
An essay on reflection

By Lucretia W. McClure, M.A., AHIP
Librarian Emerita

Edward G. Miner Library
University of Rochester Medical Center
164 Elmore Road
Rochester, New York 14618-3651

From the vantage point of her personal experience, the author examines milestones since the 1960s which have changed the medical library profession and helped shape the Medical Library Association. The advent of automation, including cataloging with OCLC and online literature searching through the SUNY Biomedical Communication Network, was a dramatic event that transformed the work and priorities of librarians, fulfilling the dreams of earlier visionaries. The application of technology in libraries led to an increased demand for education and training for librarians. The Medical Library Association responded with continuing education programs, and a series of important reports influenced how the association filled its role in professional development. Legislation providing federal funding, such as the Medical Library Assistance Act, resulted in a period of expansion for libraries and their services. The Medical Library Association has developed a legislative agenda to influence action in areas such as copyright. In the future, health sciences librarians must take a leadership role.

There are milestones in medicine, events or discoveries that mark major changes in understanding or treatment of diseases, advances in knowledge that helped open the mysteries of the body. Two such discoveries that stand as markers of enormous change are the introduction of anesthesia in the nineteenth century and the development of antibiotics in the twentieth. The first operation under ether at Massachusetts General Hospital on October 16, 1846, signaled the beginning of surgical procedures never thought possible. The use of ether made surgical trauma bearable, and from that point came the development of modern surgery. Patients could endure more invasive and complicated surgery; surgeons could take on more invasive and complicated operations such as were required for neurosurgery.

Another example of equal import can be shown by the changes in health care brought about by the use of antibiotics. Prior to the availability of penicillin, physicians stood by helpless in the face of many infectious diseases. Skilled nursing care was often the difference between life and a death-threatening infection. Penicillin became a panacea; for the first time there was a therapy for pneumonia and other infections. This discovery created a revolution in both medicine and nursing.

This overview of our profession from my experienc-

es over a span of nearly thirty-five years provided the opportunity to look at milestones in librarianship. What developments, discoveries, and societal forces changed our profession? Can we pinpoint events or developments that helped to shape the Medical Library Association? The purpose of my essay is to reflect on the past, to put forth for consideration views of the elements that created the profession we are today. There are many forces that made change possible or necessary. Those that are of prime importance include the advent of automation, the demands for change in the education of librarians, and the impact of legislation and federal funding. At the same time, there were the shifts in economy and the strengths or weaknesses of the American dollar, the changes in the delivery of health care, the rise of patient independence, and the astounding capabilities that technology brought, along with other societal changes that affected the library community. Each of these topics is worthy of research and evaluation, but the purpose of this issue of the *BMLA* is to hear voices of members who lived through many of the changes and developments.

THE ADVENT OF AUTOMATION

A medical library in the early 1960s was a joyful place to work. The staff were busy and productive within

the capabilities of a manual world. A major issue under discussion was in the realm of cataloging—the proposed new rules. I doubt that anyone talks about Seymour Lubetzky today, but there was a time when catalogers held rancorous meetings over his cataloging ideas.

Cataloging was thought by many to be the intellectual basis of librarianship. Did not Brad Rogers devote his Janet Doe Lecture to subject cataloging? [1] Passions were inflamed over changes in the new rules. Endless discussions were held, and dozens of articles filled the journals. Then when OCLC became operational in 1971, the possibilities it offered were irresistible—cataloging data from an online source. What an idea!

Remember that every library cataloged with local adaptations. After all, no one could get into your catalog except by coming through the door of the library. When catalogers realized that this system could provide the data, produce cards, eliminate cataloging backlogs, and utilize nonprofessional staff, the rage over the rules stopped. What a group of powerful librarians could not do through discussion and debate was achieved by mechanization. It was perhaps the fulfillment of Charles Coffin Jewett's dream of universal cataloging at the Smithsonian Institution to make plates and reproduce cards for all libraries—all more than one hundred years before OCLC [2].

Automation in cataloging caused great change in libraries. An academic library cataloging staff of thirty-five was soon whittled down by half. Heretofore libraries considered automation to be photocopy machines and electric erasers. Now catalogers turned from worrying about the rules to how to work with MARC format and fields for notes.

Automation was also making inroads in reference and information services. Traditionally reference librarians studied their resources and assisted users with the knowledge of the literature and the tools. Bibliographies were prepared for users as a part of the librarian's responsibility, and the ability to do this came from reading medical literature. In fact, one of the reasons many librarians liked reference work above others was that unlimited reading of a rich and fascinating literature was a requirement of the job.

Time was the librarian's enemy—all of these steps took time, and this was an era when the literature of science and medicine was increasing rapidly, when science seemed to have an endless supply of money for research. Just when it seemed we would drown in a sea of print, the computer database came into reality. It brought another revolution to the practice of librarianship. No computer can replace the knowledgeable, thinking human mind, but the capability to search databases electronically changed the way libraries functioned and the way librarians practiced their art.

The date was October 1968. Nine libraries were on-

line, searching the medical literature through the SUNY Biomedical Communication Network. The system was cumbersome and slow. There was only a small amount of data to search and there were no instruction manuals. But search we did on a machine that could sift through the literature in ways that could attain a remarkable level of specificity. The excitement by librarians and users alike was unbounded.

Compiling a dozen bibliographies a month by reading the articles to determine relevance was an achievement. With the computer, one could produce twelve a day. The National Library of Medicine had developed the batch system, MEDLARS, but it was remote. The nine libraries comprising the SUNY BCN were producing bibliographies on demand, in the presence of the user.

The plan for the BCN as created by Irwin Pizer was a total reference service—the database would include *Index Medicus*, indexed chapters of books, and an interlibrary loan module for acquiring copies. This, again, seemed to be the fulfillment of another's dream, this time John Shaw Billings' system. Billings planned to provide for the record of medical publishing through the monumental *Index-Catalogue of the Library of the Surgeon-General's Office*, to keep physicians up-to-date by publishing a monthly record, *Index Medicus*, and a system of interlibrary loan. In both cases the purpose was to ensure that physicians would be alerted to the existence of publications in a timely manner and that they could be assured of access. Billings' idea was, of course, more than one hundred years ahead of the BCN [3].

Pizer's design also accommodated searching by users long before end-user searching became the mode it is today. Faculty and students were invited to reserve time to do a literature search, and while this was relished by many, it became evident that librarians could do it better and faster, and most libraries abandoned user participation [4].

By 1970 AIM/TWX from the National Library of Medicine was available for online searching of *Abridged Index Medicus* with the full database of MEDLINE soon to follow. Automation was now evident in both public and technical services. Most librarians today have always practiced with a wide array of computer services available. There was a time of transition, however, that was painful for some in the profession. There were those who resisted change, hated computers, and vowed to remain true to traditional ways. There was an element of fear—could we learn to master this machine that was constantly renewing itself with better programs? The book and journal we understood; the computer we did not.

But once the computer search became a reality, there was no turning back. Librarians had a tool that not only increased productivity, but gave an unexpected visibility and cachet to the profession. We could, and

did, talk knowledgeably about computer applications and techniques and proved it with our products.

Those who were fortunate enough to work in both the manual and automated library settings can attest to the values and limitations of both. We could not operate in the library today and achieve what we are achieving without the sophisticated computers and programs, the multimedia, the databases, and electronic publications that so enhance our ability to locate information and develop knowledge. The limitation, to me, is the diminution in reading and studying the medical literature that used to be the hallmark of a great medical librarian.

THE DEMANDS FOR EDUCATION

The immediate result of the application of technology to our library services and programs was a clamor to the Medical Library Association for education and training. Here were the health sciences librarians, including those with years of experience, eager to utilize these new wonders, but totally unprepared. To most of us, the computer was a giant, room-sized machine that could accomplish magical things with numbers. How could it help manage the overwhelming flood of publishing that poured into the libraries of the 1960s? Our jobs were never the same again after the introduction of technology; nor were our users' expectations and demands. Since there were no manuals or training guides, user groups were established and the first training was simply helping one another. Vendors and program designers were the first to provide formal training. It was not long before MLA incorporated courses on libraries and machines into its expanding continuing education program.

There was no single event that fostered change in education. Much of the pressure came from members who recognized their needs for new learning, and it was members who produced many of the documents that moved and improved our educational activities. These documents encouraged librarians to develop and at the same time made clear to our administrators that we continued to address the changing needs of the institutions and organizations we served. MLA had been acknowledged a leader in education and certification, but there were always other organizations ready to challenge that. Neither the members nor the association could afford to give in to complacency or make a commitment to the status quo.

During the late 1950s and early 1960s, the education program of the association was undergoing study and expansion. In 1964 two courses were offered: "Basic Punched Cards Principles for Libraries" and "Implications for Machines in Medical Libraries." Those of us who took courses of this kind felt we were at the cutting edge of technology. Punched cards now seem as outdated as the electric eraser, but then the course

signaled MLA's entry into the field of training in automation.

The growth of continuing education programs was spurred by a number of factors. Science and medicine were full of new discoveries and new techniques, and librarians needed more information on more new topics than ever before. Librarians out in practice for only a few years recognized that continuing their learning was not an option but a necessity. MLA continued to provide courses in basic subjects such as reference tools, cataloging, and database searching. Most were taught by members and were considered the foundation courses designed for entry-level librarians or those entering from another profession.

Courses called "Dimensions of Current Practice" were more sophisticated and included topics of lasting importance to the profession, especially those unique to health sciences librarianship. "New Perspectives" courses were the "hot" topics. They were subjects as new as tomorrow and taught by experts in a field of biomedicine or technology. Kent Mayfield reminded us that we must not be content with the traditional, that we must also use models found in science and medicine—the problem-based, the functional, the analytical, or the adaptable [5]. Pressures from other disciplines were evident as individuals in medical informatics and computer science were making forays into our practice, taking on jobs we believed to be ours. We should have remembered the words of Estelle Brodman, who said we must "educate for the problems of a generation hence, not for the problems of today." She continued by describing the problems as being derived from changes in "medical practice and research, the state of society about us, and the technology likely to be available 20 years from now" [6].

A number of significant reports document the changes in the education of health sciences librarians from the 1970s through the present. The Allerton Invitational Conference on Education for Health Sciences Librarianship was organized to bring a range of topics to the fore—standards, specialization, master's curricula, postmaster's training, MLA certification, and continuing education. As a follow-up to the Allerton recommendations, MLA appointed a study group to outline methods for implementing changes. The report gave explicit directions, but little was actually carried out [7].

A major influence for change in libraries was the Matheson/Cooper report of 1982, *Academic Information in the Academic Health Sciences Center: Roles for the Library in Information Management*. The report challenged librarians to take a fresh look at the way the library was positioned in the institution, and how information transfer and knowledge could be advanced by merging and combining efforts with other units in education and health care [8]. Librarians became partners with information officers in preparing and managing

IAIMS grants from the NLM. MLA provided courses in grant writing as well as in many other areas new to librarians, such as research and management skills.

A companion piece, *Physicians for the Twenty-First Century*, a report of the Association of American Medical Colleges, stressed the need for independent learning by medical students, encouraging them to become critical thinkers and lifelong learners [9]. The report pointed to the role of the library in achieving the goals. MLA joined with the Association of Academic Health Sciences Library Directors to produce *Challenge to Action: Planning and Evaluation Guidelines for Academic Health Sciences Libraries*. The report outlined the needs and steps for librarians in educating their users toward successful information management [10].

Another document that influenced the work and need for education for librarians, especially those in hospitals, was the 1994 accreditation manual for hospitals published by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). The report generated much discussion because it outlined information management functions across the hospital, not just in the library. Librarians were pressed to demonstrate their ability to manage information in an environment that included continuous improvement and electronic access. It also fostered a relationship between the Joint Commission and MLA that resulted in invitations to MLA members to sit on various JCAHO committees [11].

These decades were filled with changes and challenges to the profession. We faced demands from employers for new services; librarians found that the traditional education in library school no longer provided all the skills they needed. Institutions in academic and hospital settings looked at the practices of downsizing throughout industry and followed the pattern by replacing librarians with less-experienced practitioners or with nonlibrarian staff members.

MLA heard the concerns of members and began the process that would result in 1991 in a new educational policy statement, *Platform for Change*. This document was produced by the Knowledge and Skills Task Force headed by Fred W. Roper. The focus of *Platform for Change* was an individual responsibility for lifelong learning. It also recommended responsibilities for MLA, employers, and the NLM [12].

Undergirding the educational activities was MLA's revised strategic plan, *Shaping the Future* [13]. The process of strategic planning was started by President Nancy Lorenzi. It has literally shaped the organization, holding it to stated goals. One of the most important was the declaration that MLA become and continue to be the leader in the education of librarians in the health sciences.

Two other documents contributed to the strength of our educational efforts. The first was the NLM planning panel report, *The Education and Training of Health*

Sciences Librarians, published in 1995 [14]. It went beyond encouraging opportunities for librarians by including roles for schools of library and information science and professional organizations. The second was MLA's research policy statement, *Using Scientific Evidence to Improve Information Practice* [15]. Both of these documents built on *Platform for Change*. The research statement challenged librarians to include research skills as a necessary part of the lifelong learning process.

The need for learning continues to be a strong force in health sciences librarianship. Library practitioners are seeing inroads into the profession by those trained in computer science and informatics. Many see the doctoral degree as a requirement for attaining top positions. Whatever direction the profession takes, the need and outside pressure to continue learning will only grow.

LEGISLATIVE ACTIVITIES

Legislative activities have long played a role in forging the development of MLA. Members, as individuals or acting within a committee structure, have recognized how dependent health sciences libraries are on the forces of government—the National Institutes of Health, the National Library of Medicine, the Library of Congress Copyright Office, and the many departments and agencies that relate to science, medicine, and information services. To understand how much has been changed and how much achieved, one has only to read Bloomquist's report of 1963 that described the state of most libraries serving health-related institutions in this country. His report indicated that few libraries had sufficient space or met the recommended size of 100,000 volumes and 1,500 journal subscriptions [16]. In 1970, the American Hospital Association stated that while 72% of the community hospitals in this country had a library, only 928 of the 4,191 were under the supervision of a professionally-trained librarian. Only 1,054 had at least one full-time staff member [17]. The situation was bleak.

One cannot overemphasize the impact of one piece of legislation on the medical library community. The efforts of the National Library of Medicine, Director Martin C. Cummings, and others resulted in passage of the Medical Library Assistance Act of 1965. The act gave NIH the authority to award grants and the subsequent support for construction or expansion of library facilities, for training of librarians, for biomedical publications, for stimulation of research and development in library science, and for resources. The most unusual grant within MLAA provided for the establishment of the regional medical libraries to serve as support for NLM in the delivery of interlibrary loans and to strengthen the libraries within each region.

This landmark legislation spurred growth in every

facet of the health sciences library. It came at a time when science and medicine were developing new programs, making startling new discoveries, and when burgeoning medical literature seemed about to overwhelm the practitioner and the library. New ways to deliver information and knowledge to the scientist, the practitioner, and the student were desperately needed. The grants made funding available for libraries and librarians for the development of these new techniques. Through the regional medical libraries, strong networks were developed, linking the smallest library or the colleague in the most remote region to a library center. RML programs included interlibrary loan networks that encouraged use of local collections. Before that time, the common practice was to seek materials from the largest library in your community and to go next directly to the National Library of Medicine. For the first time, libraries looked to each other as the first line of support and found that a great percentage of the needed items could be located in the region. The impact of the MLAA was felt in all levels of the library world. There were new library buildings, collections were strengthened, and librarians were demanding and receiving training in the use of the computer. There was comparable growth in science and medicine that brought new medical schools, new programs, and new hospital affiliations and services. It seemed during those years that money for science was there for the taking. It was glorious! Libraries shared in the largeness of the times and we thought it would go on forever.

During these years the association increased its visibility in the legislative arena. The Legislation Committee members worked to obtain continued support for MLAA, participated in efforts to update the copyright law, and moved to get widespread involvement of the members in legislation that affected health care, information issues, and medical education. In 1985 the association and the Association of Academic Health Sciences Library Directors established a Joint Legislative Task Force to further the efforts in gaining support for NLM and for other legislation that concerned health sciences libraries. The group was organized and mentored by Brady Metheny, head of the Delegation for Basic Biomedical Research and an experienced Washington lobbyist.

Under his tutelage, the members learned techniques for calling on congressmen and their staffs. We learned how to present data and how to establish links with members of Congress who were important and influential in the arenas relevant to our work. We were admittedly green at first, but made forays on the Hill with determination and dedication. It was both productive and interesting to participate in these visits. We learned to carry on the work with legislators in our home districts and pressed our MLA chapters to join the efforts on local and regional levels. Not only

did members begin to develop expertise in legislative activities, but the association also joined with other associations to promote library concerns.

Today the legislative agenda of MLA is one of its strongest efforts. In coalition with other associations, MLA has made its voice heard on many fronts: copyright, telecommunications, telemedicine, intellectual property, the White House Conference on Library and Information Services, and other issues relating to health that are relevant to our institutions. MLA members are frequently called upon to testify at hearings on these topics. We continue to speak in support of the NLM and encourage action by all members in their local and state activities.

Copyright is but one example of outside forces that influence the association and the profession. Libraries are dependent upon the sections of the Copyright Law that allow library use of resources. We are free to purchase materials and make them available for loan because of the first sale doctrine. We are able to share resources with our users and other libraries because the law gives that permission. The current threat to the use of information in the digital environment mobilized the library associations to take strong positions in the fight for fair use. MLA has long been involved with copyright issues and joins with other educational and library groups to bring these issues to the forefront.

There are mighty forces at work to change the Copyright Law to favor the creators of digital resources to the detriment of the public. Every person in this country will be affected if libraries cannot share electronic resources. Every student will be cheated if libraries cannot provide access to digital information under fair use. The electronic world is changing every day, getting more and more sophisticated in its applications. Librarians in health sciences libraries will need more knowledge and more involvement in copyright issues and other legislative activities as we move into the next century.

CONCLUSION

In the mid-1960s the association was small: 1,590 members, some 600 of which were institutions. Dues were \$10 for individuals and \$25 for institutions. The association's budget was in the neighborhood of \$50,000. The topics of most concern included the need to establish a central office, more and better courses for continuing education, standards for libraries, recruitment of good individuals to the profession, the exchange program, quality of publications, relationships with overseas librarians, and setting goals for the future. Many of these topics are still of concern, but our programs today are more sophisticated and we have a greater presence in many arenas. Our headquarters is staffed by highly qualified and skilled pro-

fessionals. The membership exceeds 5,000 individuals and institutions, and the budget tops two million dollars.

The changes observed in the passage of three decades were initiated in some instances by the membership, in some by outside factors. We have felt the impact of the economy and the methods our institutions have utilized in dealing with recession, downsizing, and merging. We still suffer from the high cost of journals in the fields of science, medicine, and technology. We have been jolted by the changes in the delivery of health care, both as potential patients and as part of the health care team. We are involved with the changes in medical education and the need to understand the new pathways, problem-based learning, and evidence-based medicine. We strive to keep ahead in the profession because there is always someone or something that seeks to take our place in the world of knowledge and learning.

Our members have never hesitated to voice their discontent or to make demands. They have the power of the ballot as well as the pen and the very strong incentive to improve their expertise and their status in order to obtain and retain employment. Many of our most memorable occasions were business meetings where tempers ran hot and controversy stirred us to action. Unfortunately, we seem to have lost that fire in recent years.

What lies ahead? Some examples may illuminate.

- A physician/author told me that he read 1,500 papers in preparing for his latest book. He used only 500 titles in his bibliography because the other two-thirds did not meet his standards.

- Recent newspaper articles relate two frightening reports. More than one out of every three persons say they have been in a situation where a medical mistake was made, according to a Harris Poll. Another report states that in more than 30% of autopsies, there is evidence of misdiagnosis.

- Reading about the Cochrane Collaboration in the development of evidence-based medicine raises the question about how librarians could or should be involved in these endeavors [18].

We have achieved much in these years. We are a profession that has demonstrated great advances in utilizing new technologies; we have taken ideas from management and informatics and incorporated their techniques to our advantage. We have pursued electronic publishing, adopted the World Wide Web, and enhanced our teaching of databases and systems. The three examples make clear that our work is not finished and that we have a role to play. The quality of publishing is a continuing concern. The number of medical errors points to needs in medical education, and we must develop skills in research if we are to be a part of the evidence-based programs.

The forces all around us will continue to put pres-

sure on our profession. How we take leadership in the association and the profession can spell the difference between the librarian as *the* knowledge specialist of the future or just another player in an arena full of players. The examples apply to us as well as to science and medicine. We must maintain standards in publishing, demand the best and most advanced education for health sciences librarians, and achieve the qualifications needed to stand with the leaders in medicine and science.

The choice to excel and to accomplish is ours. After thirty-five years of experience in the profession I continue to be optimistic. If we want the best continuing education courses; if we want the government to support NLM, its research, and its development of information resources; if we want the best jobs in the field; then we as members must get the support of outside forces and lead the fight. Osler said that a great university has a dual function, "to teach and to think" [19]. That might well be our beacon for the future. What better way could there be to use our knowledge for the benefit of others? What better way to keep at the forefront than to be thinkers?

REFERENCES

1. ROGERS FB. Problems of medical subject cataloging. *Bull Med Libr Assoc* 1968 Oct;56(4):355-64.
2. JEWETT CC. Smithsonian report on the construction of catalogues of libraries and of a general catalogue; and their publication by means of separate, stereotyped titles with rules and examples. Washington: Smithsonian Institution, 1852:17.
3. BRODMAN E. The development of medical bibliography. [Washington]: Medical Library Association, 1954:105.
4. PIZER IH. Looking backward, 1984-1959: twenty-five years of library automation—a personal view. *Bull Med Libr Assoc* 1984 Oct;72(4):335-48.
5. MAYFIELD K. Special report: education for health sciences librarianship; introduction. *Bull Med Libr Assoc* 1986 Apr;74(2):140-1.
6. BRODMAN E. Pragmatism and intellection in medical library education. In: Berk RA, ed. Allerton invitational conference on education for health sciences librarianship. Proceedings of a conference held at Monticello, Illinois, April 2-4, 1979. Chicago: Medical Library Association, 1979:viii.
7. MIRSKY PS. Report of the Study Group on the MLA's Role in the Educational Process for Health Sciences Librarians. *Bull Med Libr Assoc* 1983 Jan;71(1):117-22.
8. MATHESON NW, COOPER JAD. Academic information in the academic health sciences center: roles for the library in information management. *J Med Educ* 1982 Oct;57(10, pt.2): 1-93.
9. Physicians for the twenty-first century: report of the Project Panel on the General Professional Education of the Physician and College Preparation for Medicine. *J Med Educ* 1984 Nov;59(11, pt.2):1-208.
10. Challenge to action: planning and evaluation guidelines for academic health sciences libraries. Chicago: Joint Task

Force of the Association of Academic Health Sciences Library Directors and the Medical Library Association, 1987.

11. 1994 accreditation manual for hospitals, v. 1: standards. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations, 1993:35-6.

12. MEDICAL LIBRARY ASSOCIATION. Platform for change: the educational policy statement of the Medical Library Association. Chicago: The Association, 1991.

13. Shaping the future: the strategic plan of the Medical Library Association. 1989 revision. *MLA News* 1989 Jun/Jul; (216):15-26.

14. NATIONAL LIBRARY OF MEDICINE. The education and training of health sciences librarians. (National Library of Medicine Long Range Plan, Report of Planning Panel on the Education and Training of Health Sciences Librarians) Bethesda, MD: National Institutes of Health, 1995.

15. MEDICAL LIBRARY ASSOCIATION. Using scientific evi-

dence to improve information practice: the research policy statement of the Medical Library Association. Chicago: The Association, [1995].

16. BLOOMQUIST H. The status and needs of medical school libraries in the United States. *J Med Educ* 1963 Mar;38(3): 145-63.

17. BLOOMQUIST H. Introduction. In: Bloomquist H, Rees AM, Stearns NS, Yast H, eds. *Library practice in hospitals: a basic guide*. Cleveland: Press of Case Western Reserve University, 1972:[xiii].

18. COCHRANE AL. *Effectiveness and efficiency: random reflections on health sciences*. [London]: Nuffield Provincial Hospitals Trust, 1972.

19. OSLER W. Teaching and thinking. In: *Aequanimitas*. Philadelphia: Blakiston, 1905:126.

Received November 1997