Educating Archivists for Automation

LISA B. WEBER

WHY AUTOMATION EDUCATION?

ALTHOUGH OFTEN CHIDED for lack of concern about automation,[1] more and more archivists and manuscripts curators are welcoming the use of computers to obtain better control over the materials in their custody. This new level of automation activity has, in turn, fueled an equally eager pursuit of education and training opportunities. Archivists want to learn about automation in general, as well as about automated archival techniques in specific.

What may appear to be an abrupt about-face has actually been a gradual evolutionary process. Faced with the challenge of coping with the glut of documentation produced by our contemporary society,[2] some archivists have long viewed the use of automation as a logical way to handle this onslaught. Members of the profession have, in fact, been involved in the development and use of in-house computer systems since the 1960s. It is no coincidence that for the past quarter-century, those players in the "automation game" were the major, well-established institutions with staff and budgeting resources as well as access to data processing equipment and professionals; they were the only ones who could afford to invest in automation. Computer hardware, the development of customized software, and ongoing maintenance were all costly. Archivists in other institutions, could only look on from the sidelines and read in the archival literature about such

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systems as the Library of Congress' Master Record of Manuscript Collections; the National Archives and Records Administration's SPINDEX (Selective Permutation INDEXing) and NARS A-1; the University of Illinois' PARADIGM; and the Smithsonian Institution's SELGEM.[3]

This scenario is, however, quite different today. A recent, and pioneering, survey conducted by the Society of American Archivists (SAA) shows that over 265 archival repositories are involved in some kind of automation activity.[4] A second SAA survey, conducted to gather information for its newly formed Education Office, revealed that archivists chose automation as the *leading* management issue about which they wanted to learn more. In this survey, automation outranked such other topics as preservation, legal issues, planning, finance, and personnel.[5] Contrary to popular perception, it was evident that archivists strongly desire education and training in automation.

Why all this automation activity and such a strong interest to learn? The most important reason is that low-cost, powerful, and easy-to-use microcomputers make automation more accessible to archivists than previously. A second reason for the change is the advent and increasing acceptance of the MARC (MAchine-Readable Cataloging) format for Archival and Manuscripts Control (AMC). These are not the only relevant parts of the archival automation education equation, however. The profession is also concurrently coming to grips with the broader spectrum of archival education. Recent approval by the SAA Council of a plan for individual certification demonstrates that the archival profession is, albeit laboriously, resolving some of its long-pondered questions about graduate archival education programs, preappointment *v.* postappointment training, and professional standards.

It is not surprising then that archivists have, to date, written very little about automation education.[6] However, as a result of these trends which are simultaneously gathering momentum (increased automation activity, education, and a clearer definition of professional archival education), educating archivists for automation has finally come to the fore.

WHAT KIND OF AUTOMATION EDUCATION?

What do archivists want to learn about "archival automation"? Unfortunately, the phrase itself can be misleading because it covers a vast spectrum of activities. Archival repositories, like every other organizational entity, have a wide array of office automation tools from which

to choose. Word processing, spreadsheets, and list processing are capabilities that many "off-the-shelf," generic, commercial software packages offer to users. These tools enable archivists—and anyone else working in office environments—to perform more effectively the daily tasks of writing letters, memoranda, and narrative reports; producing mailing lists; and constructing and monitoring budgets. This paper will not focus on these kinds of general automation uses, nor will it address the concerns of machine-readable records created by automated processes, which eventually will be added to archival collections. It will, instead, concentrate on those applications of automation that are specific to the administration and use of archives.

In general, although archivists are curious about a wide range of automation activities, their interests fall into three broad categories: applications of automation in archives; the MARC AMC format and the standards used in conjunction with it; and new and emerging computer technologies.

Applications of Automation in Archives

Archivists, by and large, have approached automation through individual archival functions rather than by developing an integrated archival automation system that would accommodate all archival functions. These functions range from collection development (solicitation files in manuscript repositories or records schedules in archives) to records administration (accessioning, processing, describing, preserving, and space management) to reference service. Building an integrated system is a complicated and sophisticated task that most archivists have neither the money nor the staff to undertake. Even though some archivists have access to mainframe and minicomputers, most archivists are microcomputer users.

The majority of archivists want to use commercial software packages to help them with a wide range of archival functions. The ease of editing and updating makes using word processing packages to produce registers, inventories, folder and box lists, catalog cards, and other sorts of finding aids, extremely attractive. Archivists can also use database management software to produce inventories and indexes as well as to keep track of all kinds of administrative information, such as box location, patron registration, accessions, donor information, and collection-use statistics. Online searching of records descriptions, at any level, expands access to materials. Archivists, therefore, want to learn how to apply these automation capabilities to a variety of their activities.

MARC AMC Format and Standards

Only six years ago, SAA's National Information Systems Task Force (NISTF) was redefining its role away from examining how to approach the issue of national archival information systems (then embodied in the National Historic Publications and Records Commission's database project[7] and the *National Union Catalog of Manuscript Collections* [NUCMC]) toward a new mission of establishing the "preconditions" for archival information exchange.[8]

When NISTF recognized the need for a common exchange format, it decided to work within existing national and international communications standards. This meant MARC. The end product of this work was the MARC AMC format, the development of which is discussed in detail in other articles in this issue. The AMC format provides a technical structure—a container—for exchanging data, and a framework for organizing it, but the content of the data elements is defined by standards "outside" of the format. Information-sharing works only if all those exchanging or integrating data use a common approach to describing materials. Moreover, because archivists are increasingly involved in the library community, it is imperative that they work within the broad library-standards framework. Archivists not only want to learn about the MARC AMC format, but they also want to learn about the standards used in conjunction with the format.

Agreeing upon archival descriptive standards has been almost as elusive as the pot of gold at the end of the rainbow. NISTF, well aware of the situation, consciously decided to avoid the "depths of the descriptive standards problem"[9] when they were defining the format. Unlike the library community, which has developed and used standard rules to catalog duplicate materials for decades, the incentive of derivative cataloging never existed in the archival community because of the unique nature of the materials. Instead of a common standard, archivists developed a variety of descriptive methods.

The desire to use the AMC format, however, and to integrate descriptive information into larger library networks, is giving archivists the incentive they need to standardize description. Because the library community developed most of the standards archivists need to use with the AMC format, archivists need to learn these rules.

The Anglo-American Cataloguing Rules, 2d ed., (AACR2) and the *Library of Congress Subject Headings* (LCSH) are the most important library-created standards used in conjunction with the AMC format. Although most archivists are following Hensen's *Archives, Personal Papers and Manuscripts* (APPM), instead of Chapter 4 of AACR2,[10]

AACR2 has not been entirely displaced. Archivists need to follow the rules outlined in the second part of AACR2 when constructing headings for access points to descriptions.[11] These rules and standards, however, are complex and sophisticated. Archivists need more training and education in applying them to archival description.

New Computer Technologies

As overwhelming as they appear at times, new computer technologies require archivists' attention. The whole array of laser disk technology, for instance, from videodiscs to digital optical disks and audio discs, threatens to confuse even the most technologically oriented. Nevertheless, this technology demands consideration because of its potential for storage, retrieval, and dissemination of images, data, and audio recordings, as well as for the preservation of the multiple types of media that archivists encounter. The promise of low-cost storage, repeated use without deterioration, rapid random access, interactive environments, and ease of reproduction, cannot be ignored by archivists. Other examples of technologies that archivists should monitor include the development of artificial intelligence systems and their potential archival applications,[12] high speed text search systems, and text conversion capabilities. Computer technology is evolving at a tremendously rapid rate and archivists need and want to keep informed of these recent technological advances.

WHERE ARE THE EDUCATIONAL OPPORTUNITIES?

Where are archivists finding the educational opportunities to learn about the various aspects of automation? Certainly, archivists look first within the profession itself; professional associations are providing a host of different kinds of educational opportunities.

Professional Associations and Meetings

The SAA is the principal national association for archivists and manuscript curators—it has over 4,200 individual and institutional members. One of its primary missions is to advance professional education. In response to archivists' demand for education about automation, the SAA developed its Automated Archival Information Program. Partially funded by the National Endowment for the Humanities (NEH),

the primary purpose of this program is to provide education and infor-
mation about automated archival activities in North America.

Two major activities of the program do this directly. The first is a
workshop that introduces people to the MARC AMC format. This
two-day workshop, often given in conjunction with meetings of
regional archival organizations, provides a basic understanding of the
MARC AMC format and introduces the descriptive standards used in
conjunction with it. The workshop teaches the "generic" structure (that
is, the MARC AMC format alone, not tied to a specific automated system
such as the Online Computer Library Center [OCLC], the Research
Libraries Information Network [RLIN], or Michigan State University's
MicroMARC:amc) and gives participants a fundamental understand-
ing of how to apply MARC AMC in their own repository settings.

A second focus of the program is the development of an automation
"clearinghouse," or set of files that maintains information about the
state of archival automation efforts across the United States and Canada.
Specifically, SAA is creating a machine-readable database that contains
information about the kinds of hardware, software, and applications
which archival repositories are currently using. The purpose of the
clearinghouse is information dissemination—it helps put archivists in
contact with others who are using or thinking of using specific kinds of
hardware and software for archival applications. Although not a struc-
tured educational activity, the clearinghouse offers multiple opportuni-
ties for archivists to interact and learn from each other. For example,
archivists can share a wealth of information about software packages:
applications, data element definitions, file structures, and problems
encountered and solved. The possibilities are endless. Information
gleaned from the clearinghouse files is periodically reported through
the *SAA Newsletter*, and individual inquiries are directed to the SAA
office.

SAA offers many other educational opportunities in addition to the
Automated Archival Information Program. The society's Automated
Records and Techniques Task Force (ARTTF) has developed a core
curriculum to teach archivists and manuscripts curators the fundamen-
tals of automated techniques. Their workshops, often held in conjunc-
tion with SAA's annual meetings, include such titles as "Basic
Computer Concepts," "Automated Techniques in Archives," "Basic
Data Bases and Planning Concepts," and "Integration of Data Between
Commercial Software Packages in an Archival Setting." The SAA Edu-
cation Office organizes and coordinates the entire array of education
offerings.

In addition to these targeted opportunities that focus on automation education, SAA's annual meeting programs are filled with sessions that also grapple with archival automation issues. For example, the 1987 program included sessions entitled "Preparing for Automation: What To Do Before the Computer Comes," "Reference and the Age of Automation," "Archives Information Management: Plugging the Software Gap," and "The MARC AMC Format: Applications for Academic Archivists." Given the demand for information about archival automation, it is not surprising that over the past five years annual meeting sessions about automation have consistently had the highest attendance.

Another SAA educational offering is a series of "Roundtables"— informal groups of archivists who come together at the annual meetings to discuss and exchange information about particular topics. Some of these roundtables have become de facto users' groups: two of them are focused on the OCLC and RLIN automated systems. SAA members have discussed forming several other roundtables, including one each for the microcomputer software packages MARCON and MicroMAR-C:amc. Archivists have also formed a group for MARC VM (Visual Materials) Users.

Finally, one of the most attractive educational opportunities at the annual meetings is the exhibit area. Each year, the SAA exhibit area is filled with more and more computer vendors eager to talk to archivists about their various automation products.

Another archival organization concerned about automation education is the National Association of Government Archives and Records Administrators (NAGARA). Although smaller than SAA, with approximately 300 individual and institutional members, NAGARA provides leadership for the management of government records in the United States. NAGARA's annual meeting programs consistently contain workshops and sessions about automation; the 1987 program theme, "Government Archives in an Information Age," included the sessions "Automating Records Information Systems" and the "Seven-States RLIN Project and the Future of Automation." The Research Libraries Group (RLG) project is of particular interest to government archivists because not only is it building a database of information on government records holdings, but it is developing a thesaurus of terms that describe state archives' functions, and is testing the feasibility and utility of sharing archival appraisal information online.

The Association of Canadian Archivists (ACA) is a third national archival organization that offers education about automation. Its 1987

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meeting theme, "Archives and the Information Age," is similar, if not
somewhat broader, than that of NAGARA. All ACA session papers and
workshops were within the context of the "information age," address-
ing such topics as planning, automated access, designing archival data-
bases, indexing and cataloging, and appraisal. Significantly, the
NAGARA and ACA meetings marked the first time that any national
North American archival organization (let alone two!) devoted an entire
program to the theme of automation.

Regional archival organizations are another group within the pro-
fession, and these organizations provide a variety of educational oppor-
tunities. For such a small profession, archivists across the country have
formed an astonishing number of regional alliances. The current *Direc-
tory of Regional Archival Organizations* lists thirty-six such groups.[13]
These regional organizations range from large, multistate groups that
have nearly 1,000 members who gather at formal biannual meetings
(examples include the Mid-Atlantic Regional Archives Conference
[MARAC] and the Midwest Archives Conference [MAC], to small, local
groups that congregate informally several times a year (the Boston
Archivists Group [BAG] and Twin Cities Archives Roundtable
[TCART] are typical). Like the national associations, the regional
groups offer a chance for archivists and manuscripts curators to learn
about archival automation in a variety of ways. For some archivists, the
regional groups can be more convenient, affordable, and accessible than
the national organizations.

Nearly every meeting program of the larger regional organizations
includes sessions or workshops about archival automation. For
instance, the Society of California Archivists' 1987 program contained a
two-part session about decision-making for automation. In the spring
of 1987, the Kansas City Area Archivists presented a one-day symposium
entitled "History 'On Line,'" which discussed the topic of computers
and historical collections. In 1986, the Midwest Archives Conference,
with grant funds from the National Historical Publications and
Records Commission, offered a host of workshops, including three
specific to automation: "Using Commercial Software in the Archives,"
"Introduction to MARCON and MicroMARC:amc," and "An Intro-
duction to Using Microcomputers."

The National Archives and Records Administration is involved in
several archival automation research and development projects, includ-
ing optical disc technology, optical character recognition, conversion of
paper-based finding aids, and artificial intelligence for reference appli-
cations. In December 1987, the National Archives held its first automa-

tion conference entitled "Automating the Archives," to describe and disseminate information about its activities.

Educational opportunities for learning about automation exist through associations and meetings outside the archival profession as well. Although many of these activities may not be directly focused on archival automation, archivists and manuscript curators have much to gain by exposure to sessions, workshops, and vendor exhibits that present innovative ideas and technology. It takes just a short leap of the imagination to see related archival applications.

The American Library Association and the Special Libraries Association offer archivists and manuscript curators a number of educational opportunities. The library community's interest, concern, and use of new computer technologies give archivists and manuscript curators the chance to see firsthand applications of automated techniques at conferences, workshops, and meetings. Those archivists who are interested in the cutting edge of research and evaluation in information science and technology should become acquainted with the American Society for Information Science (ASIS). This interdisciplinary group of librarians, computer scientists, information scientists, and vendors sees its role as promoting research and development in information science. Many of the problems confronting archivists and manuscript curators are identical to those confronting other information professionals—for example, information storage and retrieval techniques and the use of artificial intelligence. ASIS provides a forum for all information professionals to come together and learn from one another.

Possibly not as well known in the library community are professional organizations such as the Association of Records Managers and Administrators (ARMA) and the Association for Information and Image Management (AIIM). These groups, both with annual meetings and regional chapters, also provide forums for learning more about automation in an information environment.

Publications

Perhaps the most accessible form of education is reading the literature concerning archival automation. As interest and activity in archival automation have increased, so have the available publications. Journal articles about specific applications, theoretical concepts and ideas, and software reviews are the most numerous. Archival journals that frequently carry these kinds of articles and reports include *The*

American Archivist (SAA), the *Midwestern Archivists* (MAC), *Provenance* (Society of Georgia Archivists), and *Archivaria* (ACA). Most of the national and regional associations also publish newsletters that occasionally include archival automation news.

One of the most exciting recent events is the publication of a two-part journal entitled *Archival Informatics Newsletter and Technical Reports*. The newsletter prints updates on uses of automated techniques in archival repositories and museums, while the technical reports are assessments of particular technologies and the opportunities they present to archives and museum management. The first technical report assesses the implications of optical media.[14]

Thus far, book-length publications about archival automation are few. Two works that provide an overview of the structure and implementation of the MARC AMC format are Nancy Sahli's *MARC for Archives and Manuscripts: The AMC Format*[15] and Max J. Evans and Lisa B. Weber's *MARC for Archives and Manuscripts: A Compendium of Practice*.[16] Richard M. Kesner's *Automation for Archivists and Records Managers: Planning and Implementation Strategies*[17] gives archivists and manuscript curators the basic principles and tools for planning and implementing automated systems. Kesner has also compiled *Information Management, Machine-Readable Records, and Administration: An Annotated Bibliography*.[18] In addition, the *American Archivist* publishes a yearly bibliography that includes an automation section.

The National Archives has published several reports summarizing research in various areas. These reports include *The MARC Format and Life Cycle Tracking at the National Archives*,[19] and *Technology Assessment Report: Speech Pattern Recognition, Optical Character Recognition, Digital Raster Scanning*.[20] The importance of publishing and disseminating developments in archival automation cannot be overemphasized. These publications promote professional awareness and expertise and ultimately advance the entire profession.

Coursework

Taking college or university coursework is obviously the most formal approach to learning about archival automation. The 1986 *SAA Education Directory*[21] lists seventy-six multi- or single-course programs or institutes that teach archival administration. The vast majority of these programs are parts of the history and/or library and information

science departments on college and university campuses. Of these, only eleven programs show courses covering archival automation.

However, most, if not all, library and information science departments offer courses in information science, computer technologies, and automated applications. In addition, many community colleges and adult education programs provide evening classes in different aspects of computer science and technologies.

Formal courses require a greater commitment of time and money than the other options mentioned earlier. On the other hand, coursework offers a depth of education and training that may not be possible in short workshops and institutes.

HOW DOES PROFESSIONAL ARCHIVAL EDUCATION FIT IN?

From the time of the presidential address at the first SAA annual meeting in 1936 up to the present, SAA membership has heard and considered numerous proposals for a structure and procedures that would establish standards for the archival profession. If archival standards are to be strengthened and extended it is imperative that archival education, both at the entry and continuing education levels, also be strengthened. Archival education is the key to professional standards.

The responsibility for archival education historically has been caught between two different academic traditions, history and library science. Early on, it was assumed that history departments would take the lead, but others saw the close parallels between library science and archival administration and so advocated placing archival education programs in schools of library science.[22] A program to accredit archival education programs had its supporters but it did not seem feasible to the profession.

While considering how to proceed in the area of "standards," the profession concentrated on developing guidelines and models (that is, voluntary standards) in different areas of the profession. SAA's Committee on Education and Professional Development prepared guidelines for graduate education programs in 1977 and again ten years later. During the 1980s, SAA's Task Force on Institutional Evaluation developed principles and guidelines for the self-study of archival repositories. In 1986, the Society's Task Force on Goals and Priorities published a major planning document for the profession that provides a framework for archival planning and decision making.[23]

After several years of intense discussion, research, and debate, the SAA Council approved, during its January 1987 meeting, a plan to certify individual archivists. The purpose of certification is to establish the professional qualifications, knowledge, skills, and abilities of practicing archivists rather than those planning to enter the field. The examination has yet to be developed.

Advocates for certification assert that it will create, raise, or make uniform the standards of archival practice, and that it will help to establish criteria for professional accomplishments. Opponents argue that educational standards should be strengthened first; that the program will absorb too many resources; that too few archivists will pursue certification; and that certification is philosophically wrong-headed or excessively technical in nature. Opinions for and against still run strong within the archival community, and much work remains before the concept is fully developed and workable.

How does the move toward more concrete (and enforceable) standards apply to archival automation education? The approved certification plan itself does not delineate any of the skills or experience required of a "certified" archivist. An appointed board is now beginning to wrestle with those thorny issues. The newly proposed "Guidelines for Graduate Archival Education Programs," on the other hand, does incorporate within its structure the need for archivists to be educated about automation.[24] The highly praised report of the Task Force on Goals and Priorities, *Planning for the Archival Profession*, also addresses many of the concerns about archival automation in this information age. Since "the real challenge of automation is to rethink almost everything learned about traditional archival operations and procedures,"[25] archival automation confronts the very core of archival education. It will be the profession's responsibility to see that the challenge is met.

FUTURE ARCHIVAL AUTOMATION EDUCATION
NEEDS AND DIRECTIONS

Considering the complexity, diversity, and possibilities of archival automation, an education agenda for the future is quite an exciting, if not daunting, task. Notwithstanding the current available opportunities outlined earlier in this article, there are several major areas that need to be addressed in the future.

Standards

Teaching the SAA workshops on the MARC AMC format made the instructors keenly aware that the format itself, although initially intimidating, is relatively easy to learn. What tends to perplex archivists and manuscripts curators much more, even those who have taken cataloging courses in library school, are the standards used in conjunction with the format. For this reason, SAA, through its Automated Archival Information Program, has secured funding from NEH to develop a new workshop that will teach these standards.

The standards workshop will endeavor to familiarize archivists with the applications of AACR2, the Library of Congress Name Authority File, the *Library of Congress Subject Headings*, and other standards such as the list of function terms currently under development by the RLG Seven-States Project. The workshop will also acquaint participants with the fundamentals of the theory and practice of standards in general. Choosing and constructing personal and corporate names, subject headings, genre and form terms, and other access points are complex and difficult tasks. The standards workshop will help archivists and manuscript curators to approach this undertaking with greater understanding and confidence.

Related to the need for more education about standards is a need for expanded guidelines for archival description. With the publication of Hensen's APPM,[26] for the first time archivists and manuscript curators have a standard set of agreed-upon rules to follow to help them describe historical records. Although APPM is a successful and consistently used tool, it is not definitive in its coverage. SAA intends to publish an expanded version of APPM in the summer of 1989 as part of its NEH funding for archival standards. The revision of APPM will give archivists and manuscript curators a better, more complete set of standards to describe their materials and will contribute to the development of uniform descriptive standards that can be integrated into library and other information systems.

Shared Access and Potential Uses

While archivists and manuscript curators need further education in order to create serviceable, shared databases of information about primary resource materials, they also need to exploit the applications of the existing national databases that are daily increasing in size. It is often assumed that the sole reason archivists are developing national union databases of archival descriptions is so that scholars, researchers, and

other users of historical records will have more complete and timely access to archival materials. This is indeed one of the incentives for exchanging information, but archivists must go beyond just educating themselves and think about educating archival users as to how the databases can assist them in their research.

The archival profession has paid shamefully little attention to its user communities.[27] With the development of automated databases, the opportunity is ripe to do systematic, quantifiable studies of the users of archival materials. It is the perfect means of learning how people approach and get access to the information in historical records. The debates between subject access v. provenance as a means of retrieval,[28] and the recent assertion of the retrieval power of combining "form of material" with "function" of the creating organization, can be tested within the context of these databases.[29] Databases of descriptions of primary resource materials are new and exciting tools that have the potential for tremendous impact on the way archivists describe records. First, however, serious, rigorous research in user approaches and information retrieval strategies is required.

There are many more reasons to exchange or share information about archival records.[30] Librarians have been using bibliographic databases as a tool for collections development and archivists see similar possibilities. Many archives are interested in sharing appraisal information to help each other in making disposition decisions about the records that could potentially come into their custody.[31] In fact, the RLG Seven-States Archives Project is currently testing this concept.

Sharing authority data is another possible use of national archival databases. Although certainly not a new idea in the library community, the concept of authority control is a relatively recent arrival on the archival scene. As NISTF members defined the data elements for the dictionary, they began to see relationships or categories of information that archivists keep. One such category is authority: information about the individual or organizational creators of the materials. Biographical notes and administrative histories comprise archival authority information. Archivists are now discovering that by keeping authority records separate from, but linked to, records that describe the actual materials, a whole host of possibilities is becoming evident.[32]

Systems

Archivists must continue to develop and refine systems, or entice vendors to build new systems that meet the profession's needs. NISTF

recognized that archivists tend to create separate automated systems for administrative control *v.* intellectual or descriptive control of the archival records. The Task Force also recognized that these two functions were related, and it proceeded to define a standard format that would encompass both requirements. The revised MARC AMC format contains data elements for descriptive purposes, but it also accommodates the concept of control over archival processes or actions that are performed upon the records themselves.

The format or standard structure is only half of the equation, however. Of equal importance is having software that performs the necessary functions. Being able to input action information into a MARC record does not necessarily mean one can "do" anything with it. What many archivists are looking forward to is an integrated system that can import and export MARC AMC records; control archival and manuscript material throughout their entire life cycle; maintain more detailed levels of description; keep track of donor or scheduling data, patron use, and reference requests and other like data; and support linked authority files.[33]

Software packages with MARC AMC record import-export capabilities currently exist that provide varying levels of control over archival materials, but further development is needed. Some members of the archival community are interested in the development of a local workstation application linked to larger networks that would maintain some data locally but would let other pieces of information migrate to the national database. Integrating more detailed finding aids, such as folder or box listings, registers, and inventories, with more general levels of description within the AMC format is an additional development direction. For those who are not interested in an integrated system that can import and export MARC records, software development for a variety of archival functions is still needed.

New Technologies

The computer revolution is truly that. It has changed the shape of our lives in ways we are just beginning to recognize. Technological advancements take place at such a rapid rate that archivists constantly need to look ahead in an attempt to discern what is coming next and how the new developments will change what they are currently doing.

CONCLUSION

Automation challenges the basic assumptions underlying archival practice. More than one archival prognosticator has warned that the archival profession will be subsumed by other professions and disappear unless archivists confront the technological revolution head-on and abandon the familiar "passive role of recipient of documents to [take] a more active role in the creation, distribution, and preservation of information."[34] To do this, archivists must thoroughly educate themselves in archival automation. The opportunities are available now, and will continue to expand in the future. It may take a leap of faith to begin the educational process. New and unknown territory is always difficult at first. This education is, however, critical to the very existence of the profession. Automated techniques and applications are perhaps the most exciting area in the archival profession today, with both tremendous challenge and opportunity.

Appendix

Addresses and Telephone Numbers
of the National Associations

American Library Association (ALA)
50 East Huron Street
Chicago, IL 60611
312/944-6780

American Society for Information
  Science (ASIS)
1424 16th Street NW, Suite 404
Washington, D.C. 20036
202/462-1000

Association of Canadian Archivists
  (ACA)
P.O. Box 2596
Station D
Ottawa, ON
Canada K1P 5W6
613/232-3643

Association for Information and
  Image Management (AIIM)
1100 Wayne Avenue, Suite 1100
Silver Spring, MD 20910
301/587-8202

Association of Records Managers and
  Administrators (ARMA)
4200 Somerset, Suite 215
Prairie Village, KS 66208
913/341-3808

National Association of Government
  Archives and Records
  Administrators (NAGARA)
Executive Secretariat
NYS Archives
10A75 Cultural Education Center
Albany, NY 12230
518/473-8037

Society of American Archivists
  (SAA)
600 South Federal, Suite 504
Chicago, IL 60605
312/922-0140

Special Libraries Association (SLA)
1700 18th Street NW
Washington, D.C. 20009
202/234-4700

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