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WHEN THE REVOLUTIONS COMES, WILL WE RECOGNIZE IT?

The other day I was talking to a Bill Dunn, editor of the journal *Knowledge & Society*, who noted that while micro-computers were widespread on campus, the average humanist was merely using a word processor. Given this, he wondered whether the potential impact of computing on scholarship wasn't being overstated.

I thought to myself that it was incredible enough that faculty are using word processing software (a capability which first appeared a decade ago in the form of dedicated systems which we all "knew" only secretaries would use). But what I said was that word processors may be the vehicle through which the revolution in scholarship is delivered. I noted that word processors are now acquiring the capabilities of desk top publishing systems (and just for fun, I decided to demonstrate it by printing this Newsletter entirely with Microsofts' Word, instead of with Aldus' Page Maker which I have used for previous issues). I pointed out that now that we take extra RAM for granted, word processors incorporate spelling checkers, and grammar checkers (like RightWriter). I noted that I have relied on the full-text, character string searching of word processors for my own files for a several years, but that I anticipated, as scanners became more common, and OCR devices less expensive, and facsimile transmission more routine, and laser printers *de riguer*, that we will be seeing an increasing number of products which embody all these capabilities in a single device (the communicating copying machine which has, until recently, been too expensive to be a personal peripheral) and that I would routinely be receiving facsimile or scanning texts onto my optical WORM disk, which will soon also be a standard drive on my PC.

I could see that while these technological feats intrigued him, he didn't see them as heralding a qualitative change in the nature of scholarship. So I continued.

What, I asked, will the world of the word oriented scholar look like when all the texts needed for

research, including articles by colleagues, correspondence and one's own writings, are addressable by a word processor which has sophisticated free-text searching capabilities? Some of these are already appearing, and others are in experimental versions which will see commercial release within a couple of years.....not just proximity searching, and the ability to create concordances and indexes, but the ability to read text with some intelligence, to learn from the discipline of the human partner, and to reach into appropriate thesauri and authority files established by the scholar in order to elucidate the meanings of texts.

All of this will be here within a few years, together within widely available large text and images bases in our disciplines on network attached CD-ROM's. It may be that when the revolution in scholarship comes about, we will still be wondering if humanities faculty will ever graduate beyond their word processors.

TABLE OF CONTENTS

Articles

MicroMARC:amc - A review	
David Bearman	46
The Evolution of Appraisal for	
Machine-Readable Data	
Tom Brown	49
Information Policy & Records	
Tom Brown	51

Departments

Conferences	52
Editor	55
In-Box	56
News	59
Projects & Proposals	59
Software Briefs	61
Standards	62
Tech. Report on Collection Mgmt.	66

Micro-MARC: amc A REVIEW

MicroMARC:amc requires an IBM PC-XT or AT (or compatible), 10MB hard drive, DOS 2.0 or higher, 128K RAM, any 80x24 display, any 80 column printer. \$995 for single machine license with documentation and one-year of maintenance & upgrades. Users are offered the opportunity to return their systems for full credit within 30 days. Prospective users may become acquainted with the package by purchasing a run-time demo disk which illustrates the system but does not actually permit the user to build any records or use a file. Demo disk w/documentation \$35.

This review was conducted with release 1.46 (summer 1987), on a Tandon XT, 10MB of disk, DOS 3.1, 640 KB RAM.. Some additional timing tests were conducted on a 16Khz. 80386 based system.

The advertising for MicroMARC:amc states that the program is a "comprehensive system based on the USMARC AMC Format. With this system you can enter records, update them with ease, and then produce full reports or do searches on your holdings. The system can also import or export a standard USMARC AMC formatted file. The system allows for maximum flexibility on a local basis while still adhering to the standards of the national format."

Unfortunately, MicroMARC:amc does not live up to this promise. It turns out to be rigid, unfriendly, quite limited, very greedy for computer resources and extremely slow. If a repository has very few records and a specific reason to be able to import or export MARC:AMC files, the software might be worth acquiring if only because no other micro-computer system on the market can do this yet. But if a modest to large repository wants to actively manage its holdings, provide access to more than one member of its staff at a time or to the public, or retrieve information on an ad hoc basis, this package is not the solution.

DOCUMENTATION:

The looseleaf manual for MicroMARC:amc is generally clear, logically organized and sufficient, if read end to end. My index, however, was not keyed to the text, and produced mostly blind leads. In addition the manual occasionally lapses into issues concerning the application, rather than the software. For example, Chapter 1 discusses the construction of a coding form to be used for data entry into the system. To be fair, I should note that this is a discussion some archivists have found useful, and that after using the data entry facilities in the software it was clear to me why preparation of the data on a paper form is necessary. Nonetheless, it is an odd start to the manual for a software system.

INSTALLATION:

Chapter 2 of the manual provides directions for installing the system. I strongly recommend that prospective users experiment with the software before entering very many records. Installation itself proceeds according to instructions (although the directions for establishing a subdirectory may come too late for users not familiar with this DOS facility), but the user must first wade through many pages of painfully honest revelations about the limitations of a system which requires careful up front planning of disk space before the database is built.

FUNCTIONS:

MicroMARC:amc has four modules, each of which supports one basic function of the system. These are data entry (Editor), retrieval (Search), reporting and MARC record input./output.

EDITOR:

The first major limitation of the package, its speed, becomes evident as soon as the user decides to enter the first record. When booted from DOS, the system takes 8 seconds to display the logo, which displays for 4 seconds and is followed by an 8 second interval before the main menu appears! Immediately following this, the number of the first record, 000001, must be entered with all the lead zeros! Eventually we find that odd editing quirks abound - the insert key doesn't work in header, action or process screens or if the last line of a screen has any characters on it. There is no wrap around at the end of lines. The system uses a \$ sign as a subfield delimiter (the way it is often shown in type, but not the actual delimiter) thus the user can't employ it in a field value, as for availability conditions, or value.

MicroMARC:amc requires the user to enter data into a template which looks like a fully tagged MARC

record display. The user must key in indicator values, field and subfield delimiters and field and subfield codes and the system is unforgiving about spacing. A sample ASCII coding form is provided which I found easy to read into several word processors to permit the suggested "modifications" to meet local needs, but the only modifications which will work are eliminations of data since the system is not run off a user modifiable data dictionary.

While there is no mention made of field length limits, some are definitely present - MicroMARC:amc couldn't accommodate an organization and arrangement note (351) of more than two lines (like the one in the Sahli manual) and it is very stingy in processes and actions. It won't handle a structured table of contents note (505) at all; the structure was rejected the only time that it was short enough to accept the data.

Perhaps the major problem with the data entry is the number of screens and their linkage: the structure of the system assumes that each record may be linked to a number of process segments and every process segment can be linked to one or more actions. There is no way to get an overview of the nature of the resultant record or to navigate conveniently through it. In addition, there is no way that an action can be taken on only part of a cataloged record (and kept track of).

SEARCH:

If users succeed in entering records in spite of the time it takes (note that reading in 100 MARC formatted records from another system took 20 minutes, and keying in a single, relatively complex record took another 20!), they must still generate indexes by a batch process (AUXINDEX) before they can search. Depending on the size of the records (the number of index values) this seems to take between 40 seconds and one minute per record on a standard 6KHz machine. The manual warns that it will take about one hour for 100 records! I made a group of records with several dozen access points each which indexed in multiple minutes per record. Even if maintaining 6,000 records in a database did not require about 40MB of storage (allowing 50% of the space for processing activity), keeping the indexes to such a database current could take days.

Once the file is preprocessed by AUXINDEX, you may search on-line on eight data elements: record id, collection number, donor, accession number, acquisition date, and persons, corporate names and subjects. You cannot search on-line by any other

parameters, although in principle you could write a report for them. You cannot conduct Boolean searches, although you can make multiple passes. A search on donors beginning with the letter E will fail, because the system requires four characters for a truncated search. A search for iron in the subject index will not bring up the record indexed by "iron workers". If you search only the first four characters for the subject "iron", the system does not merge its several hits which point to the same record, or indicate that one of them was on the term "iron working". The standard one line display is very cryptic, but if you want a fuller display, you must see the MARC record data entry screens.

REPORT:

MicroMARC:amc comes with a number of built in reports, and a report writing facility. Compiling the data for the built in reports can take a great deal of time; my first subject term list, when I only had 12 records, took more than 2 minutes, and some subsequent reports took hours. In general, however, the resulting reports are useful and clear (the subject term list, however, prints field numbers but not record numbers!). One incredible oversight is the absence of a report to print the full record.

The system allows users to define their own columnar reports. Unfortunately, there are no output specifications for each report. All reports are driven by a common output definition. Thus if I change the length of a field in one report, all other previously defined reports using that field will also be altered. Since there is no data dictionary which could be used to identify the effected reports, I would need to look at every previously defined report to determine the impact of such a change. What's more, every report would have the same level of information in it for any given field unless I keep a series of printed term reports produced after each report definition and modified the term definitions prior to running each report. Any report can be written to a printer or to disk, and from disk it can be post-processed by word processors and other software.

MARC- Input/Output:

One report which the system generates can be said to be its raison d'etre: machine-readable output of MARC:AMC records. Michigan State includes a letter from OCLC with its documentation to verify that records created by MicroMARC:amc can be read into existing utilities. Potential users of this capability should note however that there is not yet any routine way to use this capability since M300 terminals do

not have an upload facility to ship AMC records to OCLC. MicroMARC:amc definitely reads MARC:AMC records generated by itself, but there are no other amc microcomputer systems with which to test whether it really can take in MARC records from other sources. Users who plan to move records between MicroMARC:amc systems should note that the system installs new spacing when it reads the records in, and since searching is extremely space sensitive, existing records will not sort with uploaded records unless they have been constructed to the same spacing conventions.

COST:

Although the initial price of this package is not excessive, its true cost, for additional copies, a PC/AT or larger computer, massive amounts of storage space and staff time, is outrageous. Users should study the dire warnings in the long section on system limits even though the particular hazard they warn of can be effectively negated. The reading will, however, give the potential user a taste of the amount of disk space required by the system (3000 records of 2000 bytes each consume not 6MB but over 10 MB). This greediness about space has severe consequences in the use of the system since making reports (including MARC record output) or indexing the database requires substantial free space. If more than one workstation is to be used, each will need to be equipped with its own full price copy of the software and an equally powerful hardware configuration and substantial time will be spent balancing the two databases since the system is designed for a single user.

USER INTERFACE:

The system is, on the whole, exceptional unfriendly. If, in data entry, the user should happen to accidentally strike F3, the system will ask if you want to save the screen. Assuming you want to continue with data entry, and you respond No, the record is erased. Of course, the user could learn this, but as you learn, the system confuses you; in the search mode, the F5 key, which deletes a screen elsewhere, must be pressed to get a screen. The only way out of a record with multiple linked screen is to back out all the way; it took me several minutes to do this with the sample record of 37 segments provided by the vendor. At one juncture, I was permitted to fill out DUP-SUP in an options list for a report. There is no on-line help (? is rejected as illegal) and no values are suggested in the manual, but the

system allows you to leave it blank, so you can go on.

USERS REVIEWS:

At the conclusion of several days of experimenting with MicroMARC:amc, I found myself wondering if anyone really was using this package. I spoke with archivists at several of the seven "beta" sites and five of the thirteen "purchasers" listed in MicroMARC:amc advertising brochure. The beta sites are not using the system. They have either found other software, or are waiting. One had purchased the system, but was barely using it. Of the other purchasers listed on the brochure, I found those who were using it had plans to load their records into OCLC for return into their local library systems or directly into NOTIS or other local systems. Most were using the system for data entry and had not really integrated it into their on-going work. Those with more than a couple hundred records were experiencing its serious size and time limits. No one imagined it as an on-line system for end users. On the other hand, all were pleased with the amount of attention which Fred Honhart has paid to them.

WHAT WENT WRONG?

MicroMARC:amc was developed with NHPRC funding and an advisory committee of archivists with automation skills. It was tested in seven archival repositories and has a smart, user oriented archivist in charge. Why isn't it a better system?

Because the target application was understood by the designers as being to capture a MARC:AMC record, the system is constructed around a (hard coded) procrustean bed. MARC:AMC, is not organized to reflect the way people work in archives and it cannot serve as an internal data representation format. This system needed tools (screen writer, data dictionary) to allow the users to define the way the information looked in their daily use of it. It needed to address its database more easily (every field available for searching) and also to give more support to consistent use of fields (default values in indicators, thesauri to support subjects, forms, and other access points, and user defined validity checks for fields). It needed to be a multi-user system, allowing that some of the users would be archivists (security), some would be users (screens and reports, Boolean query) and more than one might be using the system at once (lock-outs and background processing). In other words, the designers began with the wrong set of higher level requirements.

David Bearman

THE EVOLUTION OF AN APPRAISAL THEORY FOR AUTOMATED RECORDS

During the last several months, a series of meetings at NARA have wrestled with the appraisal of automated records. At times, these meetings have shown that we have been remiss in not chronicling how the appraisal of computerized data has evolved over time. As a first corrective step, I will offer my subjective impressions and reminiscences of this development.

Probably the first statement on the subject came from the National Archives in 1936. Confronted with the question of punched cards at the Bureau of Census, the National Archives asserted that they were not record material and could be routinely destroyed. In contrast, Theodore Schellenberg implied in 1956 that punched cards were records when he wrote his seminal study "The Appraisal of Modern Public Records". Yet he arrived at the same conclusion that punched cards could be destroyed by applying the "form" test: "if records are to be preserved in an archival institution, they should be in a form that will enable others than those who created them to use them without difficulty and without resort to expensive mechanical or electronic equipment...[and] punchcards...are commonly unusable without resort to expensive equipment." (p.25)

In spite of this blanket authorization to destroy all machine-readable records, Schellenberg cogently argued that information about individual persons, things, and phenomena have informational value because of the ability to aggregate the raw data or analyze the information in different ways. Nevertheless, Schellenberg reluctantly concluded that such records should be destroyed. "In appraising records the contents of which can be statistically summarized...the archivist is well advised to proceed cautiously. If the Government agency that created the records for statistical purposes did not fully exploit them, it is hardly likely that anyone else will; for scholars outside the Government do not ordinarily have the resources for the costly exploitation of such records."

Thus until 1960, the appraisal of machine readable records was simple -- destroy everything. The policy of the National Archives was that they were not records. Even if they were, Schellenberg provided a theoretical basis for destruction. While information about individual persons, things, and phenomena has informational value, it can be destroyed in machine readable form because it

requires expensive equipment and in human readable form because it is difficult to use.

Even before this was firmly established, the approach began to unravel. In 1961, a young management intern at the National Archives was assigned to examine the disposition of computer tapes in the Federal Government. In his report, Richard A. Jacobs suggested that these tapes may be records and that they should be subject to the disposition provisions of the Federal Records Act. One report from a management intern obviously did not change the policy of the National Archives. Neither did a report in 1964 from the Social Science Research Council which called for the preservation of economic data on punched cards and magnetic tapes in Federal agencies. But a report from an internal National Archives committee, four years later, did.

In 1966, Robert Bahmer, appointed the Committee on the Disposition of Machine-Readable Records. When the committee issued its report (almost entirely drafted by Meyer Fishbein) in 1968, it argued unequivocally "that machine-readable media are records" and urged the establishment of a special organization in the National Archives to deal with machine-readable records with long-term value. As a result of his activity on the committee, Fishbein presented a paper on the appraisal of automated records at the 1969 annual meeting of the SAA. In this paper, subsequently published in the American Archivist, he argued that quantitative computerized data are more useful for varied studies and that archivists must develop appraisal theories and approaches to deal with this form of records.

In 1972, the National Archives took a large first step when it issued a General Records Disposition Schedule for automated records. This schedule embodied two concepts. First, most processing files leading to the production of a master file and most outputs from a master files are disposable. Second, master files containing housekeeping information which has been authorized for destruction in human readable form is authorized for destruction in machine readable form. While these two concepts provided guidance on what should be destroyed, they did not provide guidance on what should be retained.

Into this void in 1977, Charles Dollar injected his views on appraisal. His paper, also later published in the American Archivist, asserted that automated records seldom have evidential or legal values. Rather, Dollar suggested, the archivist should analyze only informational value in computerized data. In addition to analyzing the contents for

informational value, Dollar argued that a technical analysis of the data was equally important. The criteria for both a content analysis of the informational value and a technical analysis of the physical structure were incorporated into a (much referenced) decision chart.

Those were heady days as we thought that the answers had been found. At the Ann Arbor conference on automated records in archives in 1979, Dollar outlined the then current approach to appraisal. "Since few machine-readable files protect the legal rights of citizens or the government or document significant operations of the agency, the basic question about computer records focuses on the informational value of the material." Again, for "master files relating to 'housekeeping' functions, such as payroll or an inventory, the disposition of textual records documenting the same process or subject is followed." He also reaffirmed that processing files, including outputs from master files, can be destroyed and enumerated that the informational value of records related to program functions is dependent upon the linkage potential, level of aggregation and importance of subject matter. Finally, a technical analysis of the physical structure of the data and of the documentation is imperative.

My colleagues at the National Archives and I issued a revised version of the General Records Schedule for machine-readable records which reiterated these principles. With complete confidence, I proclaimed these same principles and approaches in workshops on the appraisal of machine readable records at annual SAA meetings.

This confidence lasted until 1981. At that time, John McDonald and Katherine (Sue) Gavrel developed guidelines for the Public Archives of Canada to use in appraising machine-readable records. They further elaborated on the technical analysis which Charles Dollar had urged, but they broke with the prevailing thought in two key ways. First, they argued that automated records should be appraised for evidential and legal values as well as informational value. Secondly, they proposed guidelines for the appraisal of administrative and housekeeping records which argued against the position that simply because administrative or housekeeping information could be destroyed in human readable form that it should likewise be destroyed in machine-readable form.

Two separate activities needed to arrive at the same conclusions before the U.S. National Archives departed from its accepted practice. First, David Herschler, as an archivist at the National Archives, began to

inventory and appraise the automated systems in the U.S. Department of State. Despite the fact that comparable personnel records were to be destroyed in paper form, he knew that personnel information in automated systems had potential for collective biographical studies of the country's diplomatic corps. In 1983, he successfully argued that the records should be appraised as having permanent value. Second, I was asked to write a report on the impact of technology on appraisal for a special task force on the appraisal and disposition of records. While half of my report concentrated on the issues involved in technical analysis, the other half attempted to apply the Canadian guidelines to the United States government. Throughout, the report argued that automated records could have evidential value and that the National Archives must change the provisions in the general records schedule which linked the disposition of computer files with administrative information to that of paper files with the same information. On May 27, 1983, most of the task force met with me to discuss my report. The sometimes acrimonious discussions did reach some conclusions. One was that the disposal provisions for machine-readable administrative or housekeeping records may not always be the same as those which were developed for textual records. Another was that computerized information may be appraised as having evidential value worthy of continued preservation although textual records with comparable contents exist. Thus a diverse group within the National Archives came to endorse the Canadian position. The Herschler appraisal of the State Department administrative systems was not the exception that proved the validity of the earlier approach, but the harbinger of future directions.

In the following year, Harold Naugler wrote his UNESCO study, The Appraisal of Machine-Readable Records: A RAMP Study with Guidelines. Modifying the Canadian guidelines somewhat in light of experience from the United States, he endorsed the basic direction that automated systems, whether administratively or programmatically related, must be appraised for their informational, evidential and legal values. And he further consolidated the issues and procedures related to the issues and techniques of technical analysis. In 1986, the workshops sponsored by the SAA Task Force on Automated Records and Techniques incorporated Naugler's guidelines. Seemingly, these have now become the professionally accepted standard.

What's the conclusion to this brief history of the

appraisal of automated records? There's been both consistency and inconsistency. The constant is that technical analysis is as important in the appraisal as content analysis. And the inconsistency is the approach to content analysis which has radically changed over time. Yet we can learn from the inconsistency. Since precedents can be cited for almost any position, we should discount any argument which rests solely on precedent. Because appraisal theory has evolved over time through the interaction of many professionals, one should be leary of anyone who claims to have all the answers.

Thomas E. Brown.

INFORMATION POLICY & RECORDS

Canada's Treasury Board has addressed some fundamental information policy questions in "Strategic Direction in Information Technology Management in the Government of Canada 1987". The report outlines a policy direction for information management on two broad fronts: the management of government information and the management of information technology. It proposes policies for information technology within the Canadian government which distinguish information, records and data. Drawing on these distinctions, the report delineates information management, records management and data management. In its definition of data management, the policy seems to refer to what the data processing community calls data administration. In this context, the report proposes that data management and records management can profit from each other's principles and techniques in the effort to coordinate with information management. The report concludes by recommending specific initiatives and an infrastructure to implement the policies.

[Info. Man. Div., Treasury Board of Canada, 140 O'Connor St, Ottawa, K1A-0R5. (613)-957-2459.]

The U.S. **Office of Management and Budget** has proposed a new policy regarding information collection by Federal agencies. Under the proposal, Federal agencies will be required to consider accepting information electronically when collecting information from the "public", including individuals, state and local governments, educational institutions, businesses, private not-for-profit organizations. The rationale is to permit respondent's to have their computers transmit information directly to a Federal computer rather than have them print it out only to have the Federal agency pay to have it put back into automated form. The final clause of the proposed

regulation reads, "Agencies should incorporate records management and archival considerations in the design, development, and implementation of electronic information collection systems in accordance with the Federal Records Act (44 U.S.C. 29,31 and 33)." Anyone wanting a copy of the proposed rule may contact me at the Office of the National Archives (NN-B), National Archives.

Recently, two **New York State Archives** staff members have made significant contributions to management of machine readable records.

Margaret Hedstrom worked with the American Association of College Registrars and Admissions Officers (AACRAO) when they decided to revise their 1979 edition of Retention of Records -- A Guide for Retention and Disposition of Student Records.

Because the AACRAO exercised the good judgement to ask Margaret Hedstrom to participate, the revised guide addresses student record systems regardless of media. The document incorporates discussions of automated records as they relate to the broad areas of records disposition. While this booklet will become the bible of college and university archivists, it also serves as a model for incorporating automated records disposition advice into handbooks for any type of system. (It is worth noting that when the task force surveyed college registrars, over 62% reported that computerized media was replacing hard copy as the storage medium for their information!)

Alan Kowlowitz appraised records of the criminal history system in New York. His SAA paper on that appraisal provided the profession with what is probably the first case study of the appraisal of a complex automated system. As Kowlowitz puts it: "Inter-organizational systems and networks are changing the nature of government documentation in a number of respects. Records series and data sets in one agency are linked to those in other agencies and even other governments as well as those within its own agency. Inter-organizational systems or networks have also led to incredible ...data redundancies between related parts of the system or network. In addition, information supporting a specific function may not be maintained by the agency actually performing that function. Obviously these changes in the nature of documentation are effecting the context and practice of modern records appraisal."

Truly, more case studies like this one are needed. Indeed, this paper should serve as a model for such case studies examining appraisal of complex systems.

Thomas E. Brown

CONFERENCES

SAA Annual Meeting

Discussion of automation has now become routine at SAA meetings, but this may be the first year that the discussion of description standards and documentation issues was recognized as a full partner in the discussion of information systems. This healthy rediscovery of the fundamental role of the content of the finding aid system in the delivery of appropriate information reflects the fact that archivists are no longer talking about automated systems they might have in the future, but about ones they are actually using in their every day work.

For me the conference began on Tuesday, September 1, with a meeting of the Research Libraries Group "Seven States Project". The project reported formally and informally throughout the meeting on the efforts of participating State Archives to employ the Research Libraries Information Network (RLIN) to exchange not only records about their holdings, but also information of records scheduling and appraisal, agency histories, and "functions" based descriptors. The working session was focussed on how the group would evaluate the multi-year project after it draws to a formal end in December. Specifically, the group discussed how to assess the utility of functions terminology (so called "sphere of activity" and "processes" terms which are applied to records series to describe the activity which generated the records), the value of shared information on scheduling and appraisal, and the impact of such sharing (if any) on appraisal decisions. The discussion also explored in detail the potential value of "form of material" authority files, which would describe, in generic terms, record series which are characteristic of a particular function in any jurisdiction. The project expects to issue its report to the NHPRC in May, 1988.

Meetings of the Task Force on Automated Records and Techniques (which transformed itself during the meeting into the Committee on Automated Records and Techniques - CART) and the Committee on Archival Information Exchange (CAIE), competed for my attention on September 2. The differences between the roles of these two groups was itself a topic of discussion, and its resolution again points up the increasing recognition among SAA members of the interdependent but distinct roles played by description, automation, and communication in archival informatics. CART was constituted as a separate structure, instead of a parent body to CAIE,

because members felt that the role of CAIE should include information exchange issues which were broader than automation, such as standards for citation of archival materials. At its meeting, the CAIE in turn disavowed a role in dictating descriptive practices for archivists, and chose to focus on how to exchange information, especially, although not exclusively, within the MARC formats. It deferred action on proposals before it to permit repeatability of subfield b in 651 and subfield f in 300 until proponents could develop examples of how records using these capabilities would work and get support for the acceptance of these approaches in the profession.

By Wednesday, the absence of a group specifically responsible for developing and maintaining professional standards for description was put before the Section on Description which, after considerable discussion of the departure this represented from previous *laissez faire* policies and the implications it would have for individual repositories, voted unanimously to ask the SAA Council to establish a funded task force to identify areas in which description standards were needed and to begin to develop such standards. Work of such a group would evolve in conjunction with Stephen Henson's NHPRC funded revision of Archives, Personal Papers and Manuscripts (APPM) which serves as a de facto cataloging standard for the profession.

The Description Section heard from Harriet Ostroff on the preparation for putting NUCMC online in RLIN in 1988 and from Glenn Patton on OCLC's near completion of the conversion of old MARC:MSS records into MARC:AMC and their near completion of facilities to provide LC Subject headings online along with the LC Names now available. Larry Stark reported that WLN has implemented AMC. Elaine Engst reported on behalf of the Bureau of Canadian Archivists on the progress of their efforts to develop a common descriptive standard (reported in the last issue of this Newsletter) and I reported on the development of "form of material" authority in Dutch archives, a subject which Peter Sigmond, director of the Dutch national school for archivists, and I have written about for the up-coming issue of the American Archivist.

The range of automation sessions at the annual meeting defy a quick summary (which fortunately is available in the form of abstracts of papers - \$3 to members, \$5 to non-members, from SAA offices). "Data elements for preservation information exchange" and "Data and Document interchange

standards" were the most technical subjects of sessions which included sessions reviewing small systems and large, the impact of automation on access in a variety of settings, and the social impact of computing on the profession.

I was particularly excited to discover that the session on documenting the history of computing addressed many of the issues discussed in the Archival Informatics Technical Report on Collecting Software (v. 1 #2), especially because it was the only session at a conference in which "documentation strategies" were discussed in the abstract from every podium, at which participants were united by the need to develop a documentation strategy, had developed a strategy, and were discussing how it actually operated. Bruce Bruemmer of the Charles Babbage Institute (CBI) opened the session with a presentation of the documentation strategy developed by the CBI. He noted the special problems associated with formulating such a strategy in a field characterized by an extremely broad scope, highly technical roots, and a rapid rate of change. Bruemmer was able to turn each question associated with priorities for documentation to an analysis of the underlying activity which the CBI is illuminating in a series of bibliographies, chronologies, industry surveys and historical essays. Anne Frantilla, the archivist at UNISYS, followed with a discussion of the role played by archives within computing companies which focussed on the documentation of business functions, an approach advanced throughout the work of JCAST and in recent studies by Helen Samuels. Henry Lowood of Stanford University then reported on the documentation of the history of 'Silicon Valley' as a problem in the documentation of Stanford University, 76% of whose PhD's from 1965-1980 ended up in industry, and whose Computer Science Department alone has spawned 53 companies.

A second groundbreaking session reappraised the appraisal of machine-readable records (MRR). Following a concise presentation on the state of practice by Harold Naugler, author of the important RAMP study on appraisal of MRR, Alan Kowlowitz of the New York State Archives conducted a stunning examination of the challenges arising to traditional appraisal methods from intergovernmental, interorganizational information systems such as that which has been developed over the past decade by the U.S. Criminal Justice System using resources provided to the states under the Law Enforcement Administration Act (LEAA). In the National Law Telecommunications Network there is a vertical

connection between systems at the local, state and national levels and a horizontal interconnection between systems of the courts, police, prisons etc. within one jurisdiction. Each system retains detailed data which is necessary to support its own functions, while sharing with each other system information it holds about an offender or suspect. The "most complete" record within the larger system only contains a fraction of the data knowable through the network, but that information belongs to many jurisdictions and cannot be archived by any one agency. In a dramatic departure from archival theory, no agency collects the information necessary to conduct its own business, but each agency has access to information required to conduct its business on an ad hoc basis through information sharing with others. The overall system must be appraised in order to understand the way the information supports governmental functions, but a number of jurisdictions must cooperate if the appraisal is to result in meaningful retention. Kowlowitz recognized that this particular system is only one example of an evolving kind of system in which computer to computer linkages dissolve traditional boundaries between offices of origin and even among jurisdictional levels, and that the implications for appraising machine readable records which he so cogently defined are also true, perhaps increasingly so, for manual record systems.

Finally, I found a session which revisited the history and significance of Oliver W. Holmes' "Five Levels" extremely refreshing. Terry Abraham explored just how recent the contention that levels of arrangement imply distinct methods of description actually is (dating it from the late 1970's) and how current practices of cataloging effectively reject it. Steve Henson, in an important paper on the place of the AMC record in the integrated archival system, located the AMC record, properly, as a pointer to "the internal finding aids that are the primary focus of archival description" even while it permits "archival description at any level of hierarchy and to any level of detail." A third paper, by Tom Mills, related the descriptive cataloging tradition to that of archival control and discussed the efforts to marry these two foci in automated systems. This practical concern was, of course, the origin of the concept of five levels of arrangement to begin with.

DATA BASES CONFERENCE

The International Conference on Data Bases in the Humanities and Social Sciences (ICDBHSS), met at Auburn University at Montgomery (Alabama), July 11-13. Participants heard 100 papers on those information technologies which are transforming humanities and social science research (optical systems, AI, and full-text), specific humanities and social sciences data bases, inter-organizational issues in the maintenance of humanities information sharing networks, and problems of language and understanding. Among the papers were numerous devoted to archives and museums, including several on videodisk projects, on textual and numeric data archives, and on the use of automation in archives.

Acting Archivist of the U.S. Frank Burke spoke on the potential implications of ISO 8211 for archives (the jury is out). Gretchen Lagana reported on the cataloging of the Chicago Board of Trade records with NOTIS at the University of Illinois at Chicago (it works fine). David Bearman discussed the experiences of the Architectural Documents Advisory Group (ADAG) and the implications of their work for data exchange in the arts (the world can be made to seem more complex than we can afford to represent it in computer systems). Dale Foster reported on some very preliminary research in accessing archival literature using on-line databases (not much of it is indexed by A&I services). Don Harrison reported on the uses of Vietnam war machine-readable data in research at NARA (just having rich resources doesn't assure they will be used).

Leslie Hume of the Research Libraries Group reported on the project which will, perhaps, have the greatest impact on future conferences of this sort: RLG's Program for Research Information Management (PRIMA). She traced the history of the concept of including within RLIN information which goes beyond the bibliographic citations to include abstracts, data (including images) and full-text and to incorporate data from diverse research disciplines including museums, archeology, etc. and she introduced the three databases being mounted as pilot efforts: the Medieval and Early Modern Data Bank, the Modern Language Association Research in Progress Database and the Geoinformation Control and Retrieval System. If RLG can succeed in providing a host to a wide range of primary data sources for the humanities, future meetings of the ICDBHSS might well be discussing how best to use RLIN for scholarly research.

Depending on one's disposition, one could regard the plethora of topics as a sign of health or chaos in the field; my view is that the conference would benefit by focussing specifically on databases rather than on social science and humanities applications and underlying technologies in the future. Proceedings of the conference will be published by Paradigm Press.

UPCOMING CONFERENCES

October 4-7, American Association for State & Local History, Raleigh, NC, (AASLH, 172 Second Ave. North, Suite 102, Nashville, TN 37201).

Sessions on MARC-VM, the Common Agenda for History Museums, and the N.C. Dept. of Cultural Resources systems for archives and museums.

October 5-8: Annual National Videodisc Symposium for Education, Lincoln, Nebraska. (Tausha Schupbach, Nebraska Videodisc/Design Production Group, 1800 North 33rd St., Lincoln, NE 68583, 402-472-3611).

October 13-14, Museum Computer Network, Boston MA (P.O.Box 111, East Winthrop, ME 04343)

MCN precedes the meeting of the New England Museum Association on the 14th-16th.

October 15-17: Mid-Atlantic Regional Archives Conference (MARAC), Charleston WV (Department of Archives & History, Library, Cultural Center/Capitol Complex, Charleston, WV 25305)

October 19-22, ARMA International, Anaheim, CA. (ARMA, 4200 Somerset Dr., Suite 215, Prairie Village, KS, 66208).

November 5-6, History of Medical Informatics, This ACM sponsored conference on the History of Computing will explore the early work in medical computing and its impacts on current visions of the place of computing in medicine. (John Parascandola, National Library of Medicine, Bethesda, MD 20894.)

Due November 15 - Proposals for IASSIST May 26-29, 1988 (Washington DC) Papers on any aspects of the acquisition, processing, maintenance and distribution of machine readable textual and/or numeric social science data. (Pat Doyle, Mathematica Policy Research Inc., 600 Maryland Ave., SW, Suite 550, Washington, DC 20024).

LETTER FROM THE EDITOR

Dear Colleagues,

This is the third issue of this publication, so I can now speak with experience.

Its clear to me that its time to settle down about format as I have about content and focus. Not that I've done it this issue, mind you, but its clear none the less. Readers deserve a certain amount of predictability, and changing the color, the pagination, and the tone of the journal with each issue risks waking them up. I will now settle for continuous pagination in each volume (to improve the usefulness of the annual index) and this buff paper. With the next issue I will return to the print layout program and a laser writer, having demonstrated to my own satisfaction that Word Processors still aren't desk top printers and dot matrix printers are cheap, but otherwise without virtues for publishing.

I remain interested in hearing from you. I would love to get disputes going in these pages and will welcome articles on topics which would fit the journal. I am especially interested in hearing from potential authors of Technical Reports since I do not intend to write even a 100p. monograph every three months. The nature of the Technical Reports is open to discussion. Conference proceedings from especially interesting meetings could well fit. Internal studies which have implications for other institutions certainly are appropriate if the authors wish to write an accompanying essay exploring those implications. Vocabularies and system designs could also be appropriate. I welcome suggestions about what should be included as well as nominations (and self-nominations) of potential authors.

Archival Informatics Newsletter (ISSN 0892-2179) is part one of a two part quarterly publication. Part two, the **Archival Informatics Technical Report** (ISSN 0894-0266) consists of separate titles, published on a quarterly basis, and available either by subscription or as monographs. Both parts are edited by David Bearman and published by Archives & Museum Informatics, 5600 Northumberland St, Pittsburgh, PA. 15217

EXPERTS & EXPERTISE

Recently I've been asked again about the potential of expert systems in archives & museums. In May, at the MARAC meeting, I suggested three idealized type descriptions which might be used to assess the value of expert systems in any application area. Suitable domains are:

1) confined, technical, arena's in which the number of experts is small, the need to have access to the expertise is great and highly time critical, and the requirement for the information arises from dispersed loci, or

2) simple, procedural domains which are necessary but too tedious for people to do well on a continuing basis, or which need to be done at all hours or in bad environments, or

3) complex, procedural domains in which the level of training of persons required to carry out the procedures cannot assure that they will be carried out correctly, but the costs of misapplying the procedures are high or the effects are irreversible.

I proposed some examples of such applications. The first group includes systems embodying the expertise of conservators or disaster relief experts (the number of experts is small, the need great and time dependent, and it arises throughout the world). The second group includes intelligent environment monitors which adjust temperature and humidity controls or style monitors which advise on writing. The third group is the most interesting because it involves developing systems which help people deal with rules which are infrequently applied, hard to learn or obscure - such as many of the rules which govern collection management (quick, what is the law on alienation of cultural artifacts made after 1900 from Brazil? What copyright exists for sheet music published in 1923? Can researchers use items requiring conservation?)

These kinds of problems "fit" the expert system solution, first, because they address knowledge domains which are small, limited and technical and for which we have been deriving catechisms as teaching tools for years. Second, they are driven by cause and effect which makes them well suited to strategies of forward and backward chaining which are methods for difference reduction in expert systems problem resolution. Third, they are very goal oriented, making them well suited to means/ends analysis which is also a well developed method for reducing search space in expert environments. Finally, they employ strictly delimited vocabularies.

IN-BOX

REPORTS

Sharon Caudle, Federal Information Resources Management: Bridging Vision and Action, A report to the National Academy of Public Administration and the General Services Administration, National Academy of Public Administration, Washington DC, June 1987 168pp. & biblio.

This study of the way in which IRM has been implemented in Federal cabinet level departments and random bureaus within them, describes what officials in the executive branch think IRM is, how they are implementing it, and how they think it should function. It recommends less emphasis on information technology micro-management in favor of greater emphasis on information and the creation of incentives for better information management as part of program management rather than penalties based on administrative oversight. It documents the lack of fit between IRM and the paperwork reduction emphasis which gave it birth, and rather weakly recommends that they be better integrated. Together with Richard Lytle's article in the 1987 Annual Review of Information Science and Technology, which came to similar conclusions, this should give archivists a clue as to how they can marry their own goals with IRM programs.

Institution of Electrical Engineers, Report of a Survey of the Archives of British Commercial Computer Manufacturers, 1950-1970, Study conducted by Serena Kelly, 272p. 1985

A collective inventory, presumably being maintained on an on-going basis by the newly established National Computer Archive (Dept. of Science & Technology Policy, the University, Manchester, M13-9PL).

Oklahoma Dept., of Libraries, Report to the Archives & Records Commission on Machine-Readable Computer Records in Electronic Format, 1987

This model study also reviews the findings of New York, New Mexico, Utah, Kentucky and NARA studies and calls for a program using the data administration approach.

Special Libraries Association, Government Information: An Endangered Resource of the

Electronic Age, Washington DC, Special Libraries Association, 1987 277pp. \$21.75 (1700 18th St. NW, Washington, DC 20009).

NEWSLETTERS

Computer Law Monitor

The Computer Law Monitor is, simply, the authoritative source for news on developments in all areas of computer law, ranging from copyright and patents to negotiating software development contracts or liability for software failures. Cumulatively, this is the reference resource with which to begin whenever a legal question arises.

CAN - Conservation Administration News, A Quarterly Publication of Library and Archival Preservation, (ISSN 0912-2912) University of Tulsa Libraries, 6090 South College Ave., Tulsa, OK, \$18. p.a. Issues 29 and 30 contain excellent articles by Ben De Whitt (NARA) on "Long-Term Preservation of Data on Computer Magnetic Media: Part I & II". These are the most pithy guidelines yet published on the subject.

Information Hotline (ISSN 0360-5817), Science Associates/International Inc., 1841 Broadway, New York, NY 10023 (\$125. pa. - 11 issues) has been reporting the latest news in the information policy realm (legislation, government regulation and executive agency affairs, legal precedents, studies and grant giving) for the past twenty years and continues to be an unrivalled source.

Library Systems Newsletter (ISSN 0277-0288) and Library Technology Reports, are published by ALA, 50 East Huron St., Chicago, IL 60611. Annual subscriptions are \$35 and \$155.

The Newsletter publishes press releases from library vendors and projects in a slightly edited form. The March and April issues of each year are devoted to a catalog of turnkey systems and software vendors in the library marketplace. While editorial judgement is absent, the listing is useful. The technical reports are topical, and may not always be of interest, but are usually good quality.

Research In Word Processing Newsletter (ISSN 0748-5484), published by the South Dakota School of Mines & Technology, Rapid City, SD 57701, celebrated its fifth anniversary (vol.5, #5) with a

bibliography of c. 1500 articles entitled "From Word Processing to Desktop Publishing and CD-ROM: A Five Year Bibliographic Perspective on the Impact of Computers on Writing and Research". Although this is not one of my regular reads, the bibliography is fascinating evidence of a literature which could be telling us a great deal about the future of the written word.

ARTICLES & BOOKS

Azevedo, Carmen Lucia de, Luciano Figueredo, and Maria Regina Hippolito; "MAPA Data Base - Brazilian Public Administration History", UNESCO 1987

The automated system for access to records of government in the Brazilian Arquivo Nacional and other Brazilian repositories is being organized in two primary files - one arranged by agency, which records name(s), date(s) and administrative structures along with legislative authorities, and a second which consists of documentation, linked to the institutional authority file. The rationale is to accommodate changing institutional structures and to gain a systematic overview of the legislative history of Executive Institutions in Brazil from 1930 to 1985.

Burwasser, Suzanne M.; File Management Handbook for Managers and Librarians, Studio City, CA, Pacific Information Inc. 1986, \$24.50

Intended as an introduction to office level files management (not records management), this handbook contains a useful, if simplistic, discussion of the advantages and disadvantages of a variety of filing schemes.

Calmes, Alan, "To Archive and Preserve: A Media Primer", INFORM, May, 1987 pp.14-17,33.

NARA's preservation officer summarizes the state of our knowledge, medium by medium.

Catanese, Lynn Ann, Guide to the Records of the Court of Common Pleas, Chester County, Pennsylvania, 1681-1900, West Chester, PA, Chester Co. Historical Society, 1987, \$25 (Chester Co. Historical Soc., 225 North High St., West Chester, PA, 19380-2691)

This publication, the result of an NEH project, is both an extra-ordinary guide to the activities of the offices of prothonotary, sheriff, and circuit courts in the 18th and 19th centuries and an invaluable source

for general records descriptions for hundreds of distinct forms of material characterizing these activities. Well researched, glossaried and footnoted, this sourcebook will be used for years in the description of similar records in other jurisdictions.

Cortez, Edwin M., Proposals and Contracts for Library Automation: Guidelines for Preparing RFP's, Studio City, CA, Pacific Information, 1987. \$29.

The core of this book is a 100 page essay (accompanied by 100 pages of sample specifications and contracts and an Index), which serves as an excellent overview of the processes involved in preparing an RFP. The volume, published jointly with the ALA, will be exceptionally useful as an outline, but anyone using it will be well advised to treat it only as a framework, since examples are unlikely to apply to the user. The one weakness of the work is in the area of evaluating responses, which is unfortunately an area which gets most buyers into trouble and needs to be fully understood before the RFP is released.

Helm, Kathleen M., "Social Scientific Information Needs for Numeric Data: The Evolution of the International Data Archive Infrastructure", Collections Management, v.9(1), Spring 1987, p.1-53

If you need a history of all the reports, conferences, organizations and activities which have contributed to the establishment of data archives over the past 25 years, this definitive account by the Dean of LSU Library School, with its dozens of acronyms and over 100 footnotes, is it.

Muller, Karen ed., Authority Control Symposium, Occasional Papers No.6, Tucson, AZ, Art Libraries of North America, 1987

The proceedings of the day-long symposium on authority control presented at the ARLIS meeting in New York in February 1986 constitute one of the best introductions to authority control and reflections on its value for archives and museums to date. Papers by Elaine Svenonius and Peter Graham describe authority control in general and locate it in national bibliographic activity. Papers by Karen Markey and Deirdre Stam report on research in the use of authority controlled databases and examine the issues which arise in extending bibliographic authorities to visual materials and objects of art. Toni Petersen explores the potential of multiple authorities in library systems and David Bearman

and Richard Szary examine the prospects for multiple, conflicting, authorities in scholarly databases. Summation by Carol Mandel together with practical examples of authority records and a bibliography make this an exceptionally valuable text for anyone considering authority control.

Williams, David W., A Guide to Museum Computing, Nashville, TN, AASLH, 1987

Unfortunately, this publication contains as much bad advice as good and is dated by its authors' fixed field/ fixed record length orientation (cf. the argument against error checking p.116) and his fixation with print-outs (p.118-120). Williams introduces us to his odd concept of coded subject categories which he confuses with authorities (p.110), confounds us with his extraordinary technology forecasts, which include predictions that bubble memory should could become an important storage medium for portable computers, and exposes us to a private store of misinformation, of which his discussion of cashing (sic) is a classic. The Appendixes contain articles by Peggy Finch (Children Museum Indianapolis), Claudia Melson (Delaware State Museum), Mary Cozine Woodward (Emory U. Museum of Art & Archeology), Kate Toomey (Utah Museum of Natural History), Barbara Ward Grubb (N.C.State U.) on the systems at their respective museums.

Wood, Fed B., "Technology, Public Policy & the Changing Nature of Federal Information Dissemination: Overview of a New Office of Technology Assessment Study", Government Information Quarterly, vol.4#1, 1987 p.83-96

Project Director Wood summarizes a range of research underway at OTA, including the conclusions reached by the title study which OTA issued in May 1983, but also covering the gamut of information functions and mechanisms of the Federal government. His analysis of issues and actors should be mandatory reading for anyone concerned with national information policy or interested in influencing the open-ended future studies which OTA projects, and which they invite readers to help to shape.

EPHEMERA

Frank B. Evans, Deputy Assistant Archivist for Records Administration (NARA) has been circulating "Intergovernmental Records Project, A Summary" June 29, 1987. 6p., a proposal for a pilot project

involving the Federal government and the states of Wisconsin and Virginia. The proposal is aimed at identifying and sharing information about records of governments within the U.S. which contain information duplicated at different jurisdictional levels, planned and financed by one level and carried out by a lower level, carried out at a number of levels, or transferred or abandoned by colonial, territorial or federal agencies and acquired by unrelated public or private repositories. The object of the pilot is to test the feasibility of constructing a series level MARC-AMC database which would assist in the efficient management of this data by identifying such overlaps and displacements. For more information, contact Frank Evans, NARA, Washington DC 20408, (202) 724-1454.

[In this context, it is interesting to note the publication by the Library of Congress of Federal Copyright Records, 1790-1800, a compilation of records from the 11 states and the Federal government which received copyright deposits during the first decade of the U.S. copyright law.]

Roy H. Tryon, State Archivist and Records Administrator, Delaware Bureau of Archives & Records Management, Hall of Records, Dover, DE 19901, is circulating copies of the Delaware Public Records Law prepared by his department for General Assembly consideration during 1987/88. The bill, which clarifies and updates Delaware's records statutes, is based on evaluation of the laws of the other states and the needs of Delaware as determined by the recent NHPRC funded needs assessment.

Proceeding of the 1987 ACA Conference, reported on in vol.1#2, are now available from ACA offices. \$5 members/\$10 non-members. ACA, P.O.Box 2596, Station D, Ottawa, Ontario K1P-5W6, CANADA

MARC for Archives and Manuscripts: The AMC Format, Update 2, is now available from SAA Offices. \$3; SAA, 600 S. Federal, #504, Chicago, IL 60605

Solving the Paper Problem: An Introduction to Document Processing is a nice, basic, introduction to the newly emerging technologies of integrated document processing employing digital image capture, storage, indexing and retrieval transmission of source documents. Available free from InterFile, 755 North Mary Ave., Sunnyvale, CA 94086

NEWS

According to Federal Computing Week (4/20/87), **NASA** is using C-Quest from Image Concepts, to provide thesaurus assisted access to 250,000 photographs on laser videodisc. The program, which is also being used by the National Agricultural Library, U.S. Army Corps of Engineers and the FBI was developed to handle imprecise queries of large photo morgues.

The **National Archives** is experimenting with bit-mapping personnel documents of the Tennessee Confederate army as a pilot study of optical imaging, which it sees as a potential solution to its space and preservation problems, according to Bill Hooton who was interviewed by Computer World (8/24/87).

The **Government Accounting Office** which was asked by Congressman George Brown to examine the reasons for the large backlog of FOIA requests at the Department of State, has reported that the automated system for tracking FOIA's is in such bad shape that it is nearly impossible to determine what the backlog is.

The **US Treasury** has inaugurated its "Vendor Express" EFT program to make direct deposits to financial institutions of vendors to whom it owes money.

Republican **Governor John Sununu of New Hampshire** downloads financial data from State mainframes to his microcomputer to make decisions about the annual budget. "My style of trying to solve a problem is to cut through the bias that occurs when people summarize data and pass it up to the next layer. I'd rather go to the raw, unadulterated data" according to an interview in Computerworld (6/22/87). Can archivists say with any assurance that they could document such a decision-making style, anywhere?

The Water Resources Division of the **USGS** awarded a contract to AIRS Inc. in July to convert 300 MB of water resources data to CD-ROM for distribution to USGS water district resource projects and other federal agencies. Such means for distributing internal databases will become common soon, and as they do, and are regularly updated, and coordinated with local data, they pose new questions about documentation. Meanwhile, in June the Census Bureau announced plans to publish the 1990 census on CD-ROM.

North Carolina's State Library Information Network is being employed by the state as an electronic bulletin board which lists all state

government contracts, for goods and services purchased by state agencies (including construction projects) open for bid. The information is available throughout the state in public and community college libraries. Who archives bulletin boards?

PROJECTS & PROPOSALS

The editors of **Registrar**, a publication of the AAM Registrar's Committee, are surveying vendors to identify collections management systems which are being used in at least two museums. They plan to compare the vendors along a number of common dimensions in the fall issue of their newsletter. A limited number of copies of their findings will be available to non-members.

[Rebecca Buck, Hood Museum of Art, Dartmouth College, Hanover, NH, 03755]

The **Clearinghouse Project on Art Documentation and Computerization** is a cross-disciplinary resource sharing tool that is both a directory and an indexing service comprised of information dealing with computerization in art history, museum collections, and related visual and bibliographic research support projects, systems and documentation. The Clearinghouse provides

- * up-to-date information and literature to aid art librarians, museum and slide curators, registrars, archivists, art historians and students...to investigate computerization.

- * a reference tool for scholarly research providing information and literature on computerized art historical projects

- * a guide to the availability of databases

- * a retrospective value for archival and historical research into the development of art informatics

- * a file management system to aid those documentation sites participating in the Clearinghouse Project (the Getty AAT, the National Museum of American Art, and Willoughby Associates) in indexing and organizing their document files and special resource collections.

- * an interlibrary loan facility for hard to find materials in their files.

[Pat Barnett, Office of the System Librarian, Thomas J. Watson Library, Metropolitan Museum of Art, 5th Ave. at 82nd. St., New York, NY 10028 (212)-570-3935]

The **Society of American Archivists, Committee on Education and Professional Development (CEPD)** is collecting statements of the objectives of archival courses from educators and trainers. It will incorporate these statements into a profile of the education required by archivists and records managers as a first step in defining the ecology of archival educational opportunities, developing standards for different kinds of programs, and relating archival; education and certification. The subcommittee charged with drafting the consolidated statement of educational objectives consists of David Bearman, Frank Evans, David Klassen, Linda Mathews and Jim O'Toole. Proposed objectives, in the form "the professional archivist should have knowledge of x sufficient to y" should be submitted to David Bearman by December 1. [Archives & Museum Informatics, 5600 Northumberland St. Pittsburgh, PA 15217]

The **Archives and Records Information Coalition**, an informal association of associations (SAA, AASLH, NAGARA, NARA, etc.) in the field which are serving as information sources to their members, was formed as a result of the study by Vicki Walsh reviewed in the last issue. The NARA library has agreed to enhance its holdings to serve as a repository for information of mutual interest to coalition members who will meet annually to consider ideas for further cooperation. [Bruce Dearstyne, Executive Director, NAGARA, NY State Archives, Cultural Education Bldg. 10A75, Albany, NY 12230]

The **Archives Users Group of the Smithsonian Institution Bibliographic Information System (SIBIS)** are surveying themselves and other Smithsonian archival repositories to identify needs and opportunities for authority control. They have hired Archives and Museum Informatics to evaluate their survey data and propose directions for future developments. They have also scheduled a day long symposium on authority control in archives which will be held in late October and will include presentations by Jackie Dooley (U.C. San Diego), Marion Matters (Minnesota Historical Society), David Bearman (Archives & Museum Informatics) and Lisa Weber (SAA) in addition to SI staff. Plans for publication of the study and symposium are under discussion. [Harry Heiss, Chair, SIBIS-Archives Standards Committee, National Air & Space Museum, Archives, Smithsonian Institution, Washington DC 20560]

The **RLIN/Seven States project**, funded by the NHPRC, is completing its work and preparing for the evaluation phase which will be conducted early in 1988 with a report scheduled for April or May. Working papers defining the project position on functional access accompanied by a list of spheres of activity and a thesaurus of processes have been agreed to as have preliminary definitions of the retention and disposition and appraisal data being recorded by the project for purposes of evaluating the use of the system for cooperative collecting strategies and assistance in making retention decisions. By the end of the calendar year the participating states will have completed entering and augmenting all the records agreed to in the project plan. Early in 1988, plans call for participants to evaluate the value of access by functional terms (sphere of activity and process), and the use of cooperative appraisal and retention data in making local decisions.

The **Computer Index of Classical Iconography**, (the U.S. office of the *Lexicon Iconographicum Mythologiae Classicae*, or *LIMC*) directed by Penny Small, at Rutgers University has taken an approach to documentation of complex objects of art which should be of interest to other museum documentation projects. Using a micro-computer based software system (*Revelation*, by *Cosmos*), Dr. Small has designed a database consisting of a core of linked records of objects, scenes and figures with thirty ancillary files for authority control for artists, bibliography, collections, cultures, dress, element types, elements, general placements, materials, object terms, placements, purposes, states, techniques and titles. The system enables a researcher to seek objects, components, figures in the design and their attributes. Most importantly, the authority files are linked not only to the main files but to each other, so that cultures is connected to the object file but also to the artists. This concept of linked authority files has been a design objective of mine since the first definition of the Smithsonian Institution Collection Information System in 1982; to find it implemented in a PC-based catalog is extremely exciting. The implications of such linked authorities are that data bases employing them become the vehicles for delivering hypertext capabilities, since users can navigate across files along these links, examining new areas from their originating query. [College Avenue Campus, New Brunswick, NJ 08903, (201) 932-7404]

SOFTWARE BRIEFS

Automated systems displayed at the NAGARA and SAA meetings this year included a number of new entrants and enhanced packages as well as a number of vendors who had products in prior years. In the realm of explicitly archives oriented applications, Michigan State University showed **MicroMARC:amc** (reviewed in this issue), and AIRS Inc. displayed **MARCON** (which will be reviewed in the Winter Newsletter). **Cactus Software** showed tantalizing bits of its MARC-compatible archives and records systems which is scheduled for release in the first quarter of 1988. Two vendors, Cuadra Associates (**STAR**) and Inmagic Inc. (**INMAGIC**) demonstrated the abilities of the variable length field and text searching packages to provide capabilities archivists want in multi-user systems. I continue to find the power of these two systems extremely attractive and look forward to an archives acquiring them and implementing a solid application which could be demonstrated to less adventurous buyers down the road. MicroTRENDS Inc. demonstrated its **Records & Image Management System (RIMS)**, an integrated digital filing system (with ASCII conversion of text and full-text retrieval), which archivists should study closely, not so much because they will want to use the system themselves, but because they are going to be seeing such systems soon in offices for whose records they are responsible.

Because I keep expecting someone to build an archival application on a commercially available, generalized, PC based DBMS, I was surprised that the two developments which I found most interesting were applications on relatively large and large systems, and were not demonstrated on the exhibition floor, although their vendors were at the conference.

RIMS (Records Management Information System) is an integrated, multi-user records management system developed for municipal governments by Information Management Specialists Inc. in Denver Colorado and installed at the Department of Records and Information Services of New York City. In spite of its acronym, it is not at all like the MicroTRENDS system mentioned above. It is a work-horse records center administrative control system which runs on a MicroVax, uses bar-coding extensively, and provides for the certification of agency records officers, development of record schedules, and the tracking of records from accessioning, through retrieval, refiling, and destruction. Its strengths lie in the reports it generates and in its simplicity, but

most of all in the fact that it provides, off-the-shelf, a capability which could be readily implemented in most governments.

NOTIS is an integrated library system, marketed (since September 1) by NOTIS Inc., a fully owned subsidiary of Northwestern University, and being installed in many of the nations largest university library systems. NOTIS has provided a powerful AMC capability within its on-line catalog and the archival repositories within NOTIS institutions met at SAA with the President of NOTIS Inc. to discuss how they could influence the direction of NOTIS implementation of control features of MARC-AMC. The institutions I saw represented at this informal session, included the City University of NY, Clemson U., Cornell U., George Washington U., Johns Hopkins, Loyola U., Northwestern, Oklahoma Dept. of Libraries, Rice U., Texas A&M, Wesleyan, Yale, and the Universities of Florida, Louisville, Minnesota, Pittsburgh and Vermont. Many of these institutions are also participants in the RLIN system, and their collective potential impact is tremendous, depending on whether or not the archivists at these institutions which are using or have acquired NOTIS as their local node, can influence NOTIS Inc. to develop a specialized AMC system to enhance their present, fully functioning, ability to record AMC data and use it as an online catalog.

Meanwhile, my expectations on the PC based systems may also come to pass. Raimund Goerler, University Archivist, Ohio State University (169 Converse Hall, 2121 Tuttle Park Place, Columbus, OH 43210-1169) writes that he is developing an archives application on **PROGRESS**, a multi-user DBMS from Data Language Corporation. Attracted to **PROGRESS** by its variable length fields and menu-driven data dictionary, as well as by its operability in MSDOS and UNIX, Rai has started implementing his system as an intellectual control. The literature he has sent me makes it clear that **PROGRESS** is a promising fourth generation language, although I have some hesitations about the 2000 byte record limit.

Colleagues in England are working with a family of software by Information Management & Engineering Ltd. (**TinMan, TinTerm, TinRef**) to construct archival applications. Last issue I reported on the development of a system with **Revelation** at Duke and a system using **Oracle** in Holland. I've stopped looking at systems using **Dbase**, because its limits seem to me too serious to overcome in creating a powerful generalizable archival application, but I'd be delighted to hear from anyone who has one.

STANDARDS

Canadian MARC format

Diane Beattie, project officer for the Bureau of Canadian Archivists, Planning Committee on Descriptive Standards, writes:

"In the report Toward Descriptive Standards, published in 1986, the Working Group on Archival Descriptive Standards recommended that the Bureau of Canadian Archivists form a Committee to work in close cooperation with the National Library of Canada and the Canadian Committee on MARC to examine the U.S. MARC Archives and Manuscripts Control format and make recommendations about its adoption or adaptation in Canada.

During the last year the Bureau of Canadian Archivists has worked in co-operation with the National Library of Canada to adapt the existing Canadian MARC format for monographs so that it can be used to describe archival materials. The Canadian MARC format for archives differs from the American format in two ways. Unlike the American format, the Canadian MARC specifications for archival materials will be integrated into the existing MARC format for monographs. The other distinctive characteristic of the Canadian MARC format is that it can accept both unilingual or bilingual descriptions. The National Library of Canada hopes to publish the revised volume of The Canadian MARC Format: Monographs which will incorporate the specifications for archival materials sometime in early 1988.

U.S. Descriptive Standards

By unanimous vote, after considerable discussion, the Description Section of the Society of American Archivists, has called on SAA Council to establish a task force to develop standards for archival description. The section considered the past resistance of archivists to such standards but rejected it as a viable stance for the future. It also rejected defining the Committee on Archival Information Exchange as the body within the SAA charged with such standards development, preferring a more limited definition of CAIE as the MARC format maintenance committee, as urged by its chairman Max Evans.

Drafting of a proposal for funding of a planning group to define the areas in which descriptive standards are needed and the actors in each arena is underway.

Standard Generalized Markup Language (SGML)

The Association for Computers and the Humanities has launched an effort to extend SGML to text encoding for the humanities. It will hold a conference at Vassar College in November to define conventions to note such scholarly features as structural parts of texts (chapters, scenes, passages), recurrent features such as speakers or stage directions, indirect quotation, and a means for scholars to extend the language to incorporate hitherto unforeseen discontinuities of typesetting. Contact Nancy Ide, Computer Science Department, Vassar College, Poughkeepsie, NY 12601

The American Association of Museums **Museums Accreditation Program** has issued revised self-study guidelines which emphasize archives of the museum and include a checklist of points to be evaluated.

The Association for Information and Image Management has completed the review and acceptance process for its standard on **Microfilm Computer Assisted Retrieval (CAR) Interface Commands** - ANSI/AIIM MS40-1987. The standard provides for basic level of commands between host software (sending) and microfilm retrieval systems (receiving). Hardware suppliers must support at least all of the commands listed to be in compliance and software suppliers must support an implementation subset which contains only those commands. Advanced level commands are discussed, but are not incorporated in the standard. The basic level commands are not universally implemented at present; buyers are urged to determine whether suppliers can support the standard. [Copies to AIIM members for \$7.25, to non-members for \$8.00 - AIIM 1100 Wayne Ave., Suite 1100, Silver Spring, MD 20910 (or 301-587-8202)].

Museum Data Standards are the subject of an article in the fall issue of Spectra, the Newsletter of the Museum Computer Network. Stephen H. Delroy, of the Canadian Heritage Information Network, provides a basic introduction to the kinds of standards which could exist, are now used and are needed. The Spring issue of Spectra discussed the \$5,000 contribution MCN made to the AAM to fund its participation in the development of data standards for museums. At its fall meeting, David Bearman will be giving a keynote address which urges further MCN activity in development of standards.

Tutorial on ISO/OSI

Lately I've become aware that many otherwise computer literate staff of archives and museums don't understand the International Standards Organization (ISO) Open Systems Interconnection (OSI) reference model or what it has to do with them. This is unfortunate because ISO/OSI is, increasingly, defining the direction in which most communication standards are evolving.

The concept of an open system, or one which can receive and send communications to any other system, is the quintessential goal of standards developers in every area in which there are standards. The OSI reference model which was developed early in the 1980's, is an abstract framework in which such communication could take place for any computer systems. It identifies seven layers of intersystem interfaces. In principle when all seven are standardized, a computer running one program can communicate it directly to a differently designed machine running a different program. Three or four years ago, the concept was all there really was, but today there are standards which conform to the definitions of many of the layers, and it is evident that such implementations of the OSI model are going to become increasingly important to all applications. To understand why, it is important to recognize that in large integrated computing environments, the different hardware and software components will all date from different times and be made by different manufacturers. It is essential if they are to communicate to each other that they do so in a standard way, not one which needs to be specially designed for each purpose at hand. Thus the earliest full range of OSI protocols were developed to support manufacturing firms. MAP - the Manufacturers Automation Protocols, are a family of standards reflecting the seven layers of the OSI model, which support plant automation.

So what are these seven layers?

Layer 1 is the Physical layer at which the bits of data are transmitted. The standard defines the signal (RS-232 for instance assigns off and on bits 15 volts positive and 15 volts negative) and the arbitration of the line (token passing ring- IEEE 802.5 and token passing bus -IEEE802.4 or carrier sensing multiple access/collision detection IEEE 802.3).

Layer 2 is the Data Link layer which packages data into a standard size block or packet which include addresses and data.

Layer 3 is the Network layer which translates

the logical addresses provided by the user into physical node addresses and chooses a path by which to send the packet.

Layer 4 is the Transport layer, which monitors packets to assure they are received and retransmits them if they are lost or damaged.

Layer 5 is the Session layer, which maintains communications between devices and re-establishes communications if it is broken off by an accidental interruption.

Layer 6 is the Presentation layer which converts data into common forms, like ASCII, or an "emulation" program which makes one device "look like" another.

Layer 7 is the Application layer which includes standards for programs ranging from simple commands, like PRINT to a protocol for exchanging bibliographic data (MARC). Common application layer standards include the evolving Standard Generalized Mark-up Language.

The best way to understand why such a model of relationships between protocols is necessary is to examine how a complex family of OSI standards, called TOP, for The Office Protocols, is evolving. TOP has yet to prove itself, but it has the potential of making it possible to archive electronic office environments which essentially defy archival retention in the absence of such a standard.

TOP is in turn dependent on file transfer between systems, message handling and electronic mail, job transfer and management, database interfaces, document interchange capabilities and the maintenance of inter-system directories. It builds on the ISO File Transfer and Management protocol (FTAM 8571), the CCITT Message Handling System, the Graphical Kernel System (ISO 7492) and Computer Graphics Metafile (ISO 8632), the Virtual Terminal device (ISO 9041) and a very complex group of protocols known as the Office Document Architecture and Interchange Format (ISO 8613).

Archivists are not likely to remember all these numbers, but they ought to understand that any open interchange of data depends on the maintenance of such a system of standards.

DEC Adopts X-Windows

Digital Equipment Corp. announced it will adopt the X-Windows version 11 standard. DEC's endorsement, following IBM, SUN and other major players in the next generation of workstations is important to archives and museums which hope to display rich, user controlled, screen environments capable of showing images and running multiple applications.

TECHNICAL REPORT ON FUNCTIONAL REQUIREMENTS FOR COLLECTIONS MANAGEMENT

Collections management is a function common to libraries, archives, museums, zoos and aquaria as well as to a host of other institutions we call "cultural repositories". Cultural repositories acquire, preserve, and interpret cultural evidence in its manifold forms. While they are separated by many traditions and by distinctive clienteles, they are united in their need for methods to keep track of the materials for which they assume trusteeship. In recent years the society at large has, through the courts, made the responsibilities of such trusteeship more rigorous, and this, together with the growth of collections and increased turnover of staff, has led cultural repositories to improve their systems for managing collections, including by seeking to automate the handling of collections management information.

The collections management information system is shaped by the fact that objects sought by, acquired by and used by, cultural repositories have a life-cycle as cultural objects, and that in that life they participate in a wide-range of activities. Collection policies identify classes of objects sought by an institution. Collecting itself identifies sources of such objects, and specific objects to consider for acquisition or loan. Objects are accessioned and progressively described. They are stored, and moved about, and loaned, and even disposed of. They are conserved and copied, studied and exhibited, published and discussed. And all these events in the life of an object are tracked by cultural repositories to better manage their holdings, to better understand their holdings, and to justify their very existence. Functional requirements for collections management systems derive from the nature of cultural repositories. Thus, while the kinds of objects held by institutions vary widely, and conventions for their intellectual description reflect diverse disciplinary orientations, the requirements for their management are surprisingly uniform.

This report examines these functional requirements and identifies the variables which cultural repositories should consider in specifying a need for any given requirement in the process of defining a manual or automated collections management system. The emphasis of the report is on giving the staffs of cultural repositories the tools with which to construct a locally appropriate requirements statement, shaped by local needs, resources and priorities.

Available in November. Archives & Museum Informatics, 5600 Northumberland St., Pittsburgh, PA 15217. \$75 pre-paid, includes handling, or by subscription to <u>Archival Informatics Newsletter & Technical Report</u> (\$160 p.a., includes all reports for the year plus Newsletters).
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