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ARCHIVIST ABDICATES RESPONSIBILITY

At 11:30 pm. the evening before Bill Clinton took the oath of office, the Archivist of the United States signed a memorandum of agreement with outgoing President George Bush which effectively defeated four years of legal efforts, supported by an order of U.S. District Court Judge Richey on January 7, to ensure that electronic records of the Reagan and Bush administrations would be available to history. The legal action, *Armstrong vs. the Executive Office of the President*, Civ. Action no.89-142 (CRR) had already been severely wounded by a Federal Appeals Court ruling last year which excluded actions of the President under the Presidential Records Act from judicial review. Judge Richey's order of January 7 was intended to preserve all the Federal electronic records but left the opening that some of the records on the tapes might be declared Presidential records beyond the scope of his court.

Archivist Don Wilson accepted terms for taking custody of records of the White House which assert George Bush's ownership of all "Presidential information and derivative information", reserve to Bush to challenge the concept that any of this information is 'records', and prevent the National Archives from even initiating an appraisal of the records without prior review by George Bush and his agents. In effect, Bush admits that nothing is a record and can claim that everything on the tapes is Presidential 'information' and hence not subject to the Court. In addition, his declaration of its "presidential" status is not subject to review.

By accepting the terms of the memorandum of Agreement, Don Wilson completes the reversal by Archivists of the United States of the intent of Congress in passing the Presidential Records Act following Watergate. The Act was intended to ensure that records of the President and his aides would be public property and avoid the risk of their destruction or amendment by the President. It was passed in order to void an agreement reached between Richard Nixon and GSA administrator Sampson prior to Nixon's resignation. The first injury sustained by the act was incurred by Archivist Bob Warner, who chose not to assert his authority over the records of Ronald Reagan, the first President whose records were covered under the act, by sending archivists to take control of record systems at the White House from Reagan's first day in office. Warner also accepted the continuation of the ludicrous system of Presidential Libraries when the Act could have

been used as a vehicle to end this bad tradition. More recently, Don Wilson allowed the Justice Department to argue on spurious grounds, fortunately rejected by the Federal Court, that the electronic mail documents in the White House PROFS system were not records and has now accepted ignominious terms dictated by the President for transfer of these records, rather than alerting Congress and the press to the conditions for transfer of records to the Archives that he was being asked to accept.

Archivists will hardly believe their eyes in reading a memorandum of agreement in which the only references to the term 'records' are those made to reserve the right of the President to dispute whether these "materials" or "information" (as they are called in the agreement) are in fact records. Even the transfer agreement Wilson purportedly signed with Ronald Reagan on January 19, 1989 (made public for the first time with court filings dated January 20, 1993) uses the term "documents" to refer to three explicit categories of records included in the transfer: Presidential records, Federal records and Personal records!

This agreement states that "George Bush shall retain exclusive legal control of all Presidential information and all derivative information in whatever form contained on the materials" although under the Presidential Records

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Act he clearly has no such legal right. The agreement goes on to define Presidential information as: "information contained on the materials, that was created or received by the President, any individual or unit of the Executive Office of the President (including, but not limited to, all staff of the White House Office and the Office of Policy Development) whose sole function is to advise and assist the President, and/or the NSC staff in their functions as advisers and assistants to the President". In other words, the right Bush claims is to all Presidential Records, which according to the Presidential Records Act are property of the U.S. Government and fall under the jurisdiction of the Archivist of the United States, but the definition of which, because of the Appeals Court decision in the Armstrong case, is not subject to judicial review.

Access is allowed only under subpoena, court order or to an independent counsel appointed under federal law except that George Bush and anyone he designates "shall have unconditional and unlimited access to all information contained on such materials..." Bush claims the right to review any National Archives effort to segregate Presidential and non-Presidential (e.g. Federal Record) material even for purposes of appraisal. Disregarding the importance of original order, the requirement to preserve the integrity of records, or the practice of appraising records at the series level based on judgments made by professional archivists, it allows that "Presidential information on the materials shall be disposed of in accordance with instructions of George Bush or his designee". Such destruction, except of records explicitly covered by existing court orders and investigations, can begin at any time and in any way George Bush desires.

So anxious were Bush and his staff to assure that these records would not be available to the new administration that they took the only copies of backup tapes needed to restore the OA and NSC computer systems between January 20 and February 1 promising to provide copies for backup during that period if needed!

I believe archivists should censure Don Wilson for signing this agreement in clear violation of his obligation to protect and provide access to Federal and Presidential Records. In addition, archivists should ask Congress to revise amend the Presidential Records Act so that it explicitly states that actions by all parties subject to the term of the law are subject to judicial review as Congress clearly intended at its adoption. The fact that the SAA did not join the ALA, AHA and other of its natural allies in suits to defend the electronic records of the Reagan and Bush administration from destruction is embarrassing enough. Now that the Archivist of the United States has been ordered by a court to take actions to protect these records and has signed an agreement which undermines the very concept of records and the prerogatives of the National Archives with respect to Presidential and Federal records, the SAA must act. If archivists in the ex-Soviet block or third world had come under this kind of political pressure from a departing regime to protect its records, American archivists would have spoken up loudly. D.B.

A RAPID METHOD FOR INFORMATION PLANNING

This article reports on the development of a Strategic Technology Plan for the Santa Barbara Museum of Art (SBMA). "Strategic Technology Plan" (STP) is the author's name for the plan that guides a museum's implementation of information systems. These plans are also known as Systems Architectures. The purpose of this article is to show how long-range information planning can be done in a short time with minimal cost.

An organization's STP outlines the overall computing models to be implemented, such where minicomputers should be used, and where micros; what databases are required and where they should reside; what computers should be networked; software and hardware standards; implementation priorities; and similar guidelines.

Several important museums in the past few years have developed Information Architectures (or Strategic Data Plans). In general these serve the same purpose, but they focus on the details of data and of information flows in the museum. The result is a comprehensive information-management review of the museum, and a detailed picture of the museum's information and data, and descriptions of all functions and data.

While Information Architectures are of value, we believe that most of the value can be gained for a fraction of the cost by developing an STP instead. This is because an Information Architecture provides not only the overview of data needed for planning, but a great deal of detail about data that is not needed until systems are implemented. Developing an Information Architecture means that costs for the analysis of specific systems are shifted to the planning phase. The drawback of this is that since details about the data can change before implementation, the details must be reviewed later. Thus we have found the STP to provide a comprehensive blueprint at a minimum cost.

This study was prompted by the goal of the Museum director, Paul N. Perrot, to have a long-range architecture to assist in future decision making. It provided a framework for the Museum to build toward compatibility, connectivity, and efficiency in order to make most effective use of staff, systems, and information. (In this article, only the methodology is discussed in detail, since the recommendations are the property of the Museum. The author gratefully acknowledges Mr. Perrot's permission to publish this article, and his review of a draft of it.)

We have characterized an STP as a planning tool. Planning should be the first step in any systems improvement program, which might consist of these four steps:

- *Planning* This step results in the long-range goals of systems, the overall requirements, the inter-relationships between systems, and standards and

policies. It is done once for the whole museum. The following three steps are done separately for each system.

- *Analysis* This step results in the detailed requirements for a system.
- *Design* This step results in the concrete description of the hardware and software needed for the system.
- *Implementation* This step consists of acquiring and installing the system. Acquiring can mean either buying or programming.

As information technology has become commonplace in organizations, the potential for wasting time and money on unwise choices has not diminished, but rather has increased. Since every program and almost every task can benefit from computers and related technology, needs for new and improved systems continual arise within the museum. If systems are designed and implemented without some kind of plan, the museum risks having systems that are incompatible, cannot share data, require different hardware, or are otherwise less than optimal.

In other words, a technology investment -- whether a purchase of technology or the development of a new system -- may be cost-effective in relation to its original justification, but be wasteful when seen in the context of all the other programs of the museum. Thus managers' responsibility to make sound decisions about individual systems has been complicated by the need to ensure long-range compatibility and connectivity. Making sound decisions now requires looking at the technology of the museum as a whole, rather than program-by-program or task-by-task. An STP provides conceptual models for making decisions where wide and long-range compatibility is required.

OVERALL APPROACH

An STP is the result of two kinds of knowledge:

- **Museum-specific knowledge** Knowledge of the museum's present and future information needs, its long- and short-range goals, its present and projected budgets, the sophistication of its staff with regard to information technologies, and its current inventory of technology.
- **Technology-specific knowledge** Knowledge of the principles of technology adoption, of trends in information technology, and of cost-effectiveness considerations.

The primary approach to gathering museum-specific knowledge for the SBMA project was that of "structured analysis." The basic techniques were taken from the Yourdon-DeMarco method, one of the most widely used and imitated methodologies for systems analysis. Other techniques were developed by Systems Planning, to meet the needs of clients when no existing technique would suit. Techniques were adapted by Systems Planning to meet the needs of the SBMA.

The purpose of using structured analysis techniques is to ensure that all important aspects of the Museum's information needs have been considered. However, techniques alone do not solve problems. All they do is provide a means for attention to be focused on the problems, so that the intelligence and experience of the staff and consultants can be brought to bear. In addition to structured analysis, which attempts to be purely objective, Systems Planning employed its Critical Information Needs technique to incorporate the subjective views of staff on their information needs.

While some of the techniques of a Strategic Technology Planning process can be substituted for by similar techniques, the ones used for Santa Barbara were chosen for these reasons:

- The techniques provide specific information needed not just for the STP but for day-to-day management of the museum.
- They are easy to understand, so Museum staff could contribute to the planning without special training.
- They provide an environment that fosters creativity, enthusiasm, and cooperation among museum staff, which are essential to successful systems.
- The techniques interface with each other. That is, the results of each step is generally used in later steps; and each step usually also results in reworking of earlier results. In other words, the steps are not disconnected tasks, but are parts of a whole.

Project team

It was not feasible for the consultants to work with the entire Museum staff on all tasks, or even with all staff involved with computers. Instead, various groups of Museum staff were brought into the process as necessary. The composition of the team was determined jointly by the Museum director and consultants before each project task.

In addition to the work done during consultants' site visits, Museum staff performed additional work between visits. This gave the staff additional experience in thinking about their information needs. Furthermore, when staff are involved in a study of this kind, they become more informed about the nature of information management, which is to the long-term benefit of the organization.

DEVELOPMENT OF THE STP

STEP 1: STRATEGIC PLANNING

Systems obviously exist to further the goals of the museum, so the first step is to determine what these goals are. If the museum already has a strategic plan, this step can be simplified to a review of the existing plan. Otherwise, one begins by developing a mission statement, goals, project plans, and priorities for the museum.

Methodology

During a one-day planning session with the director and nine other managers, the consultants facilitated a

review of the mission, goals, project plans, and priorities of the Museum. First the "SWOT" method was used, which requires participants to brainstorm about the organization's Strengths, Weaknesses, Opportunities, and Threats. From these, elements of the mission were derived, and subsequently goals and strategies to support the mission. The session concluded with a primer on project planning, project management, and management of annual strategic planning.

STEP 2: ORGANIZATIONAL FUNCTIONS

The result of this step is an outline showing all the functions and subfunctions of the museum. The outline is based on functions rather than the organization of the Museum so that functions can be thought about without considering organizational structure. This helps reveal if there is duplication of effort, dysfunctional communication, conflicting data standards, and other inefficiencies.

Methodology

In order to understand the Museum's functions, a one-day session with the director and nine other managers was held to prepare a Functions Hierarchy. The original list of functions came directly from the Goals developed in the Strategic Planning step. It was then organized into a hierarchy of functions and subfunctions and refined by the project team. The hierarchy was amplified by adding codes to indicate which functions involve existing computer systems.

STEP 3: DATAFLOW DIAGRAMS

Dataflow Diagrams show how information relates functions together, and where information is created, used, and stored. The diagrams are critical, since they are used as the conceptual framework for the remainder of the study. It should be noted that the term "data" is used in a very broad sense in Dataflow Diagrams, to include ideas, plans, intentions, and even art objects, since all of these communicate information, or can be contained in a form, a database record, a document, etc.

Dataflows are a powerful way of looking at functional relationships in the Museum. In fact, it is by developing dataflows that refinement of the Functions Hierarchy occurs. This is because functions in many organizations are defined by the information they create or use. To initiate the discussion, initial Dataflow Diagrams are generated from the Functions Hierarchy.

Methodology

During a series of six sessions held over three days, the consultants worked with eighteen Museum staff to develop Dataflow Diagrams. (Each session focused on a different functional area of the Museum, so that no one had to attend the full three days.) The final session on the third day included all staff; the entire set of diagrams was reviewed and some interface questions resolved.

STEP 4: CRITICAL INFORMATION NEEDS

In order to determine the museum's priorities for information, a Critical Information Needs analysis was performed. Critical Information Needs (CINs) are the key data that museum staff require in order to do their jobs. CINs provide a subjective view of information, and thus act as a check on the formalistic approach of the Dataflow Diagrams.

Methodology

In order to determine the Museum's priorities for information, a Critical Information Needs analysis was performed. The Critical Information Needs (CIN) technique is a Systems Planning extension of the Critical Success Factors technique developed by John Rockart at MIT's Sloan School of Management. Critical Success Factors are the activities in which favorable results are critical to the organization. Critical Information Needs are discovered by first finding what the Critical Success Factors of each job are, and then determining the information needs behind the key activities.

Worksheets were completed by all Museum staff to record their Critical Information Needs, present and future. Staff coded each CIN to indicate the desired format for the CIN (online, printed, etc.), the currency required (how up-to-date), how many people needed this information, and similar characteristics.

CINs indicate the priorities for systems development by calculating a total score based on the importance, the urgency, and the number of persons who need data. This total is in theory the overall benefit to the Museum. Of course, this kind of mechanical process must always be interpreted through management perspective before decisions are made. A side-benefit of CINs is that the worksheets filled out by staff can form the basis for a requirements statement for new systems, since they describe the major information needs and characteristics.

STEP 5: DATA MATRICES

The Data Matrices are a set of tables showing relationships between people and data, people and systems, and systems and data. This step shows which systems each person needs access to, and thus where additional PCs, software, or terminals are needed. In the future analysis and design stages for new systems, the tables provide a wealth of information about what is really going on in the museum.

Methodology

Study revealed nine entities important to the SBMA:

1. Art objects
2. Contracts, purchase orders, insurance
3. Exhibitions
4. Facilities
5. Information & publications
6. Money
7. People (except staff)
8. Programs & events
9. Staff

For each of these nine, two spreadsheets were developed. For the first spreadsheet, every dataflow for the entity became a column heading, and the SBMA staff became row headings. This matrix was used to show the data that each person Creates, Updates, Reads (uses), or Disposes of (manages), by entering the codes C, U, R, and D.

A second spreadsheet for each entity had the same dataflows along the top, but down the left side had names of software systems and of physical document storage (such as photo archives and filing cabinets). This matrix was used to show how data related to software and to storage by entering an "X" in the appropriate cells. Every staff member was given the matrices for entities important to his/her job, and asked to correct and add to the codes.

The matrices are used to study information flow. For example, every data element should have at least one C, R, and D, since otherwise it means that no one is creating it, using it, or has responsibility for its disposition. Most data elements should have at least one X, to indicate what software processes them, or where they are filed. Data that moves from one department to another will generally have CU for the originating department, and RD for the receiving department. Data that has C, U, or D in more than one department is a warning that there may be duplication of data or duplication of effort. Systems or files that have no Xs are obviously either incorrectly coded or no longer in use.

One of the shortcuts that saves time and money in an STP is eliminating the step of building a data dictionary defining every dataflow. A data dictionary would improve the accuracy of these Data Matrices, but for understanding the big picture, they are sufficiently accurate without one. During the detailed analysis and design for specific systems, these matrices should be refined and a data dictionary built, since in those phases, accuracy of details is critical.

STEP 6: TECHNOLOGY INVENTORY

This step is purely administrative. First is an inventory of the museum's hardware and software. This shows the current state of the museum's technology, and what is available for use in new systems. Second is a summary table that show who needs access to shared systems.

Methodology

The hardware/software inventory is straightforward; data is entered into a spreadsheet or database.

Access needs were tabulated from the Data Matrices for each of the major future systems required by SBMA. This table contributes to determining the cost of each of these system.

STEP 7: SETTING PRIORITIES

One of the most important aspects of a Systems Architecture is the recommendation of appropriate projects to pursue. Over the past several years, Systems Planning

has been developing a model for the evaluation of technology-based projects. The model consists of four factors that a manager must consider when determining the risk of failure of a specific project:

Criticality refers to whether the project is Critical, Important, or Noncritical to the Museum's mission. For example, a collections information system is a Critical project; an interactive visitor information system is typically Noncritical (or Important); an accounting system is Critical; an employee cafeteria is Noncritical. Critical systems are higher risk than Noncritical, because if they fail, the mission of the museum is affected.

Technology Type describes to what extent the technology proposed requires cooperation and interrelationship between the organizational units of the Museum. "Long-linked" technologies imply close coordination among Museum departments. "Intensive" technologies are used by individuals. "Mediating" technologies are used by individuals but require common standards. (These terms are from Organizational Theory.)

Technology Age describes whether the technology proposed is New, Old, or Current. New technologies have the highest risk of failure, Old the lowest. (However, old technologies are usually less cost-effective.)

Experience Level describes the experience of the Museum in the use of the proposed technology (High, Medium, or Low). Low experience means high risk.

This step looks at these risk factors, as well as at costs and benefits associated with developing or acquiring new systems.

Methodology

Each potential new SBMA system was first evaluated in terms of the four risk factors. Each of these factors was given a score (1 to 4), and the scores were multiplied to give a total "Risk Score" (1 to 256) for the proposed project. High risk scores mean failure is likely; low scores indicate that projects may be trivial or be using obsolete technology.

However, risk scores alone do not suggest what projects to pursue. In addition, there are the cost aspects, and most important, the value to the Museum. We scored these using numbers ranging from 0 to 250, and calculated a "Total Score" that integrated risk, cost, and benefits. We estimated benefit on the basis of the number of staff who would use the proposed system, how often they would use it, and whether there were feasible alternatives that would make the system less critical.

The calculation of "Total Score" was $(100 * \text{Benefit}) / (\text{Risk} * \text{Cost})$. Thus higher costs worsen the Total Score, higher benefits better it. (The 100 factor is just to get numbers that are not fractional.) It must be repeated here that these kinds of numerical scores must always be interpreted through management perspective before decisions are made.

STEP 8: INFORMATION AND TECHNOLOGY POLICIES

There is no methodology for this step. However, it is of critical importance. Since policies are the broadest statement of operational decisions, policies are truly the core of the STP. Typical policies describe the museum's standard platform (such as processor type, software, etc.), its network configuration, its position in regard to very new or old technology, and similar statements of broad guidance to future development work.

STEP 9: DATABASE PARTITIONING

A critical exercise for a complex organization is to determine where the boundaries of its databases should be. For example, this step would determine whether to combine accounting and membership databases, or whether they should be separate.

For SBMA, as for nearly every museum of its size, the value of using off-the-shelf software supercedes any possible gains from combining databases. (This may not be true for large, complex museums.) Had this not been the case, databases would have been partitioned based on a series of technical procedures which are beyond the scope of this article.

STEP 10: SETTING ANNUAL GOALS

This step consists of scheduling systems development depending on priorities and budgets.

Methodology

We began by outlining the major activities needed to implement each system, and estimated the time they would take and the resources (money and people) they would need.

We then looked at all the systems and activities for dependencies among them. For example, a LAN-based system obviously depends on implementation of a LAN. We then put each activity into a spreadsheet, with one row for each major system (plus rows for "Information Management" and "Miscellaneous") and one column for each year (except that the first two years had columns for "First half" and "Second half"). Into the resulting cells we put the activities, with liberal comments. The cells also included dollar costs for each activity, which the spreadsheet totalled in both directions. Project-management software can help here, to manage the dependencies and resource allocations. It is essential for the detailed planning of each project.

RESULTS

Can an STP yield the kinds of results that an Information Architecture does, at one-third the cost? The study reported on here resulted in a 60-page report (plus 130 pages of attachments), addressing every aspect of the SBMA's computing environment, including hardware, software, networks, applications, standards, staffing, and management. Ultimately, the results depend on the

quality of the persons involved in the study and the way the museum goes about implementing the recommendations, but an STP can certainly deliver the information they need.

Limitations of the STP

The methodology described here is appropriate for small to moderately large museums, and where most systems will be purchased, not developed. For very large or complex museums, the techniques are equally valuable, but supplementary techniques may be necessary to provide higher levels of summary, or for specifying custom software design.

The value of these techniques is not that they can tell you what to do, or automatically develop a plan. Instead, their value is this:

1. They guide you to gather data systematically about the museum, its needs, its aspirations, its data, and its problems.
2. They cause this data to be presented to you in such a way that you can understand what needs to be done.

Costs

It is difficult to determine precise costs for a study of this nature. However, some of the specific costs for the SBMA were these.

Staff: Museum staff spent an estimated 81.5 person-days on the study, including all meetings, information gathering, and document review. Of this, about 3.5 days were the time of the Director. This does not include time for planning the study or choosing a consultant.

Consultants: Consultants spent an estimated 32 person-days on the study. This figure does not include proposal writing, project planning, methodology development, or travel time.

Other costs: There were no significant other costs besides travel, copying, courier, and similar costs (required because the consultants were not in the same city as the Museum). No special hardware or software was needed -- a desktop computer with modern word-processor and spreadsheet were used for all work. A CASE tool would have been useful to produce prettier diagrams than hand-drawing (Computer Aided Software Engineering tools assist in managing the structured planning, such as balancing dataflows, managing the data dictionary, etc.). Project-management software could have automated the final step.

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REVIEWS

CD Publishing with a Coffee Table Book

From Alice To Ocean by Robyn Davidson is a coffee table travel and adventure book with a difference - it contains two CD's! The first is a PhotoCD from Kodak; the second an interactive DC-ROM from Apple which also can be played as a conventional audio CD for voice only narration. The package is so novel still that even though it sells for \$49.95 through bookstores you probably won't find it on the shelf and if you do, you definitely won't find the CD's, which are not in any way attached to the volume, still with it. So I suggest you special order it - fast.

All four formats are worth having. The book is a delightful first person account of a solo eight month journey by camel across the Australian desert from Alice Springs to the West coast. Robyn Davidson is an interesting, introspective, explorer with good observational skills and a rewarding interest in aboriginal culture. The photography, by Rick Smolan who came with National Geographic sponsorship of the trip, is vivid, sensitive and immediate. The book is beautifully printed, with a compelling story line that alternates with equally interesting in depth profiles of the flora, fauna and people of the desert.

But I wouldn't be reviewing the book (despite my abiding interest in things Australian) if it weren't for the other formats. When you first open the volume, you will encounter a letter addressed to "Dear Reader" in which Rick Smolan asks for feedback. Well, here's mine.

First, you will be pleased to realize that you aren't really paying for the CD's (this book is worth at least \$50 just for the photography); they are being thrown in for free by Kodak and Apple which are recognized for their generosity by a brief note in the preface. So you may wonder, why are they in it? Do they want the publicity? Or are they also interested in feedback on this method of publishing but just forgot to say so? You will soon realize, if you haven't already, that they have a less subtle interest: you need their products to see the discs. Of course, you can listen to the disc on your CD audio player, but sooner or later, you will feel compelled to seek out a player for the PhotoCD and the interactive multimedia CD-ROM. You can take Rick Smolan's advice and go to your local consumer electronics store and/or Apple dealer, where the salespeople, if they have any sense, will be delighted to let you use their equipment to look at, listen to, and (in the case of the quicktime movies on the CD-ROM) watch. You may not buy a player just for Alice (although, then again, you might), but they are probably betting that at least some well healed buyers will succumb if they release a few more good titles. Eventually, of course, you will be asked to pay for the new media, and it may cost more than the coffee table book it enhances.

So what will you get for it? The Photo-CD allows you to see pictures from the book on your television screen (in much lower resolution, of course, even when displayed using thousands of colors in the palette). You can scroll

through the thumbnails to select the images you want, but the thumbnails are very small and there is no data mode to enhance your search. With added tools, like Photoshop attached to a Photo-CD compatible drive on a computer, you could edit the pictures. With tools about to be released by Kodak for consumer use, you could build a little database. But at the moment, the Alice to Ocean Photo-CD is about as attractive to you as the home picture technology you have seen advertised on television. If you haven't bought that yet, why buy it now? But just a second - if there were lots of Photo-CD's with exciting images on them available for purchase or rental on the same system that plays your home 35mm stills, maybe you will think again (or so Kodak hopes, which is why it is about to offer its million plus image photo library on Photo-CD).

The CD-ROM is another story altogether. First, it is a story. You can have sections of the book read to you by Robyn Davidson, while looking at photographs, not all of which are published in the book. Second, it is a journey. Working from a map of the outback, you can skip in to any part of the trip and see only that segment, or you can take a one of six "Sidebar" sidetrips into topics such as the history of camels in Australia, Aborigines, Flora, and Fauna, or you can take "Photo Tip" sidetrips with Rick Smolan into photography issues. Finally, it is a confessional. You can hear both Rick and Robyn discuss themselves at the beginning of their respective voyages and at the end, and reflect on their intersections when Rick met Robyn to take photo's, bring supplies or lend support.

The marvelous underlying photography and the beautiful narrative prose are nicely integrated into a moderately interactive product which continues to depend on the linearity of the trip itself, while providing some opportunity for branching, backtracking and beginning other than at the beginning. The CD-ROM is a considerable enhancement, but no substitute for the book which contains more of Robyn's insights if somewhat less immediacy than she provides by reading the text. While the CD-ROM goes slightly beyond the book in the range of imagery (though not the quality), by using stills not found in the book and utilizing Quicktime movies in small windows to show everything from camels walking in the desert to Rick Smolan discussing his life, it disappointed me somewhat by not doing more or doing it more interactively. How unfair we are - no sooner do we surpass the dreams we had yesterday than we demand greater flights of fancy tomorrow. Ten more titles as good as this, and I'll bet Apple has you hooked; we'll see a chicken in every pot, a car in every garage and an Apple with CD-ROM on every desk.

If you can't always find an image ready system to display the book on, you can listen to the narration on the audio CD. The selection of passages read from the book is very careful. The story gets told and some of the best of Robyn's exceptionally fine prose is presented. The reading engages one easily for 40 minutes or so, and leaves one with yet another experience of the book and the journey. Altogether this is a delightful experience and one we will have many more occasions to enjoy in the near future.

David Bearman

EXHIBITS ON THE INTERNET

The Library of Congress is exploring the concept of an on-line exhibit on the Internet to augment its exhibition program and prepare for future Internet developments. The experimental projects are designed to learn what an electronic exhibit will consist of, how it will be created, how images, texts and sounds can be formatted for distribution, and how to organize and load the files. LC hopes that the experience will provide feedback on which it can base future projects. Two exhibits have been undertaken to date in conjunction with in-house exhibits of material from Soviet Archives and of Vatican Library documents.

First conceived in early 1992, the Soviet Archives Exhibit consisted of images of 31 documents with ASCII text translated and described by LC subject specialists. A transcript of an online conference between Dr. Billington and Dr. Pikhoia and README files with a handbook of PostScript, WordPerfect and HP LaserJet III formats were also loaded. The online exhibit, including text files, GIF images and a downloadable handbook was the first online exhibit coordinated with and simultaneous to a major exhibition. It provided documents never before available for study and put information on the Internet from the LC anonymous ftp site. Evaluating what it learned from the exhibit, the Library noted that its file names were confusing, organization based on format was less helpful for navigation than organization based on content, and that the scanning and compression was laborious work that will in the future be contracted out. They found that users were excited about the idea, asked lots of questions which needed to be fielded, and wanted more documents and translations than had been provided.

In the Vatican exhibit, LC staff tried to benefit from the lessons learned with the Soviet Archives. They designed the online exhibit based on the organization of the materials in the physical exhibit at LC, had the materials captured and compressed (this time with JPEG due to the nature of the images) by an outside firm, and wrote the same types of README and supporting documentation, including cross-references to other resources on the Internet, before loading it all to an ftp site. This time the online exhibit contained the full text and images of the installation plus additional objects excluded from the physical exhibit. It made a beautiful collection of material which contributes to scholarship which was increasingly used by researchers and mounted on mirror sites. They learned that JPEG was not as common as GIF and that users needed the JPEG viewers which staff provided, but even then that GIF was supported by communications packages and gophers and that it would be well to provide both formats for a while. They came to appreciate how much they needed technical and subject support for users for an indefinite period. Users, they found, wanted to be able to download the entire exhibit at once, print images, support a variety of computer platforms, receive help for novices while supporting gopher access and multiple image standards for more sophisticated users.

I recently "visited" the Vatican exhibit using Mosaic (a software program that serves as an extremely user friendly interface to WorldWideWeb, WAIS, gopher,archie and other network search tools) on a SPARC workstation which had XViews installed for JPEG image viewing. Even coming in under a fully prepared environment like this, with the very substantial technical support of the University of Pittsburgh SLIS computer laboratory staff, the experience was not entirely fluid. It was very rich however. The texts associated with the exhibit contain everything that is in the exhibit catalog, plus a calendar of upcoming events, press releases by LC, a master list of the images referencing their book plate number if published, the slide number, curator, Vatican library reference number, and even a history of updates to the on-line exhibit. The exhibit itself is divided into nine sections: the vatican library; archaeology; humanism; mathematics; music; medicine; nature; Orient to Rome and Rome to Orient. Each section contains a text describing each object and the JPEG files for each object. By opening several windows, the user can read the text, view the object and correlate both with the master list references but the texts average only a few hundred words per image and bring JPEG images across the network and then mapping them to my 8 bit screen, required several minutes each. This precludes "browsing" or even perceiving the online format as an exhibit; the result is that the database is suitable only for research and only by someone who has already studied the published catalog and perhaps printed out the master list for local study.

In my view this format will not be considered an exhibit by most users until the files available online include a complete run-time version of a hypermedia presentation tool with the exhibit as an application. The potential for such an offering is limited by platform incompatibility, including color monitor inconsistency, and by network speed. Downloading the whole thing (ignoring the run-time software for the moment) would require hours with a medium speed connection and days for someone with 2400 baud communications. We have a long way to go before this kind of electronic exhibit visiting becomes public fare. When it does, the "music" section will have sound in addition to music manuscripts and the files won't require addressing of the form:
"seq1.loc.gov/pub/vatican.exhibit/exhibit/b-archaeology/arch02.jpg"

A number of other special projects are underway and planned that will put more LC data on th Internet, provide WAIS servers, explore copyright registration, document delivery and x.25 network access. The Vatican exhibit will be available indefinitely although the exhibit in the building ends April 30, 1993. It may be accessed via anonymous ftp from seq1.loc.gov (140.147.3.12). files under /pub/vatican.exhibit which will provide an introduction and list of files as well as instructions for providing feedback on the content or the exhibit or the system. For further information, write Kathryn Ellis, Special Projects Office, Library of Congress, Washington DC 20540 or e-mail to kell@seq1.loc.gov.

David Bearman

CONFERENCES

COALITION FOR NETWORKED INFORMATION

The Spring 1993 meeting of the Coalition for Networked Information Task Forces in San Francisco March 22-23 was devoted to "big ideas that make a difference", but it was the incremental ideas and proofs of concept that made the meeting valuable to me.

Indeed, the opening session, which was explicitly dedicated to exploring big ideas, was a bust because the participants were unable to see beyond their organizational interests to offer concepts that would be structurally revolutionary. Jane Caviness of the National Science Foundation described the terms NSF will offer in a new solicitation to be issued for running the NSFNet and some possible venues for government funding outside of NSF in the Clinton administration. Nancy Kline represented the Association of Research Libraries to urge national demonstration projects for new user services and retrieval capabilities, active support for Government agency uses of the Internet for dissemination of Government information, and funding for increased training of users of the net. Jane Rylands represented CAUSE in highlighting some recent innovative projects to share administrative data over the network. And Doug Van Houweling, on behalf of EDUCOM, urged CNI itself to continue to focus on the use of the Internet since other organizations would lobby for its funding and implementation. I missed hearing how the Internet could be used to eliminate the need for "national" science, centralized "research" collections, university "campuses" with physical administrative centers, or boundaries between research and development in academia and in industry or government.

Fortunately, the rest of the meeting demonstrated that small ideas are not inherently bad; only when they are advanced as large ones. The rest of the first day was devoted to 21 project description sessions distributed through three time slots (what the CNI staff refers to as the "churn"). I choose to attend briefings on three very pragmatic proof of concept projects of exceptional importance to the archives and museum community, and was delighted by the rigor with which these projects are being conducted and the level of detail in the briefings and discussion.

The first briefing was given by Anne Kenney, director of Preservation at Cornell University Libraries and project manager of the CLASS project a joint study on "digital preservation" which Cornell has undertaken with Xerox Corporation and the Commission on Preservation and Access. The findings of the first phase of the CLASS project have been widely disseminated, and coming from the current President of the Society of American Archivists, they were well worth reiterating: CLASS found that digital capture, storage and servicing of texts was practical for preservation; economically competitive, and had advantages over microfilm which has long been the preservation medium of choice.

Kenney began by noting the scale of the problem we face: the National Preservation program is focussing on reformatting 3 million of an estimated 11 million titles that are at risk over the next 20 years. The possible methods are photocopying, which doesn't lend itself to distribution, microfilming, which is a format that researchers are known to despise, and digital data, which is a format that can be easily delivered and stored with immense space savings. The project set out to answer questions about whether digital capture could satisfy the exacting standards of preservation microfilming at an affordable cost and found, in phase 1, that binary scanning at 600 dpi with compression using CCITT Group IV fax standards (yielding 40:1 without loss of data) produced better quality at lower cost than photocopying. They found they could also write the digital files to microfilm and satisfy AIIM standards for preservation microfilm with type sizes above 5 point which were the smallest in use during the period 1800 to 1950 which is the focus of the preservation effort. Careful readers will recognize that Cornell did not test gray-scale or color capture and did not address issues which are important for digital preservation of non-textual materials, but they did capture substantial quantities of printed graphics and handwritten annotations and were satisfied by the 600 dpi bit-mapped data in these cases.

The CLASS study achieved costs equivalent to microfilming when all costs were compared. Laying brittle sheets in a single sheet scanning process, an operator scanned 300 per hour and recent production changes are expected to increase this rate to 400 p.hr. At this rate scanning was twice as fast as photocopying and because of the infinitesimal cost of subsequently reproducing from a digital master, it was competitive with microfilming. The availability of digital copies over the network, 24 hrs a day, without restriction on multiple simultaneous use was considered an added advantage. Direct access to individual pages and, with modest coding at input, to the logical structure of the text (Table of contents, chapters headings, figures, indexes, appendices etc.) is, of course, another great advantage over microfilm in which access is strictly linear. Finally, the possibility that digital copies may, with improvements in intelligent character recognition, someday provide the basis for full text access, was an important enough concern to assure that CLASS tested its 600 dpi capture against OCR devices.

The current phase of the CLASS project involves developing, implementing and testing client-server software and the distributed system it makes possible in 11 of New York State's largest libraries. The CLASS platform is a UNIX workstation with an optical jukebox running an image server application that caches images for browsing and printing at workstations running client software now developed for the SUN, in beta test for Apple Macintosh computers, and under development with a summer '93 beta test scheduled for IBM PC's. The architecture enables low resolution desktop computers without special hardware to display the TIFF images, protects the digital library which is accessed only by the server, and provides capabilities for the server to track use, secure viewing against authorizations, and, if desired,

bill users. It will also include a Z39.50 interface so that patrons of library public access catalogs can seamlessly view the digital images of texts found in catalog records or abstracts.

At the second session I attended, Don Waters of Yale University Library, presented Project Open Book, a closely related test of technologies for converting microfilm to digital data. Over a three year period, Yale plans to convert 10,000 items that have already been microfilmed for preservation to digital images. The test is designed to determine both quality and labor requirements of such conversions with the longterm prospect of making unattended conversion, perhaps even to ASCII, available as a backend to preservation microfilming which would be retained as a preservation method while the digital image would be used for access. The original plan was published with the Commission on Preservation and Access in July 1991. Since then Yale has selected a Xerox as a vendor (after a competition in which DEC and Xerox were paid to propose solutions). The competition identified outstanding technological issues in the plan which is to convert the images at the highest possible resolution, to store in TIFF using CCITT Group 4 fax compression, and to deliver them over TCP/IP ethernet and Internet using a client-server model.

The first operations phase is now underway. During this nine month phase Yale will convert 100 volumes with the highest degree of variances, including books, periodicals, archival materials and prints in order to test quality control and workflows, determine the document and page indexing capabilities of the system, and link the public access catalog with references to the digital versions. By year end Yale will begin the first of two production phases distinguished by first serving users only within the library and subsequently serving network users. In these phases Yale plans to convert 10,000 volumes in 36 months for an overall cost of c.\$1M not including variables features such as local labor costs, facilities management and network charges. The technical configuration is a Mekel scanner modified to deal with 2 images in comic mode at 600 dpi, a 486 DOS CPU with image enhancement software and the conversion and viewing software developed by the CLASS project. Maintenance costs for the system are estimated to be c.\$60,000 p.a.

Issues being tested include determining the resolutions that can be achieved for variations in the microfilms made at different times and under different condition and differences in the original documents. Workflow processes need to be developed to deal with automatic feeding of microfilm which was shot without documenting the number of frames per reel, developing techniques for separating two up images, and defining procedures for a variety of image correcting techniques including deskewing and knitting digital files together. Access methods will be developed for browsing image documents, locating users automatically at or in images files from the library catalog, revealing and using structural data (such as chapters) to enable viewers to go directly to logical parts of a text, and determining conventions for indexing types of images such

as periodical pages which include multiple and complex intellectual substance. Ultimately the intention is also to test conversion of the images to full text files.

The third session in this series focussed on digital capture, storage and access to 35mm. color images using Kodak's PhotoCD technology. The Kodak Library Consortium (KLIC), consisting of Cornell University, Eastman Kodak, the University of Southern California and the Commission on Preservation and Access is testing the adequacy of tools developed by Kodak in a project which has just gotten underway. Among the concepts they are now exploring are delivery of cached SuperVGA resolutions by a server over a network and delivery of files in Quicktime.

Together these three studies of the practicality of digital preservation could resolve the issues facing the vast majority of data conversion efforts and open the way to large-scale digital conversion of many types of collections. CLASS demonstrated that future preservation activity should move to digital, meaning that the 3 million volumes captured in the next twenty years will all be available over the networks as will full texts of most volumes being published during the next 20 years. The successful completion of Project Open Book would pave the way for several million volumes currently in microfilm, including all the newspapers captured in the American Newspaper project, to come online as well. Efforts of individual institutions and specialized projects will bring several million more titles on line as will efforts in most of the national libraries of the developed world. Within twenty years a very sizable percentage of the published literature of the world will be available in digital form and probably in full text. Slide libraries holding 100's of millions of slides could be converted into databases or on-demand if PhotoCD is demonstrated to be a viable technology for digital storage and delivery of 35mm, and the existing PhotoCD facilities for capturing at 64 and 256 times the 35mm. standard could be employed for full conversion of large format image materials. The organizations servicing this vast distributed digital library will not, and cannot, look like or be organized and funded in the way that our current libraries, archives, and museums are.

The second day of the CNI meeting began a panel which presented examples of government information providers using the Internet to provide access to public information. Chairman Chuck McClure first noted that the new administration in Washington has created a new environment in which we can expect both funding for networks and funding for their use to increase and in which government agencies will be expected to provide more access over the networks. Michael Eisenberg described AskERIC, a service for K-12 educators currently piloting in Texas, North Dakota and New York states. Eisenberg stressed that the success of AskERIC (which he supported with impressive use figures and testimonials from users) derived from responding to user requests for information rather than deciding what information should be provided and answering all questions with a human intermediary rather than just providing database searching.

Eisenberg's information specialists did not stop by answering specific questions put to them by users; they analyzed patterns of questions and created specialized information products around often asked questions, and used gopher to search listservs across the Internet looking for questions which could have been put to AskERIC but weren't, and answering them as well!

Ken Rogers of the Department of Commerce discussed the problems faced by a Federal agency interested in providing information over the Internet. Federal agencies have few technical people on staff to support use of the Internet and lack experience in market based service provision. The economic bulletin board provided by his agency brings Federal data from dozens of other agencies together for easy public access, but they know very little about their customers, haven't determined how to charge equitably for the service and have not conducted market studies to identify unfilled needs.

Elliott Christian of USGS reported on efforts of the global change research community to interchange huge datasets from numerous international sources and many government agencies which bear on the interrelationship of variables in climate change, ecological change and human to nature interactions. This well funded effort (combined agency direct expenditures on data management of global change data in the US is over \$300M p.a.) is implementing Z39.50 WAIS servers for browsing and trying to win acceptance for a Spatial Data Transfer Standard (SDTS) which USGS has issued as a Federal Information Processing Standard (FIPS) and is working its way through national and international standardization bodies. Current research is on navigation using expert profiles, semantic networks, methods of rating sources, development of tools for contributors of data and pattern matching (beyond language patterns).

In summary, Julie Wallace a government documents librarian from Minnesota, put these efforts in the context of a tradition of open access to government information and of the depository library system.

The "Standards and Architectures" working group meeting consisted largely of a discussion led by Clifford Lynch, chairman of the working group, on the need to address the increasing divergence between the ideological commitment of the library community and European governments to OSI solutions and the pragmatic need to use standards that are being put into place, often de facto, in the Internet environment. Lynch also expressed concern that content standards were lagging seriously behind technical interchange protocols compromising the potential success of Z39.50 which enables search and retrieval but has mostly idiosyncratic databases to run against. Another area of concern was that PC multimedia standards are being actively developed but the vendors are developing products that have no links to larger networked environments and don't interrelate to workstation tools. Finally, a lot of the "standard" tools being developed for the Internet, such as gophers, Veronica,archie, or

Prospero were not designed with standards frameworks in mind at all.

The ensuing discussion revealed the range of views from those reflecting the Internet Engineering Task Force position that "we have to make tools which are needed now" to purist views on OSI. Generally the group was supportive of Lynch's plans to hold a meeting to a small number of developers this summer to issue a white paper proposing a resolution of the issue but didn't contribute much to the solution itself.

After lunch, the Conference organizers had planned to have a public discussion of CNI's plans for the future now that its initial three year mandate from EDUCOM, ARL and CAUSE had expired, but the audience was happy to accept the recommendation to continue without very much debate, so the final session of the Conference was moved forward in time.

The two speakers in the closing plenary session, Evgeny Kuzmin, Director of the Library Department, Ministry of Culture, Russia and Scott Armstrong, Executive Director of Taxpayers Against Fraud and founder of the National Security Archive were invited because each had something important to say about the relationship between information and a free society. Significantly, each was a journalist by background and training.

Kuzmin recounted that the Soviet libraries system was, by one measure, an exceptional one; towns of 100,000 people were likely to have hundreds of public libraries, each within a few blocks of any individuals home, and the national system had a strong depository requirement which obliged publishers (essentially the state) to provide up to 70 free copies of each title for distribution to important national libraries. On the other hand, the Soviet libraries were poor in holdings and existed basically to disseminate approved publications and ideas. Kuzmin is systematically forcing libraries to consolidate at the same time that he is introducing to Russia a Western concept with no previous analog: reference service.

Armstrong argued that "democratic government revolves around accountability which is supported by free and complete access to information" about government actions. He told the audience how the "PROFS case", Armstrong et.al vs. Bush et.al. came about and why it was important to gain access to records of the White House and other government agencies. And he explained how his current organization, Taxpayers Against Fraud uses the bounty's provided for whistle blowing based recovery of government money to finance investigative reporting on corporate and government fraud. Armstrong ended with a plea to use the Internet for aggressive fact finding about possible frauds and to look carefully as the information economy blooms for evidence of illegal information-based activity.

D.B.



Actif et Interactif: the European Conference on Interactivity and Multimedia Publishing, was sponsored by the French government to promote interactive multimedia industries and investments. The approximately 600 attendees invited by Jack Lang, Minister of Education and the Arts, represented software developers, publishers, investors and the education and arts user community. In addition to choosing from over twenty sessions of papers in a two day period, attendees could browse through an exhibition hall with over a hundred commercial interactive products and a "projects" demonstration area with a dozen on-going non-commercial ventures. On the third day of the conference, the exhibition hall was opened to the general public of Paris, and although I would have loved to see the result, I couldn't be there for that.

The conference was opened with an up-beat introduction that suggested the potential of interactive multimedia to revolutionize nothing less than society and civilization. On a more sane note, the introducer acknowledged the more limited purpose of the meeting which was to foster the development of tools and provide training. Jack Lang's keynote was a combination of equally breathless predictions that multimedia would soon revolutionize Gutenberg's galaxy and modest proposals to spend more secondary school education funds (a total of 80M francs or \$16M in 1993) on purchasing multimedia titles. For French participants the concrete programs he outlined were already recognized to be futile campaign planks prior to an election in which the Socialists were sure to lose (and did overwhelmingly). A useful note was sounded, however, by his call to introduce more certainty into intellectual rights policies following a period of public debate to expose the issues. Hopefully this is a non-partisan agenda.

Pierre Lere followed Lang with a combination of Whig history (the invention of the alphabet leads to social form of democracy because everyone can read!) and poetic license (sharing space leads to shared signification) all of which would support the emergence of a "virtual museum" somehow magically organized in a way that would support any user moving through it following their personal interests. Thierry Gaudin, a futurologist, followed with the suggestion that we would soon need to develop technologies to protect ourselves from the omnipresence of information, but somehow didn't get into the discussion of intelligent agents which usually follows in this line of thought.

Sessions devoted to applications in the rest of the meeting were much more interesting to me. I learned about European initiatives, such as a secondary school program in Catalonia using the MPC standard with teachers of foreign languages (because they have considerable experience integrating a-v into the classroom) which uses off-the-shelf interactive publications from different countries, like the Grolier's Encyclopedia.

In the session on cognitive engineering, I found Titus Leder's view that much multimedia publishing suffers

from a lack of emotional involvement with its readers (too many DP types writing the content) and Alain Steen's observation that multimedia titles require authors with real things to say, useful, but wished the creators of most of the products in the exhibition had heard these points before publishing their products, rather than after.

The reason I attended the meeting was to take part in what was originally scheduled to be one of two sessions on interactives in museums. As it happened the two sessions were combined for political reasons so the audience of 100 or so heard a panel expanded to seven people make very abbreviated remarks and try to have an open microphone discussion.

Achim Lipp presented the work of the eight members of the European Museum Network which departed from the initial concept of networking as telecommunication to adopt a concept of networking as non-linear navigation of a locally installed shared dataset. Lipp suggested that as the shared database is augmented by the addition of new objects and keywords assigned by their curators, the search space would expand to allow for linkages between objects across museums that would not otherwise be linked. He argued that the result was less "searching" than "finding" with the difference being whether users know what they are looking for. While I found this philosophically interesting, the actual system as demonstrated by Lipp later was rather disappointing because the terms associated with objects by curators were more limiting than liberating.

Jean-Francoise Depelsenaire introduced the Videomuseum Association, a consortium founded in 1985 to exploit new technology for dissemination of information about collections in France holding 20th century art. The 40+ members of the Videomuseum Association have adopted shared cataloging rules and are photographing and sharing image and data on the approximately 150,000 works of twentieth century art estimated to be in French museums. By the end of 1993 the database, published with image on videodisc for association members, will contain approximately half these works and plans are to reach the 95% level by the end of 1995 with ongoing capture as new materials are added to collections. The data standards are quite minimal and catholic in order to assure that all potential participants will be able to join the Association. Software developed by the group addresses collections management requirements as well as description because it was perceived to be strategically beneficial to provide a homogeneous environment for using the data. Depelsenaire clearly views the initial standards as a basis for ultimately developing more complete standards and common methods. The shared data includes artist name, title of work, date of work, type of object, material, support, technique, description, repository, and current status. A query-by-example screen enables users to search for works satisfying one criteria and sort by date. The user can then further limit the search by up to two other criteria. Displays to the full screen from the videodisc currently don't use windowing and writing to printers involves bringing the image across the same capture board.

The software merges label text with image. This union catalog is only one of many potential products. Others envisioned include a future Minitel interface.

Michel van Praet of the Museum of Natural History discussed the history of their Evolution Gallery. From 1950-1970, the staff focused on documenting objects. In the 1970's they began to enter text into databases. Now they are beginning to think in terms of integrating multimedia into databases and database into exhibits so visitors see the computer screen as just another exhibit, like a stuffed chimp. For Van Praet, the computer is particularly attractive because the content of the exhibit requires that it interpret change over time which static exhibit displays are unable to do as convincingly as interactives.

Joelle le Marec from La Villette, reported that the interactive exhibition team of which she is part consists of 25 people who are engaged in developing exhibits that could be characterized as 1) manipulative and/or 2) simulation. The direction in which individual exhibits are tending is towards "virtual" experiences. The focus of much of their effort these days is on formative evaluation which they do by watching visitors actually using the system. They have found (although this is culturally determined) that many French visitors are frustrated by game like designs because the users apparently have more definite and pedagogical aims than these programs. They also found in general that feedback which helps to explain an experience is preferable to feedback which simply indicates failure and how to recover. Unfortunately the full findings of their researches could not be reported in the time we had available.

Guy Bourreau of Kodak discussed the potential of Kodak's PhotoCD format for museums stressing that the compression algorithms supported both low resolution for dissemination and high resolution for research at a very rapid scan rate of 6 seconds. He noted the attraction this would have for museums if a consumer and commercial market could be developed and discussed the Portfolio CD software product and its potential for carrying all multimedia except for motion images. As is the case in the US, Europeans seem interested in the technology but unsure of how likely it is that Kodak will be able to penetrate the consumer market. The aggressive marketing of CD-I in Europe will, of course, help PhotoCD because they can use the same drives.

Jean Francoise Chouquet, Redaction des Musee Nationaux, reported that the Louvre was in fact working with Kodak to capture existing photography and test the ability of PhotoCD to meet fine art museum requirements. If the general public buys into the idea, it can be market driven and it will, make huge public investments in the capture of imagery for educational software unnecessary.

Chairperson Elisabeth Caillet of the Direction des Musee led a stimulating discussion for the last few minutes of the session. Participants asked if there were intrinsic characteristics of science and art museum exhibits

that made them more or less suitable for interaction and if, in the opinion of the panel, the culture of museums would be transformed by interactive multimedia. In the time available the questions were more illuminating than the answers.

The exhibitions, though numerous, were with only a few exceptions disappointing. Very few were museum based. The majority were little more than video games or educational programs. Of the museum products, the Treasures of the Smithsonian CDI, the Van Gogh CDI and the Vatican Archive videodisc have been widely seen.

IBM corporation, in cooperation with various European governments had created Les Parcs Nationaux, which utilized ecological iconography rather than the expected cartographic front end to allow users to locate and explore national parks. The opening screen showed mountains, lowlands and plains and coastal regions overlaid with a grid. The images to the left were from Northern Europe while those to the right were taken in Southern European parks but the whole was woven together in a coherent image. As the user clicked on parts of the tableaux, they would be shown the location of the park (on a map) and see views/text relating to each. The choice of three languages and the attract mode were quite nice, but the pace of the program was too slow for anyone not seriously interested in learning about a specific park.

The Cluny Abby CD-ROM (by IBM) had a floor plan, touch screen, interface which showed low resolution stills of each of six sections of the abby with sound and captions for each. The Musee de L'Homme videodisc (by ODA) provided a world map touch screen interface with about 40 active sites each of which showed 5-8 images and details but the icons were very difficult to understand. The Musee de Tautavel CD-ROM was never working while I was there. One of the more interesting products that a museum might want was exhibited by Voyager Inc., which has offices in Paris now as well as in Santa Monica. Their Expanded book Toolkit, used to construct many of the multimedia titles they publish, provides a solid, low end, hypermedia authoring tool at under \$300.

The exhibit by the Narcisse (Network of Art Research Computer Image Systems in Europe) Project, a consortium of museum laboratories exploring issues associated with very high definition image capture funded by the EEC IMPACT program, was very informative. The presentation was in the form of a digital slide/tape show on different ways to look at works of art, including using x-rays, autoradiography, The text databases associated with the images were fulltext linked to a multi-lingual thesaurus. Narcisse has agreed on a capture quality standard of 16 pixels per mm. of the original in 24 bit color. Needless to say, this results in some extremely large files when dealing with objects the size of tapestries and court paintings! On the other hand it produces research files of adequate resolution to support textural analysis and conservation. The experts associated with Narcisse have been willing to accept JPEG compression losses but the plans are to retain uncompressed data as well. D.B.

The Art Libraries Society meeting in San Francisco reminded me that most of the library community is still struggling with the problems created by 1980's technology and has yet to discover the opportunities presented by systems in the 1990's.

At the first session on "Resource Access and Bibliographic Instruction" the speakers dealt with how to train their users to use the online catalog of their institution and the electronic databases on Dialog, other library catalogs and the Internet which lay just beyond it. Jack Brown (U.Va.) described the Classroom Instruction Program service offered by Dialog (flat fee \$15 p.hr. searching for students) which he hoped to introduce. Fred Hillbruner (Art institute of Chicago) demonstrated a Fox-Base orientation program he was about to bring up on a dedicated workstation for his users. Jean Brown (Univ. of Nevada, LV) shared sheets of instructions she had written for users of their Innovative Interfaces OPAC who wanted to get beyond the UNLV library. And James Glenn urged his colleagues to explore the Internet by subscribing to listservs and using ftp to download documents and data. When I asked why none of them spoke about images on videodisc or CD-ROM that are available as resources, all agreed that these were too expensive and incompatible for them. Apparently they haven't any real experience with low end videodisc and CD resources even though their primary users are most interested in the art rather than text about the art.

The few attendees at the Computer Section meeting which followed discussed whether the section name was appropriate or if it would be better to change it to "New Technologies" or some variant. Members seemed to accept that the only value of the sections was its role in planning sessions for the annual conference; at least other functions weren't pursued.

But I thought the need for more concerted discussion of automation related issues was evident in the session on "Comparative Solutions" addressed to vendors of museum library OPAC's that afternoon. ARLIS members had put five groups of questions to representatives from four companies (Dynix, Innovative Interfaces, Questor and Willoughby Associates) which purported to have OPAC's which served the needs of museum libraries although only one of these four was actually exhibiting at the meeting! The vendors found it quite easy, because of the way the questions were put, to respond that their firms' system was capable of satisfying the stated requirement in nearly every instance. In my commentary on these responses I tried to suggest to the ARLIS members how to ask these questions more precisely so as to elicit more useful answers. Most of the points were ones which a strong computer section would have made the subject of further analysis. Such a group might also have compiled a collective statement of requirements.

For example, the vendors were asked "have you developed applications for slide collections and archives?"

instead of how do the applications you have developed for slide collections (or archives) differ from library catalogs and in what ways does your software reflect these differences? Or even more specifically, what provenancial data is accommodated by your system and how may it be searched independently of the object data and/or how do you support copy cataloging?

Vendors were asked "Can you handle the expanded MARC applications for MARC VM and MARC AMC formats?" rather than asking can you import MARC tagged data, map it into your system, allow it to be edited and changed within your system, and export full MARC record in OCLC or RLIN format? and/or "Can you support all the MDA data elements and relations"?

The benefit of the session to the audience was, without doubt, that they learned how carefully they needed to formulate requirements before they would be able to distinguish between products and how important it was to identify the critical success factors in their RFP's rather than simply enumerating huge lists of needs.

On the second day of the conference the exhibit hall opened early to a throng of ARLIS members seeking to enjoy a continental breakfast and a look at new products. As always the hall was mostly occupied by book dealers, but there were three categories of systems vendors: publishers of electronic editions and databases on CD-ROM and online; vendors of collection cataloging and documentation software; and image database software providers, often with an interest in obtaining rights and co-publishing. A report on the participants can be found in the software section of this issue.

At the session on New Directions in Visual Resources later in the morning heard Lois Schultz, a Duke University music librarian, describe a project to provide fuller access to popular sheet music, including their visually important covers, at less cost than traditional cataloging. Schultz and her one assistant were documenting 22,000 pieces of music in their collection in 2 years by scanning it, transcribing the lyrics, and indexing (a process requiring an average of 20 minutes per title). They are making the database available over the Internet WAIS (Wide Area Information Server) to anyone around the world. In the process they have discovered that the artists, engravers and printers of 19th century sheet music are not known to the world of art history and came to ARLIS seeking assistance in identifying them.

Marilyn Snow, University of California Berkeley, then described her Slide and Photograph Image Retrieval Online (SPIRO) system and compared it to other commercial and non-commercial image managers (low end filers) and image catalogs (higher end database systems). She used overheads of screens to contrast the interfaces of systems including Visual Information, GTE's Digital Album, AXS's Art Access, Graphic Detail's ThumbUp, IBM's Color Image Capture High Resolution, Aldus' Fetch, UCB's ImageQuery and the original MIT Boston Database Project.

I took John Perkins' place on the program to present the Standards Framework for Computer Interchange of Museum Information which will be published by the Museum Computer Network in May. I explained briefly that the Standard Framework was the product of numerous individuals representing museum professional associations, networks and vendors in the U.S., Canada and the U.K. It stipulates an open systems architecture for museum data interchange intended to assure the interconnection between systems within a single institution, the migration of data between systems of different vendors and generations, and the exchange of information between institutions and databases. The architecture does not require the creation of any new "museum" standard, but rather relates existing standards to the variety of functions within museums, indicating for example the different standards that would govern how membership, exhibition loan, collection documentation or museum shop orders and fulfillment data should be exported and imported. The Standards Framework rests on many existing OSI level 1-6 standards, and recognizes two major classes of data interchange for museums: museum business transactions similar to those of other businesses (financial, personnel, and materiel management) and unique to museums (gift management or exhibition lending) and museum documentation, including provenance. The Standards Framework dictates the use of EDI for museum business transactions and the use of SGML for museum documentation in all media and formats. The Standards Framework has already enabled some groups within the museum community with specific interests in interchange to identify the appropriate implementation protocol for their content standards and define a service profile that can be implemented for computer to computer data interchange. It is hoped that the publication of the Standards Framework and its promotion within the museum community will lead to adoption of these standards as a feature of museum applications and networks so that all the functionally discrete interchanges required by museums can be supported.

My day ended with a further visit to the exhibits and an advisory committee meeting for the Clearinghouse for Art Documentation. On my final morning at ARLIS, I attended a session on digital photography and its impact on visual resources where Diana Hulick expanded upon a theme she has written about in *Leonardo*, comparing the ability of digital photography to correct optical distortion and make images which are not "real" with nineteenth century mannerist uses of photography and the liberal way in which artists "composed" Crimean and American Civil War battle photographs. She remarked on how much a photograph depends for its claim to truth on the text which accompanies it.

Unfortunately I had to leave before the end of what promised to be an exciting discussion on whether digital imaging introduces a new dimension in photography or mere brings the art back to its roots.

D.B.

CALENDAR

May 4-6, 1993 New York, NY; National Online Meeting & IOLS'93 [National Online Meeting Learned Information, Inc., 143 Old Marlton Pike, Medford, NJ 08055; (609)654-6266; fax 609-654-4309]

May 4-6, 1993 New York, NY; MultiMedia Expo New York [American Expositions, Inc., 110 Greene St., #703, New York, NY 10012; (212)226-4141; fax 212-226-4983]

May 16-20, 1993 Fort Worth, TX; AAM Annual Meeting "Partnerships: Museums and Communities" [AAM, P.O. Box 40, Washington, DC 20042-0040; (202)289-9113]

May 20-23, 1993 Houston, TX; The Association of Youth Museums-8th Annual InterActivity Meeting [Randy McKeel, The Children's Museum of Memphis, 2525 Central Ave., Memphis, TN 38104; (901)458-2678; fax 901-458-4033]

May 23-27, 1993 Knoxville, TN; ASIS 1993 Mid-Year Meeting [ASIS Conference Registrar, PO Box 554, Washington, DC 20044-0554; (301)495-0900; fax 301-495-0810]

June 14-17, 1993 Atlanta, GA; Electronic Messaging'93 [Electronic Mail Assoc., 1555 Wilson Blvd., Suite 300, Arlington, VA 22209; (703)875-8620; fax 703-522-0241]

June 23-26, 1993 Orlando, FL; World Conference on Educational Multimedia and Hypermedia [ED-MEDIA 93 Registration, P.O. Box 2966, Charlottesville, VA 22902; (804)973-3987; fax 804-978-7449]

August 5-7, 1993 Philadelphia, PA; Images in Libraries, Museums, and Archives: Description and Intellectual Access [PACSCL, Univ. of Pennsylvania Archives, North Arcade, Franklin Field, Philadelphia, PA 19104-69320; (215)898-5240; fax 215-573-2036]

September 8-11, 1993 Columbus, OH; AASLH Annual Meeting [AASLH, 530 Church St., Suite 600, Nashville, TN 37219; (615)255-2971]

September 10-16, 1993 Ljubljana, Slovenia; CIDOC Annual Conference [Slovenski etnografski muzej - MIDOM, Presernova 20, 61000 Ljubljana, Slovenia; +3861-218-844; fax +3861-218-844]

September 20-24, 1993 Cambridge, England; Second International Conference on Hypermedia and Interactivity in Museums and Sixth Annual Conference of the Museum Documentation Association [Archives & Museum Informatics, 5501 Walnut St., Ste 203, Pittsburgh, PA 15232; (412)683-9775; fax 412-683-7366]

Early registration forms with savings available now.

REPORTS

Ethics, Copyright and the Bottom Line: A Symposium of Digital Technologies and the Professional Photographer (Camden Maine, Center for Creative Imaging, Eastman Kodak Company, 1992) \$10 from the center at 51 Mechanic St., Camden Maine 04843.

These proceedings, featuring papers by Ray De-Moulin, Nathan Benn, John Sculley, Brian Kahin and many others and open discussions between the participants touch on numerous issues relating to digital imagery which will be of interest to anyone in this field.

The Information Society: New Media...New Choices (Ottawa, Communications Canada, 1992) 90pp. in English and French

This report on Canada as an information society and its impact on the cultural sector (divided into "Cultural Industries" and "Arts and Heritage") is both an economic forecast and straightforward discussion of the potential of new media and methods of communications.

Interactifs: Une Technique de L'Intention; Guide pratique a l'usage des professionnels des musees (Paris, Ministère de Culture Direction des Musees de France, 1992) 57pp.

This is a very useful little book covering all aspects of interactive multimedia production for museums from project team organization and budgets to design principles with apt illustrations and examples which includes as appendixes brief descriptions of projects undertaken at the Musée d'Orsay, Albert Kahn, Louvre, La Villette, Musée pour la Paix (Caen) and Pavillon de l'Arsenal of the City of Paris as well as a list of producers and a glossary.

Managing Electronic Records: Curriculum Materials. Advisory Committee for the Coordination of Information Systems, United Nations, New York 1992 \$25.00 from UN Publications Sales Section, 2 UN Plaza Room DC2-853, NY, NY 10017

This product of the ACCIS Working group on Electronic Records Management Issues and Standards consists of a very abbreviated (9p) "briefing" and "workshop" to explain and train staff in the use of the 1989 Guidelines and the 1992 Strategic Issues paper and an extensive "annex" consisting of miscellaneous documents accumulated in the course of the committee deliberations. The former is really too abbreviated (and untested) to be useful and the latter is a miscellany. It includes some material that is useful (for example, the results of the 1990 update to the 1988 survey of practices and a briefing on information technology trends), some useless (the forms for the 1990 survey) and some readily available elsewhere (such as the final report of the Foremost project).

National Archives and Records Administration: Strategic Plan for a Challenging Federal Environment 1993-2001 (Washington DC, NARA, February 23, 1993) 16pp.

This report displays the lack of vision and ability to identify opportunities for which NARA has unfortunately become infamous. The most compelling impression upon reading it is that the authors somehow managed to completely miss the fact that while they were writing, a change of administration took place in Washington. Here is a report which never tries to assess the record creating environment in the Federal government, measure the output of NARA units, evaluate the adequacy of existing methods, question current operating assumptions or propose new programmatic endeavors. Despite occasional glimmers of openness to new approaches ("we will also reevaluate our position on authorizing affiliated archives..."; "we will identify partnerships...for the preservation of records still in agency custody"; "we will implement ...dial in access to descriptive information about records nationwide") the overall tone is one of hunkering down. One could forget that substantial NARA resources are devoted to the Federal Register, Presidential Libraries, Records Centers and Declassification review; these warrant considerable attention and receive virtually none. One would think the world was waiting for NARA to come to grips with electronic records; the strategic plan nowhere mentions the Internet and assigns thinking about what to do with office records are being created in electronic form to a task force that is proposed to report in 1994 and have its recommendations implemented by 1997! The formation of advisory councils and task forces, reports and studies are proposed as if they were real actions and nowhere in this "strategic" plan does NARA's strategy show itself. Perhaps it should be titled a tactical plan for diverting attention from the [now ex-] Archivist of the United States. The strongest recommendation we can make to the next Archivist of the United States is to bury this "plan" and begin with a real environmental scan that faces the extent to which archival methods are failing and proposes measurable goals and completely new tactics.

Preferred Library Futures II: Charting the Paths, Richard Dougherty and Carol Hughes (Mountain View, CA, The Research Libraries Group, 1993) free in single copies from RLG Distribution Services Center, 1200 Villa St., Mountain View CA 94041-1100

This report on a high level workshop on the future of the academic library picked up where a 1991 conference left off: if administrators, faculty, librarians and publishers all share a vision of the networked electronic library of the future, what can they do to realize it? Through brainstorming and mini-think tanks the group identified trends, imagined futures, planned pilot projects and defined strategies. The authors first report, and then reflect, on the outcome. In conclusion James Michalko, President of RLG which sponsored the meeting, adds his observations. No one who is thinking about the future of libraries should fail to read, and heed, this report. Too much of whether that future will be is at stake.

BOOKS

Michael Buckland, **Redesigning Library Services: A Manifesto** (Chicago, ALA, 1992)

This challenging reassessment of libraries is equally valuable to archives and museums, not because the answers are always applicable, but because the questions are so fundamental. For example, when Buckland asks "Why do libraries spend so much of their operating budget and space assembling collections?" and observes that "Collecting material does not *create* material. It only affects where copies are located." He identifies four roles that collections play: the preservation role, the dispensing role, the bibliographic role and a symbolic role. His analysis of the relevance of these roles is challenging and important.

Bruce Dearstyne, **The Archival Enterprise: Modern Archival Principles, Practices and Management Techniques** (Chicago, American Library Association, 1993)

This introduction to archives avoids the hard distinctions between archives and libraries relying instead on the concept of "historical records" and ducks the critical methodological issues facing the profession in favor of a very traditional certainties of what archivists are about. Dearstyne deserves some credit for trying to address the issue of electronic records in a chapter which diagnoses many of the problems and offers lengthy excerpts from recent NAGARA and NHPRC reports as indicators of preliminary directions towards solutions. Although the chapter was tacked on at the end of the book rather than where it belongs in Dearstyne's narrative, and doesn't offer anything new to those who have kept up on the issue, it is the only broad overview in print at the moment.

Peter Esner & C.G. McGregor, **Analysis of Visual Information Retrieval Queries**. Report on Project G16412 to the British Library Research & Development Department, 1992

This report on a research project funded by the British Library R&D Department analyses requests for still images received by phone, fax and letter at the Hulton Deutsch Collection, the largest picture archive in Europe. Panofsky's pre-iconic terminology was rarely found applicable; instead a target concept was found to be typically qualified with respect to personality, event, time and/or location. This kind of user presentation language analysis of image retrieval requirements is long overdue. It would be nice if people read it, paid attention to what it found, and conducted additional studies to refine or refute these findings but this format receives little distribution. I found it especially interesting that Esner found a larger than expected number of searches for specific, unique items just as I did in my study of user presentation language in archives. This issue deserves a more complete analysis with larger samples than either of us used and a clearer definition of the source of the anticipated figures.

Signe Hoffos, **Multimedia and the Interactive Display in Museums, Exhibitions and Libraries**. British Library Research Report # 87 (London, British Library, 1992) 92pp.

The first half of this report is a summary of multimedia production and display issues which, considering its brevity, packs a tremendous quantity of useful reference information. The second half is a series of equally dense one to two page project reports largely, but not exclusively on British museum multimedia projects. These are followed by appendixes of publications, events, installations, suppliers, and an index.

Candy Schwartz and Peter Hennon, **Records Management and the Library: Issues and Practices** (Norwood NJ, Ablex Publishing Co, 1993)

This new text follows the lines of a library school course in records management without making too many mistakes nor distinguishing itself particularly except that towards the end of the term (chapters 14-16) we get some case studies. One of these, "MARC AMC and the Government Records Project at the Massachusetts Archives" by Nancy Richard and Kathryn Hammond Baker, is a truly important contribution to the archival literature as the only detailed account of the way in which the RLG Government Records Project and the Intergovernmental records Project at NARA attempted to structure RLIN records and their own appraisal methods to take advantage of the potential of shared appraisal. I hope it doesn't get buried by having been published here.

Dennis J. Reynolds, editor, **Citizen Rights and Access to Electronic Information: the 1991 LITA President's Program Presentations and Background Papers** (Chicago, LITA, 1992)

These papers from the 1991 LITA conference remain as fresh today as when they were given. The editor's introduction, subtitled "Citizen Entitlement and Information Access in an Electronic Age" provides more examples of the ways in which the government has used the electronic record as a shield from FOIA and of the inadequacy of U.S. privacy legislation. Papers by Brian Kahin and Mitch Kapor propel the debate into the broader political arena and focus the question of what sort of information infrastructure we will have. The background papers prepared for the meeting contain many valuable insights and references to much literature that would otherwise be missed. As is often the case, Peter Lyman makes the whole thing worthwhile with his provocative thought that the replacement of the "circle of gifts" ethic that was the source of strength for the network when it was the sole property of the technical community by the "property rights" ethic of the larger culture may not be a good thing and could require some conscious shaping. □

ARTICLES

Richard Baskerville, "Risk Analysis as a Source of Professional Knowledge", *Computers & Security*, vol.10 (1991) p.749-764

The author argues that criticism of risk analysis as a positivist artifact ignores its value in "interpretively expressing professional knowledge about the economic feasibility of information systems controls". While admitting that quantification methodologies are often faulty, Baskerville shows how the judgments made by professionals can be embodied in risk assessment models to add value to the discrete estimates and gain management support for decisions. The emphasis on risk analysis as a means of collective expression of professional experience rather than a hard science is one that I have felt makes it the appropriate methodology for archival retention decisions and supports the role of the archivist as a manager of corporate risk.

Anne Gilliland-Swetland and Carol Hughes, "Enhancing Archival Description for Public Computer Conferences of Historical Value: An Exploratory Study", *American Archivist*, vol.55#2 (Spring 1992) p.316-330

The authors examine a number of ways of revealing important facts about the records of an conference which they have already appraised as being of archival value and demonstrate that their findings are consistent with the kinds of information captured by curators of historical manuscript collections in description of traditional records: e.g., "how the material was created and used during its active life, who was important in its creation, and which topics within the collection are particularly noteworthy". In the process they reveal more interesting features of the emerging cultural genre of electronic conferencing than are necessary for archival description but make a useful empirical contribution to our understanding of this sociological phenomenon. Unfortunately, when the authors try to apply their findings to archival issues they begin with some very odd premises about archives that make it difficult for me to understand their conclusions.

Brian Kahin, "Scholarly Communication in the Network Environment: Issues of principle, policies and practice", *The Electronic Library*, vol.10#5 (October 1992) p.275-86

This paper, which explores ethical and legal issues associated with the emergence of networks as a vehicle for scholarly communication, was contracted by the Coalition for Networked Information to raise a series of issues for further discussion. The issues Kahin dissects are too complex to summarize here except to say that his analysis provides the best basis yet for resolution of some troublesome questions about the future of copyright in network publications ranging from electronic conference proceedings (like those archived by Gilliland-Swetland), to derivative works and commercial publications.

Avra Michelson and Jeff Rothenberg, "Scholarly Communication and Information Technology: Exploring the Impact of Changes in the Research Process on Archives", *American Archivist*, vol.55#2 (Spring 1992) p.236-315

Archivists have been discussing the use of automation in archives (automated techniques) and the impact of automation on the content of archives (electronic records); Michelson and Rothenberg add a third issue: the potential impact of changes in scholarly practices of using archives. After citing many ways in which end-user computing and connectivity are changing the ways scholars access and use knowledge they recommend that archivists "1. establish a presence on the Internet; 2. make source material available for research use over the Internet; 3. create documentation strategies to document network-mediated scholarship and the development of research and education networks; 4. develop archival methods suitable for operation with NREN; 5. take user methods and future computational capacity into account in establishing policies on the management of software-dependent records; and 6. recognize and reward initiatives that advance archival management of electronic records, respond to scholarly use of information technology or promote a network-mediated archival workplace." Of course they are right that scholars will do much research in the future from electronic sources, but the article doesn't provide usable criteria with which archivists can work out how best to respond to this need. With a National Archives that is not only not on the Internet but has to be ordered by Federal Court judges to accept that email is a record, we have a long way to go.

Lisa Lewinson, "Tales of Database Migration", *Database Programming and Design*, vol.5#2 (Feb 1992) p.27-34

Description of migration projects involving large staffs over periods of 1-6 years should be useful to archivists considering acquiring software dependent data.

Bert Moore, "Automatic Data Collection for Collection Tracking", *Spectra*, vol.20#1 Winter 1993 p.3-6

This is the first museum article I know of to offer discussion of radio frequency identification (RFID) in addition to bar coding for object identification.

Shawna Moos, "Software for Group Activities", *Exhibit Builder*, vol.10#4 (March/April 1993) p.22-24

Introduces a group interactive software product and its use at the Liberty Science center exhibit on ecology developed by Peace River Films.

Roy Rada and Hafeedh Mili, "Document Reuse: Organizing, Finding and Reorganizing Content", *International Journal of Information Management*, vol.12 (1992) p.310-319

Recombinant intellectual objects are a subject that will engage more archivists and museum curators in coming

years. This tutorial in the software tools which support hyper-documents and how these documents can be described so that "reorganization can naturally flow from organization" is a useful contribution to the growing literature describing individuated document creation and dissemination. Whether you regard it as a nightmare (to archive) and a great opportunity (to publish), the cultural practice of building specific documents from a database of logical document components is an important arena to follow.

Eric Sieverts, Marten Hofstede et.al, "Software for Information Storage and Retrieval tested, evaluated and compared" parts 1-5, *The Electronic Library*, vols.9-10 (June 1991, December 1991, February 1992, August 1992, December 1992)

I have been following this extended series of software reviews for two years with growing admiration for the authors who have applied an interesting and thorough set of criteria to an almost unbelievably wide range of products. Anyone thinking about information retrieval systems ought to have a look at what they say.

Paul Wangemann, "Multimedia at the Motorola Museum of Electronics", *Journal of Instructional Delivery Systems*, vol.7#1 (Winter 1993) p.23-26

Describes the aggressive use of multimedia at the museum and an interesting user interface approach in the S.E.E.K. (Simulated Exploration of Electronic Knowledge) program.

NEWSLETTERS AND JOURNALS

Art Reference Services Quarterly (ISSN 1050-2548) issued vol.1 #1 in the first quarter of 1993. At \$28.00 to individuals (\$36 to institutions), this Haworth Press item [10 Alice St. Binghamton NY 13904-1580] may prove a valuable resource. The first issue put together by editor Edward Teague of the University of Florida contains articles by Henry Pisciotta (CMU) on an index to architectural illustrations using the AAT for headings control, by David Austin (Univ.of Illinois @ Chicago) on art videodiscs available for library acquisition, and by Tim Anderson on the use by CMU reference librarians of ArtCom service on the WELL (see review in vol. X#IX of this journal).

CETH Newsletter (ISSN applied for) is a new periodical to appear 2-3 times p.a. from the Center for Electronic Texts in the Humanities, [169 College Ave., Alexander Library 3rd Fl., New Brunswick, NJ 08903.] The inaugural issue reports on CETH endeavors and those of special interest groups and meetings on electronic texts sponsored by the Modern Language Association, American Library Association and American Council of Learned Societies.

Electronic Documents (ISSN 0965-2035) is a monthly from Learned Information Ltd., [Woodside, Hinksey Hill, Oxford OX1 5AU UK] which consists of a special topics report (18 + p.), shorter articles and a separate 'news

bulletin'(8p). Its first year of publication (vol.1#12, December 1992) closed with a report on Network Publishing after a year which dealt with image filing, text indexing, OCR, Hypertext, Fax on Demand, digitized video, ISDN, networked images and online books. In 1993 special topics include image capture, filing and indexing, image handling, workflow and collaboration, document transmission, CD-ROM creation, multimedia documents, recognition, conversion and exchange, storing and transporting and publishing and networking. The flavor is semi-technical market survey; the news bulletin contains product specific reports.

Higher Education Product Companion (ISSN 1065-2086) is free to the higher ed. community from Syllabus Press, 1307 South Mary Ave. Suite 218, Sunnyvale CA 94087. Vol.2#2 on Networking and Connectivity has a number of useful articles.

Internet World (ISSN 1064-3923) is the continuation of Research & Education Networking. Published 9 times a year by Meckler Corporation, [11 Ferry Lane West, Westport CT 06880; 203-226-6967. \$97 p.a. 16pp. per issue.]

Journal of Education for Library and Information Science (ISSN 0748-5786) vol. 34 #1, Winter 1993 is a special issue edited by Richard Cox with the slightly pretentious title "Educating the American Archivist for the Twenty-First Century". The main articles by Paul Conway, Luciana Duranti, Tim Ericson, and Fred Stielow state aspects of the case for graduate professional education and explore what it might look like. Introductory comments by Cox and closing remarks by Toni Carbo Bearman round out this special issue which addresses a topic about which there is reason to be concerned.

Perseus Newsletter [free from Yale University Press, 92A Yale Station, New Haven CT 06520] made its appearance with a Winter 1993 issue and promises to carry news of Perseus uses and users. In the first issue, Greg Crane reports on an exhibition entitled "The Social Context of Greek Art" installed at the Fogg Art Museum at Harvard University and how he uses it, and the Perseus database in the gallery and in his lecture course on Classical Greek Literature in Fifth Century Athens. Perseus was also used recently in conjunction with "The Greek Miracle" exhibit at the National Gallery of Art.

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

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

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

Submissions of press releases, publications and software for review, articles, and letters to the editor are welcomed. Copy is preferred double-spaced. Longer articles will be requested in machine-readable form if accepted for publication.

NEWS

RLIN DEVELOPMENTS

Cataloging records representing 7,000 bodies of historical materials from ten RLG member institutions were recently added to the RLIN AMC file bringing the total number of records in the file to over 380,000. Cooperating institutions included: the American Antiquarian Society, Cornell University, Emory University, the Hagley Museum and Library, Louisiana State University, the State Historical Society of Wisconsin, the University of Pennsylvania, Yale University and the Virginia State Library and Archives. RLG has recently been awarded an NEH grant to begin developing a national database on RLIN information about primary material in American literature. Research Resources in American Literature is a one year pilot project of the Beinecke Library at Yale, Dartmouth College Library, the Humanities Research Center at the University of Texas Austin and the Houghton Library at Harvard where the editorial office will be located.

MUSEUM MACINTOSH USER GROUP

A users group addressing the needs of museums worldwide was established on Applelink in January 1993. Its primary mission is to create an extensive online resource database for museum Macintosh developers and users. Individuals and organizations which work within or for an Art, Children's, Computer, History, Science or other museum and independent developers and vendors are invited to participate. The online folder structure currently includes:

- * Books, articles and reviews of interest
- * Electronic publishing
- * Image processing
- * Announcements, events and conferences
- * Museum/developers address list
- * Project information and updates
- * Software and Shareware
- * Evaluation and visitor research
- * Software and hardware reviews
- * Open discussion

[for further information contact: Scott Sayre, Museum Macintosh User Group Ambassadors AT (612) 870-3211; Applelink: MIA.INTERACT; or Minneapolis Institute of Arts, Interactive Media Group, 2400 Third Ave. South, Minneapolis, MN 55404]

Networked Virtual Art Museum

Carl Loeffler, founder of ArtCom on the WELL and editor of Performance Anthology, has been a fellow at the Carnegie Mellon University Studio for Creative Inquiry for the past year, during which time he has given birth to the networked virtual art museum. This virtual environment, entered by wearing a head-mounted display, places the visitor in a virtual building similar to the CMU College of Fine Arts. In its galleries visitors can find virtual

art works and create their own three dimensional virtual objects in the studio. Although the virtual museum is located in Pittsburgh, it can be reached from anywhere that is equipped with the Sense* software and custom programming which makes the CMU installation work and was "opened" in September 1992 by a connection between Pittsburgh and Munich. Artists are now being encouraged by Loeffler to explore the museum and deposit virtual works. At an open house the other day, Loeffler recounted his success at interesting other institutions on several continents. He sounded virtually certain that a virtual library will soon be required to collect the virtual documentation.

[For more information contact Carl Loeffler at the Studio for Creative Inquiry, School of Fine Arts, CMU, Pittsburgh PA, 15213]

NEW NHPRC GRANT GUIDELINES

The National Historical Publications and Records Commission has issued new guidelines for grants. Of special interest are the guidelines for electronic record grants which build on, and integrate, the recommendations of the working meeting on Research Issues in Electronic Records and the recent literature in the field. Grant categories include Research, Program Development, and Analysis and Advocacy.

[for more information, contact Lisa Weber, NHPRC (NP), National Archives Building Rm 601, Washington DC 20408; 202-501-5610].

NETWORK RETRIEVAL TOOLS

The Clearinghouse for Networked Information Discovery and Retrieval Tools at the University of North Carolina established a consortium of public and private parties to leverage start-up funds from NSF and MCNC to promote the use and development of tools for busing and discovering networked information. The CNIDR is beta-testing a new WAIS-like system compatible with Z39.50-1992 and exploring means of making the use of such software tools asarchie, gopher, prospero, htelnet, libs, and WWW more widely available.

[For more information, contact George Brett, Director at George.Brett@cnidr.org or (919)248-1499, fax (919) 248-1405]

CD PUBLISHING LIST

A CD Publishing List has been established for people interested in systems, methods, standards, platforms and content issues relating to CD publishing. Interested persons may subscribe by sending the commend SUBSCRIBE CDPub FirstName LastName to Mail-Server@knex.via.mind.org

[for more information, contact Gess Shankar at Knowledge Exchange via gess@knex.via.mind.org].

NAGARA AND SAA LOBBY FOR NEW ARCHIVIST

Following the resignation of Don Wilson as Archivist of the United States, the National Association of Government Archives and Records Administrators joined the Society of American Archivists in a statement to the Clinton Administration on criteria for selecting a new national archivist by September 1, 1993. They also issued a press release in which NAGARA President Howard Lowell stated "NAGARA believes that the current controversies must be investigated and resolved. Our Association wants to ensure that NARA survives and that it is ready to take up its future responsibilities, including dealing with the electronic records of the Federal government."

ARCHIVAL HIGH JINXS AT THE WHITE HOUSE

Although ordered to preserve the electronic media from the White House by Judge Richey's on January 6 and 11, and despite its assurance to the Judge in a Post-Hearing submission on January 14, the National Archives apparently did nothing to prepare to take control of the materials ordered preserved following the decision in *Armstrong v. EOP* until the morning of January 19. At 10 am. Raymond Mosley, Acting Deputy Archivist, called a meeting of NARA senior staff who decided to establish a Task Force consisting of Nancy Smith (NL), David Langbart (NIR), Robert Chadduck (NSX), Amy Krupky (NXL), and Samuel Watkins (NAM) chair, "to obtain electronic media (tapes and disk drives) subject to the court's order in the *Armstrong* litigation, as well as related manuals and documentation, and bring them to the National Archives Building where they would be held pending the outcome of the litigation."

Having not conducted any previous records survey, the Task Force was entirely dependent on White House personnel (on this last day of the Bush Administration) to identify the relevant materials which were estimated at 4000 tapes and an unknown number of hard disk drives, before the change of administration at noon on January 20. The Task Force set out with a truck driver and crew at 9:30 pm., got inside the OEOB at 10:30 pm., received the first 1866 cartridges and reels of tape dated November 7, 1992-January 19, 1993 by 12:30 am. (with only few missing!), returned to the National Archives Building at 1:00 am. and set out again at 7:30 am. but were unable to get access to more tapes until 9:00 am. They inventoried 2843 OA cartridges and 32 PROFs backup tapes from the NEOB by 1:00 pm. and picked up more tapes and hard drives at the OEOB until 5:00 pm. There was no packing material to be had in all of Washington apparently so they put all the hard drives in cardboard boxes and left all the hard drives on the 4th floor which were not ready for the FBI to pick up the next day. Over the next several days some additional hard drives were submitted by the NSC Director of Intelligence Programs (on January 25) and the Office of the Vice President's National Security Advisor (on January 26). Some materials and days were never accounted for and the state of the hard drives was not determined, moreover (as the Task Force reported to the Deputy Archivist on February 16) they "did not receive an

adequate description of any system that would allow the Archives to operate the system or review the data contained in the system."

If this wasn't deadly serious stuff, the slapstick routine would make for a good laugh. Even if Don Wilson hadn't signed away any control over these materials at 11:50 pm. on January 19, the method used to obtain them virtually assures that the record will have been destroyed.

CALLS FOR INVESTIGATION OF WILSON

Senators David Pryor and Joseph Lieberman and Representative John Conyers, Chairman of the Government Operations Committee, called for a separate investigation by the General Accounting Office of the potential conflict-of-interest in Don Wilson's agreement with George Bush. The investigation was requested in light of Wilson's assurance that he had not discussed a job in the Presidential Library prior to signing the agreement, when it was revealed that Wilson had in fact discussed becoming Director of the George Bush Center for Presidential Studies at Texas A&M University as early as January 4.

ARCHIVING COMPUTER CONFERENCES

The Bentley Library at the University of Michigan submitted its report on NHPRC grant 91-113, an investigation of archival issues surrounding the use of computer conferencing in academic communities, in December 1992. The discussion of how archivists dealt with privacy concerns of participants in conferences was more interesting to me than the bases for their decisions both to keep records of the conferences, and to keep them in a software dependent format!

TCI GOES FIBRE

As this issue went to press, my local cable company announced a \$2B infrastructure investment project which will connect its subscribers in 40 communities nationwide via optic fibre within two years. What does it mean besides 500 channels of interactive television? High definition, multimedia, with very low cost of delivery means all kinds of multimedia documents from videophone to interactive museums (virtual and real) will be possible in a time horizon that barely gives us time to plan. Expect the content developers to be visiting you soon to find out what they can put on these channels. It can't be entirely retail sales and video games!

PICTURE NETWORK INTERNATIONAL INVESTORS

On March 1, Picture Network international announced that the Tribune Company, owners of the Chicago Tribune, numerous TV and radio stations, and an interest in America Online had made a major investment in its electronic photo archive and sales company.

[contact Nathan Benn, President, PNI, 2000 15th St. North, Arlington VA 22201; 703-558-7680; fax 703-558-4723]

SOFTWARE

VENDORS AT ARLIS/NA

The following online information systems vendors exhibited at the ARLIS/NA meeting:

Art Trak Inc [2916 McKinney Ave., Dallas TX 75204; 214-979-0009] had just launched an online information service eventually intended to include auction and stolen art data, directories of art professional services, and object databases on tribal art.

Auction Index/Leonard's Annual Price List [30 Valentine Park, West Newton MA 02165; 617-964-2876] was showing the CD-ROM versions of its long established print products.

Chadwyck-Healey [1101 King St., Suite 380, Alexandria VA 22314; 703-683-4890] was showing more radical hyper-text access methods for two huge full text and associated image SGML marked up databases including English poetry and the prototype of the 1.2GB Patrologica Latina.

Getty Art History Information Program [401 Wilshire Blvd., Suite 1100, Santa Monica CA 90401; 310-395-1025] was showing the Art Reference Tool (ART) software with associated Art and Architecture Thesaurus it published through Oxford University Press.

Immagini Inc [47 Indian Hill Rd., Bedford NY 10506; 914-234-0197] showed ADEC-Online an electronic art auction database available by dial-up from PC's and as a fax service.

The **Institute for Scientific Information** showed its Art & Humanities Citation Index on CD-ROM.

The **Research Libraries Group** [1200 Villa St., Mountain View CA 94041-1100; 415-691-2355] demonstrated a vast array of scholarly databases for the arts available through RLIN.

The cataloging vendors included old standby's like **Cactus Software** (Minaret), **Carlyle Systems** (Voyager Series OPAC), **Cuadra Associates** (Star), **Innovative Interfaces**, **Michigan State University** (MicroMARC:amc). The Carlyle system is a new product, though it was exhibited before release; unfortunately it does nothing very exciting beyond showing images linked to MARC records. Innovative Interfaces sells a similar traditional OPAC with images. Star now supports full MARC and images and the two archives systems remain as DOS text catalogs.

The image base vendors included **Graphic Detail Inc** [Westchase One, Suite 500, 4020 Westchase Blvd., Raleigh NC 27607; 919-833-3366] which showed its "Thumbs Up" Macintosh system for capture and display of images using an astonishing selection of 20th century art captured by the Duke University Art History Department to which neither they nor Duke possessed rights!

Without a doubt this is a company and a University brazenly asking to be sued.

Pangea Systems [1130 3rd Ave. Oakland CA 94606; 510-836-2723] a custom programming shop. Visual Information [600 17th St., Suite 415 South, Denver CO 80202; 303-892-0304] showed their image capture, retrieval and display system and discussed their terms for capturing source material for archives and museums and publishing it on CD-ROM (basically they want a 15 year exclusive license and will return a 10% royalty off gross). I was surprised not to see **AXS Optical Resources** exhibiting Art Access in their own backyard, but they apparently are waiting until their collections management component is completed.

MINARET UPGRADE

Cactus Software [15 Kary Way, Morristown NJ 07960-5604; (201) 540-0980] is distributing Minaret release 1.70 which features multi-user versions with security and record locking, color support and vastly improved memory management. A new approach to sorting a stored set allows users to retrieve a set first and then apply a variety of different sorts to it, speeding up the retrieval process. Other features include compression of files and improved use of RAM. Users can upgrade to a multi-user version (\$2000 per simultaneous user) with full credit for previous single user purchases and to a single user version of 1.70 for \$300

CONTINUUM PRODUCTIONS MAKES TWO DEALS

Continuum Productions has entered into non-exclusive agreements with two very great, very cash starved art museums: the Barnes Foundation and the State Russian Museum to digitize images from their collections and distribute them as part of interactive programs and image bases. The actual terms of the contracts haven't been revealed, but it is likely these are the first open ended agreements that Continuum has reached since its predecessor, Interactive Home Systems, signed with the Seattle Art Museum in 1990. The perpetual rights and re-licensing clauses in Continuum agreements have put off most museums they have negotiated with since.

INFOWORKS DEBUTS IN PHILADELPHIA

Before leaving the Philadelphia Area Consortium of Special Collections Libraries (PACSCL) in April this year, staff member Jesse Song developed an OPAC and online cataloging package called InfoWorks which he allowed PACSCL members to use for free and is considering offering as shareware. Written in Microsoft BASIC the package allows users to download records from OCLC or RLIN, search them by title, author, ISBN, ISSN, LCCN, call number, publisher, publication date and other typical access points using Boolean logic as well as to create records in-house in MARC format. The system was specifically designed to deal with very long records often rejected by other systems and to check duplicate records during the import process. Indexes are built automatically

and extensive reports including bibliographies are easy to write. The system is highly intuitive. Jesse, who is now busy at a new job in Western Pennsylvania, plans to make the software commercially available as soon as he can complete the user's manual.

[contact Jesse Song, McGill Library, Westminster College, New Wilmington PA 16172; 412-946-7327]

IBM SERVICES FOR LIBRARIES AND MUSEUMS

IBM Academic Services has launched consulting services, including requirements analysis, strategic planning, project management and planning, technology trend assessment and evaluation and implementation assistance for technology applications, directed at museums.

[For more information, contact Richard Hulser, IBM Corporation, (203) 783-7980; fax 783-7636].

ADD IMAGES WITHOUT CHANGING SOFTWARE

Dynamic Images [One Greentree Centre, Suite 201 Marlton NJ 08053; 609-988-5483; fax 609-596-8359] offers the PictureLink System to "image enable" any existing database application that your PC can access via terminal emulation without modification to the existing system. Any terminal emulation software can be used to retrieve images stored either on the PC hard disk or any network or host file server supported by the system. The target market, obviously, is people with existing databases that could be enhanced by adding images but for which the imaging requirement is not adequate to justify complete migration. PictureLink, a Terminate Stay Resident (TSR) program does the linking and binary file handling for the application. An imaging workstation provided as part of the configuration can capture images for new records as they are added to the database from either scanners or an NTSC camera across an image capture board.

WORKGROUP SOFTWARE FOR STANDARDS DEVELOPMENT

Infrastructures for Information Inc. [330 Dupont St., Suite 302, Toronto M5R 1V9, CANADA; 416-920-6489; fax 416-920-6493] has developed S⁴: the SGML Standards Support System a database environment for the standards community which stores proposed standards in SGML, supports their authoring, annotation, and editing, provides facilities for linking votes on sections and subsection of standards, and supports their electronic distribution and hard copy publishing.

FULL-TEXT FROM TEXTWARE

TextWare [TextWare Corporation, P.O.Box 3267, Park City UT 84060; 800-645-9600] is advertised as a tool to provide "instant information access" to text databases using "true hypertext linking" and "real multi-media capabilities". The software includes authoring/indexing tools and read only tools, accepts text from more than 40 different word-processing and publishing packages, does

Boolean, phrase and proximity searching, and saves search results for subsequent processing. Although the package is touted as intuitive and comes with online help, I found the demonstration disk impenetrable after doing a few minimal searches and determining that it did retrieve and highlight hits on "cards" of text pre-defined in the demo.

CARLYLE VOYAGER SERIES

Carlyle Systems Inc. [2000 Alameda de las Pulgas, San Mateo CA 94403; 415-345-2500] was chosen by SUN Microsystems to provide enterprise wide library automation to the company on SUN SPARCstations and SPARCservers. The software, originally developed on Sun equipment, has also been ported to run under the full range of UNIX workstations supported by Digital Equipment Corporation with support for both X-Windows and VT style character mode terminals.

CATALOGING MULTIMEDIA OBJECTS

Because multimedia presentation systems enable users to author multimedia productions and interactive experiences, there is a demand in the market for tools to keep track of the multimedia data objects which go into such productions. These tools are often referred to as cataloging tools, although the functionality bears little resemblance to what librarians call cataloging. The April 1993 issue of *New Media* contains a review and comparison of a dozen of these packages ranging in price from \$95 to \$795. Features compared include whether they provide a thumbnail view, support keyword searching, sort on criteria and allow batch additions as well as the number of files supported.

ART ON FILE

Art on File [1837 East Shelby, Seattle WA 98112; 206-322-2638; fax 206-329-1928] has announced that their entire backlist of ART on FILE collections are now offered on PhotoCD. Costs for PhotoCD collections are roughly the same as for slide collections. Owners of slide collections receive a 50% discount on the PhotoCD version as do those ordering both at once. The same copyright policies apply.

Subscriptions to **Archives and Museum Informatics** are available on a calendar year basis at \$80 for institutions, \$40 for individuals (paid in advance, by personal check, and delivered to their home address), with a surcharge of \$5 for postage to Canada and Europe and \$10 elsewhere outside the USA. All payments must be in U.S. currency.

Archives and Museum Informatics also publishes occasional technical reports available for purchase as individual volumes or on a standing order basis. Standing orders are entitled to a 10% pre-publication discount and are mailed free of handling fees. Pre-paid orders include handling. Billed orders are subject to a \$5 billing/handling fee plus postage surcharge. For a complete list of technical report titles write to: Archives & Museum Informatics, 5501 Walnut St., Suite 203, Pittsburgh PA 15232-2311, or call 412-683-9775, or fax to 412-683-7366.

STANDARDS

AIIM PUBLISHES NEW STANDARDS

Numerous new standards recently released by AIIM include:

ANSI/AIIM MS49 Recommended Practices for Scanning from Roll Microfilm and Microfiche;

MS50 Microform Scanners Test Objects;

MS50 Recommended Practice for Monitoring Image Quality of Aperture Card Film Image Scanners;

MS53 Standard Recommended Practice, File Format for Storage and Exchange of Images, Bi-Level Image File Format Part 1;

Also technical reports #15 "Electronic Capture of Documents" and #16 "Tutorial on Image Resolution"

[Contact the Association for Information and Image Management, 1100 Wayne Ave., Suite 1100, Silver Spring MD 20910; for more information about the standards program, ask to talk to Standards Officer Marilyn Courtot]

ISAD(G) ADOPTED

The Ad Hoc Commission on Descriptive Practices of the International Council on Archives adopted its document, ISAD(G): General International Standard Archival Description, at its meeting in Stockholm Sweden 21-23 January 1993. The revised draft drops the term "fonds" in favor of "unit of description" and in the examples makes it clear that such units are "papers of", "records of", "videotapes of", e.g., materials not activities and agents of records creation. I continue to believe, as I stated in Documenting Documentation (Archivaria 34) that this focuses on documenting the wrong thing.

[For more information contact Hugo Stibbe, Project Director and Secretary, ICA Ad Hoc Commission on Descriptive Practices, National Archives of Canada, 395 Wellington St., Ottawa K1A 0N3, CANADA]

ADDITIONAL RULES FOR ARCHIVAL DESCRIPTION

The Planning Committee on Descriptive Standards of the Bureau of Canadian Archivists has published and distributed new versions of its rules for Textual Records (Chapter 3), Graphic Materials (Chapter 4), Choice of Access Points (Chapter 21), Headings for Persons (Chapter 22) and References (Chapter 26). Draft rules for Sound Recording were issued for comment in December. The Rules for Multi-Level Description (Chapter 11) which make the whole thing work, have been postponed. Publication is now scheduled for late 1993.

[Planning Committee on Descriptive Standards, c/o Canadian Council of Archives, West Memorial Building, 344 Wellington St., Room 3020, Ottawa K1A 0N3]

ART/MARC

A listserv for people interested in using, or using, MARC-based formats for cataloging works of art has been established by Linda McRae. for information contact her at (813) 974-2360; fax (813) 974-2091; bitnet e-mail to: lmcrae@cfrvm.

MARC FOR CLASSIFICATION DATA

In her article, "The Development and Implementation of the USMARC Format for Classification Data (*Information Technology & Libraries*, vol.11#2, June 1992 p.120-131) Rebecca Guenther discusses both the potential of the format and its implementation requirements and raises challenges for future implementers and users.

US AND CANADIAN GOVERNMENT POLICIES IN SGML

The Canadian Treasury Board Secretariat, Office of the Comptroller General and other Federal agencies have established a working group called INFEED for Inter-departmental Facilitators for the Exchange of Electronic Documents which has adopted SGML for distribution of information by the Canadian government. As a first step it is tagging all Treasury Board policies and has contracted for a paper on the nature, use and benefits of SGML [contact Debbie Tweedle at 613-943-1340].

In an unrelated development, the US GPO is converting to SGML in April for publication of the most important daily compendia of the executive and legislative branches of the US Government: the Federal Register and Congressional Record.

OPEN SYSTEMS BRIEFING

Gary Lee Phillips, Open Systems and Your Library, [free from NOTIS Systems Inc. 1007 Church St., 2nd fl., Evanston IL 60201-3622] explains open systems, client-server architectures and Z39.50 in easy to understand terms with useful illustrations.

CIMI CONSORTIUM

At its mid-March meeting, the CIMI Management Committee decided to pursue the testing and implementation of the CIMI Standards Framework over the next several years through a cooperative effort of interested parties. The formation of a Consortium for Computer Interchange of Museum Information would represent an expansion and formalization of the terms under which CIMI operated this year with funding from the Research Libraries Group Inc. and the Canadian Heritage Information Network. Both existing partners agreed in principle to sign up for three more years of support at \$25,000 p.a. and to recruit additional members for the Consortium in order to assure adequate funding to conduct pilot tests, develop necessary methods, and evaluate services desired by the museum community.