Archives and Museum Informatics

ISSN 1042-1467 SUMMER 1990 Vol.4 No.2

Digital Image Banks and Museums

The 21st century will see the emergence of a universal knowledge base accessible to the information privileged of the first world. Its elements will include full text of the world's libraries, text and image of its contemporary broadcast media products and large quantities of text and image from its archives and museums. What is not now clear is how archives and museums can best respond to this coming reality and how it will affect them.

During the next few months and years administrators of cultural repositories will be approached by commercial interests willing, able and ready to purchase rights to reproduce their holdings digitally and to sell the reproductions in new hypermedia packages and services. Millions of dollars are on the table right now for rights to art images from major American museums.

Selling rights to reproduce unique holdings in publications is, of course, not new. Indeed it is a source of considerable income to many museums already. The issue is not whether to sell such rights but how to organize the sale so as to stimulate a market for the reproductions (hence increasing income). Prices for art reproduction rights in commercial publications now range from $200-500 per image; at such prices the new hypermedia products, which can contain 10,000 - 50,000 images each, could cost publishers $2M-25M just for rights. Obviously this will make such products impossible.

If archives and museums adhere to their standard rights fees, vendors interested in building imagebases will acquire images from other sources and make sweetheart deals with a few large institutions and a large number of smaller repositories which could not otherwise expect to sell images at all. As a result, the overall art scholarly community will be poorer, although some institutions will receive an attractive short-term benefit. What is required now is leadership from the major institutions in the community to define the rules under which sales of digital image rights should be conducted so that a market can be developed and museums can still benefit.

An informal discussion of the issues involved in digital reproduction rights and fees will be held at the Museum Computer Network annual meeting in Richmond on October 13, 1990, beginning about 1:00 pm. Hopefully the participation of museum directors, rights and reproductions coordinators, and vendors and publishers interested in purchasing rights will mark the start of constructive interaction.

DAVID BEARMAN, Editor

In This Issue

Letter to the Editor

Thank you very much for the publication of your review of Accession in the last issue of Archives and Museum Informatics. We found the review to be very thoughtful, comprehensive and thorough to the point that it is actually a good introduction for the first time user of the software.

We also want to thank you for pointing out areas for potential improvement in the software. We hope to address most of these points in the next version of Accession.

There are only a few very minor points in the review that warrant specific comment:

You stated that there are "up to seven levels of sorting for reports". Even though seven levels should be more than enough for most applications, the actual number of sort levels is limited only by the number of sortable fields in the database.

You stated that "simple searches of a database of nearly 4000 records required less than a minute although a six level sort took a substantial time". It is true that generation of a large, complex report may take more time, especially if large amounts of data are being sorted. However a simple search generally only takes a few seconds, in spite of the fact that none of the data is specifically indexed or key sorted to any one field. The exact timing of simple searches depends on the type of search, the model of computer being used, and the amount of "cache" memory being used. We have found that a simple search on a Macintosh IIcx computer for the size database mentioned in the report generally takes no more than 3-4 seconds. Perhaps a search time of "less than a minute" for a database of nearly 4000 records is satisfactory for many users, but since search time will increase for larger collections we wanted to clarify that the timing can be significantly better than implied in the review.

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Computer Staffing, Planning and Control in Art Museums: Findings from a National Survey

JAMES B. PICK

Introduction

Art museum computing in the United States and Canada tends to have non-professional systems staffing and lower levels of computer planning and control than in the private sector. These findings stem from the 1989 National Art Museum Computer Survey. Additional survey results related to the use of computers for arts applications in museums - cataloging, curatorial research, educational programs, exhibition design, registration - are discussed in a companion article in the previous issue of Archives and Museum Informatics. (Pick, 1990). This essay will focus on the dominant role of non-computer staff in performing computing tasks, and the planning and management of automated information systems in art museums.

Computer Staffing

One section of the survey examined the job assignments of information systems (IS) staff, salaries of IS staff, extent of non-professional and volunteer IS staffing, and identities of lead IS staff members. The findings show that although art museums have significant IS staff, these personnel are less professionally trained in IS skills and lower paid, and the institutions are more dependent on outside consulting than in the private sector. Staffing was categorized into full-time in-house, part-time in-house, and outside consultant or service. Full-time IS staff was present mainly for larger museums, and for only 20 percent of the full sample. As seen in Table 1, the most prevalent full-time IS job was the data processing manager/supervisor, present for eleven percent of institutions. Next in importance as full-time IS jobs were computer operator (6 percent) and data entry clerk (5 percent). The more technical and more expensive jobs of systems analyst and programmer were present for only 3-4 percent of museums.

Part-time in-house IS staff were present for a quarter of all museums, and were heavily concentrated in the roles of data entry clerk and computer operator. Outside IS

The national survey, conducted for all art museums in the United States and Canada, resulted in 252 questionnaires, of which 166 were computer-user museums with acceptable questionnaires. The institutions using computers averaged $2.2 million in budget and had a median membership level of 860. Museums were divided in small, medium, and large budget categories by the budget ranges of $0-210,000, $211-817,000, and $818,000+.

Table 1

Mean Salaries for Full-time, In-house Information Systems Staff in Art Museums, 1989

	1989 Art Museum Survey			1989 Datamation Survey*		
	Mean Salary (N)	Minimum	Maximum	Education	Industry**	Ratio***
DP Manager, Supervisor	31,580(18)	15,000	70,000	42,950	46,672	68
Programmer	24,651 (3)	20,000	30,000	18,000	26,574	93
Systems Analyst	34,200 (5)	20,000	43,000	33,500	32,393	106
Computer Operator	18,661(13)	12,000	30,000	18,800	19,066	98
Data Entry Operator	14,820 (7)	10,000	19,500	19,256	16,513	90
Other	22,650(10)	16,000	35,000	N/A	N/A	
						—
					MEAN RATIO	91

*Source: *Datamation*, October 1, 1989. Refers to *Datamation* survey conducted on June 7, 1989. The *Datamation* job categories taken to be equivalent to those in the art museum survey were Director of DP/MIS, applications programmer, systems analyst, computer operator, and data entry operator.

** annual DP spending of less than $1 million.

*** Refers to the percent salary ratio of art museums to industry.
Specifically, the ratio is calculated as follows:
(mean annual salary in art museums/mean annual salary in industry)x100

employees in consultant or service capacities were present for about 20 percent of museums -- somewhat more so for very large museums (25 percent). By far the largest outside-consultant job category was programmer, followed by systems analyst. It is interesting that eight museums used outside employees as IS managers. Overall, for museums large enough and sophisticated enough to have IS staff, computer managers and operators tended to be located in-house, while technical programming and systems personnel tended to be on the outside in consulting or service bureaus.

Salaries for full-time IS employees in art museums generally lagged behind the private sector. As seen in Table 1, the mean salary for museum IS managers of $31,580 trailed comparable private sector salaries by 32 percent. Salaries for other IS job categories lagged the private sector by up to 10 percent, except for systems analysts, where salary level surpassed the private sector by six percent. This exception is somewhat surprising. It may be caused by job market dynamics stemming from the lower attractiveness of systems analysts' jobs in non-profit versus profit-making enterprises. Another reason may be the strong demand in larger museums for system analysts, since these institutions have many problems with inade-

quate design and documentation. Salaries paid to part-time IS staff tended to be a third to a half of those paid to full-time IS personnel. Overall, museum IS salaries trailed the private sector by 9 percent. The effect of the IS salary gap for museums is to constrain the hiring marketplace and to reduce the quality of training and experience of those who are hired.

One outcome of the lack of IS budget and difficulty in hiring professional IS staff is increased reliance for computing functions on staff not formally designated as IS (in this report, termed "non-IS staff"). Also, the growing levels of micro knowledge of end-users, particularly for simple tasks such as word processing, favors increased contribution to museum computing by non-IS staff. Nearly all museums had some IS tasks performed by non-IS staff. The bulk of this work was done by full-time paid employees. There was less than 5 percent involvement by volunteers, mostly part-time. Performance of computer tasks by non-IS personnel took place preponderantly in small museums. This may be due to availability in large museums of more IS staff having higher computer skill levels.

Non-IS staffing also serves as a way to effectively support the increasing workload of computing in art museums, without being forced to pay the high rates of IS professionals. It is important to note that responding museums had 332 full-time non-IS employees performing computer tasks more than 75 percent of their time, versus only 82 full-time IS employees, that is, a 4 to 1 ratio. The conclusion is that the majority of computing work in art museums is done by employees not formally designated as information systems staff.

Volunteers in computer roles were rare. There were only five volunteers working on IS tasks more than 75 percent of the time. The lack of volunteer involvement in IS may be surprising in light of the large number of volunteers associated with art museums. However, one explanation is that volunteers with a lot of time available are unlikely to be skilled or experienced enough in IS to perform well, and are often encouraged to become involved in areas other than IS, where they are more qualified. Another reason for lack of volunteer involvement in computing is the increasingly crucial nature of IS to these institutions. In particular, museum management is concerned about possible adverse impacts of volunteers' IS knowledge base, potential security problems, and systems reliability. Although computing is not yet professionalized in art museums, its critical nature raises managerial caution about the use of volunteers.

At the same time, however, management should be more wary about non-IS employees performing computer tasks. Respondents indicated that prior computing experience and interest were the leading decision factors in selecting non-IS personnel for computing tasks, while formal training was not considered important. The order of these criteria makes sense, since non-IS art museum employees are not likely to have had formal training in computer science, information systems, or engineering. Given this lack of formal IS training, museums can respond by encouraging on-the-job training. Two thirds of museums had instituted in-house computer training and 57 percent outside computer training. As seen in Table 2, training is much more prevalent in larger institutions.

Outside training offers the benefits of tapping the expertise of professionals, but the rub is its generally high price in today's marketplace -- a problem for tightly pinched museum computer budgets. Thus, it is no surprise that outside training depends on museum size to a greater extent than in-house training.

Another element of the computer staffing situation in art museums involves staff members who provide technical support and assistance to users. Such staff may be in-house or outside, full-time or part-time. Research studies have documented the importance of such persons in organizations emphasizing microcomputing (Lee, 1986). The present survey was designed to gather information on two such personnel types. The first such type is called technical support and assistance person (TSA). A TSA is defined as a person who gives substantial technical support and assistance to people on the art museum staff regarding development and operation of the computer systems. A TSA may be on or off-staff, and a museum may have more than one TSA. The other personnel type is the lead technical support and assistance person (LTSA), defined as the TSA who best fulfills the role of technical support and assistance.

Fifty three percent of TSAs were located outside the staff; these were mostly consultants. However, for large museums, the distribution of TSAs shifted more to on-staff. For large museums, consultants are less important as TSAS while vendors are more important. For small museums, the opposite occurred, with consultants comprising 44 percent of TSAs. Small museums are forced by economics and organizational size to tap the part-time and sometimes free advice of consultants. Vendors sell more product to larger museums, and naturally favor them over small institutions in providing technical advice and support.

LTSAs tend to be on-staff and have considerable educational and computer experience. For museums, 56 percent of LTSAs were on-staff. Again, larger sized museums had relatively more LTSAs on-staff. LTSAs tended to be middle-aged, highly educated, and quite experienced with computers. Specifically, the average LTSA had completed one year of post-graduate education and had eight years of computer experience. Although LTSAs do not vary much in age and schooling, there is three times as much variability in computer background, with computer experience ranging from two to thirty three years. This wide range in experience influences the success of computing in museums. Museum management should be aware of this range when deciding whether to involve consultants. "Computer experience" is no longer good enough; the questions should be "how much" and of "what quality".

Table 2

Prevalence of Computer Training of Art Museum Employees, by Size of Museum, 1989

Budget Size Category	Percent Having Computer Training	N	Percent Having Outside Training	N
Very Large	75	32	80	35
Large	75	56	67	63
Medium	71	51	62	45
Small	49	37	34	35
Entire	67	144	57	143

Control

A number of managerial and operational computer control procedures were studied. One common form of control in businesses is the computer steering committee, which guides the organization's IS policies and objectives. However, only one sixth of art museums had such a committee. Informal procedures, in place of a formal steering committee, can lead to loss of control of information systems, while, on the other hand, sometimes offering the advantage of greater flexibility. Another type of control, formal cost/benefit analysis for hardware acquisition, was done in only a quarter of cases. However, this varied by museum size, with cost/benefit analysis twice as prevalent for large versus small museums. In larger museums, increased IS professionalism and larger computer project expenditures imply more emphasis on formal cost/benefit analysis.

Computer hardware and software documentation serves to ensure the effective operation and maintenance of an information system over a long period of time. Computer documentation was generally lacking in art museums. On a response scale from 1 (not at all) to 5 (very much), museums rated systems design documentation at 1.6, programming documentation at 1.7, and training manuals at 1.8. For each type of documentation, only about ten percent of museums stated there was much or very much documentation. The paucity of documentation is undoubtedly detrimental to museum computing -- even disastrous if a museum loses knowledge of how to operate hardware and software packages. This worrisome situation relates partly to the often low levels of IS training and experience among staff members responsible for computing. Furthermore, outside consultants who are influential as TSAs and LTSAs may not have the time available to appropriately document computer systems, even if they know better.

Management often has difficulty controlling the process of successful software implementation, whether in the non-profit or private sectors. A survey question asked about the extent of management control of the implementation of micro software, based on a rating scale from 1 (none at all) to 5 (very much). The mean software rating was around 3, indicating some control. The same question regarding mini software had a somewhat higher rating of 3.4, an unsurprising result, since minis tend to be located in large museums having more professional IS staff.

Evaluation is a control procedure that usually occurs late in the process of developing and implementing systems. Respondents were asked to indicate the presence of one or more methods of evaluation. In three quarters of cases, the evaluation of museum computer systems was informal, or else no evaluation was performed. This situation contrasts with private industry, where formal methods of evaluation are commonplace, especially for larger firms. Evaluation of museum computer systems is two thirds done by the executive director or business manager, fifteen percent each by the IS manager and outside consultant, and only 5 percent by the board of directors. These results imply that the IS manager does evaluation when he/she is present, i.e. for about half of the larger museums. For a seventh of museums, nobody does evaluation. In summary, IS evaluation appears to be less thorough and professional than in the private sector. The reasons are similar to those given for documentation.

Planning

Planning is an important ingredient of effective IS. Although the general organizational written plan and computer capacity plan were commonplace, the written computer plan was notably lacking (see Table 3). In fact, a written computer plan was present for only one eighth of institutions! Even for large museums, only a quarter had computer plans. It might be expected that the IS professionals typical of large institutions would do more plan

Table 3

Computer Planning in Art Museums, 1989

	Small Museums	Medium Museums	Large Museums	All Museums
Percent with general plan	61	61	82	69
Percent with written computer plan	10	4	28	13
Percent with computer capacity plan	53	67	73	66

ning. The disappointing results may be due to competing time demands for these professionals and lack of management commitment to computer planning.

Computer capacity planning assesses the future levels of computer equipment and resources in an organization (Lam and Chan, 1987). It was present for two thirds of museums, but was usually based on the simple techniques of expert opinion or visual/arithmetic trending. More advanced capacity planning methods such as statistical forecasting were present for only a sixth of museums. As seen in Table 3, all types of planning increased with greater museum size. This is due to both to presence of more professional management and to the demands of larger, more complex organizations and computing resources.

Discussion

A small portion of museums have professional IS staff, and the trend is downwards. The salary deficit of professional IS staff in art museums versus the private sector has narrowed, which implies that museums seeking professional IS staff will have to face substantial salary expense. The response of museum management has been to place increasing reliance on non-IS staff for most computing functions, except for several more technical areas. However, this policy of heavy reliance on non-computer-trained staff will suffer unless museum computer training is improved.

Another adaptive response has been dependency on the outside for IS technical support and assistance. Although lead consultants are highly educated with substantial computer experience, there are risks caused by reduced control, unreliability, and geographic mobility, and even long-shot risks of potential negligence or other damage.

IS control and planning is generally weak in art museums. This includes the crucial tasks of back-up procedures, documentation, formal evaluation, and computer planning. Possible reasons for inattention to these areas include unawareness of their importance, competing time demands, and lack of appeal of these tasks. Art museum management should strive to improve computer planning and control, since computing is becoming increasingly important to the missions of these institutions.

The survey points to substantial differences in staffing, planning, and control by museum size. Large institutions have more professional IS staff, reduced reliance on outside consultants, and improved computer planning and control. This is not surprising since larger institutions have more computer budget. At the same time, their information systems are more sophisticated and reach into more areas of the museum, necessitating involvement of IS professionals and enhanced planning and control procedures. IS professionalism and greater computer planning and control naturally go together, since professionals tend to have greater knowledge and appreciation of planning and control. However, even for large museums, planning and control levels are lower than in industry. Museums of all sizes should strive to evaluate the training and experience levels of their computing personnel and act to effect improvements for both existing and newly hired staff.

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Full Report Available

"The 1989 National Museum Computer Survey: A Summary of Results" is available From James B. Pick, Graduate School of Management, University of California at Riverside, Riverside, CA 92521.

This article and "Artistic Computing in Art Museums: Findings from a National Survey," which appeared in the previous issue of **Archives and Museum Informatics,** expand on aspects of survey results not discussed in the published report.

Archives and Museum Informatics carries news, opinion and reports on information technologies, techniques and theories relevant to archives and museums. Submissions of notes, letters to the editor and articles are welcomed, and should be addressed to Lynn Cox Managing Editor.

Copy is preferred typed, double-spaced. Longer articles may be requested in machine-readable form if accepted for publication. Authors assume full responsibility for accuracy and for any opinions or judgments expressed.

Deadlines for submissions are the 15th of March, June, September and December.

Unveiling the Products of Cooperation: IVSC and MEC

DAVID BEARMAN

The AAM meeting provided me the first glimpses of products developed for two innovative museum education consortia: the Interactive Video Science Consortium (IVSC) and the Museum Education Consortium (MEC). What I saw suggests that the innovative spirit that founded these organizations has happily spilled over into their offerings.

The Interactive Video Science Consortium, a nonprofit association of science education institutions founded in 1988, which currently has 14 U.S. and 2 foreign members (and is very interested in receiving applications from potential members), showed its first product, "Earth over Time" in the exhibition area at the AAM meeting. Their interactive videodisc, completed in October 1989, is scheduled to be joined this fall by a second disc entitled "Beyond Earth ..A Space Adventure", and by other discs as time and money allow. The IVSC discs are advertised as being unique because they undergo rigorous prototyping and evaluation by a broad inter-disciplinary team including museum educators. "Earth over Time" does display engaging educational strategies ranging from a journey though an erupting volcano to a public policy decision game designed to illustrate the relationship between politics and beach erosion, but I didn't see anything "unique" in the product. Nevertheless, the videodisc is richer and more engaging that most interactive discs developed by a single museum, and the cost to members is much more reasonable.

I hope that science center directors attending the AAM meeting see the virtue in joining IVSC and building an organization that can contract for the development of many more valuable products. In addition, it would be useful if such an organization could assist its members to make creative use of the many existing science videodiscs. With such help, science centers could provide interactive opportunities in conjunction with permanent and traveling exhibitions at a fraction of the cost of developing new discs.

The Museum Education Consortium, an organization of 6 major art institutions with very similar objectives, took a more adventurous approach. Instead of contracting outside, MEC hired Kathy Wilson to develop a prototype hypermedium which was unveiled before a small group of designers and critics at the Art Institute of Chicago in May. While the product we saw was a pre-release version of a prototype there was no question in my mind that we were seeing a revolutionary medium in the hands of a great master. As with her Digital Video Interactive prototype "Palenque", Kathy Wilson has again dramatically extended the boundaries of what we think the technology can do by combining powerful tools and a simple intellectual model. She has given her hypothetical users, museum visitors of all ages and experience levels, a means

of exploring art and its relationship to broader culture with a depth only dreamed of in art history classrooms.

The basic pedagogical framework of the system is to provide three perspectives - the artist, the work, and the context - through which users can explore the world of fine art. From within any of three views, users may navigate to one of the other two views plus exercise a range of view specific options. For example, from the work - brought to screen by clicking on an icon - the user can view with or without text and with or without an audio label. The user may select one of several different commentators whose photographs appear as icons on the screen, or select a question button which will ask an open ended question. The user may chose a magnification icon to zoom into the image or a "compare image" button to bring up other images. A film clips button shows film of the subject of the work of art. A dictionary button calls up a dictionary that can be browsed. A materials button calls up an icon of an artists cart on which reside art materials that the user can click to get explanations of how these materials are used in the work from which the user came. A process view shows the progression of how the image was painted, with each stage discussed in turn.

The actual options available to the user, which total about 36, vary from view to view so that the screen is not cluttered with icons. When they do appear the icons are placed in a consistent location and, in most cases, have a clear intent. For example, the artist view shows us the artist's studio; clicking on canvases from within this view permits the user to return to works of art. In each studio (which resembles a photograph of the artist's studio) Wilson has placed a picture album which can bring up pictures and brief explanatory texts of family, friends and early childhood, and a stack of letters which can be activated so the user can browse the papers of the artist.

But the full power of the design concept does not become evident until the user invokes the context view, which enables the activation of historical background materials from five perspectives represented on timelines of cultural, leisure, scientific, political, and artistic events. Here, for example, the user can click on a "House and gardens" button that allows him to pass outside the studio, experience ambient sounds, and see motion images of contexts painted by the artist.

Both these cooperative undertakings, IVSC and MEC, represent a new direction for museums. As illustrations of what can be achieved by collective action, I hope they are merely the first of a number of multi-institutional ventures that will enrich museums in the coming years. After all, such ventures can be seen as a kind of information interchange, even though they take the form of publications programs. [Interactive Video Science Consortium, c/o Association of Science-Technology Centers, 1413 K St. NW 10th floor, Washington DC 20005; 202-371-1171; Museum Education Consortium, c/o Museum of Modern Art, 11 West 53rd Street, New York, NY 10019; 212-708-9797]

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CONFERENCES

Museums and Information: New Technological Horizons

Winnipeg, May 3-4, 1990

This conference was the first annual meeting of the Canadian Heritage Information Network that consciously moved from being a meeting of the network users group to being a national conference on museum automation. The new format worked brilliantly. A pre-conference day was set aside for CHIN working groups and case studies, which apparently satisfied the needs of CHIN participants for implementation assistance and planning, but did not interfere with two solid days of excellent papers and a trade show for those among the more than 300 participants who were not directly involved with CHIN. From Marcel Caya's introductory remarks to James Lewis' closing summary, I found the meeting stimulating and pleasurable.

The opening paper by Stephen Alsford of the Canadian Museum of Civilization argued for that museums need to shift their orientation from objects to information, and to expand their understanding of information to encompass experiential, sensual, emotional, and aesthetic as well as intellectual dimensions. Alsford explored a vision of the museum as a hypermedium using design sophistication, technological wizz-bang, and knowledge of the audience to an interpretation of our world. He challenged museum professionals to go head-to-head with the purveyors of popular culture, and expressed confidence that their product was better if they could only use similar techniques. As an antidote to such revolutionary talk, the Legal Services department of Communications Canada provided Phillip Palmer, who followed Alsford with a measured discussion of legal issues in information management. His interest was to place societal concerns such as universality of access, information liability and intellectual property rights in their museum context.

The second session reported on international projects implementing museum collections systems and linking images and data within museum applications. Magne Velure, Director of the Sandvigske Samlinger-Maihaugen, presented a case study of automation of a living history museum which touched on the familiar management quandaries, including making the choice of a shared mini-computer over PC's, defining the order in which to introduce applications (word processing followed by accounting and eventually collections management), and having to reduce substantially the number of fields of collections data they had planned to capture. U.S. museum directors would envy at least one aspect of Velure's experience; the convenient existence of a national museum cataloging standard obviated the need to decide on the last. Now the museum faces a major challenge to make the information it has captured serve the needs of exhibition and education, not just because this is the next step for any institu-

tion, but because the town will be hosting the 1994 winter Olympics and expects to see a vast increase in tourism both at the games and in their wake.

David Altshuler of the Museum of Jewish Heritage in New York demonstrated an interactive "encyclopedia" indexed both by concepts and by exhibition spaces, that will enable visitors to the Manhattan facility to "walk through the galleries" to see more than can be physically displayed and to view data and images (in a window). The product is an implementation of Hyperties, a hypertext package originally developed by Ben Schneiderman at the University of Maryland.

Carsten Larsen of the National Museum of Denmark gave an overview of the numerous projects underway in Denmark with federal government funding, including a national index of art, the national archaeological record and the creation of a local museum database system. The national databases, consisting of 400,000 records in 4 files (objects, bibliographic, conservation, & sites) are now being enhanced by addition of linked images on videodisc. The process being employed creates videodiscs from a video camera equipped with a datapack that places an image catalog number directly onto image in a machine readable frame. This provides for creation of discs with minimal human intervention and automatic linkages to the database.

The afternoon of the first day was devoted to museum standards. Diane Thompson of the Standards Council of Canada, who spoke to the importance of standards in general, was followed by Andrew Roberts of the Museum Documentation Association, who supplied an historical account of the development of museum documentation standards since 1960. He introduced participants to activities currently being conducted by ICOM-CIDOC, MCN-CIMI and the MDA.

Roberts was followed by Wendy Fish of the Museums Association of Saskastchewan (MAS) who demonstrated that standards can be developed at a regional as well as a national and international level. The MAS developed museum evaluation standards, related museum training standards, and other standards for practice (but not for museum documentation) in response to requests by its members for guidelines. Other speakers during the afternoon addressed the development of internal standards for terminology control within specific projects, and the link between these standards and the CHIN and CIN databases. Naomi Panchynson of the National Gallery of Canada reported on compilation of a pilot facility reporting database that may lead to the future sharing of facilities data using CHIN.

After dinner, Kim Henry Veltman took the participants on a fanciful, multiscreen, media tour of the desirable features of the museum database of the next century, articulating themes that were picked up on the second afternoon in talks on the videodisc systems at the Canadian Museum of Civilization and on state-of-the-art research on laser scanning techniques being conducted at the Canadian Conservation Institute and National Research Council.

The morning of the second day served as a cautionary note, as automation and museum professionals from major North American museums conducted a panel discussion on planning for integration of museum information. The need for their planned, cautious and cohesive approach was punctuated in the afternoon by several presentations on how individual small museums implemented databases. James Lewis, President of the Board of Governors of the Manitoba Museum of Man and Nature gave an upbeat summation before discharging the participants.

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Documents That Move and Speak: Managing Moving Images and Recorded Sound in Archives

ICA Symposium on the New Media
National Archives of Canada, April 30-May 3, 1990

This three day meeting organized by the National Archives of Canada for the International Council on Archives addressed a-traditional records in a traditional framework. The three days were devoted along life-cycle lines to acquisition, control and access, and the speakers generally assumed that the genres and media of motion images and recorded sound were the proper topic for the meeting, in spite of an effort by Hugh Taylor, the opening speaker, to shift the context of discussion towards the coming, post-literate society.

Still the meeting revealed some interesting problems confronting our assumptions about the place of "documents that move and speak" in archives. On the first day, Lord Asa Briggs, the distinguished historian of broadcast, challenged archival appraisal of records by suggesting that historians would be better served by snapshots of a total broadcast spectrum for a sample period than by conscious selection as currently exercised. A session of film makers and archivists struggled with the question of whether images and sounds "captured" from native cultures were misappropriated and, if so, whether the subjects have any special interests or rights in them. A session of oral historians grappled with the relationship between oral sources and oral "history", and cast some doubts on the importance of either.

On the second day, when practical issues of control were at stake, the discussion was barely less philosophical. A session in which I participated demonstrated that there are no widely accepted theories for intellectual control of these materials, and a follow-on session, in which four archivists catalogued the same materials according to their own in-house rules, revealed that there was little in common between rules actually used by different archives. Hopefully, when the proceedings are published they will

contain the 40 pages of cataloging worksheets prepared by Yvette Hackett (National Archives of Canada), Roger Smither (Imperial War Museum), Marie Leclaire (Canadian Broadcast Corporation) and Maria Rita Galvao (Cinematica Brasileira). These vividly illustrate that practice is being driven by users' needs but that each institution has very different users. After their session, it came as no surprise to hear that an International Federation of Film Archives member survey of 42 institutions identified 27 software packages, of which only two were used by more than two institutions.

By the third day, the fact that archives of documents that move and speak serve extremely different purposes in television and radio stations, national libraries, local historical collections and corporate information centers had become inescapable. The users sessions at which access needs and access demands were discussed would have focussed the issue had there been more time for discussion, but alas, as with so many international conferences, the number of invited speakers was so great that their mesages were drowned out by each other's talks.

My own contribution to this meeting began by asserting that routine interpersonal communication within the next twenty years will be conducted and stored as multimedia documents and that archivists must therefore begin to reexamine the intellectual control of documents that move and speak. I felt more certain that this was true at the end of the meeting, but less sanguine that my message, or that brought be several other speakers, had been heard.

□

Archives and Museum Informatics is a quarterly newsletter published by Archives & Museum Informatics, 5600 Northumberland Street, Pittsburgh, PA 15217; 412-421-4638 (phone), 412-421-1915 (fax). The newsletter is edited by David Bearman, whose authorship may be presumed for all items not otherwise attributed.

CALENDAR

September 29 - October 6 Athens & Nafplion, GREECE
Annual meeting of the Documentation Committee of ICOM [Andrew Roberts, CIDOC chairman, MDA, 347 Cherry Hinton Rd., Cambridge CB1 4DH, ENGLAND; 44-223-242848]

October 10-13 Richmond, VA
Museum Computer Network Annual Conference [MCN, School of Information Studies, Syracuse University, Syracuse NY 13244; 315-443-5612, fax 315-443-1954]

November 1-3 Alexandria, VA
Mid-Atlantic Archives Conference, "Automation in Archives" will include 23 sessions devoted to archival automation. [Richard H.F. Lindemann, Special Collections Dept., University of Virginia Library, Charlottesville, VA 22903-2498]

November 4-8 Toronto, CANADA
53rd ASIS Annual Conference, "Information in the Year 2000: From Research to Applications" [ASIS Annual Meeting, P.O.Box 554, Ben Franklin Station, Washington, DC 20044-0554; 202-462-1000]

November 5-8 San Francisco, CA
35th Annual ARMA Conference [ARMA International, Conference Dept., 4200 Somerset Drive, Suite 215, Prairie Village, KS 66208-5287]

Calls for Participants

January 24-25, 1991 Washington, DC
Working Meeting on Research Issues in Electronic Records

Announced by the Minnesota Historical Society and funded by a grant from the NHPRC, the working meeting is intended to identify research problems, describe projects and identify priorities for research funding. Meeting participants will produce a report to the NHPRC and the profession describing priority research efforts. To ensure full involvement of the profession, the organizers are inviting any individual institution or professional association to submit suggested agenda issues. In addition, those interested in attending the limited enrollment meeting should make application stating why they wish to attend. Agenda proposals and letters of application should be addressed to Lisa Weber, NHPRC, National Archives, Washington, DC 20408; 202-501-5610.

October 14-16, 1991 Pittsburgh, PA
First International Conference on Hypermedia and Interactivity in Museums

An international committee of museum automation specialists will convene ICHIM'91, the first international conference devoted entirely to the exploration of hypermedia and interactivity in museums. Interactive media technology, legal and economic issues, design concerns and pedagogic evaluation will all be discussed from the perspective of museum applications. The audience will include museum educators and exhibit designers, commercial designers, museum and hypermedia researchers, software engineers, publishers, archivists and librarians. Vendors will demonstrate their products and services via a commercial exhibition and product presentations. A call for proposals for papers, sessions, demonstrations, and participants in a shareware fair has been issued. The deadline for receipt of all proposals is December 31, 1990. For additional information and instructions on how to submit a proposal, contact Archives & Museum Informatics, PO Box 81132, Pittsburgh, PA 15217, 412-421-4638, fax 412-421-1915.

PUBLICATIONS

In-Box

☐ Reports

Commission on Preservation and Access Report. **Directory: Information Sources on Scientific Research Related to the Preservation of Books Paper and Adhesives.** Washington, DC: Commission on Preservation and Access, 1990, 27pp., free. (Commission on Preservation and Access, 1785 Massachusetts Ave., NW, Suite 313, Washington, DC 20036; 202-483-7474)

This odd report combines a directory of organizations involved in preservation research with precis of their research interests, and an article by Chandru Shahani of the Library of Congress Preservation Research and Testing Office detailing LC research. The substantive information in both parts of the pamphlet is useful.

☐

Hypertext '89 Proceedings. Special Issue SIGCHI Bulletin. Baltimore, MD: Association for Computing Machinery, 1990, xxpp., $30. (ACM, PO Box 64145, Baltimore, MD 21264; order #608891)

The proceedings of the second ACM conference on Hypertext (the first was held in 1987 and copies are still available for $35, order #608892), include all the papers from sessions on the theory (navigation, hypertext engineering, knowledge representation, information retrieval) and application of hypertext, as well as summaries of several panels. The papers are major contributions to the technical literature, but the panel discussions, which might have been more accessible to non-specialists, unfortunately consist mostly of abstracts prepared before the sessions. For example, we have the questions that were posed at one of the most fascinating of these sessions, a panel consisting of the editors of three implementations of the Hypertext version of the July 1988 issue of *Communications of the ACM*, but alas we have no account of the ensuing discussion.

☐

National Archives & Records Administration. **The Intergovernmental Records Project: Phase 1 Report.** Washington, DC: NARA, July 1990, 110pp. plus appendixes, free. (NARA, Washington, DC 20408)

The Intergovernmental Records Project is a practical demonstration of the benefits of a national archival information network. It seeks to improve accessioning, appraisal and access to records of national, state and local governments, which for historical reasons overlap, duplicate or enhance each other, through sharing of descriptive and scheduling data. For the past two years, archivists in a number of jurisdictions have been refining techniques for sharing information about these records and testing the Research Libraries Information Network as a vehicle for exchange of this information. Their conclusions, especially their case study of records of the Clean Water Act, identify opportunities while examining in more than the usual detail those current practices that are barriers to effective universal access. Marie Allen and her colleagues have produced a quite detailed statement of requirements which will be well worth further study.

☐

National Archives & Records Administration, Archival Research and Evaluation Staff. **A National Archives Strategy for the Development and Implementation of Standards for the Creation, Transfer, Access and Long-term Storage of Electronic Records of the Federal Government.** National Archives Technical Information Paper #8. Washington, DC: NARA, June 1990, 22pp., free. (NARA, Washington, DC 20408)

The fact that NARA has publicly responded to the recommendations made by the National Institute of Standards and Technology in their 1989 report "Framework and Policy Recommendations for the Exchange and Preservation of Electronic Records" is encouraging in itself, even if we are ultimately disappointed by the opportunities NARA did not seize. Where NIST advocated a brave and ambitious program to seize control of electronic records in the government through the imposition of standards for a national information resources directory, definition of standards for content interchange of documents and databases, and development of standard functional specifications for archives and records management in an electronic environment, NARA has opted for cautious study, usually deferring action because standards are not

yet fully in place or software to implement them has yet to be fully proven. The NARA response is so bureaucratically predictable and so symptomatic of what is wrong with NARA's entire approach to archives that it is hard to find a place to begin to criticize it. On its own terms, the response is a major step forward for NARA. It is also almost certain to be inadequate both technically and politically.

☐

Elvan Nilsson and Marie Louise Samuelsson. **Investigations of Computer Tapes for Information Storage at 6250 BPI.** Boras, Sweden: Swedish National Testing Institute, 1990. (Swedish National Testing Institute, PO Box 857, S-501 15, Boras, SWEDEN)

Half the tapes tested by the Swedish National Testing Institute for the National Archives of Sweden did not meet the archival requirement of a ten year life, leading to a proposed requirement for testing to approve such tapes in the future. This report explains the testing methods and the proposed requirement.

☐

National Geographic Society Photographic Department. **The Electric Book.** Washington, DC: National Geographic Society, January 1990, 23 pp.

This document is the transcript of a meeting organized by Cary Wolinsky and Nathan Benn, professional photographers responding to the challenges of electronic multimedia publication. Experts in copyright law, publishing, and electronic media technology met with photographers and National Geographic Society staff for an afternoon and held a fascinating discussion, which may lead to the creation of an ASCAP-like royalties collecting agency for routine image rights sales. (For more information contact: Nathan Benn, 913 East Capitol St. SE, Washington, DC 20003)

☐

U.S.Congress, Office of Technology Assessment. **Helping America Compete: The Role of Federal Scientific and Technical Information, OTA-CIT-454.** Washington, DC: USGPO, July 1990, 68pp. $3.50.

This major report on U.S. information policy calls for an active role in information dissemination for government agencies, and envisions the enforcement of strong standards for data interchange within the government. In important ways the report's conclusions reverse the ten year old Reagan administration interpretation of the paperwork reduction act and call for repair of the emasculated office of presidential science advisor. Among the interesting asides are a call for NARA to become actively engaged in the dissemination of Federal STI, and for it to play a regulatory role in allowing agency STI centers to serve as archives.

☐

☐ Reference

Art and Architecture Thesaurus. 3 vols. New York: Oxford University Press, 1990, 1748pp., $250.

A decade after a group of researchers first received a grant from the Council on Library Resources to investigate the need for a controlled vocabulary in the arts, the AAT has finally been published. To many archivists and museum professionals, the AAT has been a project they have heard about at numerous conferences but never been able to implement. Some have been involved for several years in the trial implementation of the vocabulary and helped in its development, but have been uncertain that the day of publication would ever come. Now it is here. Not that the AAT is complete; numerous hierarchies remain to be developed, and use will bring a flood of new terms and definitions.

The AAT is a community product as its editors make abundantly clear in their gracious introduction listing hundreds of individuals who have been involved. Thesaurus maintenance and use will be a community responsibility, even if the bill continues to be paid by the J.Paul Getty Trust Art History Information Program.

These volumes make the AAT a usable vocabulary. It is easy to use both hierarchically (vol.1) and alphabetically (vols.2-3), and its classification notation system secures the position of a term in an automated system against any imaginable future changes. In addition to the printed format, the vocabulary is being issued in ASCII and MARC Authority record format.

But this publication is more than a well researched and conceptually organized word list, it is also a blueprint for a revolution in library and museum cataloging. Hidden between pages 23 and 64 is a "Guide to Use" which introduces the framework of faceted classified indexing; explains how to use AAT terminology both as single terms in existing MARC fields and as strings in expressions that serve as headings parallel to those that librarians have traditionally pre-coordinated (Appendix D); and explains how to record such headings in MARC notation in field 654 (Appendix E). Unlike the changes in Eastern Europe in the past year, these developments have been anticipated, but the full force of the change could not be felt by most curators or librarians before these volumes were published. Now that they are out, it will be fascinating to see whether automated systems can be designed to support the functionality which faceted classification makes possible, such as exploding through a thesaurus in a search in order to retrieve all records indexed by terms that are subordinate to the users' query term.

☐

Interactive Video Industry Association. **Interactive Video Industry Directory, 1989-1990.** Washington, DC: IVIA, 1990, 139 pp. plus appendices. (IVIA, 1900 L St.,NW, Suite 500, Washington, DC 20036; 202-872-8845)

One page for each of the 139 member companies and several different indexes make this a valuable guide to the state of the market and its directions.

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☐ Newsletters

AERT Newsletter - Newsletter of the SAA Archival Educators' Roundtable, July 1990 includes a questionnaire on the teaching of electronic records in graduate programs. Results of the survey will appear in the next issue, early in 1991. (Richard Cox, SLIS, University of Pittsburgh, Pittsburgh, PA 15260)

Canadian Humanities Computing 4.2 (May 1990) is devoted entirely to a "Bibliography of Computer Applications in the Humanities," which is a very well thought out 8 page classified and annotated listing.

The Chronicle of Philanthropy (ISSN 1040-676x) is now a year and a half old and beginning to develop into an essential source of news for non-profit organizations. Modeled on the Chronicle of Higher Education, whose format it imitates, the bi-weekly journal covers larger trends, including foundation giving, and carries classified advertising for development jobs. Check it out. (Business offices - 1255 23rd St. NW, Washington, DC 20037, 202-466-1200; Subscriptions - PO Box 1989, Marion, OH 43306-2089, $57.50)

The GRP Standard: Newsletter of the Government Records Project is the masthead of vol. 1, no. 2 of the serial first published in February 1990 with the title "?????." The title and contents are vastly improved in what promises to be a useful ongoing report from the RLG Government Records Project. (Steven Engerrand, Editor, Georgia Dept. of Archives & History, 330 Capitol Ave. SE, Atlanta, GA 30334)

Journal of Interactive Instruction Development (ISSN 1040-0370) is a quarterly of the Society for Applied Learning Technology (SALT). The most recent issue, vol.2, no.4 (Spring 1990), contains a brief article on evaluation criteria for authoring systems for hypermedia-based instructional materials. It explains an evaluation checklist used by the authors and provides names and addresses for hypermedia authoring products. (50 Culpepper St., Warrenton VA 22186; 703-347-0055. $30 SALT members, $50 nonmembers)

Leonardo, the Journal of the International Society for the Arts, Sciences and Technology (Pergamon Press, Headington Hill Hall, Oxford OX3 0BW, ENGLAND; $40 p.a.) has launched two electronic bulletin boards accessible over MCI or WELL. Fineart Forum and F.A.S.T. provide access to job listings, calendars of events, and the "Holography Hotline".

Recordfacts Update (ISSN 0899-7475), vol.4, no. 2 (Summer 1990), contains articles on Electronic Records at the Forest Service, the new NARA and GSA/IRM rules on electronic recordkeeping, follow-up activities from the June 1989 Electronic Records Conference, and computer security threats. It is beginning to look like those interested in electronic records will need to read Recordfacts Update more regularly (Free from NARA Records Administration Information Center, Agency Services Division, Washington, DC 20408)

The Videodisc Monitor (ISSN 0739-7089). For the past eight years, Rockley Miller's Videodisc Monitor has been the newsletter of the interactive video marketplace. This timely monthly typically carries about 32 pages of product information, conference evaluations, and project reports in a straightforward, if occasionally crowded, desktop published format. Although pricey ($277) it should be present wherever videodisc is being considered or used. (PO Box 26, Falls Church, VA 22040-0026; 703-241-1799)

Visual Resources Association Bulletin (ISSN 1046-9001) is the title now used by what was referred to in this column two years ago as the International Bulletin for Photographic Documentation of the Visual Arts. In addition to the standard association news, vol. 17 no. 2 (Summer 1990) includes a list of DataEase users in visual resource collections and a discussion of the MARC format and its implications for VR collections. (Christina Updike, Treasurer VRA, Art Department James Madison University, Harrisonburg, VA 22807; $25, $40 outside North America)

☐

☐ Articles and Books

Catherine Bailey. **"Archival Theory and Electronic Records."** Archivaria 29 (Winter 1989-90): 180-196.

This article, abridged from a Masters Thesis presented at the University of British Columbia, asks "whether modern archival theory really requires extensive revisions before it can be applied fully to computer records". Her answers are many and to my mind somewhat confused by the assumption that modern archival theory (not defined in the article itself) can even be successfully applied to paper records. With respect to appraisal of electronic records, for example, Bailey concludes that no changes are necessary in the theory to appraise electronic records during their "semi-active" life, and that archivists should even appraise them during their active life; she does not suggest why she believes appraisal of records rather than systems could be viable at any stage. She suggests that somehow software applications may not be the right focus for appraisal of multi-office, multi-institutional databases without indicating how such a multi-office, multi-institutional system could even be recognized to exist unless the concept of application-based appraisal was accepted. She

suggests that the ease of retaining large volumes of electronic records means we need to tighten up archival standards, and proposes rigorous review of holdings accessioned into archival custody. These recommendations are in place of recognizing the futility of trying to acquire custody over a record that is extremely system dependent, or of proposing that the cost of making retention determinations on large volumes of electronic records gives us an opportunity to re-focus our professional effort on adding value to files in order to improve access.

Bailey concludes that traditional theory will do fine and even contribute to management of electronic records. Given that she never suggests any real alternatives to the current theoretical basis for archival practice, declaring it valid seems superfluous. In my view, Bailey may be making as good a case for sensible management of electronic records as can be made with the traditional framework, but unfortunately the case, based on our past record in the management of electronic records, fails.

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Pierre Boulanger, Marc Rioux, John Taylor and Forrest Livingstone."**Automatic Replication and Recording of Museum Artifacts**" in *Reports of the 12th International Symposium on the Conservation and Restoration of Cultural Property: Analysis and examination of an art object by imaging technique.* Tokyo: Tokyo National Research Institute of Cultural Properties, [1988], pp.131-147.

This paper, and the conference of which it was a part, reflect the increasing sophistication of digital imaging approaches to museum conservation and replication activity. In this report, the authors, who are from the National Research Council of Canada, the Canadian Conservation Institute and Hymarc Engineeering Ltd., detail a high speed raster scanner that interfaces both to a machining tool (for replication) and a CAD system for comparative analysis of shape before and after treatment.

□

C.J.Dallas. "**Acquiring an Automated Museum Documentation System: A Report.**" *Archaeological Computing Newsletter* #23 (June 1990): 1-11.

The author reviews a three day course organized by the MDA, March 26-28, 1990 in Cambridge England. The summary of sessions and assessment are useful as a discussion of a both the curriculum for such a short course and of the substantive questions that must be answered in formulating a requirement.

□

Philip Doty. "**Automating the Documentation of Museum Collections.**" *Museum Management and Curatorship* 9 (1990):73-83.

Doty, a graduate student at Syracuse University, classifies the causes of the failure of automation to transform museums that have been identified by a broad review of the literature. Unfortunately, he fails to analyze adequately his very complete bibliography to identify any changes or progress over the past twenty years. As a result, the reader is left without a sense of what is or has been driving automation and what directions should be pursued.

□

Otto C. Oberhauser. **Multimedia Information Storage and Retrieval using Optical Disc Technology: Potential for Library and Information Services. Vol. 151.** Wien, Austria: Oesterreichisches Institut fur Bibliothesforschung, Documentations und Informationswesen, 1990, 182pp.

This volume, presented as a masters thesis at the University of Wales (Aberystwyth), is essentially a database of about 88 imagebase projects worldwide with a rudimentary introduction to the technology and its implications. The project list and bibliography are useful, although the same ground is covered in my own *Optical Media* technical report (1987) and in Roberta Binder's *Videodiscs in Museums: A Project and Resource Directory* (1988).

□

William Saffady. **Text Storage and Retrieval Systems: A Technology Survey and Product Directory.** Westport, CT: Meckler, 1989, 133pp.

This report is a thirty page essay on text storage and retrieval systems bound with a thirty page bibliography and a fifty page product listing. The essay is a useful literature review which pays adequate attention to some of the thornier issues confronting records managers in the use of these systems, such as text conversion, legality, and hardware dependency. The directory provides a general description of the products, and discusses input, indexing, user interface, searching, output, and security.

□

Peter R. Young. "**Knowledge for Sale: The Future of Intellectual Property.**" *Library High Tech News* #70 (April 1990):1-9.

This abridged version of the Society for Scholarly Publishing special report of the same title (SSP, PO Box 53421, Washington, DC 20009; $10) is a very accessible summary of a meeting held in Charleston, South Carolina last November with fifty managers and top executives of scholarly publishing companies. The meeting agreed on the strains on traditional concepts of intellectual property rights being created by new technologies, but disagreed (with very fruitful consequences) on how to respond. The explorations of alternatives presented in this report are well worth reading. Archives, and museums especially, will be faced by many of these issues in the near future.

□

☐ Ephemera

American Association of Museums. **The 1990 Annual Meeting Sourcebook.** Washington, DC: AAM, 1990, 427pp.

Its not quite clear what to make of the growing annual meeting "sourcebook". For the past several years, this compilation of internal procedures, national standards, bibliographies and lists has grown and been augmented by increasing numbers of opinion pieces and research articles. Because this year the sourcebook was given away as a benefit of early registration, the variable quality of its contents seem a greater problem, however. Whether they purchased it separately or received it as part of the AAM meeting package, readers will find several valuable guidelines and checklists here.

☐

Museum Documentation Association. **Directory of Documentation Software Users in UK Museums.** Cambridge: MDA, March 1990, 10 pp.. (MDA, Building O, 347 Cherry Hinton Rd. Cambridge CB1 4DH, UK)

Based on surveys of over 500 UK museums, the directory lists over 300 UK museum users of documentation software by application package. Forty different packages, including the most popular PC file management and database management systems are represented, often by only one user. The largest listing is for MODES users, which is no surprise except that the numbers (200+) reflect a virtual monopoly. Other specifically museum documentation systems represented include &Magus (3); Muscat (3); Quixis (3); Recorder by the Nature Conservancy Council (9); and TinMus (10).

☐

The Research Libraries Group, Inc., RLIN User Services Division. **RLIN User Satisfaction Survey 1990: Summary of Responses.** Mountain View, CA: RLG, June 1990, 15pp.

AMC users will be interested to note that 30% of respondents had used AMC files. Unfortunately the report does not break out data on satisfaction with AMC file use as compared to RLIN overall, although this would be useful to do.

☐

NEWS

New SAA Section

The SAA Museum Archives Roundtable has been elevated to the status of a Section, reflecting its growth to more than 300 members and the regularity of the *Museum Archivist*, its bi-annual newsletter. To participate, contact section chair Theresa Percy at Research Library, Old Sturbridge Village, Sturbridge, MA 01566; 508-347-3362. To contribute to the newsletter contact the editor: Deborah Wythe, The Brooklyn Museum, 200 Eastern Parkway, Brooklyn NY 11238; 718-638-5000, ext. 311.

☐

Voice Mail Upgrade to PC Mail System

Microsoft has announced a free voice mail upgrade to its popular package Microsoft MAIL in what promises to be the first of a flood of such upgrades. For about $100 in hardware for a voice digitizing recorder, users can take advantage of mixed modality mailboxes. I'd say this application will make it as soon as enough hardware out there incorporates the digitizers, which won't be very long.

☐

RLG Strategic Plan for AMSC Program

Before he completed his one year sabbatical at the Research Libraries Group to return to Duke University, Steven Hensen submitted his strategic plan for the Archives, Manuscripts and Special Collections program. The plan addresses the nature of the AMC database, the governance of the AMSC program, the potential of a variety of proposed future projects, and the need for program staffing. It does not suggest radical departures from existing practices so much as evolution over the next 3-5 years in directions that are largely set. The plan does endorse involvement by RLG in the definition of interchange standards in the museums community (through the Committee on Computer Interchange of Museum Information, and by working with the Common Agenda and the Art Information Task Force), and the development and implementation of the Archives and Museum Information System (AMIS). Other important directions are support for off-line data entry facilities, commercial software packages, and international projects.

☐

Chadwyck-Healey Announces Primary Sources on CD-ROM

Chadwyck-Healey has announced what is probably the first full-text archival material on CD-ROM, the publication of the primary sources of J.P.Migne's monumental *Patrologia Latina*. Representing a thousand years (200-1200 AD) of early Christian texts and commentaries, the CD-ROM will cover both materials now only available in microfilm and writings of Latin Fathers that have hitherto afforded little access. Full-text retrieval software will now make available every word of the texts on 4 CD-ROM discs, each of which holds approximately 250,000 pages of text. [Eric Calaluca, Chadwyck-Healey, 1101 King St., Alexandria, VA 22314; 703-683-4890]

☐

SOFTWARE

Review

ADVANCED QUIXIS

DAVID BEARMAN

ADVANCED QUIXIS from Willoughby Associates (266 Linden St., Winnetka, IL 60093; 312-284-6600) runs on an HP3000 mini-computer under MINISIS, a database management system originally developed by the UNESCO. Basic **QUIXIS** is priced at $30,000; **ADVANCED QUIXIS** at $50,000. At these prices both versions are licensed for up to 8 concurrent users; for 9 to 32 concurrent users, the cost is $5,000 extra per 4 additional concurrent users up to a total additional charge of $30,000. More than 32 concurrent users may be added at no additional charge.

This review was conducted in eight hours of sessions in which Willoughby personnel were at the keyboard. The direction of questioning and the tests requested were dictated by the reviewer.

Overview

QUIXIS is the high end museum collection automation system. It has been acquired by the largest institutions, currently has the largest installed databases and is the most expensive system currently on the market.

QUIXIS is a menu driven system, with a command-based query language peculiar to MINISIS. It is very loosely coupled with Word Perfect (to which it can pass ASCII text) and EntryPoint (from which is reads data entry in batch mode). In principle, it should be possible to read records from another Willoughby product, MIMSY, into **QUIXIS** in tagged ASCII because they are said to share a data dictionary.

QUIXIS is built around several "master" files: a catalogue of objects, an attribution file of creators, a "name and address" file of clients, an exhibition file, a citation file, a reproduction file, and a thesaurus. Three "history" files are linked to the Master Catalogue; these contain location history, value history, and condition/treatment history. In "ADVANCED" **QUIXIS**, which is the only version Willoughby has sold to date and which is the version being reviewed here, history data is created through transactions. These transactions are stored in separate "activity" files for each of the four collections management activities **ADVANCED QUIXIS** supports: loans, shipping, exhibition and rights and reproductions activity.

Items in the master catalogue file need not be in the museum collection, since being owned, being on loan, or undergoing treatment are statuses, recorded as data in the item record. Items have explicit hierarchical relations to other items, which they reflect by links to higher and lower records and by data values in a field that explicitly identifies them as collection level, group level, whole, part or detail. The data in a record may represent any number of physical items or parts.

Users are essentially restricted to Willoughby defined fields, although they can modify the names these fields have been given. They can also modify the help text (which is a good thing because Willoughby's on-line help is extremely thin and MINISIS help is most unhelpful), and the format of reports. Users cannot directly create new indexes, although Willoughby does some customization of indexes for users at the time of installation. Users have access to source code from which those knowledgeable in programming code can, in theory, make more dramatic changes, but users will lose Willoughby software support if they modify **QUIXIS**.

Data Entry

Users enter data into screens that contain sub-sets of the data elements of the system, selected as "views" of the database by Willoughby to reflect their understanding of how museums use the data in the system. The views created by Willoughby principally reflect the differences between "registrarial" data and "curatorial" data. These views are at the same time one of the strengths and weaknesses of the system. If you want to enter a specific piece of information, you need to know the view it is in and the screen on which it will appear, or you have to be willing to go outside of **QUIXIS** into a MINISIS file update utility that operates by command. Both of these approaches are uncomfortable. On the other hand, if you are entering information about an item from a perspective that you share with the system (and most art museums will find it a very natural approach) you are enabled to enter information in what seems like a "logical" fashion.

QUIXIS has an immense number of data elements, so it would require hundreds of screens to display them all. Instead of forcing users through screen after screen, Willoughby adopts an interface tactic that presents two to five screens of "basic" information about whatever is being done, and then shows the user a menu screen listing up to 20 selectable data segments, each of which calls up another screen or set of screens. The segments are typically repeatable, while the data on the basic screens is not.

The system is relatively weak on data entry tools, which is one reason why Willoughby itself uses the loosely coupled EntryPoint system in place of **QUIXIS** itself for data entry. The user can clone all of the immediately previously entered record, but he or she cannot copy a field, group of fields or a named record. There is also no facility for copying only fields in which data has not previously been entered or copying all fields from the cursor location forward. Fields linked to authority lists or thesauri can be validated, but the correct value cannot be copied from an authority (using point & shoot, drag, or other copying techniques), so it must be keyed. If the user enters anything other than a valid term the entry will trigger the dis-

play of a value table. Validation cannot result in the automatic filling of fields other than the validated field. In fact, almost nothing takes place interactively; usually the user must exit the whole screen, or even store the record, before a lookup takes place. Finally, since **QUIXIS** does not use bar-coding, there is no semi-automatic way to call up the record for an item in hand.

When adding data to a record, such as a new value for a repeating segment, the system forces the user to walk through all presently filled segments before providing a blank template. The system does not provide an overview of a record showing the number of repeats each segment has, so the user has no way of knowing how long this review would take, nor of knowing (without looking), whether history exists for a particular field. I found it disconcerting that in the data entry process, characters typed after a field is full overflow into the next field, and imagine that it would be annoying that multi-line fields do not have a word wrap function.

Willoughby's strength, as they will tell you, lies in their understanding of museum data. **QUIXIS** does solve numerous thorny data representation problems in museums. For example:

- Identification numbers (and previous id numbers) consist of six parts and a text modifier that is the seventh part, each of which will sort independently and which consist of numbers of letters. This permits an institution an unrivalled flexibility in numbering, often required in order to account for historical oddities.

- Attribution records may contain the locally preferred name of the creator as well as the name in the Willoughby authority file, and object name authority records have a similar standard object name/local object name structure.

- Large varieties of types of titles (simple title, full title, series title, others) can be defined.

- Any field can have a source citation, because the source citation field is repeatable, but there is only one such structure per record so it is not specific to a field.

- There is a rich structure for recording value data using a number of different valuation fields (purchase price, initial price, current price and system value), each of which is composed of currency unit, amount, date, valuator and comments.

- Whole/part relationships are reflected in repeating fields for higher and lower level records and a whole/part level (which includes a prose "relationship").

- During inventory, it is possible to build a crate description, which is more than most systems permit. However, **QUIXIS** doesn't carry the idea far enough since the crate data is appended to an item record (as if were and attribute of the item). Since it is not in a separate file, this data has to be created for each object crated and each use of the crate.

Occasionally, Willoughby data definition fails to perform a task I would consider desirable. Geographic terminology assumes geopolitical terms, and takes these only down to the city level. The place relationship field is intended to contain data on place of production, use, and discovery, as well as any other type of relationship, but these cannot be distinguished. The registrar's "notepad" is one file, with notes attached to item records. There is no indexing by person, topic, date or even full text.

Retrieval

There are two methods of searching in **QUIXIS**, both of which are somewhat primitive.

The first option uses the query mode of MINISIS, which is a command driven mode that drops the user onto a screen with the "" prompt and virtually no help. The user may DISPLAY (search) or BROWSE a selected set, using the syntax "COMMAND FIELD/INDEX VALUE operator FIELD/INDEX Value" in which any number of operators (AND, OR, NOT) may be specified. Nested Boolean queries are permitted, but the display does not show intermediate postings, only the final results. Because the user always has the option of always showing the searches conducted so far in the session, and because BROWSE enables the user to combine sets and define a sort order for viewing, the intermediate results can be shown when a search is conducted in a number of passes. But the sort process is extremely slow; the retrieval of a set of 49 items from several prior queries took 15 seconds to sort on one field and 25 seconds to set to two levels on a mini-computer dedicated to this reviewer, with virtually no data.

If the user chooses to DISPLAY, the system will show an index for the field with the value requested by the user followed by the next 15 alphabetical entries. SAVE will save a retrieval set, and KEEP will save the search logic.

The second query mode is to select a menu option for "Query Collection Data", "Query with Location" or "Query Legal Status" from the Master Catalogue main menu screen. Using this option the user will receive a Query-By-Example screen, which is limited to only one value per indexed field and employs the default AND operator between fields. The views presented to the user are different for each option - the fields indexed differ slightly and the display formats differ somewhat - but the function and the way it is supported are identical. The views aren't always what you would expect. I found it particularly annoying that even when we chose to Query with Location, the view excluded location history data, so that if I wanted to see location history I had to switch to a different database.

Users may select a variety of report formats designed by Willoughby for showing their data. They can scroll

through one line, brief, and full displays, and typically have a choice of several other displays depending on where they are in the system. As with so many other things in **QUIXIS**, these choices are not consistent, so the user has to get to know them. Users can, however, alter these formats for a specific search using the FORMAT command. This will declare the fields to be shown, but cannot declare display locations so the fields will display as a list at the left margin. Unfortunately, users cannot simply begin with one of the Willoughby designed formats and modify it with the format command. If they are going to depart from one of the standard display options, they will have to declare each field in the order they want to view it for each search.

Authority Files

Willoughby understands the need for and function of authority files, but the software does not do everything one would like to have the authority system do. The most serious drawback is that all authority terms are in a single file, so the authority source list governing a field cannot be specified. As a consequence, if a term authorized in one vocabulary in use in the system is entered in a field under authority control, it will be accepted, even if that term is not authorized for the vocabulary that would normally govern the field. It appears that a museum that used Nomenclature to control some fields and the AAT to control others would discover conflicting term preferences canceled each other out.

QUIXIS supports thesaurally structured data, including a four line scope note and tracers to different versions of a thesaurus release. When I asked to edit thesaurus records, I was told this would be done through the global update mode (MINISIS function) but staff were unable to demonstrate it.

Transactions

The data in **QUIXIS** seems to be structured according to a model in which actions are linked to items, and the sum of actions previously linked to items is their transaction history. However, some of the features one would expect in such a model are not enforced by the system. For example, restrictions recorded for loans do not have a connection with the action of lending, so the user has to be aware of restrictions first by searching the database.

Willoughby has written screens that are in effect a procedural script for each action. The virtue of this approach is that procedures are organized into steps, each of which demands certain data and provides the option of executing specified reports. The drawback is that only predefined actions are supported and they must be conducted according to the Willoughby script, which (even though it reflects the best in museum practice) is not going to conform to local procedures as currently implemented. Available collections management transactions include: location/inventory, loan, shipping, exhibit, legal status/valuation functions, condition/treatment, acquisition, deaccession/removal, and rights and reproductions fulfillment.

Those transactions supported have extremely complete scripts. The location/inventory functions menu, for example, allows the user to query inventory or location history, enter or update location transactions, update inventory control data, make global changes and write location/inventory reports. If the user chooses to enter a new location, the transaction database will open and the user will be walked through the process of recording the move date, return date, reasons for move, comments, location moved to, location moved from, and flags for overseas moves, tickler dates, etc. The user can elect to enter special instructions in data segments devoted to routing and shipping, container definition, loan/exhibit, and transaction costs. Along the way the user will record his name and pick-up, delivery and receipt/release data if relevant.

In spite of the thought obviously given to these collections management capabilities, **QUIXIS** lacks certain integrative features that would facilitate on-line transactions. For instance, the location from which the object is being moved does not show up on the screen from the last recorded location of the object and cannot be made to enter automatically, although it will show up in the associated report. Descriptions of items included in a shipment cannot be brought into the shipment automatically by specifying a search set. Inventory reports can be written to run as batch jobs but they can't be set up to run periodically without further intervention. Users always have to actually record their id's and when they took an action because there is no audit stamp facility doing this automatically for actions the systems administrator wants to audit. All calculations, such as time periods and measurement conversions, take place in batch after the record has been entered; a user must leave some fields blank, knowing that when she returns to the record the calculated value will be in a field.

The general model for all transaction processing is that several screens of information that Willoughby feels are required for a transaction of the type to be undertaken are required initially; then the user is provided with an option of recording specialized information based on menu selection. Aspects of the general data remain displayed on the top half of a split screen while repeatable segments selected from the second tier menus are displayed for data entry on the lower half of the screen. **QUIXIS** is a repository of collections management data, but the system takes very few actions of its own based on that data. It notifies the user according to ticklers that are entered but it doesn't notify other users or make any automatic ticklers, write any regular reports or launch any processes based on time since a previous process. **QUIXIS** doesn't act on changes in restrictions, limitations on budgets or flags, although users can retrieve records in which they have entered a given flag value or which have a specified restriction and can subsequently act upon them. It is odd to me that **QUIXIS** has not been programmed to execute these kinds of generic routines, because the Willoughby staff have thought of so many other excellent one-off actions for the system to take. For example, the last step in the acquisition process is to assign an accession number which automatically puts the old id into a "past numbers"

field, checks the validity of the formatting of the new number, and changes all pointers from the old number to the new number.

Database Maintenance and Utilities

QUIXIS has a combination of MINISIS utilities (such as random selection programs, mass update features and term listing) and menu driven jobs programmed by Willoughby. Some database features are controlled by the HP operating system.

MINISIS tools are relatively good but difficult to use; mass changes, for example, enable the sophisticated user to select a database, define a set, indicate a line to be replaced or deleted, and execute a database wide modification, but the facility is too powerful and unfriendly to leave in the hands of anyone other than a systems administrator. In general the MINISIS tools do not reflect user interface choices that have come to be accepted during the 1980's. For example, actions may be restricted by permission tables, but restricted actions still show on the screen. Users who request to do a task that they lack permission to do will be denied, receive a message and be returned to the menu from which they came.

Willoughby programmed jobs, such as index maintenance and vocabulary list maintenance are built on MINISIS utilities but are designed to be easier to use ("idiot proof"). Willoughby has succeeded in making scripts that can be run routinely and with ease.

It was not clear to the staff demonstrating **QUIXIS** to me what decisions HP had made with respect to database lock-out levels, security, auditing, and systems backup. They were sure that configuration management was handled by the operating system. Willoughby President Lenore Sarasan promised to send me all the documentation that a customer site would normally receive and assured me that the systems documentation that would answer these questions.

Documentation

And it might. But I haven't seen the complete documentation, so I can't say. Willoughby sent me three looseleaf binders of different types of documentation. The first was one of what they say is twelve volumes of their data dictionary entitled Data Syntactica C Series (February 1989). It is a very nice data element dictionary in which each element may have a definition, attributes, guidelines for data entry, examples, and notes. The Guidelines section will be most helpful to museums seeking to establish in-house data standards.

The second binder contained samples of **QUIXIS** reports. These were organized by function but without any kind of index and were much less useful as documentation.

The third volume consisted of a chapter of user documentationentitled "1.2: Adding new records to the master catalogue". Thechapter is 50 pages long, gives step-by-step instructions, and seems very clear, but I have no idea of how complete the user documentation is as there is no overall index to the users manual.

Online help is extremely weak. Online help for a field value basically tells the user to enter the value. Help at the function level for queries provided a list of commands with no explanations.

Corporate Strategy

Willoughby is the dominant firm in the market both because it has been selling museum collections systems longer than its competitors, and because it engages in aggressive advertising. Although the two products it now sells are only a couple of years old, the company has more contracts than Willoughby's two major competitors combined.

Based on a discussion with Lenore Sarasan, President of Willoughby, the firm is not trying to develop any strategic relationship between **QUIXIS**, the high end product, and MIMSY, Willoughby's mid-market offering developed under ORACLE. She would like to develop inter-site communications between **QUIXIS** sites for exchange of authority data and has launched an electronic users group conferencing system using TCN, the AAM communications network. Sarasan occasionally points to membership and development, accounting, and other software running on the HP 3000 to justify users' selection of **QUIXIS**, but no strategic partnerships have been formed with such companies. Although Willoughby has found a partner to develop imagebase management features for MIMSY, they have not announced a similar effort for **QUIXIS**.

Summary

QUIXIS is the dominant museum collections management package, and it has many features that justify this position, including the wealth of data that can be recorded in it and the reports that have been designed for it, but the software itself is unimpressive, and Willoughby has not done enough to make it easy to use. Very large institutions will be comforted to see **QUIXIS** installed in similar settings, and will be willing to dedicate a mini-computer to the collections management task alone, but mid-size institutions are likely to find this strategy less acceptable. In sum, **QUIXIS** is a work horse that will prove capable and reliable, if plodding.

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Report

Archives Integrated Information Management System (AIIMS)

DAVID BEARMAN

MIS Software Development Inc. (1349 Cross Creek Way, Tallahassee, FL 32301; 800-525-5468), has announced the commercial availability of the archival information management system they developed for the Florida Bureau of Archives, as single user or multi-user site license. The package was shown informally at the Society of American Archivists meeting in Seattle, and will be exhibited at the Museum Computer Network meeting in Richmond in October and at the Mid-Atlantic Regional Archives Conference meeting in Alexandria, Virginia in November. The following report is not based on a detailed hands-on review of the software itself, although I have seen it running in Florida.

AIIMS operates on any IBM-compatible PC with 640k RAM, DOS 3.3 or higher and a hard disk of at least 10MB. Multi-user versions run over any IPX or NETBIOS local area network (including Novell). **AIIMS** was developed using DBaseIII and CLIPPER and uses 3Dgen, a documentation generator/data dictionary package developed by MSD Inc.

AIIMS integrates support for: 1) Collections Management 2) Cataloging, Description and Information Retrieval and 3) Patron Registration and Tracking. As such it is a more comprehensive software solution than other MARC AMC cataloging products currently on the market.

Collections Management

AIIMS maintains a database of sources of records that can include the names and addresses of contacts within the agency or names and addresses of private donors. In addition, it builds a transaction file for all actions scheduled, underway or completed on any materials collected or targeted for collection that can be analyzed for staff assignment. While these two features fall somewhat short of fully satisfying all collections management requirements, and are especially thin in records scheduling (an area in which the Florida State Archives is currently preparing its requirements), they do permit significant control over material before, during and after it comes into custody.

Cataloging, Description and Information Retrieval

AIIMS employs data consistent with MARC AMC, and it supports the maintenance of detailed descriptive information at various levels of arrangement including item, folder and box. Typical subject terms entered into **AIIMS** can be validated against a subject authority. Queries for unauthorized terms will display the cross reference from the authority file.

Both text and date range queries are supported by **AIIMS.** Multiple search criteria may be combined and the count for each query term will be returned separately along with the overall count for the search, and a display to screen of the same view of the data that would be reported to hard copy.

AIIMS has been tested for importing and exporting data to OCLC/SOLINET. The input function permits the user to edit the data online before it is added to the local database.

Patron Registration & Tracking

AIIMS permits a repository to record patron registration information and links patrons and staff with materials they use while generating a pull slip for retrieval from the stacks. The data generated in this process can be used for a variety of management reports, security and user follow-up.

Utilities

A variety of reports are provided as part of the system and can be modified by user defined parameters including a range of holdings. Pre-defined reports include Contact/Donor Lists, Patron Lists, Holdings Inventory, Container/Folder/Item Lists, Guide to Collections, Storage Location Containers Lists, Accession Registers, Actions Reports, and Usage Reports by File Unit or by Patron. Other reports can be written by users familiar with DBaseIII or with the wide range of reporting tools developed to work with it. Patron oriented reports can suppress restricted fields or be printed for staff use to include such data.

The **AIIMS** user interface is menu driven. Access to screen functions and to field level data is controlled by security tables defined by the systems administrator. Textual fields are entered in a word processing mode which has wrap on fields with text string names that are subsequently associated with MARC tags. Online help is available throughout. **AIIMS** works with the 3Dgen data dictionary and documentation tool also marketed by MSD. It can be altered through 3Dgen.

AIIMS does not have built in restrictions on the number of users or records in a system, but it has record and field length limits that were set for the Florida State Archives. Like many other aspects of the system, these limits may need to be changed in order to satisfy the needs of additional clients.

I received Version 1.1 of the Users Manual (dated December 1989), and found the documentation to be complete but in need of an editor with the end user more clearly in mind. For example, rather than beginning with an application oriented overview, the manual begins by introducing all the **AIIMS** specific keystrokes for control functions in a section called "using the keyboard". This is, of course, hardly unusual for a product that has not yet been marketed.

Marketing

MIS Software Development Inc. specializes in the development of software for state and local governments in Florida. It markets two general products: the 3Dgen data dictionary and documentation tool and ISABEL, an expert system for vocational counselors. **AIIMS** is being considered as a third commercial product because interest in its commercialization has been expressed by the archives community. It seems likely that the first few sites to contract for **AIIMS** will be able to have a significant impact on the direction of its future development.

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Vendor & Product News

Image Recording at the Desktop

Barneyscan Corporation has produced an enhanced version of its 35mm slide scanning system to produce high resolution digital files for the MacintoshII and PC-AT. Hardware and software are sold together for under $10,000.

MERG II [P.O.Box 1241, Ann Arbor, MI 48106; 313-429-4028] has announced **MERG II Advanced Graphics Image Capture System (M.A.G.I.C.S.)** and the **Elite Graphics Output System (EGOS).** M.A.G.I.C.S. allows users to digitally capture images via S-VHS, still video or scanner at high resolutions, and combine them with a text database. EGOS outputs high resolution slides from PC's at 2048x2048 pixels, 24 bits per pixel, from a wide range of graphics software packages.

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MARC Input/Output

I regularly receive questions about how institutions that do not use MARC based systems but maintain MARC compatible field definitions can convert data to and from MARC format for purposes of exchange. The simplest solution is to acquire a free standing package (often a module of a package for a library application). Among the packages that are reported to perform this ugly function are **Micro-ISIS** from **UNESCO** [General Information Programme, UNESCO, 7 place de Fontenoy, 75700 Paris FRANCE]; **Bibliolink**, a companion program to **PROCITE** from **Personal Bibliographic Software** [PO Box 4250, Ann Arbor, MI 48106, 313-996-1580]; **MARC-Bridge** from **Data Trek** [167 Saxony Rd., Encintas, CA 92024, 619-436-5055]; **MARC-Adaptor** from **Inmagic** [2067 Massachusetts Ave., Cambridge, MA 02140, 617-661-8124]; and **Minaret** from **Cactus** [15 Kary Way, Morristown, NJ 07960, 201-540-0980].

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Holdings Management Software

The Florida Bureau of Archives and Records Management has accepted the **Archives Integrated Information Management System (AIIMS)** designed for it by **MSD-MIS Software Development Inc.** (see the report in the preceding section of this issue). The system includes patron registration and activity, bibliographic cataloging using MARC-AMC, authority control, collections management, subject access, and report generation, including import and export of USMARC-AMC records. Now the Archives is now preparing a spec for a records management system. [LaDonna Wagers, Bureau of Archives and Records, Gray Bldg., Tallahassee, FL 32399-0250]

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North Carolina State Archives OPAC

On April 2, North Carolina became the first state archives to open its computer catalog to the public when it unveiled the **Manuscript and Archives Reference System (MARS).** At the same time, the State Archives catalog became available for use by other departments of the Division of Archives and History (Museum of History, Publications, Historic Preservation, Historic Sites, Archaeology, State Capitol and Visitors Center, and Tryon's Palace) from their own terminals. I look forward to studies of the use of this tool by these constituencies. [Barbara Cain, North Carolina Dept. of Archives & History, 109 E. Jones St., Raleigh, NC 27611]

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Questor

At the AAM meeting, **Questor** demonstrated the attractions of its new user interface (introduced with release 7.0 and being enhanced in subsequent 7.x releases), which include a point and shoot menu, an option bar with highlighting/clicking, direct command navigation to any field, an add/edit mode with an insert option, and overflows to a full screen editor. The most exciting aspect emerging from the new interface, however, is that the "view" screen is becoming the core of the user's system. From this screen a staff member can navigate to secured functions and the general public can search the database using predefined search strategies. The search strategy's parameters are defined but its values are stored as "ask", which cues the system to prompt the user for values. This feature could prove an exceptionally powerful device not only as the first step towards an online public catalog or for use in exhibitions and education, as is now the case, but also as a driver for procedural control of actions, which Questor President Eric Wood announced was being redeveloped for release 8.0 (mid-1991).

Questor, which now offers **ARGUS** for collections management and **MUSE** for membership and development, is developing as the first integrated software system for museums. It plans to add support for traveling exhibitions in 1991 to its existing support for historic preserva-

tion offices, slide library management and imagebases consisting of either analog (videodisc) or digital images. With generalized support for transactions slated in 1991, and its recent move to UNIX, Questor could become the system to watch in the 90's. [187 N. Hill Ave., Pasadena, CA 91106;818-356-0808]

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MIMSY with Images

Willoughby Associates and an image management partner, **Milagro Graphics Corporation,** announced "**Mimsy with Images**" at the AAM meeting. The add-on product allows digital images residing on a local disc to be called to screen using the "Pagedown" and magnified up to 4x. Although the images are better than those Willoughby showed with Picture Power a couple of years ago, the new product still demonstrates no clear sense of what the user might want to do with an image system. Milagro also sells **InfoTouch**, a turnkey, touchscreen, system with up to six windows for display of digital images or scrolling text which could be a museum exhibit system. Its multi-lingual audio facilities and high resolution graphics were first installed at the United Nations for the "Masters of the Arctic" art exhibition. It has the nice feature of capturing all user input and the system time in an audit trail for impact analysis purposes. [Willoughby Associates, 266 Linden St., Winnetka, Il 60093; 312-284-6600]

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Mailasaurus

Blair, Dubilier & Associates is selling single and multi-user versions of its mailing list package, **Mailasaurus**. Other products available from the company include **Potemkin**, a collections management system, and **Collection/Archive Information Manager (C/AIM)**, a multi-user, relational collection and information management system. [Blair, Dubilier & Associates, 4853 Cordell Ave. Suite 222, Bethesda MD 20814; 301-951-9131].

□

MIP Fund Accounting

Micro Information Products offers an exceptionally useful brochure to advertise their software that illustrates the screen and reports. The fund accounting software integrates general ledger, budget reporting, accounts payable, encumbrances, accounts receivable, database interface, payroll, and fixed assets modules. A full function demonstration disk, limited to 500 records, is also available for $34.50. Single user operational versions of the DOS based system run $595-795 per module; multi-user versions run $995-1295 per module. [Micro Information Products, 505 E. Huntland, Suite 340, Austin, Texas 78752; 800-MIP-FUND]

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PASS Events Management

In a previous newsletter I noted the unusual terms under which **Select Ticketing** provides its **PASS Events Management** system; an institution joins Select Ticketing as a member for 4 years during which time it receives the system, supports, upgrades and a voice in the development directions to be taken by the firm. What I didn't report in any detail was the nature of the system they offer. Now that I've seen it, I find myself as intrigued by the product itself as by the way it is sold.

The most important user interface device for **PASS** is not a keyboard but a light pen. The screen displays data areas marked off in different colored blocks at which the user points the pen to activate the desired functions. These functions include ticket sales (complete with discounting, receipt of payments, and ticket spitting); membership (complete with donation and participation history); visitor surveying; concessions and shops sales with a perpetual inventory; and facilities management including resource allocation.

PASS is exceptionally easy to use; so much so that Select has announced a "self-ticketing" module as part of its next release. To some extent this ease of use reflects a simplistic system; basically this is a fast list manager. For example, **PASS** comes with a sophisticated report writer accessible to users, but while they can write complex reports, these cannot draw data from across databases. [Select Ticketing Systems, P.O.Box 959, Syracuse, NY 13201; 315-479-6663]

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INMAGIC 7.2

Inmagic Inc. has released **INMAGIC 7.2** with expanded data entry, reporting and retrieval features and multi-language facilities. Single user versions begin at $975. [2067 Mass. Ave, Cambridge, MA 02140-1338; 617-661-8124]

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DONOR$ wins Software Award

JSI (John Snow Inc.) was selected by the Software Publishers Association as a finalist in the "Excellence in Software" award. **DONOR$** was voted the Best Vertical Market Application in the annual poll conducted by executives from more than 500 U.S. software companies. I saw DONOR$ (under DOS; also available as UNIX for Altos) at the AAM meeting and was not very impressed with its limited addresses per client and the brevity (80 characters) of note fields, but the SQL type searches and sophisticated Boolean capabilities were attractive. [John Snow Inc., 210 Lincoln St., Boston, MA 02111; 617-482-9485 or 800-521-0132]

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Heritage Sentinel Collections Management System

As of the spring, **Heritage Sentinel,** the system developed to the specifications of the Ontario Museum Association, was installed in 15 museums and galleries in Canada and had an active user's group. Heritage Sentinel, which is available for purchase as a commercial product, incorporates Nomenclature, in a format similar to that of the AASLH publication. I find this encouraging even though the AASLH offices have in the past wanted to control the use of Nomenclature in commercial systems. Heritage Sentinel runs under Advanced Revelation. Single user systems are $2000; additional four user upgrades are $1500 each. [Sentinel Computer Consultants Inc., 556 Walker St., Fergus N1M 3J1 CANADA; 519-843-5670]

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CUADRA Releases "STAR" on the "Sun"

The UNIX version of STAR is now running on Sun workstations. So far as we know, no museums have yet acquired it for this platform. King Ranch in Kingsville, Texas recently acquired STAR for records management at their historic site, and the Museum of Modern Art Film Department is using it for their Film Archives. Cuadra is testing images in conjunction with STAR and will be showing their product this fall. [11835 W. Olympic Blvd., Suite 855, Los Angeles, CA 90064; 213-478-0066]

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MacIntosh and Windows 3.0 Membership System

Campagne Associates, Ltd. has announced the release of COMMTACT/ELS 2.2 for DOS/Windows 3.0. COMMTACT, previously available only for MacIntosh computers, is a membership, development and mailing system. The new release is designed to run on any combination of IBM and Macintosh system over one local area network. Single user IBM systems start at $795 plus Windows (up to $944); multi-user full fledged versions of the software run up to $4000. All have a 60 day money back guarantee. [491 Amherst St., Nashua, NH 03063; 603-595-8774]

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STANDARDS

MARC vs. EDI

The ASC X12 Electronic Data Interchange (EDI) standards which are increasingly being adopted for communication of commercial transactions data, have been adopted by bookstores, shippers and banks. As a consequence, they are coming into potential conflict with MARC-like communications in the area of library acquisitions (interchange with book dealers), as was reflected in the topic of an ALA pre-conference held on June 22 (discussed in Library Systems Newsletter 10(May 1990):43-44). If other types of organizations, such as museums, adopt communications protocols similar to MARC they will need to incorporate EDI communications for purposes such as exhibition loan and shipping, ordering of materials, and billing. The NISO annual meeting (New York, Sept. 10) reflects the growing interest in EDI in its sessions.

For an in-depth discussion of these protocols and their differences, readers should see Elaine W. Woods, *Electronic Data Interchange: Purchase Orders. An Analysis and Comparison of ASC X12 Standards with NISO Standards and Conventions Used in the Library Community*, September 1989. The analysis was prepared under contract to the LC Network Development and MARC Standards Office and is available from NISO, PO Box 1056, Bethesda, MD 20827 for $25.

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Office Automation and Records Management

The National Archives of Canada has released Managing Information in Office Automation Systems: Final Report on the FOREMOST Project (April 1990, 46pp.). The document defines "functional requirements for a type of application software that will manage multi-media records effectively in a typical automated office system". The document is organized in 16 chapters following the stages in the life cycle of information. It consists of logical statements of functional requirements and generally avoids being implementation specific. I recommend it to anyone responsible for management of electronic records from active records environments. This specification was intended to influence the design of office information systems software, and although it cannot succeed in that unless users internalize these requirements and insist upon them in all their dealings with vendors, study of the specification will reveal to managers problems in their existing practices of which they may not be aware. [John McDonald, Director, Automated Information Systems Division, Government Records Branch, National Archives of Canada, 395 Wellington St., Ottawa, K1A 0N3 CANADA]

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Style Sheet for Museum Databases

The Canadian Heritage Information Network has published **"Capitalization of Data in the PARIS System"** (in French and English), which is a standard for style intended to be used within the CHIN system but applicable to museums anywhere. Even if a museum chooses not to adhere to the CHIN standard, the questions that it addresses must be considered in any in-house standard. [free from CHIN, 365 Laurier Ave., West 12th fl., Ottawa K1A 0M8 CANADA].

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Z39.50 Status

Mark Hinnebusch (Florida Center for Library Automation) has written a readable and current account of the developments taking place within standard Z39.50, Information Retrieval Service Definition and Protocol Specification for Library Applications, in the July 1990 issue of *Information Standards Quarterly*. This computer to computer communications format, which grew out of the LISP project but goes far beyond the interchange of MARC records, is becoming an important framework for data interchange.

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US MARC for Holdings

The **U.S. MARC Format for Holdings** has finally joined the other formats in a new publication available from the Library of Congress Cataloging Distribution Service for $25. Also available is **USMARC Specifications for Record Structure, Character Sets, Tapes 1990**, a revision of the 1987 standard ($16). Network Planning Paper #19 **"Beyond Bibliographic Data"** is focused on full-text and numeric databases ($10). [CDS, LC, Washington, DC 20541]

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Proposed Standard Functions and Architecture for Archival Information Systems

With funding provided by the Bentley Library NEH/Mellon Fellowship program, David Bearman, Richard Szary and Ted Weir have drafted a description of the functions and architecture of an archetypical archival information system. The document is being reviewed by a group invited to critique it in Ann Arbor in August, and will be referred to the SAA Committee on Archival Information Exchange (CAIE) for consideration as a draft standard at its meeting in Seattle in August. Anyone interested in receiving a copy of the Bearman/Szary/Weir draft at the same time that it is referred to CAIE, may request one from Richard Szary, Manuscripts/Archives, Yale University, Box 1603A Yale Station, New Haven, CT 06520.

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NISO Meeting to Focus on Convergence & Globalization

The annual meeting of the National Information Systems Organization (NISO) will be held Monday, September 10, 1990 at the New York Public Library. Speakers will explore how standards development is being impacted by convergence and globalization of the information marketplace and review the proposed NISO "Master Technical Plan for Standards Development". Registration is open to non-members at $150 [NISO, P.O.Box 1056, Bethesda, MD 20827]

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Archival Description Manual

The second edition of **A Manual of Archival Description** by Michael Cook and Margaret Proctor, both affiliated with the Archives of the University of Liverpool, addresses the nature of archival description and the rules and standards needed to construct a finding aids system for a repository. The manual discusses how multiple levels and depths of description fit together to form a system, and the data structure of archival description-- its purpose and the way a table of data elements is built and used. The authors have included models for descriptions at all levels of arrangement, and for materials in special formats including architectural plans and cartographic archives, machine readable archives, photographs, and sound, film and video. [ISBN 0 566 036347, Gower Publishing Group, Gower House, Croft Road, Aldershot, Hampshire, GU11 3HR, ENGLAND]

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NAGARA GRASP Available

Three tools, which together constitute a standardized self-study approach to preservation planning for archives, are included in the recently completed **NAGARA Guide and Resources for Archival Strategic Preservation Planning (GRASP)**. The **GRASP Manual** contains instructions for use of all three tools, preservation planning strategies and suggestions for formulating a plan of work. A computer assisted self-study asks multiple choice questions about preservation issues affecting all aspects of arhival functions. The computer program uses artificial intelligence to derive and report prioritized suggestions for preservation goals and objectives tailored to the individual repository's situation. A resource compendium contains 700 pages of readings on preservation planning and implementation. The **GRASP** materials were created as a cooperative project of the Georgia Department of Archives and History and NAGARA with funding from NHPRC. Each state archives will receive two copies of **NAGARA GRASP** on the premise that one will be made available for loan. To order additional copies, contact NAGARA GRASP Project, Georgia Department of Archives & History, 330 Capitol Ave., SE, Atlanta, GA 30334-1539; 404-651-9272 (phone), 404-651-9270 (fax).

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