures based on open ISDN protocols, there was little if any concrete technical detail. I do wonder if these collectives will last. I worry that the opportunity for open international agreements is being lost when well funded efforts develop approaches that are largely project specific.

Yvonne Deane's 1995 paper on the International Artline Project and AXIS (the National Artists Register for England) describes how rapidly progress can be made when in the early, unfunded stages, of some relatively large undertakings. The AXIS Register was prototyped in 3 months in early 1993 on a PC with Microsoft Access and Photo CD images and went live in September 1994 with plans to register 10,000 artists in five years. Full implementation, and implementation of a planned international network required outside funding. This paper was part of that effort. Interestingly, rights issues had not yet been resolved as of the date of the paper despite two years of experimentation.

In 1993, Tadoru Kato reported on the Hi-Vision Museums movement as a collaboration between industry, government and museums. Over fifty Japanese museums were involved already

despite the dependence on what seems an odd and specific technology to those of us in the West. This reflects the investment being made by the Japanese government in this technology. In 1996, Kato returned to report that 150 museums now used the Hi-Vision system and explore its adjustment to a sort of virtual walk-through. Unfortunately, his paper lacked the kind of technical detail that would convince me about the acceptability of this technology outside of Japan.

Getty Trust funding supported the Conservation Imaging Consortium, a loose group of institutions pursuing an unbelievably broad and aggressive agenda of research projects as reported by Barbara Snyder and Kathleen McDonnell in 1993. Few of these projects have been reported on since or were attributed to the CIC when (if) they were completed. I suspect the CIC itself has gone moribund.

Some endeavors actually got under way without grant money. Of course not all collaborations formed of genuine shared interests will necessarily thrive or even survive.

In 1994, a number of multimedia publishers joined together to offer a prize for multimedia authors as a means of building an industry. The MUSA prize was announced by Bruno Brunelli and Alvise de Michelis at EVA. The prize, in addition to a modest amount of money, rewarded an authors' idea, and virtually assured that offers from the publishers for its realization would be forthcoming. Fortunately, the competition has grown along with the prize and the number of sponsors.

At EVA95, Jennifer Trant reported on the three pronged efforts of the Getty Art History Information Program Imaging Initiative: Intellectual Property (the MESL Project), Education (Best Practices Guidelines as embodied in case studies) and standards. The objectives of the three year initiative and its overlapping sub-projects were detailed The Museum Educational Site Licensing project (MESL), a consortium of universities and museums was

almost entirely funded by the participants themselves, who competed for the right to take part. In a short year, MESL was the source of much important work largely reported on its web site. Some of the issues resolved by MESL were discussed at EVA 1996, by Howard Besser and Christie Stephenson who the data distribution approaches explored by the MESL project. Because these have implications for future large-scale multimedia database schemes, I hope they will receive even greater attention in the near future. Specific applications may be seen in proposals for image licensing ventures which continue to proliferate. While the MESL experiment itself will be completed in 1997, it has already given rise to a licensing venture among art museums in North America and led to a study group on licensing of the images and text from all museums under the umbrella of the American Association of Museums.

C. Making it work in the real world - Economic & Copyright Issues

Economic and commercial interests in visual imaging have not been given the detailed analysis that they deserve, at EVA conferences and elsewhere in the literature, although all of us appreciate the degree to which they are barriers to full realization of the cultural objectives of these institutions. Nor has EVA had much focus on developments in copyright. Sometimes treatment of these issues in papers where one would expect them to be central has been disappointingly cursory. Peter Young's 1996 paper on the Magic Lantern Art Gallery never really discusses the practical and economic realities behind his announced service for artists to sell their works through digital advertising. Andrew Brasher and Roberto Minio don't explain, in the 1996 report, how their art publishing venture is expected to operate, at least not in a way that would assist someone who has already given thought to how to organize such a business. Alas, sometimes proprietary and professional interests can't be reconciled.

Several valuable papers have been delivered at EVA on image database services. The background and planning for a photographic archive reported by Harriett Bridgemen in 1995 and the follow-up report in 1996, describe the concept for a digital image service and some of the economic rationales and user requirements.

Einar Petterson and Boris Otovic reported in 1993 on the ScanArtForum, a start-up Nordic institution interested in promoting online access to art. Their paper was introduced by a very useful overview of the standard methods used by the newspaper industry for transmission and access to images, including the recent shift to using the Digital Image Transmission protocol (D.I.T.) and such software as Picture Desk. Methods used by the Allsport bureau in London (sports photographs) and the Bildbanken Press-link service in Sweden as well as Rueters and AP are discussed as possible bases for an art historical image service. ArtScanForum found that museums were also interested, although copyright clearance problems were significant and needed to be resolved before they could go ahead. Similarly vocabulary control was seen as a major issue, especially since the service would need to be multilingual. Unfortunately, after 1993 no further reports on this project were made at EVA or ICHIM and no more information is available on how the project has evolved.

Andrea de Polo's 1995 paper on the Alinari Archive (1.5 million images in the worlds oldest photographic archives) discusses how the commercialization of the archives images are intended to support a process of digitization that will take place over the next ten years through an agreement with Finsiel, one of Europe's largest software houses. The technical plans, apparently formulated before the impact of the WWW was appreciated, are particularly interesting today because it is clear that the service is unlikely to happen in the way it was initially planned. A more likely model is described in Lewis Orr's 1996 report on Image-In, a partnership of an image house, a publisher, an artists collective,

and other art organizations to provide intellectual property management services and end-to-end licensing of digital images. Whatever the technical parameters, I believe we will see many such consortia spring up in the next few years and that they too will enjoy relative permanence as they are born of a true need.

Copyright protection is an equally rapidly evolving field. Paul Doering addressed the many pitfalls of electronic publishing, but especially the dangers of protecting and using intellectual property in the current networked environment. His paper exposed some surprising claims made by America Online, CompuServe, Prodigy and other online information providers on the copyright of messages sent through their services. It will be interesting to see, over the next few years, how service providers attitudes change.

Sarah Keates and Graham Cornish reported on European CITED™'s approach to ensure copyright protection of digital objects as early as 1993. CITED™, which is defined as a means to "control" use, represents the first steps of a group of electronic publishers, computer manufacturers, libraries and IT people to develop a strategy for copyright control. In this and subsequent references to CITED™, I was particularly disappointed that there was not more detail on the model since I find much in it that is problematic and believe it needs a good public airing. Dominique Gonthier of DG III was much taken by the CITED™ project approach when he addressed the conference in 1994 on intellectual property rights, but he saw that in addition to a 'harmonized' technical environment, the world needed agreement on political and legal terms as well.

II. Research

A. Technical Findings Regarding Imaging

Unlike many of the museum projects, the research on image technologies have been well integrated with broader academic

undertakings in which participants have noticeably built on and improved each others methods in a few short years.

A foundation was laid by Michael Ester in 1993 whose research asked the very basic question: 'what do art historical scholars need to see when they use reproductions and images?' It was hoped that by finding out, we could all better use digital imagery in its practice. Using nine focus groups, involving seventy professionals, Ester and his Getty colleagues exposed the fact that the whole scanning process was involved in producing what were perceived as quality images. Better quality scanning compressed better and retained its quality when lower resolution or lesser dynamic range copies were taken from it as compared with original images captured at lower resolution or lesser dynamic range. Fine line details, perceptions of depth and texture, color fidelity and grayscale translucency were all major areas of problems. Many other useful conclusions reached by the study are reported and many remain to be implemented in contemporary systems.

Also in 1993, Muller and Burmester reported on monitoring damage to the surface of paintings caused by transportation. Using high resolution imaging, the researchers were able to identify elongation of a crack and loss of some paint in two tests of the methods which use the VASARI camera and methods developed for detection of roads in satellite images. The software analyses crack topography and pre- and post-processing are required to build the comparative datasets. In 1996 Burmester returned with his colleague and Lars Raffelt to discuss acquiring and printing high resolution colorimetric digital images for a traditional print book (a report on the ESPRIT project Methodology for Art Reproduction in Color, or MARC). Hevre Derrien had first reported on the MARC consortium (ESPRIT project 6937), devoted to color management to ensure accurate reproductions, at EVA1993. MARC was designed to use a VASARI-like system in direct acquisition of images for book publication so as to avoid the complexity of colorimetric control using traditional photo-

graphic transparencies and thereby improve quality while reducing costs. The basic approach was simply to simultaneously capture the image and a color chart under the same illuminant. Derrien's presentation was made prior to any project results. The 1996 report serves both to underline again the extent of the progress and the degree to which virtually all research in these areas is breaking new ground. Burmester and Raffelt concluded that the state of the art 1993 VASARI imaging system was utterly unable to produce quality colorimetric images. They also discovered, as most of the technical contributors reporting over the years have, that the project was extremely difficult to envision correctly before setting out as it required a great deal of intervention by the researchers at specific technical points that were originally thought to have been mastered by others, and was more time consuming and costly to carry out than planned. In addition, they found how much the new processes departed from traditional ones in their entire business method and in the ultimate value of their product.

As early as 1993, Feist, Kscuik, Marzok and Stanke reported greater success in using the VASARI imaging system and special software to solve some of the "puzzle" reconstruction problems common in archaeological research where objects need to be reconstituted from found pieces or shards. The approach used was to experimentally determine what features best supported the reconstruction process - it was found that edges, length and angles of contour lines, and patterns on the surface were strong enablers of matching processes. While description of angles and lengths of sides worked reasonably well, the researchers found that in veined wood-like structures, the calculation of angles in relation to the grain substantially reduced the number of hits. Similarly, surface patterns applied by people could dramatically reduce the likely matches, but sub-surface features discriminated less well. They announced that future research would examine 3-D and curvature as attributes, and in 1995, Professor Stanke and Lothar Paul fulfilled that promise in a paper which examines the need for 3-D

modeling in specific cases, establishes the value of direct data acquisition and structured lighting, and discusses technical aspects of the modeling procedure and data acquisition system. Examples of applications ranged from taking copies of the insides of Edison cylinders, "puzzling" archaeological shards, and modeling sculptures and reliefs. The paper presents excellent, clear, technical discussions of the issues at hand..

The 1995 paper by Alfred Iwainky and Joachim Schulze from the Institut für Informatik in Entwurf und Fertigung, Berlin, on Virtual Reconstruction of Cultural Objects raised a series of questions about the limits of current 3-D technologies. It proposed some technical tricks such as storage of only parts of regular objects (such as columns) of which only 50% could be visible to an observer at a time, using photography with calculated light effects to render reliefs and sculptures, methods to calculate shadows, and approaches to puzzling broken objects and reconstructing wholes from fragments. Again, they engaged in a valuable technical discussion in straightforward terms.

One encouraging feature of many of the imaging technology reports is that they resulted from industry/academic joint ventures. Alexander Geschke and Eva Fischer reported on their system for mobile image acquisition and measurement (an industry collaborative) in 1994. The research was designed to enable museums to easily and quickly capture images in a variety of spaces within the museum (reflecting how few images currently exist). Different locations and conditions are reported. In 1996, Rejean Baribeau (NRC Canada) and colleagues from industry continued a series of exciting reports on 3-D color imaging first reported in this community at ICHIM'91. Subsequent papers on aspects of the work presented at EVA 92 and ICHIM'95 have prepared us for an ever broadening series of papers - this time the focus was on transmitting a one time high resolution scan effectively equivalent to the original for any purposes of reproduction, insurance, registration, publication, cataloging and display. They employ color modeling

software which incorporates reflectance and incorporate tools for compressing and viewing the results. As usual, the authors were asked important questions and began to develop approaches that are promising. I am looking forward to the conclusion of the Canarie grant for a full report in 1997.

Occasionally these highly technical papers were too abbreviated. Reiner Creutzburg's report (1996) on recent progress in compression using wavelets is essentially a single table. Hopefully he explained it further in his talk because the paper as it stands leaves me unclear what exactly is at stake. Two other Berlin based researchers, Michael Pocher and Jurgen Sieck introduced 'MUSY, a MULTimedia Planning and Design SYstem.' MUSY is a low end approach to image capture that does not address the issues of textured surfaces, grouping objects, extrapolation, or storage resources, but does run on a 486 laptop under windows 3.1. Unfortunately, this paper also contained few of the details essential to its assessment.

B. Intellectual Access & Documentation:

Over the years, EVA has not been a preferred venue for reporting on the important technical issue of intellectual control in image management. One such report, by Malcolm Lewis and Catherine Draycott at the 1993 EVA London conference, was typical of these papers in that it neither describes the software used for retrieval nor suggests how the four professional catalogers employed over 36 months actually described the 50,000 photographs which the project recorded on videodisc. Anthony Cawkells' report on indexing of picture collections in 1993 preceded the publication of his book on the subject the next year. It contains a superficial overview of icon (thumbnail) browsing, hierarchical classification, and indexing (thesaural) languages as strategies for retrieval. The latter section reports, again superficially, on ICONCLASS.

James Turner (University of Montreal) discussed indexing of film and video images in his 1994 EVA paper. Indexing requirements varied, of course, depending on the nature of the material and the needs of the users, but the author felt that he could develop guidelines for indexing of individual shots. He called for a degree of standardization for geographic and temporal data as well as many technical issues such as camera angles and shooting conditions. Untrained indexers operating without controlled vocabulary had surprisingly high levels of overlap in term assignment and assigned subject terms for "of-ness" (pre-iconographic description) most frequently and "about-ness" quite infrequently. True iconographical description was very rare, which certainly presents some theoretical problems for advocates of iconographic terminology.

One of the most serious problems that will be encountered in the digital environment is that the volume of information and its level of granularity make finding appropriate information a difficult, if not impossible, task. In 1995, Norman Desmarais posited the catalog, contact sheet, annotations, imaging and pattern recognition as tactics for intellectual content retrieval but ended up proposing that human brains riffling through images at 10 per second are the best tool!

John Ibbotson's paper on the partially completed Electronic Library Image Server for Europe (ELISE) project described the requirements for capture of color images and the systems design for storage and retrieval of such images with an associated classification database. After twelve months, the initial architecture decisions had been reached (the project had just arrived at the conclusion that it should implement Z39.50 and test access via a WAN) and was speculating on the potential of query-by-content. More rigorous treatment of the limitations of the concept of query by content would be welcome.

An exception to EVA's weakness as a source of good information on information retrieval is the 1996 paper by Douglas Tud-

hope and Carl Taylor, "Flexible Access to Multimedia Museum Collections" in which the authors detail the way in which their semantic architecture gets around the limitations of embedded links using a "similarity" calculator.

C. Standards

EVA has also not been a venue for discussion or development of technical standards, although one would have expected to find this as a major theme given the centrality of standards developments to any progress in these fields.

Compression received some attention. In 1995, Jean Barda gave a workmanlike report on the issues in JPEG and still picture interchange standards. Shunichiro Nonaka and Taichi Nakamura reported on using JPEG compression for astronomical images because the authors believe that many of the approaches are relevant to visual arts. Whether they are requires someone else to test the highly technical methods proposed.

Conflicting assessments of new media standards were reflected in Mathews, 1993, research on CDs as a preservation medium and Casha, 1993, problems in using Photo-CD in its earliest incarnation. Indirectly, the EVA conferences gave much support to the idea that CD-i was a viable media standard, though that never looked realistic to observers on this side of the Atlantic.

Metadata standards slight attention. Seamus Ross provided a sophisticated analysis of the problems of maintaining digital data, including image data, for scholarly purposes over a long period of time.

I was disappointed that so few papers treated telecommunications standards directly and those which invoked them presented such a plethora of conflicting recommendations. Papers by Donna Kurtz, John Redfern, and Bill Bunn in 1994 together comprised a report on the LACE Multimedia Programme at Oxford University.

LACE was a two year EC funded project (1992-1994) to test the applicability of ATM technology in real applications. Unfortunately the authors reported more on the content of the transmissions -- in this case by an art archive interested in stimulating its visitors through an interactive attempt to reconstruct the gold and ivory statue of Athena from partial, three-dimensional, information -- than on network transmission standards.

According to the schedule, a paper was delivered at EVA in 1994 on the work of the Consortium on Computer Interchange of Museum Information (CIMI) but it was not prepared in time to get into the Proceedings, so the written record does not convey how museums have been trying to unify different standards efforts in this application domain.

D. User Interface and Design Issues

The final technical arena in which we would expect EVA to have contributed is that of user interface design. Here the record is stronger.

In 1993, Cao, Tagg, McKinnon and Chang reported on a graphical user interface for a multimedia conferencing system which both helps to remind us of how primitive the underlying telecommunications facilities available in 1993 were and how much they needed to improve to become virtual conference platforms. True integration in real-time of image, sound and text files was not available so the authors developed a way to download certain files as needed between conferees. The radical differences between a Internet and post-Internet (to say nothing of pre-WWW and post-WWW) networking environment have rarely been more obvious.

Ralph Wayment's 1994 paper distinguishing between active, interactive and immersive multimedia is one of the few contributions from Australia but its distinction between styles of interactivity based on degree is not specific to a country. It enables

Wayment to move beyond the typical distinctions between administrative catalogs, guides, collections catalogues, exhibition specific pieces, and stand-alone products to address characteristics of any of these. His criteria, based on attributes of the design ranging from its physical setting and audience ergonomics to the levels of interaction, structure, pace and user interface, is one of the very few comparative assessments of programs from a range of museums and poses exceptionally useful questions by being able to make such comparisons.

Jabe Wilson's "Metaphors we design by" is the most comprehensive review of the human-computer interface problem in the cultural heritage literature up to 1995. I strongly recommend a thorough reading, especially for the analytical discussion of metaphors and its grounding in behavioral psychology literature.

"Virtually Nineteenth Century," the digital archives of Regency Brighton by Nick Tyson, is a classic report on how a small institution is doing it with a limited budget report (the usual modest goals - summarized as "to digitize all known textual and pictorial records relating to Regency Brighton and also to establish a further database of the surviving architectural and decorative details in Brighton's Regency homes" - and who said the era of scholarly editions and sinecures was coming to an end?). The center piece of the report, and of the program, is the metaphor of a promenade, illustrated in an 1836 drawing and replicated as the basis for the narrative and visual structure of the program. Extensive discussion of this and other interface design issues is a strength of the paper - onward to the 3D-VR version, apparently.

III. Societal Response

A. Government Programs

One function of EVA has been to forge relations between researchers and practitioners in Europe and to serve as a vehicle

for reporting on EU funded projects. As such, the mechanisms of EU funding have always been of great interest to EVA participants and EVA has been a venue for bureaucrats to report on EC funding opportunities. These are also valuable in hindsight because they articulate the goals of the major threads of funding and the projects approved within them before any work on the projects is reported and thus serve as useful yardsticks to measure progress. In 1994, Robbert Fisher (DG XIII E) introduced the EC Libraries Programme and its various projects and Tom McKinlay (DG XIII B) discussed the RACE programme (almost 1B ECU's in all) as it applied to archaeology and the arts.

Because such political announcements age quickly, it might be most useful to know that in 1996 Bernard Smith of DG XIII reviewed the EC initiatives. G. Mogg and J. Thompson examined the UK Department of Trade and Industry initiatives. Jim Hemsley introduced the EVA Cluster and Magnets project. Wendy Sudbury's 1995 paper on the information revolution and strategic issues for museums was not really about visual information but about changing values, roles, audiences and institutional constructs, and the challenge to professionals to move with the times. A useful admonition, if these audiences really needed it.

B. Prognostication

Nothing seems to bring out new ideologies, global solutions and universal truths as easily as a new technology. EVA has not been without such contributions, and it serves as a warning and an encouragement to those who would give such talks. The future is always a risky place to live - never more so than in arenas of rapid change.

Anthony Hamber took a cautious and "practical view" of the future of digital imaging technologies in 1994. After reviewing the history of photography and digital imaging to date, he saw little promise in the digital camera, much in Photo-CD developing bureaux, continued drops in prices of desktop scanners and pre-

processors as well as further developments in digital to plate/digital to press technologies. These new technologies he felt would have a great sociological impact on academia and art research, but was suitably vague about what it might be.

No such caution is reflected in the paper by Kim Veltman in 1995 on universal searching and access theory or Alan Peacock's contribution on narrative, technology, and cultural change in 1996. In my mind the prize for argumentative future thinking went to Douglas MacKenzie who argued that hypertext leads towards didacticism and urged an approach to navigation of information spaces based on more open-ended knowledge representation. None of which one could possibly object to, until his critique became illustrated by his own very local and peculiar view of the knowledge required. I found his attacks on community standards setting only excuses for his own failure to engage a broader set of users and disciplines.

One critical examination of the promises of the future was the delightful to read, "sober now, I wish I wasn't," account by Catherine Grout (1996) on the potential of image recognition technologies in art history. If it has been accepted a few months earlier, her piece would have suffered from over-zealousness and optimism, but as the months wore on into her study, she examined more of the applications reported to her, and found fewer and fewer reasons to expect these technologies to be of value to art historical research.

C. Systems Development

Each year EVA has been the venue at which some groups have launched their image database and museum software products both in exhibitions and in papers. Unfortunately the commercial systems have given talks which revealed too little.

Several papers in 1994 were devoted to the development of the commercial product, EmbARK from DCI. The first, by Katherine

Pfaff describes the background. A paper by Scott Bell documented the co-development environment at California State University, and the third, by Andrea Notman described the system from the perspective of Harvard University Art Museums, one of the development partners. None of these papers told us enough about EmbARK as it was ultimately licensed to assist anyone in determining its utility. Peter Maloney's "Virtual Reality as Fine Arts" (1996), served as platforms to show, but not really discuss, essentially proprietary solutions. Hall, Colson, Davis and Lewis (University of Southampton, 1996) do the same with "Microcosm," an in-house proprietary digital archive with content-based retrieval (or so they say, but do not explain meaningfully in the paper).

Fortunately the non-commercial systems presentations were better. Maryly Snow's account of SPIRO, the visual online public catalog at the University of California Berkeley related this large-scale software's capabilities to programmatic goals and assesses success factors, while providing an overview of the system and its aims. A small in-house system project was reported by Linda Serenson Colet of the corporate art department at Readers Digest who documented the use of imaging and barcoding to inventory in a Paradox application with Photo-CD and barcodes on frames. Athanasios Bakalidis, Chistos Chamzas, Gerassimos Kekkeris and Afrodite Kouria of the University of Thrace reported on developing ArtBase, an art image database using Paradox and C++ extensions, in 1995. The system is built around three files - one centered on works, another on artists, and a third holding (uncompressed) images - and supports information retrieval only, not collections management.

Sometimes developers believe that their solution is so perfect it will be the end of all systems development. Although they should have known better, the authors of the 1994 RAMA report (Guillermo Cisneros and Ana Luisa Delclaux) suggested that the RAMA system would answer the question of what database systems and telecommunications services should be acquired by

any museum because it would develop "only one manual for all the museums of Europe which could be used without modification by everyone." The paper outlines the technical approach, progress more than half way through, and plans for proselytizing their presumed success, but it seems the system once developed was something less than perfect.

System developers also often seek applications for technologies rather than technologies for applications. In the world at large, the personal data assistant made big headlines in 1994, so it was no surprise to find that by the 1995 EVA conference museum specific applications were reported. Alexander Geschke of CompART in Berlin reported the VASARI and MUSA Portable (VAMP) project whose first live installation occurred in April 1995 using numeric input to a pda which was then hooked to a PC and monitor to display images from a CD - clearly demonstrating on all fronts the prematurity of ideas about gallery handheld interactives. David Clark of i-Media in London reported a similar facility using a barcode reader and a SmartCard holding the data with nearby monitors to show retrieved information - illustrating the same prematurity but raising equally interesting, if technology driven, questions.

D. Towards Large scale, Public, Telecommunicated, Cultural Experiences

From the beginning, digital imaging was always to make images available to anyone, anywhere. For years the technology was not robust enough - storage space, costs, and speed of access, telecommunications speeds and costs, display technologies, end-user RAM, buffers and memory, and software were all far from adequate. Over the past few years storage costs have plummeted and access speeds have risen rapidly, telecommunication bandwidth is available and desktops are equipped. Now the problems have moved from the narrowly technical to the broadly manage-

rial. How do these efforts scale up and how can large scale efforts be managed?

Patrick Purcell and Gerard Parr raised some of these complex issues in a discussion of quality of service measures for visual information systems at the 1994 conference when they introduced the concepts of user level measures and network level measures.

James Grieg-Smith explained the Van Eyck project, to provide access to art historical photographic collections on a pan European basis, in 1994. The project had just completed its market analysis (defining ISDN networks as the distribution medium) and imagining in a wild-eyed projection for the time, as many as 2,500 users of 750,000 images by the year 2000 - how rapidly such projections seem dated in light of the experience of the growth of the World Wide Web (WWW).

The first report on the TUSCANY MAN (Metropolitan Area Network) by Vito Cappellini in 1994 called attention to the potential of the Internet for a variety of applications including cultural ones. In what probably is the first published account of museum use of the WWW, and possibly the first museum use itself, Christie Stephenson of the University of Virginia reported in 1994 on her spring 1993 exhibit of fourteen African Art objects from the Bayly Art Museum using http and the April 1993 X platform release of Mosaic. The detailed report on html describes the requirements users still need to mount their own exhibit and a hint from Ms. Stephenson about how revolutionary this might be.

By 1995, papers referencing the Web were becoming more common. Trish Cashen reported on three sites - the Alvar Aalto Museum in Finland, the Glasgow University Hunterian Museum, and the Smithsonian Institution Museum of American Art - in order to illuminate how web sites can be used for museum education. Erik Rask's paper on CHIN and the WWW shared a vision, at the time not fully realized, of providing a range of professional, commercial, and public services through the web interface.

Jonathan Bowan discussed the 'Virtual Library of Museums' he maintains as a linking resource at Oxford University and reported on its growth and usage.

Also in 1995, Bosse Lagerqvist turned the tables from technology to management in his paper on the systems approach to conservation information, including images. Using the case of a Viking ship to illustrate the complexity of data management in conservation, he modeled a series of documentation and intervention steps that support feedback mechanisms and management decision-making. These are related to a variety of imaging and measuring (photogrammetric) processes in a useful, if technical, way.

Conclusions: The Past and the Future

Reviewing past EVA conferences not only identifies some important papers that deserve a second reading, it gives us a foundation for the future. In 1997, the main EVA event will be held not in London, as it has been since 1990, but in Paris in conjunction with the International Conference on Hypermedia and Interactivity in Museums (ICHIM). ICHIM'97-EVA Paris is a joint undertaking of VASARI, Archives & Museum Informatics, and Archives & Museum Informatics Europe (a Paris-based firm). The call described four methods of participation, which are the presentation of technical papers, demonstrations, workshops, and commercial exhibitions. As technical program chair, I hope to reflect the lessons of this review and of a similar review of past ICHIM conferences⁴ in the detailed version of the call for technical papers. In addition to an abstract, proposals should include a

⁴ *Hypermedia & Interactivity in Museums*, ICHIM'91, edited by David Bearman, US\$30.00; *Museums and Interactive Multimedia*, ICHIM'93, edited by Diane Lees, US\$30.00; *Multimedia Computing and Museums* and *Hands On Hypermedia and Interactivity in Museums*, ICHIM'95, edited by David Bearman, US\$85.00 for two volumes. Available from Archives & Museum Informatics, 5501 Walnut St., Suite 203, Pittsburgh

statement of thesis and should indicate the primary contribution which the paper is intended to make and to what previous literature it is contributing. More complete papers and papers reporting on work already completed will be given preference. Reports on exemplary imaging and multimedia projects are encouraged to focus on the specific contributions made by the projects and transferable knowledge, theoretical or practical.

CONFERENCES

“Managing the Record Continuum”

“Managing the Record Continuum” was the title of a week-long workshop developed by Monash University that was presented first in Melbourne and then in Canberra, between June 24 and July 5, 1996. As a presenter in the workshop, I might have reported on it in any case, but I will discuss it here more extensively because I think that Sue McKemmish and Frank Upward and their colleagues at Monash – Barbara Reed, Chris Hurley, and Livia Iavanoco – are up to some very exciting things in their new model of the record continuum. North American archivists in particular should know more about this intellectual construct.

The structure of the workshop was to introduce the records continuum model on the first day; look at capturing records, especially electronic transactions as records, on the second and third days; and then explore issues of organizational memory and collective memory on the fourth and fifth days. Those acquainted with Frank Upward’s “four dimensional” model will recognize that each day was ostensibly devoted to one dimension. Numerous guest lecturers related aspects of their recent work to the records continuum model during the week.

In my role as honorary chair of the workshop, I opened the meeting and chaired the first day of sessions devoted to the records continuum model itself which were presented by members of the Monash University faculty who were responsible for its development. Sue McKemmish led off, crediting Frank Upward for the original formulation of the model. She described it as a pedagogical and graphical tool for framing issues in “establishing, managing and auditing regimes which integrate recordkeeping and archival practices.” The regimes it describes also “capture, maintain, and deliver records of social and business activity that satisfy

PA 15232, USA; fax (412) 683-7366.

needs of the business domain, the accountability domain, and the social/cultural domain." The records continuum model enables us to formulate methods to control records as "instruments of governance, accountability, memory, identity, and as authoritative sources of value added information."

Basically the records continuum model does this by rejecting the records life-cycle model of records management and replacing it with a model in which records include records of continuing value (e.g., archives) rather than having archives somehow come from records over time. The life-cycle model is rejected because it is record-centric, focused on custody and operational tasks, and makes unnecessary distinctions between records and archives based on the activity of selection. This has led to the para-professionalization of records management and the marginalization of archivists.

The records continuum model is offered as an alternative which builds on the registry tradition and expands the role of archives in regulating current recordkeeping. This has been a defining aspect of the Australian system of archives and is crucial to accountability. Australian archivists have, as a result, been labeled "post-custodial" in international dialogue. What Frank Upward's model allows them to do is map the evidential and recordkeeping features of archives against the multi-dimensional aspects of the recordkeeping function.

Frank Upward's model represents the records continuum in four dimensions: create, capture, organize, and pluralize. Within each dimension it names four aspects of recordkeeping: evidentiality, transactionality, identity, and recordkeeping. Taken together, these sixteen characteristics within the relations established by this integrated framework, define the archival function. As the week progressed it became clear that the model works as a pedagogical tool precisely because it fosters fruitful debate about the relationship between features on the same dimension, features on a shared axis, and the axes themselves.

Frank's presentation of his own model went beyond what had previously been published (which Sue had explained) in an effort to illustrate the environment "around" the model as the socio-legal forces, technology developments, appraisal, and documentation issues which impinge on the model. Interesting issues were raised by the discussion this engendered. Barbara Reed then closed the day by examining the way in which the model can assist archivists in locating partners who share their aims within each of the different dimensions of the continuum.

On the second day of the workshop Frank Upward looked at the way in which the traditional registry system attended to the creation and capture of records, particularly focusing on the "metadata" which the registry system recorded on files. I then examined the functional requirements for evidence in recordkeeping as developed at the University of Pittsburgh and described how they lead to the articulation of a metadata-based definition of the framework for Business Acceptable Communications. Over the course of the second and third days of the workshop, I related the conceptual framework we have developed for managing electronic records to the records continuum model with which they have a strong natural affinity. Several participatory sessions gave attendees the opportunity to put implementation questions into the context of traditional archival and recordkeeping tasks and develop solutions based on electronic system architectures using metadata-based methods.

The evening of the third day contained two presentations. David Roberts of the Records Management Office of New South Wales described how the recordkeeping regime which they are promoting for NSW has evolved and the ways in which the ultimate formulation depends on the record continuum model. Frank Upward introduced the work being pursued at the University of British Columbia.

By the fourth day, the pool of guest lecturers grew to include Keith Parrott and Greg O'Shea of the Australian Archives and

Adrian Cunningham of the National Library of Australia. Parrott introduced the regime for electronic recordkeeping currently being advanced by Australian Archives and O'Shea related the history of its evolution. A participatory session gave attendees during the first week the opportunity to explore what corporate memory was, where it resides, to whom it had value, and how to provide access. Those attending the second week were given the chance to develop strategies for using off-the-shelf software to capture metadata required for evidence.

On the fourth afternoon and final morning, Chris Hurley, who had just joined the Monash faculty on a part-time basis from his position at the Public Archives of Victoria, examined in detail the relationship between traditional knowledge representation strategies, contemporary archival description and documentation standards, and desirable methods for managing archival metadata. His *tour de force* integrated these difficult issues with both the records continuum and the model for Business Acceptable Communication.

Adrian Cunningham then examined how the entire week related to the "collecting archivist" and the world of personal recordkeeping while guest lecturer Dagmar Parer of Australian Archives related it to the work underway in Australia (as elsewhere) to develop Government Information Locator Services (GILS) and systems. Participatory sessions on the collective memory and how to ensure access to it preceded my final summation of the week. Participants reported that the experience had been eye-opening and integrating as we had hoped.

CALENDAR

- **October 19-24** Baltimore, MD. ASIS'96. The American Society for Information Science Annual Conference. For information contact: 301-495-0900; fax 301-495-0810; email asis@cni.org.
- **October 26-29** Pittsburgh, PA. Association of Science-Technology Centers: ASTC 96. For information contact: 202-783-7200; fax 202-783-7207; email ASTC96@astc.org.
- **October 30-November 2** Ottawa, ON. MCN'96/CHIN'96. The Annual Conference of the Museum Computer Network and the Canadian Heritage Information Network. For information call Michele Devine, 301-585-4413 or email mdevine@cni.org.
- **November 4-6** Chicago, IL. Managing Electronic Records. Cohasset Associates offers the fourth annual conference. To register call 800-200-7667.
- **November 18-22** Boston, MA. SGML'96. Fax 703-548-2867 or email SGML96@gca.org.

Call-For-Papers

ICHIM '97/EVA Paris

September 1-5, 1997

Abstracts of proposed papers, demonstrations and workshops due November 15, 1996. Please include a statement of thesis and how the paper relates to prior work in the field.

Proposals to David Bearman
dbear@lis.pitt.edu

**“Le Louvre - the Palace & Its Paintings,”
CD-ROM: A Review**

Ecaterina Geber

For a long time I’ve been looking forward to taking the digital tour presented on the CD-ROM, **“Le Louvre – the Palace & Its Paintings.”** It is offered to the general public by BMG Interactive Entertainment, France-based Montparnasse Multimédia, and the Réunion des Musées Nationaux. Surprisingly, it evoked the same feelings I experienced when I finally had the chance to visit the Louvre in person. It blends previous knowledge, legends, expectations, hope, and, ultimately, becomes a resource linking together myths and our globalizing world.

Was it because of the Louvre, the Palace? Or the paintings? Was it because this CD-ROM has been discussed in many articles, even here in Eastern Europe? Or it was it the fact that this digital production has been labelled as the best-selling museum CD-ROM? Or because it has been, since its publication, the example of “moving from experiment to reality,” to use the words of Lyn Elliot Sherwood, the director of the Canadian Heritage Information Network. These are still open questions.

One thing is sure: “Le Louvre – the Palace & Its Paintings” addresses people everywhere, whether they have already toured the museum and want to re-experience the memories or if they are visiting it for the first time. With a mere click of the mouse, users step inside the interactive, multimediated world of a comprehensive virtual tour in time and space. They are witnessing eight centuries of history featuring over 300 of the museum’s most famous paintings. The works are presented both full-screen and up-close for detailed graphic analysis in a palette true to their

original colors. In addition, there are more than 200 pages of text, two hours of narration and sound commentary, and twenty minutes of music corresponding to different time periods and trends.

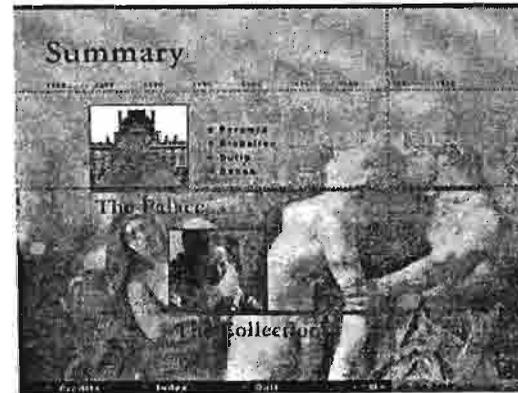


Fig. 1

Users may select two different starting options: **the Palace** or **the Collections**. [Fig. 1]. The content-based approach guides the user either to the rich history and magnificent architecture of the Louvre itself or directly to the works it holds through the choice of a particular

school or a period of time. Soon, however, users discover that whichever approach they choose, the deconstructed virtual world reconstructs itself, offering them, on the one hand, a contemporaneous view and, on the other, showing the process of transformation, the sequence of interpretation and reinterpretation - the history. In other words, the investigation of the palace leads the user to the collections and, in turn, the collections are intimately linked back to the palace and its history.

Leaving the **Summary** screen through the Palace’s gate (abandoning the challenge of the hot “Pyramid,” “Richelieu,” “Sully,” and “Denon” to the second survey or more experienced visitors), we find ourselves calling upon the **Palace step-by-step screen** [Fig. 2]. “Step-by-step” notifies wandering users that they have been provided with special tools to determine the direction, the rhythm, and the length, as well as the depth (detail and accuracy) or the nature of their study tours.

The graded horizontal timeline points to various vertically positioned names, designating the evolution of the Palace from

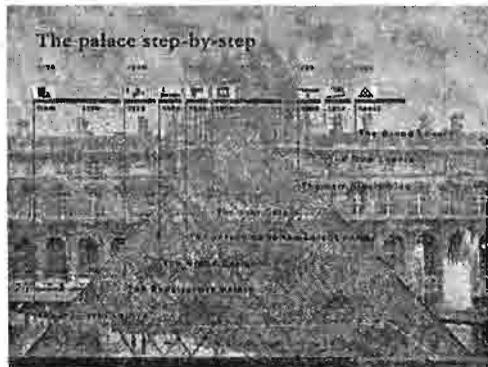


Fig. 2

the **Medieval Louvre** through the **Renaissance Palace**, the extension to the **Lescot Palace**, the **Cour Carrée**, the **New Rivoli wing**, the **New Louvre**, to the **Grand Louvre**. Each name has an associated icon, which will identify the territory and accompany the user

during his navigation. Any click transports the user to the pointed virtual world.

The navigation rules are very well defined and restricted in number. Flexibility is provided by association while richness is emphasized by values.

Each choice leads the user to an introductory screen or “insight” as the authors label it. Each insight is composed of four main areas: (1) the core area – the image; (2) the declarations area; (3) the actions to be taken; and (4) orientation facilities. Accordingly, in addition to the core image and the navigational gates, the process of discovery available to users is supplemented with objects that declare themselves, objects which enable users to take a deliberate action in uncovering the meaning they are interested in. In this way a very comfortable balance of interactivity, guide, classification, and navigation is achieved.

The Cour Carrée [Fig. 3], for example, like any other presentation of the Palace, introduces itself with a core drawing displaying the palace in the 17th century and 30 seconds of music, followed immediately by a spoken presentation which the user can interrupt by clicking on the highlighted functional button. The declaration area generally presents a portrait of a notable person. In this case, it shows Louis XIV’s portrait by Henri Tartelin. A

click on the portrait takes the user to the biography of the Sun King (1638-1715), the bolded words associatively link the content to other information sources (whose nature – text, image, sound, etc. – is denoted by a pop-up icon). The zoomable portrait stays in the same place in both screens, creating a subtle link, while the images proceed one after another.



Fig. 3

As can be seen in Fig. 3, users have a multi-direction action choice. On the one hand, they can go directly to each of the other seven realms available in the resource while, on the other hand, they can also go deeper, from the *Insight* [Fig. 4] to the *Evolu-*



Fig. 4

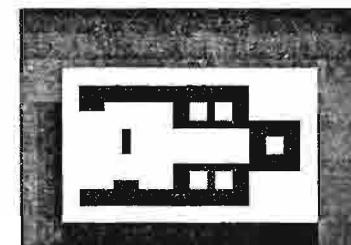


Fig. 5

tion/Room [Fig. 5], *Key Sites* [Fig. 6], or *History* [Fig. 7] of the subject the investigation.

The **Evolution** screen locates the site chronologically. It has at its core a diagram showing the evolution of the palace, while the portrait on the right displays to the user the person responsible for the development of that particular location. In our example – The

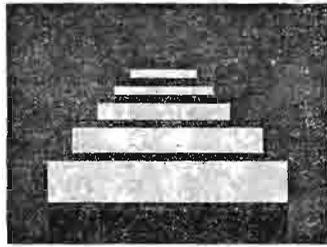


Fig. 6

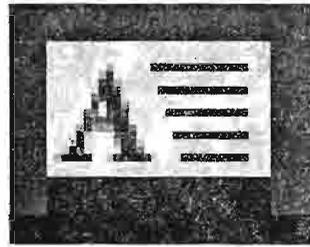


Fig. 7

Cour Carrée – it is Louis Le Vaux (1612-1670) who succeeded Jacques Lemercier as first architect to the king.

The **Key Sites** screen points to important locations added to the palace during that particular period of time. In this case they are **The Colonnade** and **Anne of Austria's Apartments**. Clicking on each of the names highlights a hot point and an arrow showing the position of the site on the palace's diagram and displays a color photograph on the right of the screen. A click on the image starts a declaration procedure in which the picture zooms, covering the whole screen and starts presenting itself accompanied by a 30-to-60 second voice recording. **History** closes the circle, bringing back the portrait of Louis XIV on top of the background and contextual history.

At this point, our tour could take the contemporary path which introduces the four divisions of the today's museum: "**The Pyramid**," "**The Richelieu Section**," "**The Sully Section**," or "**The Denon Section**." Visitors to these virtual spaces encounter the same navigation rules: the insight to the core image accompanied by a voice commentary as well as the portrait of a prominent individual that leads to a biographical presentation.

Going to a deeper level, the location icon, called "room" [Fig. 8], maps the spaces to be visited. Each room is numbered and named. The visitor accesses it by clicking on a room number which activates a declaration procedure. The room location is highlighted on the map and in the right corner the user can see the

image of the room and one-to-nine very carefully selected works located there. Here the resource demonstrates the structural and temporal relationship between the palace and its objects.

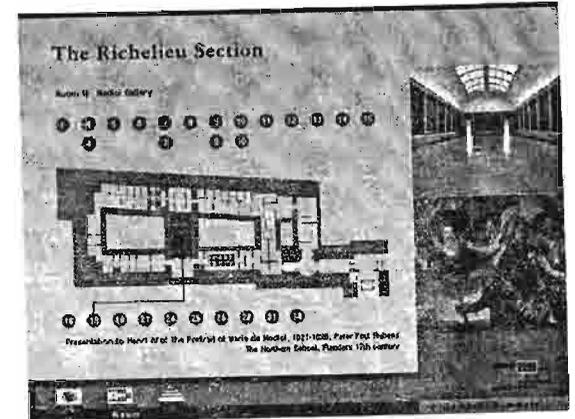


Fig. 8

The room image is sensitive and zoomable. The object image takes the user to the work of art and its content, its structure and function methods, the very place where the user arrives after having taken either of the first choices offered: either the Palace or the Collections.

Using the **Collections** icon, the investigator may view the selected works by a particular school (**The French School**; **The Italian School**; **The Northern Schools**, including **Germany**, **Holland**; **The Spanish School**; and **The English School**) [Fig. 9], or a period of time with the help of the **Timeline** screen – a kind of matrix, linking time, school, room and work

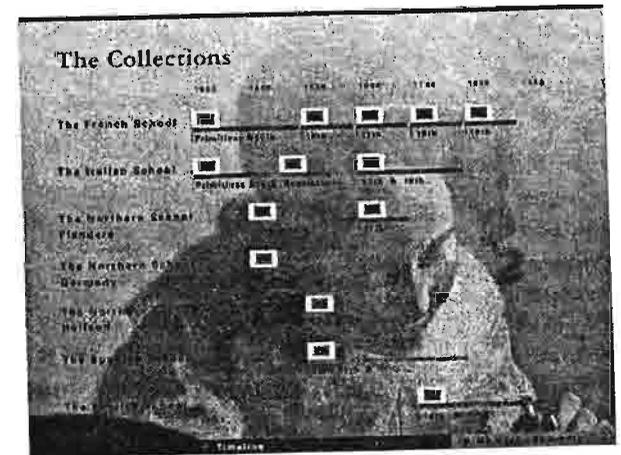


Fig. 9

together. Each road is hot, taking the traveller to the subject of his choice [Fig. 10].

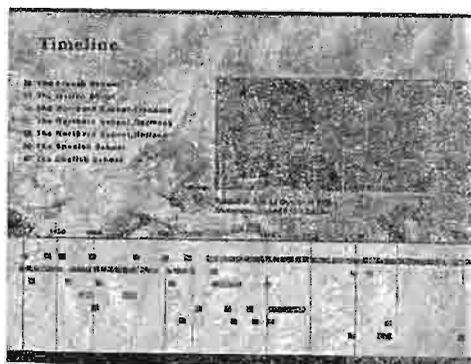


Fig. 10

Each school screen is subdivided into periods. The Italian School screen, for example, offers three possibilities: “Primitives and the 15th Century,” “Renaissance,” and “17th and 18th Centuries,” with one-to-sixteen thumbnail images of the works and a specific faded background image. [Fig. 11]. I do not know whether it was by simple chance, but when investigating the resource for the first time I found myself viewing and contemplating *Mona Lisa*'s mysterious smile, not through a protective glass and a frustrating rope, behind many other people and comments, but in a virtual tour at home in Bucharest.



Fig. 11

Each school screen is accompanied by an optional gateway to presentations on the general history of art related to the school and the period under investigation and, when available, to the collectors' biography.

The Painting screen [Fig. 12] has the same organizational patterns: the core area shows the work, this time in a rounded bright aura to focus the attention of the user (which seems redundant as the user, by a simple click on the image, can have it full screen.) Basic cataloging information is given: title, date, author, material/technique, and dimensions.



Fig. 12

The portrait of the artist, present in most cases, leads to the **Biography** screen, where the already familiar guide explains the composition of the work, describes its construction lines, and locates it in a historical context [Fig. 13]. The user can zoom into details or choose a scale-mode icon, illustrating the size and scale of each painting in relation to humans as well as other works.



Fig. 13

“Le Louvre – the Palace & Its Paintings” also offers a general index [Fig 14], allowing users to access a painting directly by selecting its title, a location by selecting the name of a room, or a section or biography by selecting the name of a person. The index is ordered alphabetically, but is a less developed part of the resource.

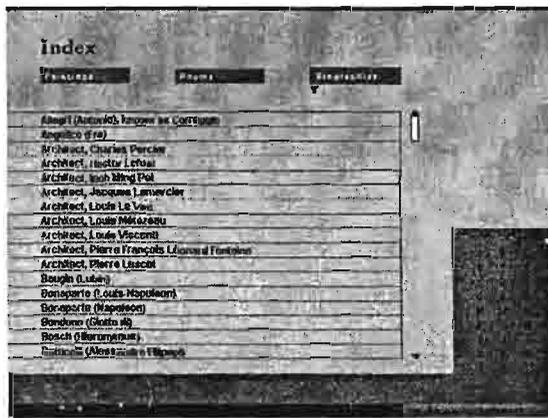


Fig. 14

All screens are provided with the “Go back” and “Summary” functions.

As I have already pointed out in this frustratingly linear description of the CD-ROM on “Le Louvre – the Palace & Its Paintings,” the rules are

well-defined and restricted in number. They are applied throughout the resource in the same manner. Users need no previous training or introduction. This provides confidence and security. The richness of the experience, the desire to come back and investigate it again and again, or to show it to others, arises from the way the rich content (concepts, objects, agents, places, and time) is structured in texts, images (still or animated), sound (music or voice), and the way it becomes operational. The action-like description and contextualization of the “Louvre – the Palace & Its Paintings” ultimately characterizes the experience.

At this point we cannot avoid wondering and asking a question which has been repeated in both the users’ and developers’ communities: “Is this what is meant by multimedia?” In previous articles, I’ve asserted that multimedia is a form which cannot be converted into another form, such as a story, a film, a catalog. It is a new way of communication, the rules of which are still under definition. The CD-ROM on “**Le Louvre – the Palace & Its Paintings**” is a medium linking myth and action, reciprocally stimulating each other, establishing an ideational relation and creating a universe of invocations, a visionary dimension whose model categorizes experience. As such, it becomes a very com-

prehensive and multimediated communication tool, questioning the roles of speech and writing, presence over absence, and offering to the user neither a spoken nor a written but rather a spoken-and-written environment. Whenever words are spoken or and the listeners interact, the author and the audience are simultaneously present to one another. The written text creates a spatial and temporal distance and opens infinite reinterpretational horizons. This, we imagine, is what is meant by “multimedia.”

“**Le Louvre – the Palace & Its Paintings**,” written by Dominique Brisson, journalist and writer, and Natalie Coural, curator with the Restoration Department of the Museums of France; designed by Dominique Brisson, Emmanuel Olivier, Pierre Taiman; Software development by Index+. It is a MPC and Macintosh compatible CD-ROM.

“**Le Louvre - The Palace & Its Paintings**” has received numerous awards: The Golden Award for Art and Culture at MILIA 1995; Möbius Winning Award of the public, 1994; “Best reference title,” at MIM 1995 (Montreal); “Best multimedia product of the year,” at MIM 1995 (Montreal); Finalist of the Ziff-Davis European Awards “Best consumer product.”

Preserving Digital Information: A Review¹

The final report of the Task Force on Archiving of Digital Information follows its draft report by about nine months and the establishment of the group by about eighteen months. During that time there was considerable change in the conceptual framework developed within the group which is now evident in its final report.

Initially they were charged with framing the key organizational, technological, legal, and economic issues associated with adopting a strategy of "technology refreshing" for continued access to "electronic digital records." In the end they redefined technology refreshing as "migration" and paid very little attention to records at all, focusing on information as reflected in the title of their report. Their contribution is a major landmark because of who the group was, and will probably help set an agenda for the political and organizational model for digital archives as understood by the library community. This could have a mix of good and bad consequences as discussed below, but regardless of how the agenda is or is not realized, the report seems to me to have succeeded in introducing, then failed to advance, the discussion of the intellectual construct of migration which desperately needs better and more systematic analysis.

Essentially the report begins and concludes by positing a "solution" which asserts that creators of information objects are responsible for their capture and initial preservation and that a backup "system" of "accredited" archiving institutions (functionally defined - therefore including research libraries as primary players) must ensure the on-going preservation of electronic information objects, if necessary by asserting a new right of intervention. The concept of a public policy to prevent destruction of

records in a society in which we don't intervene to prevent the destruction of any other kind of private property by their owners, somehow doesn't strike the authors as improbably bizarre. To me, a strategy whose starting point and ending point are built on such fragile foundations can't be taken seriously as a framework for public policy, though it is effective as rhetoric. The interesting aspects of the strategy, and the report, are in between.

In these in between sections, the task force asserts that "migration" rather than "refreshing" will save records. Narrowly construed this means that media regeneration will only address a small number of the dependencies of digital data over time, and that the most aggressive and complete program of bit copying will still leave digital information unusable in a relatively short time. This is, of course, complete true and one would hope it was by now obvious.

What follows is that digital archiving needs to address other dependencies, logical structure dependencies, and contextual understanding dependencies as well. Again, this has been the conclusion of the archival profession outside the National Archives of the United States for quite a few years. Having taken the discussion to this point, however, the Task Force seems unable to progress it. Some blame may lie in the fact that the group seemed to feel it needed to spend much of its report explaining the nature of the technology and of archives (a subject which they do not convey a clear understanding of in the end). But a large part seems to me to lie in the decision of the group to identify migration as the strategy, and to use this as an opportunity to emphasize how little was known about the requirements, methods, means, costs and viability of the approach, so as to call for more research. I would have preferred it if they had tried to launch an analysis of the types of dependencies of digital objects, the nature of the societal requirement embodied in the concept of "preservation," and the degrees of risk associated with different tactics for transforming existing objects of particular types in specific ways.

¹ Report of the Task Force on Archiving of Digital Information commissioned by the Commission on Preservation and Access and the Research Libraries Group, May 1, 1996, 65pp.

Frankly this is what we need and the Task Force hasn't done it. Perhaps their political agenda to fund more research will help move us there.

One of the issues that needs to be addressed in this debate and could have been identified is just what the Task Force promises in a system of preservation and archiving. In their examples, the Task Force suggested that a system of archiving would, somehow, have kept the (now lost) first email message ever transmitted, the disaggregated census data, and real-time remote sensing satellite observations of the Brazilian jungles. I hope that no rational system of archiving would have resulted in saving these records, though many random processes might have. We will continue to dispose of well over 95% of all records and 99% of information in any intelligent system of archiving. In addition, we cannot expect to maintain what we do keep exactly as it was created.

The Task Force discusses migration as if it was a loss-less transformation, like bit copying, but one way it differs from media refreshing is precisely because it almost always involves some loss. Agreeing on what kinds of losses are acceptable for what kinds of records and information will be a critical factor in determining the viability of any given strategy. For example, does the Task Force mean for us to read the statement on p. 13, that "the preservation challenge for digital archives is to migrate...intellectual content ..so that the ideas available in the end are identical to those contained in the original object" as a very permissive requirement in which all we need to do is concern ourselves with moving ideas across time, not their manifestation, preservation or performance, or is it just sloppy language in a discussion that doesn't even identify how we will know if we have succeeded? I fear the Task Force generally thought that the absolute preservation of the "integrity" of the object was a given, even if preserving such integrity would, in some cases, be impossible, uneconomical, or silly. The Task Force should have integrated risk management into its discussion framework so its product could contribute to

meaningful public policy debate. (Despite the presence of archivists on the group, the final report perpetuates a lot of very simplistic, and often incorrect, notions of archives including fixation on the concept of custody, the misinterpretation of archival appraisal as subject oriented selection, and framing the "responsibilities" of archivists to make it sound as if they were preservationists or reference staff).

When, if ever, is it important to preserve the look and feel of the implementation of a cartographic representation I created in a specific version of a software, in a way that reflects the peculiarities of that release and my view? To answer this question the Task Force needed to make a distinction between information and records that it studiously avoided. For reasons I don't understand, the Task Force acted as if the question of what constitutes the meaning of the original was identical for published and unpublished, communicated and uncommunicated, human authored and machine authored data. Again, I fear, that without further discussion of such issues we cannot hope to create a meaningful framework for migration.

The Task Force states that:

"The costs and the technical, legal and organizational complexities of moving digital information forward into the future raise our greatest fear about the life of information in the digital future: namely that owners or custodians who can no longer bear the expense and difficulty will deliberately or inadvertently, through a simple failure to act, destroy the objects without regard for future use."

Of course we do this with paper based information all the time. The difference, and I think the Task Force would agree, is that creators and custodians of paper-based information and records could, if they wanted, keep the records and estimate the costs and technical requirements of keeping them. The risks are known and

the methods are largely known and tested. If so, what we need in the digital environment is similarly known and tested methods.

Finally, the Task Force believes we need a new system of institutions and laws: specifically, a “system” of accredited archives and special exemption to copyright and property laws to allow these digital archives to “rescue” information against the wishes of its owners. The Task Force does not accept (but it seems likely to me) that such a system, if it were to come into being, could only exist in a very loose distributed environment with quite different degrees of competence, commitment, and care. Instead they imagine a rigorously enforced certification function and an unspecified mechanism for dividing the labor (all unfunded). Again, I fear the library orientation has led the Task Force down a dead-end. Do they know how large the universe of digitally created objects is? Can they truly imagine a “fail-safe mechanism” by which some centrally administered group of certified archives decide what records are at risk and swoop in to save them even if this was a good or reasonable public policy? Finally, how can they seriously imagine such a public policy in a society in which battles over public control of historic buildings? Even abandoning real estate does not usually become an issue in our society unless the owner stops paying taxes or creates a public nuisance?

The cost model presented at the end of the report is the closest thing to a concrete analysis of the situation to be found in this document, and it betrays a variety of assumptions that are intriguing. First, it is a model largely for retention of bit-mapped images in place of published works. As such it raises “refreshing” rather than “migration” issues. Second, it is a model of book and serial acquisition, storage and reference use, not of records. As such it deals with a trivial amount of data, imagines an unbelievably high level of use for an archive, and introduces as a fairly major issue that in most archival contexts is fairly marginal — the costs of intellectual property acquisition and rights clearance. Thirdly, the model extends for ten years which is not long enough to encounter

the important differences between different strategies for archiving dependent data. Actually, I think it is an excellent piece of work, and very important for thinking about when and how libraries (functionally defined) should build and service digital collections — but it is not very germane to the issue at hand which is how to manage archives (functionally defined) of digital objects, with digital dependencies, over significant periods of time.

Ultimately the Task Force was not able to move beyond its library roots, despite its best efforts and the involvement of archivists (and worldwide archival commentary on the document). It’s too bad, because until we can make distinctions between records and information, have serious conversations about levels of acceptable loss, engage in serious risk assessment of a variety of options which will all lose some data at some price, and accept the consequences, we can’t really make public policy. And when we do, I think we’ll need to avoid the temptation of imagining a new class of legal rights to seize private property that is necessary to make the model run (dreaming about such things, even if they were a good idea - will not get us nearer to concrete mechanisms for migrating specific types of records) within stated loss agreements, across specified periods of time for estimable levels of investment.

The SAA Case Studies Series: A Review

David Bearman

The first three case studies in a series that is designed to number ten, have become available as SAA publications in recent months. The long awaited studies are the result of forward thinking by Richard Kesner and other members of the Committee on Automated Records and Techniques (CART) who applied on SAA's behalf for a grant to introduce this new method of teaching and analysis to archives and of the specially appointed oversight board that has led the project to fruition. The first three case studies confirm, in my opinion, the potential of this pedagogical method, while also demonstrating that the series needs stronger editorial guidance to produce case accounts that will effectively serve to teach recordkeeping skills. It is clear from these cases that Elsie Freeman's kinder, gentler editorial hand was insufficient to ensure a consistent and usable series of cases.

Each commissioned case study appears in two pamphlets: "Teaching Notes" and the case study itself. The teaching notes include biographical information about the authors, a statement of the objectives of the case study, suggestions to instructors about points that could be made through use of the case in a classroom, a bibliography, and, often, primary materials related to the case. The cases themselves are written as narrative accounts. Unfortunately the format doesn't quite work. It seemed to me likely that many SAA members would acquire only the cases (not being educators, they would never see the teaching notes) and miss both the explicit articulation of teaching objectives and the bibliographies and primary materials which are really necessary to having the detail with which to assess the case. Indeed, my overall criticism of the series rests in that, so far anyway, the primary (archival!) materials provided in support of the cases has been inadequate. It is not possible to formulate an independent analysis of the options which were chosen by the participants in the case

nor even to understand the bases for their decisions. Without such material, the case study becomes another how-we-did-it historical account which does not allow for educated second guessing and debate or foster an independent assessment.

The first of the cases, authored by Tom Galvin and Russell L. Kahn, is entitled "Electronic Records Management as a Strategic Opportunity at New York State University" (Chicago, SAA, 1996). It intends to help identify the problems and opportunities in "migration of public records to electronic formats," establishing a new archives and records management function, setting and implementing short-term goals, building strategic alliances, and "establishing and implementing policies in a distributed environment." Elsewhere the authors state the instructional focus as "how to jump start a program by focusing on electronic records." The teaching notes are very good and the bibliography quite useful, but the case itself suffers a bit because of the way it is presented. Often I found the narrative structure got ahead of itself. Frequently it tells the reader things that couldn't have been known at the stage of the case and usually it failed to give the reader adequate primary information about the situation. Both tendencies interfered with the reader arriving at an independent judgment. The fact that this case, like the others, does not stop from time to time to put questions to the readers, also eroded its pedagogical value. In the end, I couldn't tell for myself whether the decisions reached by the participants were in fact well grounded, at which points in the story they could have made different choices, or how the case for the choices they did make were supported by the facts. Throughout, I found myself wanting more detail, more archival records of the case, and more self-conscious reflection on the part of the authors in order to make the case study work for teaching or discussion.

These same problems plagued the second case study by Deborah Skaggs and Charles Dollar on "Using Information Technology to Build Strategic Collaborations" (Chicago, SAA, 1996). The

study intended to illustrate how strategic concepts can guide pilot projects and how such strategically defined projects can be used to strengthen the position of the archives and records management program. The focus of the case study is on the selection of a partner, but the authors provided no primary documents for readers, so we are required to assess the two possible partners entirely from the accounts given us by the authors (who know the outcome, of course).

In the third of the published case studies, "Prison Inmate Records in New York State," by Thomas Norris (Chicago, SAA, 1996), the same problems are evident. The case involves deciding how to appraise a huge volume of prisoner case files including some data from a computerized control system introduced in the 1950s. Unfortunately, the reader can't decide whether or how to sample the case files or what to do with the machine-readable data set because the author doesn't give us enough detail or sufficient primary documentation with which to support a decision. Although the teaching notes include a sampling plan (without which the case study fails to teach anything in my opinion) we can't assess the sampling plan or understand its fundamental categories from the data provided. In addition, I found this case study inadequately informed on the basic issues in the appraisal of case files and was particularly distressed that the author appears to be unaware of the seminal work on the topic by Terry Cook for the RAMP program. He makes no effort to alert students to its radical and important conclusions (or even to cite it in the rather slim bibliography).

These studies could be important components of a professionalizing program for archivists and could contribute significantly to the resources available to educators, but it is unclear from these first few studies whether the series will fulfill its promise. I would urge the oversight committee and the editor to insist that future cases have more concrete structural characteristics that support training and that they include the necessary primary materials

from which readers can reconstruct what the participants in the case knew at the time they had to make their decisions. It would be useful in the narrative accounts to highlight those decisions and take a break in the story in order to focus pedagogic attention on the choices made, the reasoning, and the consequences. In other words, if we are to have case studies and try to use them in teaching, we need to be more self-consciously pedagogical in their construction and presentation. They could be the best opportunity we have to teach the skills and knowledge archivists need.

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Reports

International Council on Archives, Committee on Electronic Records.

- * "Guide for Managing Electronic Records from an Archival Perspective, Consultation Draft" (June 1996) 50 pp. (French and English versions available).
- * "Electronic Records Programs: Report of the 1994/95 Survey" (January 1996), ca. 90 pp.
- * "Electronic Records Management: A Literature Review," prepared by Alf Erlandsson, International Monetary Fund (April 1996) 124 pp.

These three reports of the ICA Committee on Electronic

Records testify to its extraordinary productivity under the leadership of John McDonald, National Archives of Canada. The survey is mostly useful for the lessons it taught the committee – few archives are doing anything worthy of emulation. The bibliographic essay, on the other hand, will be useful to people long beyond the life of the "guide." A more comprehensive review of the literature with abstracts is posted on the University of Pittsburgh web site (www.lis.pitt.edu/~nhprc), but the essay which carries this bibliography is a worthy independent effort to make sense of a rapidly changing world. (My only critique is that the text I wrote for the Edith Cowan University CD-ROM based course on electronic records manage-

ment is credited to the university – but the nice things that are said about it offset my disappointment easily).

The substantive report is intended to be the guide – presented here in a consultation draft just prior to the ICA meeting in Beijing and open for comment until September 30, 1996. It's a mixed bag, though it will certainly be one of the best guidances published if it appears on schedule at the end of this year. My critique is less of what it is (because it represents tremendous movement towards an essentially correct consensus) than for what it could be (the careful reader, attuned to nuance, will hear, and miss, what it did not say).

From an introduction on the history of computing and why current electronic records are evidentially more important than those of the past generations of electronic systems, to a definitional chapter that focuses on the record, record-keeping, and archival functions, the report is unobjectionable. Still the definitions do not include a role for transac-

tions and the focus on archival functions obscures a more important discussion of the business functions of organizations whose records we archive. The section on strategies, which is grounded in a life-cycle approach and provides neither citation nor warrant nor literature support for its functional requirements, is significantly less satisfying. The organizational implications are discussed in appropriately muted tones for an ICA publication.

The second part of the guide, which deals with tactics, is more disappointing yet. Section A addresses databases and Section B treats preservation issues. In themselves there is not much wrong with what they say, but the inclusion of these two tactical guidelines only, says volumes. The Committee either still sees these as the important issues, which they are not (and the previous text suggests the Committee probably doesn't believe it either), or they have no idea of how to proceed on what are the critical issues – capturing metadata from business transactions and controlling records, including

their migration and restricted access and use, at the item level over time. Other sections are promised. I hope the final report either includes them or none.

**National Archives of Canada,
Information Standards and
Practices Division.**

- * *Electronic Records Management Initiatives in the Government of Canada: A Directory* (May 1996) 13 pp.
- * *Electronic Work Environment (EWE) Vision* (May 1996) 10 pp.
- * *E-Mail Policies in the Government of Canada: A Directory* (May 1996) 4 pp.
- * *Managing Electronic Records in an Electronic Work Environment* (May 1996) 9 pp.
- * *Managing Shared Directories and Files* (May 1996) 18 pp.
- * *Records/Document/Information Management (RDIM): Integrated Document Management System for the Government of Canada*. Request For Proposal, Software Requirements (May 1996) 30 pp.

- * *Recordkeeping in the Electronic Work Environment. Vision* (May 1996) 5 pp.
- * All reports available also in French. Copies from John McDonald, National Archives of Canada, 395 Wellington St., Ottawa K1A 0N3 Canada

These seven reports out of the National Archives of Canada this May reflect an aggressive program of support to Canadian government agencies trying to identify and implement best practices in electronic recordkeeping. The two directories identify colleagues already on the path towards solutions and briefly describe where the efforts have reached and how to emulate them. The two vision statements articulate where the archives and the agencies hope to be heading with these new technologies. The two guidelines on managing records, directories, and files provide excellent, concrete tactics for immediately improving control over records in the agency using existing technologies and nothing more elaborate than good definitions

of functional and form based naming conventions.

The RFP, which is the longest, most complex, and most risky of these documents, describes a system for integrated management of paper and electronic records to support both agency operational needs and the purposes of recordkeeping. Not surprisingly it is an object-oriented, business process directed, standards-based, metadata-profile driven, distributed environment utilizing an extensible classification system, security, and distributed custody and control. These are all appropriate choices, but whether any centrally procured current software solution can or will be adopted across the government of Canada, and whether trying to do this makes sense, will only become clear over time. My guess is that the acquisition exercise will be regarded in future years as a useful learning experience. I hope I'm wrong.

* Canadian Heritage Information Network, *Collections Management Software Review*, Edition 1, vols. 1 & 2 (Ottawa, CHIN, May/July 1996). Online, free to CHIN members; electronic copies CA\$15 to CHIN members; non-CHIN members CA\$245

These two volumes are a detailed critical assessment of eight applications and three toolsets widely used in collections management of museum collections in North America. They represent a part of the strategy of assistance to museum members in establishing in-house control systems which was formulated after CHIN decided to play more of a role as a broker of museum information than as a central service bureau last year. By organizing its members to assess software, CHIN was able to educate those museums in the process of making the first decisions about migration options while providing a service to other museums that will be making decisions about migration over the next three years. Comparative analysis

data of this sort has not been available since I did it for the first issue of the *Directory of Software for Archives and Museums* in 1988, and it is incredibly valuable. CHIN has provided the raw data together with analytical tables that museums can use to help make comparative assessments and purchasing decisions appropriate to their local needs. By offering this data to the broader community (albeit at a cost) CHIN is providing another professional service – because the software reviews will be regularly updated over the next few years, not only will data be current but the vendors will begin to move towards more common functionality in order to better compete in such an easily cross-assessed environment.

* Council of State Historical Records Coordinators (Victoria Irons Walch, compiler), "Maintaining State Records in an Era of Change: A National Challenge" (COSHRC: April 1996) 74 pp. Also available at www.nara.gov/nara/nhprc/shrabs.html.

The fifty state archives, in aggregate, contain the same volume of records as the National Archives, are acquiring an equivalent volume to national accessions annually, but have half the budget and staff. The challenge posed by this study is how they can fulfill their obligations, especially with respect to taking charge of new technologies, given the level of funding and expertise they have and the volume of records they face. This report, which is the third biennial study of the status and needs of state records, doesn't really try to answer the question, because its role is to document the situation statistically, through comparative analysis of programs on numerous dimensions. While it achieves that objective admirably, it reveals the absence of a national strategy to solve the problems.

There is good news along the way, however. The report, and an increasing number of State archival programs, recognize electronic records as the major challenge of the current decade and have adopted the functional requirements ap-

proach to influencing systems implementations. Many states are now making access to records public through the use of Government Information Locator Systems and/or the world wide web, and almost half now participate in a national bibliographic network as well. Many state record programs are making some headway with respect to statewide IRM (although much confusion was documented here as well) and most are developing better and more explicit records laws and authorities including attempting to define the legal status of electronic records and images. Facilities have improved dramatically over the past five years.

Unfortunately, however, the overall situation of state records, as measured by Paul Conway's "intensity of care" index which divides accessioned materials by staff, has been steadily worsening. Since 1985 when Conway studied it and the index stood at 1:1206, the index for states slid to 1:2342 in 1993 and now stands at 1:2890. Meanwhile staff salaries and educational re-

quirements for entry into the field have not improved (and may have declined relative to other professions).

The report has five recommendations dealing with increasing skills, being proactive with respect to policy and users, adopting best practices and fostering effective strategic partnerships, but these can hardly be considered practical responses to the dismal situation. It is clear that a more fundamental reassessment of the goals, methods and resources of state records programs will need to take place to change the situation. When it does, this report and its precursors, will prove useful sources of the concrete data required for action.

* European Commission, DGXIII-B, "Multi-media Access to Europe's Cultural Heritage: Memorandum of Understanding" (28 June 1996) 219 pp.

This document sets out the terms of "a Europe-wide reference framework for public/private partnerships, consensus development on technical standards, protection of legal

rights, and new multi-media service structures" in order to foster research and development, cultural policy, and telecommunications evolution. Over 240 museums and galleries have "signed on" to the memorandum, although it is often hard to understand precisely what it means to be a signatory.

The actual framework is that Europe's culture, as held by its museums, is one of its greatest assets. It holds that multimedia can, or will soon be able to, realize the potential of these assets, including their huge (imagined) "revenue-generating potential," and that a common vision and cooperation can help reap some of the benefits of making this culture available for museums. The framework needs to address priorities, interoperability, minorities, and education and to arrive at consensus between the museum sector and the commercial sector. The Memorandum of Understanding (MoU) itself therefore is a statement of commitment to achieve agreement and exchange information, establishing a governance struc-

ture and committee structure to support forums for drafting the more detailed agreements. The terms of reference of these committees are included, but their breadth gives little indication of the directions they might take.

Having been present six months ago when an earlier draft of this MoU was discussed in Florence and went up in smoke, and in Brussels twelve months ago when it was first aired, I am amazed at the energy it took to give birth to this mouse. On the other hand, it provides a structure for cooperation and may yet turn out to be a critical turning.

Articles and Books

* Robert A Baron, "Digital Fever: A Scholar's Copyright Dilemma," *Museum Management and Curatorship* 13:1 (1996):49-64.

Discovering that scholarship is an economic activity and that "fair use" exemptions are problematic in the digital age leads Robert Baron to speculate at length on the potential impact of changes in the control exer-

cizable over digital copies and the imagined adverse consequences of this for research. I think his premature hand wringing will be easily diagnosed by readers of the *CONFU Guidelines* on educational fair use for digital images (see below).

- * David A. Wallace, "Archives and the Information Superhighway: Current Status and Future Challenges," *The International Information and Library Review* 28:1 (March 1996):79-91.

The first thorough analysis of the situation of archives in the formulation of public policy regarding the Internet identifies the cultural heritage dimension (public access) and the electronic recordkeeping dimension (accountability). Wallace documents the current situation and explores the implications. Most importantly, he identifies promising ideas in the professional literature that could make archives an important player in the evolving global information infrastructure.

Journals and Newsletters

- * *American Archivist* 58:2 (Spring 1995): Special issue on electronic records and automated methods.

The issue of the *American Archivist* dated Spring 1995 arrived only a year late (taking up some slack in what has often been a much longer backlog), but its contents still date from 1992-93 which is particularly unfortunate because the subject is electronic records and automated methods and the articles and reviews, which would have been exciting then, are mostly of historical interest today.

Lee Stout's account of how the Penn State University archives tried to use electronic records management as an avenue towards greater prominence and recognition within the university is a fascinating case study when compared to the recently published SAA case studies on SUNY and the State of Alabama (also reviewed in this issue). Looking for existing datasets of historical value, they found fewer than

1% of the 3700 they analyzed had the necessary documentation and content to be considered for archival retention and that all of these would require new privacy policies to be useful to researchers. The lesson was that archives and records management need to be involved up front in electronic records creation if they are to obtain meaningful evidence of long-term value – a lesson which would have been more noteworthy if reported in 1993 when the article was written than now.

Richard Kesner reported on the potential benefits of the then (October 1992) newly emerging groupware and corporate-wide information systems software for archives and records managers and called on them to become involved with information systems professionals in "metadata definition, systems architecture design, database administration and IRM...." The advice is still apt, unfortunately.

A reprinted paper by John McDonald from 1992 and a report by Michael Miller on im-

aging systems acquisition and implementation at the Environmental Protection Agency also suffer from being dated and having been previously reported.

The account given by Peggy Adams of NARA's failure to cope with punch cards from the pre-computing era is a solid and intriguing study whose implications for the present are clear to me, but not articulated by the author. Tom Brown's history of the use of the Freedom of Information Act to acquire records in electronic formats is a valuable analysis of the legal precedents up to 1994, and because the scene has changed so little, is uncomfortably accurate today.

An excellent group of relevant publication reviews were scheduled for this special issue, but again their appearance in 1996 reviewing books published no later than early 1993, is a travesty for a professional journal that should be keeping members of the society current on important developments in their field.

* National Association of Government Archives and Records Administrators, Committee on Electronic Records and Information Systems. *Crossroads: Developments in Electronic Records Management and Information Technology*, edited by Bob Horton. 1996-1 (Albany: NAGARA, 1996) 12 pp.

This semi-annual news pamphlet of the NAGARA Committee on Electronic Records and Information Systems is edited by Bob Horton of Indiana State Archives (robert_horton@ima.isd.state.in.us). In this (its second?) issue, it reports in 300-500 word stories on NARA- and the NHPRC-sponsored projects in electronic record and technology including: NARA's strategic plan, the University of Michigan Conference on Electronic Records, NARA's Federal Recordkeeping Requirements draft, the U.S. State Department electronic records appraisal, the federal GILS system, the University of Pittsburgh functional requirements for evidence, the Philadelphia Electronic Re-

ords Project, Indiana University's electronic records project, the Philadelphia Information Locator Service, Federal records declassification, ARMA's e-mail guidelines, and the Access Indiana Information Network. Given the brevity of the articles, and their descriptive character, the primary purpose is to give its audience addresses and e-mail contacts, a service it performs well.

* TULIP, The University Licensing Program, Issue 7 (July 1996).

This final issue of the TULIP newsletter summarizes the four-year project to explore the viability of electronic journal publication and collection in university research settings. The final report of the project as a whole is at www.elsevier.nl/locate/tulip. The project summary contains no major new points or surprises, but concludes that electronic collections are still more expensive to maintain than paper ones and that users need a critical mass and good functionality to move to using electronic ver-

sions of journals instead of print ones.

Annual Reports

The 1995 annual reports of the Public Record Office (UK) and the National Archives and Records Administration (US) arrived during the same week this year and I was struck at once by their similarities and by the extraordinary difference between what these are today and what they were a few years ago. Now both reports now sport glossy covers and a public orientation. If we ignore accessions listing, which NARA has abandoned in favor of less expensive means of listing accessions (they comprise over 30 pages in the PRO report), both

reports contain about 65 printed pages and are organized along functional and strategic lines with graphs and photographs illustrating major problems and trends. The PRO is a bit ahead of NARA in strategic planning and actually reports, in eight detailed pages, on its achievements as measured against objectives in its plans (NARA will soon be in a position to do the same, I hope). Both reports reflect the optimism of new leadership and of a new building and proclaim their successful moves on both the physical and a policy front. There is more going on here than a change in public relations style – keep an eye out for new programmatic substance in the next few years.

NARA Issues Strategic Plan¹

Along with four dozen other members of NARA's broadly defined "constituency," I was invited to one of two days of meetings in mid-July to review a draft strategic plan developed by NARA staff over the course of the past year. The plan, which evolved from 80 small group meetings attended by the Archivist and over 150 training sessions conducted for NARA staff at all levels throughout the country, was testimony to the seriousness with which Archivist John Carlin takes the staff of NARA. It also revealed their short comings and the limits of thinking within an organizational boundary about a major public policy issue.

The plan as issued early in July was in most respects identical to the one published following the consultation in early August, but the changes that were made were meaningful and the correspondence which the archivist sent was extremely responsive to the requests made by outside commentators. The coming out party was a great success; the critics neutralized each other sufficiently to permit the agency to pursue its agenda undeterred, but could be counted on to state some positions that bolstered internal arguments and made certain changes possible. I think the resulting document is a powerful political statement and will fly well publicly; I am less convinced that it sets a solid direction.

The plan begins with a "situation analysis." This analysis is quite revealing in light of the vision statement which identified the crucial tasks for NARA being to determine what evidence is essential and ensure that government creates such evidence be-

¹ For copies of the latest strategic plan, see:
www.nara.gov/nara/vision/naraplan.html.

cause it never addresses the question of how well the U.S. government is doing at its documentation or what societal and organizational trends are affecting record-making and recordkeeping. Instead, the situation report describes NARA's public visitors, proceeds to discuss the burden of accumulating paper, identifies the challenge of electronic records, and ends with an assessment of NARA's needs for staff training. This inward looking myopia is endemic to the document and is probably a consequence of developing the plan through an entirely internal process.

In the next section, "What do we want to achieve," the document opens the way to an escape from NARA-centric and record-centric thinking by stressing the need to be involved in "management of records throughout their life-cycle." However, the plan views NARA as the principal doer in the process rather than recognizing that most of federal recordkeeping activity, dollars, personnel, and evidence will be, as they always have been, in the hands of officials of other government agencies.

The section entitled "What must we do to get there?" contains the plan itself, presenting 43 specific "strategies" or tactics designed to address six questions.

- How will we organize out work around the records life cycle?
- How will we promote front-end records management?
- How will we preserve growing quantities of federal records?
- How will we expand opportunities for access?
- How will we develop our capacity to adapt to change?
- How will we raise the necessary resources?

And the strategies?

For integrating life-cycle records management in NARA (which presumably is a strategy to be able to better do its own work), the “strategies” are internal reorganization and coordination, implementing records management within NARA itself, and developing a technology infrastructure and application systems environment that supports NARA’s mission. What isn’t clear is what new strategies NARA has that would make us believe that it could possibly succeed at this now – after all, information systems development and reorganization have been going on forever without contributing to NARA’s effectiveness.

For promoting front-end record management (which presumably is a strategy to be better able to support agency recordkeeping), the “strategies” are clarification of guidance and increased service to agencies, streamlining the scheduling and appraisal process, and collaborating on approaches to electronic recordkeeping. Where one would have expected to see proposals for concrete standards, measurable methods, specific new processes, and concrete electronic records strategies, there are none.

For preserving the growing quantity of federal records, the “strategies” are consolidation of holdings in some cases, allowing for distributed custody in other cases, and providing options for presidential records in yet other cases, combined with seeking more Congressional and private funding.

For expanding opportunities for access, the “strategies” are to develop a national electronic information service, more exhibits, and more loci through which copies of federal records can be consulted. The plan is without a clue about how to use the *Federal Register* as an intellectual framework for archival access or what to do about the vast volume of classified records (except working with federal agencies to increase the consistency of application of declassification guidelines).

Finally, the last two sections of the plan address plans for internal training and re-assignment of staff and “strategies” for

funding the effort which are basically to reduce costs through better administration, communicate needs to Congress and the President, and raise more private sector money. I can’t see how any of these qualify as strategies.

My fundamental problem with the plan is that it views the interests of the agency as identical to those of the records of the federal government (although to his credit, Carlin did add a bit more language reflecting the importance of the rest of the federal records management establishment to the draft before it was published). What we all need to understand is that the Archivist can be a spokesperson for “ready access to essential evidence,” but NARA is a relatively small agency and it needs to act through thousands of civil servants not on its payroll if we are to succeed in making and keeping an adequate record.

Other problems with the plan come as no surprise. NARA still has no concept of what to do with electronic records (its strategy is to work with others to figure it out), no concrete plan for reducing classification or increasing the pace of declassification (ditto), and no new ideas on how best to exercise its control role (although it now seems willing to admit that custody is not always necessary to control). Consolidating space is still seen as likely to release significant funds and the chimera of private funds for exhibits and publications continues to attract resources it is unlikely to significantly augment.

On the other hand, there are ideas in this strategic plan that would have been (were) heresy a few years ago. Considering alternatives to presidential libraries, increasing the relative funding of records management and front-end activities, exploring functional appraisal as practiced by the Canadians, Dutch, Australians and others, and envisioning NARA as a policy-making and regulatory agency are all extremely positive steps.

In many ways the cynic in me sees the plan, and its development, as a step in softening up internal resistance to some major

changes. The final section of the plan, added between July and August, suggests as much. The first steps will be to reorganize NARA, shift internal resource allocations, and introduce the kind of personal responsibility for performance that will encourage numerous more senior agency officials to take early retirements. I have no problem with the approach, indeed it strikes me as essential. Perhaps in time this will also permit some of the less desirable ideas in the plan to be forgotten and some of the better ones to be moved up on an implementation schedule. It is clear that no just verdict on a ten-year plan can be delivered in less than three to five years, but my verdict on the new Archivist is in – he’s earnest, intelligent, open, and a considerable public relations asset. It might even be enough to use an internally developed strategic plan to reform the National Archives.

CONFU-Digital Image Discussion Group¹ **Educational Fair Use Guidelines for Digital Images,** **Discussion Draft of July 1, 1996²**

Considerable progress was made this summer towards the development of a consensus set of guidelines on fair use for digital imaging. The purpose of these guidelines, they state, is ‘to provide guidance for the application of fair use principles by educators, scholars, and students who wish to use copyrighted digital images without permission for non-commercial educational purposes.’

They remind readers that ‘there is no simple test to determine what is fair use. Section 107 of the Copyright Act sets forth the four fair use factors which should be considered in each instance, based on particular facts of a given case, to determine whether a use is a “fair use”’: (1) the purpose and character of the use, including whether such use is of a commercial nature or is for

1 American Association of Community Colleges; American Association of Museums; American Council of Learned Societies; American Society of Media Photographers; American Society of Picture Professionals; Art Libraries Society of North America; Association of American Publishers; Association of American Universities; Association of Art Museum Directors; Association of College and Research Libraries; Association of Research Libraries; Coalition for Consumers’ Picture Rights; College Art Association; Consortium of College and University Media Centers; Corbis Corporation; Creative Incentive Coalition; The J. Paul Getty Trust; Instructional Telecommunications Council; Library of Congress/National Digital Library Project; Medical Library Association; National Council of Teachers of Mathematics; National Endowment for the Arts; National Endowment for the Humanities; National Science Teachers Association; Picture Agency Council of America; Special Libraries Association; U.S. Copyright Office; Visual Resources Association

2 The document discussed here was drafted by the group at meetings on 2/28, 4/9, 4/17, 4/22, 5/2, 5/16, 5/29, 6/3, 6/12, 6/21, and 6/26/96. The latest working draft of the guidelines is held with Cameron Kitchin of the American Association of Museums (202/ 289-1818, cameron@usa.net).

nonprofit educational purposes, (2) the nature of the copyrighted work, (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole, and (4) the effect of the use upon the potential market for or value of the copyrighted work.'

After several disclaimers to make it clear that the courts ultimately must decide, that technology will change and therefore guidelines might change, that the limitations and conditions agreed to don't over-ride public domain or licensed materials, and that 'nothing in the guidelines should be construed to apply to the fair use privilege in any context outside of educational and scholarly uses of digital images,' the group set out some framework principles.

First, the group noted that educational institutions have large pre-existing visual resource collections which have been acquired from a wide variety of sources over a period of many years and often lack adequate source information, especially for older images. Publishers and vendors may no longer be in business, information about specific images may no longer be available, and there may be several layers of rightsholders, which complicates the process of locating rightsholders. They conclude that 'seeking permissions for pre-existing collections will be painstaking and time consuming,' but note that 'significant educational benefits (are) to be gained if pre-existing image collections can be digitized uniformly and systematically while satisfying rightsholders.'

"The approach agreed upon by the representatives who developed these guidelines is to permit educational institutions to digitize lawfully acquired images as a collection, to provide access at the educational institution to a secure online catalog of thumbnail images, and to begin using such images for educational purposes. At the same time, educational institutions should begin to identify the rightsholders and seek permission to retain and use the digitized images for future educational purposes. Continued use depends on the institutions' making a reasonable inquiry to

clear the rights in the digitized image. This approach seeks to strike a reasonable balance and workable solution for copyright holders and users entering the digital era."

The analysis of the intellectual property rights in visual images seeks to overcome confusion arising from the many ways images are created and the many sources for images in educational institutions' collections.

"Determining all the rights connected with an image requires an understanding of the source of the image, the content portrayed, and the creation of the image, both for original visual images and for reproductions of images. Often, a digital image is many generations removed from the original work that reproduced it. For example, a digital image may have been scanned from a slide, which was copied from a published book, which contained a photographic transparency, which reproduced an original work of art. Each stage of reproduction in this chain may involve an additional layer of rights. The rights in images in each of these layers may be held by different rightsholders; obtaining rights to one does not automatically grant rights to use another."

The group made the useful distinction between rights in the original visual image, the reproduction, and the published reproduction, each of which must be separately considered when analyzing the rights connected with a digital copy of an image, and noted that:

"In using digital images, educators should be aware that rights to use images will vary depending on the source of the image, the content portrayed, the identities of the rightsholders, and other factors, such the terms of any applicable licenses."

After excellent examples, and a section of definitions, they advanced a series of guidelines from which I have extracted major points below (not intended as a substitute for a full reading, especially by those who want to help shape the final drafts).

- In general, educational institutions with pre-existing image collections may digitize from the lawfully acquired images presently in their collections in order to support the permitted educational uses. Simultaneously with digitizing, educational institutions should begin the process of seeking permissions from rightsholders if they wish to retain the digitized images and to continue to provide access for educational purposes beyond a transition period.
- In general, educational institutions may digitize new, lawfully acquired, images to support the permitted educational uses unless such images are readily available in usable digital form for purchase or license at a fair price.
- Educators and students may digitize lawfully acquired images to support the permitted educational uses even if such images are readily available in usable digital form for purchase or license at a fair price, however, retention and reuse of such images by educators and students is subject to time limitations.

Uses of Digital Images

- Educational institutions that rely upon these guidelines are expected to establish appropriate policies and procedures and to take reasonable steps to ensure that such policies and procedures are followed.
- The educational institution's visual online catalog, which includes the thumbnail images may be mounted on the institution's secure electronic network, and access may be provided to educators, scholars, and students affiliated with the educational institution.

- Students may use digital images in an academic course assignment, publicly display their projects incorporating digital images in courses for which they are registered, and retain their projects in their personal portfolios as examples of academic work.
- An educator may display digital images for educational purposes, including face-to-face teaching of curriculum-based courses, and research and scholarly activities at non-profit educational institutions. Educators should make their students aware of the rights of copyright owners and the restrictions on downloading, copying, and making other use of digital images.
- Educators and students may use or display digital images in connection with lectures or presentations in their fields.

Limitations

It is generally appropriate to use images in their entirety in order to respect the integrity of the original visual image; for purposes of electronic display, however, portions of an image may be used to highlight certain details of the work for educational purposes as long as the full image is displayed or linked to the portion.

When digitizing and using individual images from a single source such as a published compilation or individual frames from motion pictures or other audiovisual works, educators and students should be aware that fair use limits the number and substantiality of the images that may be used. The greater the number and substantiality of images taken from a single source, the greater the risk that the use will not be fair use.

The guidelines provide for a transition period of five years during which educational institutions may digitize images from pre-existing image collections and educators and students may begin to use those digitized images. Simultaneously, educational

institutions are required to begin seeking permission to digitize, retain, and reuse all such digitized images. Following this transition period, these digitized images may be used by educators and students only where (1) permission has been received, or (2) the educational institution is unable, after a reasonable inquiry to identify sufficient information to seek appropriate permission.

Educational institutions may use and retain in digital image collections images which are newly acquired and digitized under these guidelines as long as:

- 1) images digitized from a known source and not readily available in usable digital form for purchase or license at a fair price may be used for one academic term.
- 2) where the rightsholder of an image is unknown, a digitized image may be used for up to three years, as long as a reasonable inquiry is initiated by the institution, seeking permission to digitize, retain, and reuse the digitized image. Thereafter, the image may not be used without permission unless the educational institution is unable to identify sufficient information to seek appropriate permission.
- 3) educators and students may use images they have digitized without permission under these guidelines (see Section 2.3) for a single use.

Uses Not Included

The guidelines do not cover:

- reproducing and publishing images in publications, including scholarly publications in print or digital form, for which permission is generally required.
- digitizing images or using digital images for non-educational or commercial purposes at any time, even by non-profit educational institutions.

- electronic distribution of digital images or provision of electronic access to digital images, including low-resolution thumbnail images and images in the institution's visual on-line image catalog, beyond the institution's own secure network, even for educational purposes.

General Conditions

- Educators and students should credit the sources and display the copyright notice(s).
- When providing access to digital images, an educational institution must provide notice stating that such digital images shall not be downloaded, copied, retained, printed, shared, modified, or otherwise used, except as provided for in the permitted educational uses under these guidelines.
- Educators and students are advised to exercise caution in using digital images downloaded from other sources, such as the Internet, in producing their own educational projects, because such digital environments contain a mix of works protected by copyright and works in the public domain.
- Some educational and scholarly projects and compilations developed under fair use may lead to uses that are beyond fair use. Educators, scholars, and students are therefore advised to take steps to obtain permissions during the development process for all copyrighted images if there is a possibility that their own educational projects incorporating copyrighted images under fair use could result in either a widely disseminated or a commercial product.
- Educators and students are advised to exercise caution when making any alterations in a work and must explicitly describe the nature of any changes they make to original visual images when producing their own digital images.
- The burden is on the educational institution to demonstrate that it has conducted a reasonable inquiry.

AAMD Authorizes Licensing Scheme

At its meeting in Ottawa in May 1996, the Association of Art Museum Directors (AAMD) authorized the establishment of AMICO (the Art Museum Image Consortium) which is designed to serve as a central clearinghouse for digitized art image licensing from North American art museums. AMICO is the brainchild of Maxwell Anderson, liaison for information technology of the AAMD, Director of the Art Gallery of Ontario, and a member of the steering committee of the Museum Educational Site Licensing Project (MESL). Anderson has recruited as his advisors virtually the entire management committee of the MESL project and intends to be up and running with a full fledged implementation of the site licensing, commercial licensing, one-stop shopping model of distribution in time for the conclusion of the MESL project experiment in June of 1997.

By June 1996, a preliminary site licensing agreement was

circulating among AAMD member institutions that expressed early interest in participating. The agreement calls for AMICO to be hosted on the WWW at the Art Museum Network site, run by the Art Gallery of Ontario. The document envisions member institutions making a modest annual contribution in return for sharing in the proceeds of licensing activity, largely in proportion to the number of images contributed. Each institution would agree to contribute a minimum of 500 images and texts and additional contributions in increments of 250 images and texts. Licenses would be offered to educational institutions on a bi-annual basis with fees related to number of users. Home subscriptions and non-educational uses are envisioned, although the details of such licenses remain to be worked out by the members once AMICO is running.

AAM Explores Licensing Too

The American Association of Museums (AAM) Board of Directors authorized Patricia

Williams, Vice-President, to explore licensing of digital rights. Ms. Williams, with the assistance of Goeff Samuels (a founder of MESL) and the contracted time of Steve Dietz (previously of the National Museum of American Art and a major player in MESL, CIMI, and other electronic standardization efforts) are organizing a museum- community-driven study process based on the proposal below.

AAM Co-operative Museum Licensing Board Study Group

Proposal by Geoffrey Samuels

Objective

The American Association of Museums should authorize an independently-funded AAM Study Group to examine the feasibility and options for creating a Co-operative Museum Licensing Board to license digitized images of museum material to commercial entities, educational institutions, and the public. The Study Group — consisting of 8-10 repre-

sentatives of diverse museums and experts in management, technology and the law — would examine for up to six months all the options available to the AAM to assist its members in licensing their digitized museum images, and then present its findings and recommendations to the AAM Board.

Background

Multimedia applications using digitized images of museum materials will offer museums new educational opportunities and new revenue sources. However, most museums do not have the administrative, financial, and technical resources to manage requests for digital images, and servicing such requests is not a primary mission. Digitizing vast numbers of images will be expensive and new approaches to funding will have to be explored if museums are to embark on large-scale digitization programs. Site license income from educational institutions, commercial licensees, and public fee access through the Internet could all pay for digitizing. However, these income sources need to be tapped

efficiently. A Co-operative Museum Licensing Board owned by the museums could be organized to respect individual museum customs and maximize revenue consistent with museum values and priorities.

Co-operative Museum Licensing Board

A Co-operative Museum Licensing Board could serve as a centralized reference "image bank" to inform potential licensees of available digital images. It could facilitate the licensing of digitized images for use in educational and commercial multimedia applications by acting as a marketing agency, and also serve as a collection agency of commercial and Internet licensing fees, and educational site licensing income. It could promote technical standards and enforce copyright compliance. Common back office procedures could reduce administrative overhead for museums and average transaction costs, thereby increasing revenue. Museum participation would be voluntary, and each museum could adjust the pricing and terms of use of their

images. In effect, by owning a co-operative licensing entity, museums would have their own middleman.

Why the AAM Should Now Form Study Group

Multimedia is developing faster than any other 20th century technology and promises to have wide-spread influence. The increasing demand for digitized images and general museum uncertainty raises issues too important for ad-hoc discussions. The Study Group is an opportunity for the AAM to take a leadership role in this critical area, as well as explore co-operative ventures that could help museums both today and in the future. An itemized Study Group budget would be developed with the AAM liaison. Geoffrey Samuels would coordinate on the basis of open inquiry and discussion (the process used to develop Sample CD-ROM Licensing Agreements for Museums). [For further information, contact Pat Williams, AAM, 1225 Eye St., NW, Suite 200, Washington DC 20005; 202-289-9111, or fax 202-289-6578]

Audiovisual Records Locator

The National Archives and Records Administration has launched NAIL (NARA Audiovisual Information Locator) on the WWW. Currently it holds a few sound files and a tiny portion of NARA's images. Even its 200,000 descriptions are but a small fraction of NARA's holdings, but at least it's a start. [For more information, contact Giuliana Bullard, 202-501-5525 or giuliana.bullard@arch1.nara.gov; or check it out at www.nara.gov.]

RLG Signs UK, AU, NZ Agreements

The Australian Vice Chancellor's Committee (AVCC) has led the way in extending Ariel, Research Library Group's Internet-based document delivery system, to New Zealand, Australia, and the UK. The agreement reached by RLG, the AVCC, and the UK's Joint Information Steering Committee (JISC) will enhance the facilities of the current software by implementing

MIME, the ISO interlibrary loan protocols and desktop delivery to users as well as expanding the pool of resources available to researchers in RLG and foreign institutions. [For more, see www.rlg.org or www.avcc.edu.au.

Library of Congress Competition for NDL Resources

In a move that will vastly increase the quantity of electronic materials available for study of American culture, the Librarian of Congress announced that a \$2 million grant from Ameritech to the National Digital Library program will be used to make competitive awards to libraries, archives, historical societies, and similar repositories. The availability of such grants will doubtless stimulate much planning and assessment that will have positive benefits for future developments even in those institutions that are not awarded grants. It strikes me as a very smart strategy. [For more see: lcweb2.loc.gov/ammem/award/ or www.ameritech.com/]

Intellectual Property Protected

IBM Corporation has recently teamed with Xerox Corporation in joining two technologies which together have great promise in protecting intellectual property on the Internet. The IBM Cryptolope, which debuted with the IBM InfoMarket service this spring, has been augmented with Xerox's Digital Property Rights

Language (DPRL), which specifies the rules for describing the use and pricing of content. Together the two firms hope to develop a range of products aimed at different publishing segments and payment options. [For further information, contact Mike King, IBM, 914-766-1119 or www.internet.ibm.com; or Larry Vogel, Xerox, 716-383-7948 or www.xerox.com.]

STANDARDS

Developments in Metadata Management Frameworks

David Bearman

Over the past few months there have been significant developments in the conceptualization of architectures for metadata management which could be exploited by archives and museums. At a meeting in Warwick England in April, metadata professionals revisited the "Dublin Core" metadata for discovery and retrieval of document-like objects which had been developed at a workshop in Dublin Ohio in March 1995.¹ Within the first day, the participants in the Warwick meeting identified the limitations of the Dublin Core metadata (a definition of the minimum metadata required for the purpose of discovery and retrieval by cataloguers of documents) in the requirements for metadata for other purposes than discovery, for other kinds of digital objects than "document-like objects," and by professions other than cataloguers. The meeting in Warwick articulated an architecture of multiple "types" of metadata packets that could reference a single digital object.² The actual "types" they used as examples in their papers conform

1 see papers available on the Internet at: www.oclc.org:5046/oclc/research/conferences/metadata/dublin_core_report.html [OCLC/NCSA Metadata Workshop Report], and: www.cnri.reston.va.us/home/dlib/july95/07weibel.html [Metadata: The Foundation of Resource Description, D-Lib Magazine, July 1995]

2 see papers available on the Internet at: cs-tr.cs.cornell.edu:80/Dienst/Rep.../2.0/Body/ncstrl.cornell%2fTR96-1593/html [The Warwick Framework: A Container Architecture for Aggregating Sets of Metadata]; and: www.dlib.org/dlib/july96/lagoze.html#WarwickFull [an article by the same title by Carl Lagoze in D-Lib Magazine, July/August 1996]

to the layers of the Reference Model for Business Acceptable Communication (BAC Model) articulated by Ken Sochats and myself last year, although both our model and theirs insist that these are only examples and that other purposes for which metadata are required will need to be reflected. Their model provides for such extensibility by allowing for both intrinsic and extrinsic metadata with referencing mechanisms include resolvers, and indirect network-based pointers, while ours uses only encapsulation and resolvers and does not allow for such extensibility. In effect ours is a specialized subset of the Warwick model, with more detail in those areas where the metadata requirements relate to the nature of evidence or recordness.

The breakthrough to multiple different packets or layers of metadata serving multiple purposes recognizes that terms and conditions of use, unique identification of objects, use history, structural dependencies, context of creation, and other metadata is required for purposes other than discovery and retrieval, including archival management. Like the BAC model, the Warwick framework references the critical work of CNRI and the IETF in establishing permanent/persistent identifiers³ and the work of the Dublin workshop in establishing a core discovery metadata set. Like us they indirectly reference the work of various commercial object encapsulation services in establishing a packet standard for terms and conditions metadata.⁴ They mention, but do not cite,

3 see various papers' available on the Internet at: www.cnri.reston.va.us/home/cstr/arch/k-w.html [Robert Kahn and Robert Wilensky, "A Framework for Distributed Digital Object Services"]; www.handle.net/docs/overview.html ["The Handle System. Version 3.0: An Overview"]; www.dlib.org/dlib/february96/02arms.html [Uniform Resource Names: A Progress Report", D-Lib Magazine, February 1996] and RFC 1737, K.Sollins & L.Masinter, "Functional Requirements for Uniform Resource Names," 12/20/1994

4 cf. IBM InfoMarket and the Xerox metalanguage DPRL, (see p. 184). In our 1995 paper, Sochats and I called for such a language to be developed by communities needing to maintain resolvers, much along the lines of the

the requirements for archival metadata - by which I hope they mean the functional requirements for evidence.⁵ Other functional requirements in the model we advanced include those of migration, resource collation, and documentation of use history. That other metadata management requirements will soon be articulated is clear from discussions I've had recently with employees of the Department of Energy on a standard for a metadata packet for national security classification management.

The Warwick architecture recognizes the need for means to "register" the contents of types of metadata packets as formal objects, to recognize registered packets by their types, for methods of dealing with conflict in overlapping metadata between packets (although also possible by using a different syntax fitted to the particular application purpose), and for a systems environment that can link intrinsic packets (those created with the digital object) to extrinsic ones (created after the object, possibly by others). This would be a large agenda even if the types of digital objects, needs of users, and categories of control required were fully known. Of course they are not.

In late September a second meeting in Dublin will address the metadata requirements of image discovery and retrieval. Image-bases are proliferating but interoperability is virtually nil. It will be interesting to see if in the wake of the Warwick architecture the second Dublin conference can devise a more sophisticated approach to images and ultimately to other representations of objects

Kahn and Wilensky architecture, op.cit. fn.3

5 see www.lis.pitt.edu/~nhprc for the functional requirements of evidence in recordkeeping, and www.lis.pitt.edu/~nhprc/meta96.html for the Reference Model populated with metadata required for evidence. See also Bearman & Sochats, Metadata Requirements for Evidence <http://www.lis.pitt.edu/~nhprc/BACartic.html>. Also Bearman, David "Item Level Control and Electronic recordkeeping," paper given at the Society of American Archivists meeting in San Diego, 8/29/96, 24pp.

and to non-document digital objects all of which are of importance to archives and museums. In the meantime, we have an opportunity to influence the direction of these international efforts to develop representation standards.

I believe that archivists and museum computing standards setters need to establish the kinds of metadata packets required for their own application purposes and bring these to the forums where others are building on the Warwick framework. To do so would be consistent with the "each application has different metadata requirements" approach that John Perkins and I used to define the CIMI framework in 1993,⁶ and what I referred to, without any of the new terminology we are now employing, in my matrix of different data elements for different network applications in the report to the SAA National Information Systems Task Force in 1981 on "Alternative Models"⁷. I think the archives and museum communities should be ready to step up to the table.

6 David Bearman and John Perkins, Standards Framework for the Computer Interchange of Museum Information, First edition, Museum Computer Network, May 1993 61pp.

7 David Bearman, "Towards National Information Systems for Archives and Manuscript Repositories: Alternative Models", SAA 1981, reprinted as Chapter 1, in David Bearman, Towards National Information Systems for Archives and Manuscript Repositories: The National Information Systems Task Force Papers: 1981-1984 (Chicago, SAA, on demand)

Keyword AAA

The Records Management Office of the Archives of New South Wales has published *Keyword AAA (Accuracy, Accessibility, and Accountability): A Thesaurus of General Terms*. It replaces its highly successful *General Administrative Thesaurus* first published in 1979 and widely used throughout Australian government in all jurisdictions and levels. *Keyword AAA* is designed "to be used in conjunction with (each) organization's unique "functional" terms and is easily integrated with records management software. It reflects best practices guidelines and includes a method of classifying records in its "classification guide." The product conforms to ISO 2788 guidelines for monolingual thesauri and to Part 4 (Control) of the Australian national standard on records management issued on February 5, 1996. Available in hard copy and electronic format with an organization-wide, perpetual license at AU\$2500.

Those of us who have advocated seeking the constants in

business processes and using them as a foundation for appraisal should be delighted with the regularities implied by this volume. Activities of all sorts are described in a manner that is readily translatable into "records schedules." For example, on the randomly opened pages I turned to for this review:

Discipline. The activities and actions associated with the discipline process. Includes investigations, charges, formal inquiries, punishments, and appeals.

Reporting. the processes associated with initiating or providing a formal response to a situation or request (either internal, external, or as a requirement of corporate policies). . . .

or, less familiarly,

Usage. The activities associated with managing the use that is made of items, facilities, or space, e.g., an area delegated for the use of parking and the records associated with that, or the keeping of log books or running sheets.

I hope the profession will use this document as a basis for the further elaboration of the functional bases of recordkeeping. [For more, contact Archives Authority of New South Wales Level 3, 66 Harrington St., The Rocks, Sydney NSW 2000 Australia, +612-237-0120, fax +612-237-0119 or rmonsw@ozemail.com.au]

Australian Standard 4390 - 1996: Records Management Available

The Australian national records management standard, already a great success within Australia, has taken the world by storm. The six sections – general, responsibilities, strategies, control, appraisal and disposal, and storage – represent the fullest statement of the nature of the profession since the advent of the electronic age. Recent reports from Canada, where it is already being considered for adoption are very positive. It is expected the standard will be approved ultimately by ISO Committees, where it has received a warm reception. [For a copy, fax an

order to +612-746-3333; AU\$70 for the set (4390.1-6) plus postage. They accept bankcards and American Express.]

***RAD* Completed!**

With the receipt from the Bureau of Canadian Archivists (BCA) of Chapters 5, 6, 7, 8, 9, 10 (cartographic, architectural, moving image, sound, electronic, and microform records, respectively) and Chapter 20 (introduction to part II), plus revisions of Chapters 2 (multiple media fonds) and 21 (choice of access points), the *Rules for Archival Description* of the BCA are complete. The debate that brought them to this state was a quiet but healthy one, and its important consequences are explained in letter from Kent Haworth, Chair of the Planning Committee on Descriptive Standards, which transmits the final chapters. In particular, users of *RAD* will note the change in title of Chapters 9 and 10: “Records in Electronic Form” and “Records on Microform” which reflect a shift in the views of the PCDS. They now believe

that the physical carrier of the records is not their defining characteristic. As a result, the traditional rule that the starting point for cataloging is the physical item in hand is not terribly meaningful for these formats. Therefore, they decided not to issue guidance on the cataloging of electronic records at this time beyond a one page pointer to suggest the use of description based on the intellectual form of the materials. Instead they are awaiting further progress in metadata definition from other groups such as the research projects at the University of Pittsburgh and the University of British Columbia. It was a brave, but very sensible, decision.

Of the other chapters, now issued, I can only say that we have seen the completion of a project which in many ways represents the end of the era of data interchangeability that began twenty years ago with the establishment of NISTF. Two other directions of archival description will take prominence in the next decade – the markup of finding aids (as in the EADS standard) and the self-docu-

mentation of metadata encapsulated objects. Both these directions exploit standards designed for interoperability of the objects they transmit, reflecting the move from centralized and “union” lists to distributed, navigable, and inter-operable resources. The other major shift is at the level of description which is moving from surrogates of collection finding tools, to finding tools themselves, to items, reflecting the ability of the networked electronic research environment to capture and deliver items in context. [For more information, contact Bureau of Canadian Archivists, PCDS c/o Canadian Council of Archives, West Memorial bldg., Room 5074, 344 Wellington St., Ottawa K1A 0N3 Canada]

Commentary on ISAAR-CPF

The ICA Ad Hoc Commission on Descriptive Standards released a draft of its proposed International Standard Archival Authority Record for Corporate Bodies, Persons, and Families (ISAAR-CPF) in

April 1995. The event was greeted by the archival community with considerable indifference and has generated little public discussion. An exception is the extremely intelligent commentary authored by a joint committee of the Australian Society of Archivists and the Australian Council of Archives submitted to the final meeting of the Ad Hoc Commission in November 1995 and published in full in the *ASA Bulletin* (April 1996):58-62. The response addresses the role of authority records in archives, the differences between library and archival practices, the adequacy of the data structure of the proposed authority record, and the adequacy of the guidance the standard provides for implementing the record in a system. The final form of the proposed standard apparently addresses many of the critiques leveled by the Australians. I look forward to seeing it.

Competency Standards

Early in 1995, efforts got underway in both Canada and

Australia to develop competency standards for records managers. In many ways both efforts were consequences of a realization that the knowledges and skills required of record-keepers in an electronic age were different from those of the paper era. It was essential to spell them out if traditional archivists were to train for them and employers were to hire appropriately.

In May 1996, the Information Management Standards and Practices Division of the National Archives of Canada published its "Preliminary Study on the Core Competencies of Future Records Specialists" just as the Australian Society of Archivists committee prepared to report to its annual conference in Alice Springs on their work. [For further information, contact John McDonald, National Archives of Canada, IMSP, 395 Wellington St., Ottawa K1A ON3, 613-947-1510, fax 613-953-5714 and Sue McKemmish or Barbara Reed for the ASA (SMckemmmi@Monash.edu.au; Breed@Monash.edu.au)].