

Review Essay

From Education to Application and Back: Archival Literature and an Electronic Records Curriculum

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Abstract: Literature relating to the archival administration of electronic records is growing rapidly and becoming increasingly rich and diverse. With reference to key texts, the author examines some of the functions this literature needs to play in electronic records instruction, particularly at the graduate level. She then discusses some of the current limitations of the literature and offers suggestions on how these might be overcome, particularly through the use of electronic information systems technology.

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IN 1992, I WAS ASKED to develop and teach a new course in the archival administration of electronic records as a part of the University of Michigan's School of Information and Library Studies graduate curriculum in archives and records management. This was an exciting development that grew out of a realization by the school and archivists on campus that several factors, both internal and external, were converging, making this an opportune time to add a course in electronic records.¹

Factors that were internal to the archival profession included the publication of a draft educational curriculum by the Society of American Archivists (SAA) Committee on Automated Records and Techniques (CART) and of an electronic records research agenda by the National Historical Publications and Records Commission.² There has also been a rapid development in awareness and use of computer-mediated communications and the electronic networking environment by the archival community,³ a realization that traditional archival theory and practice offer many skills and approaches that could make a positive contribution to the management of non-bibliographic electronic in-

formation in general, and (the subject of this essay) a growing and increasingly rich and diverse archival literature in the area capable of supporting graduate-level instruction and research. External factors included the fact that the School of Information and Library Studies was increasingly concerned with nonbibliographic information technologies, such as geographic information and imaging systems. Even wider than this is the growing body of interdisciplinary approaches and research into computer-mediated communication.⁴ The numbers of research communities using both quantitative and qualitative techniques to conduct research using nonnumeric electronic data systems have also been increasing.⁵ And, perhaps most important, systems developers and user communities are becoming more sensitized to the legal, political, and cultural issues associated with electronic information systems.⁶

Courses and continuing education workshops based around the CART curriculum will hopefully soon be in place in many

¹Electronic records has been a part of archival education at the University of British Columbia for some years. A seminar in electronic records is now being taught by David Gracy at the University of Texas, and a major electronic records education and research initiative is also planned for implementation at the University of Pittsburgh. Electronic records in this context, and throughout this essay, refer to the records or data contained on any electronic information system as well as to any archival or manuscript holding that is created or maintained in electronic format.

²National Historical Publications and Records Commission, *Research Issues in Electronic Records* (St Paul, Minn.: Minnesota Historical Society for the National Historical Publications and Records Commission, 1991).

³Since its inception approximately three years ago, the ARCHIVES listserv available on the Internet and through Bitnet has developed a membership of over 540 individuals. Several archival repositories have also made their finding aids searchable over the Internet through the use of a wide-area information servers (WAIS) and gophers.

⁴See, for example, Starr Roxanne Hiltz and E. B. Kerr, *Computer-Mediated Communication Systems: Status and Evaluation* (New York: Academic Press, 1982); Ronald E. Rice, et al., *The New Media: Communication, Research, and Technology* (Beverly Hills, Calif.: Sage Publications, 1984); William J. Paisley, "Bibliometrics, Scholarly Communication, and Communication Research," *Communications Research* 16 (October 1989): 701-17; M. J. Schaefermeyer and E. H. Sewell, "Communicating by Electronic Mail," *American Behavioral Scientist* 32 (November-December 1988): 112-23; and Yvonna S. Lincoln, "Virtual Community and Invisible Colleges: Alterations in Faculty Scholarly Networks and Professional Self Image," paper presented at the Annual Meeting of the Association for the Study of Higher Education, Minneapolis, Minn., 29 October-1 November 1992.

⁵See, for example, Christine Borgman, "Bibliometrics and Scholarly Communication," and Leah Lievrouw, "The Invisible College Reconsidered," *Communications Research* 16 (October 1989): 583-99; 615-28.

⁶A thought-provoking set of essays written by many of the leading figures in the development and use of information technology is Charles Dunlop and Rob Kling, eds., *Computerization and Controversy: Value Conflicts and Social Choices* (Boston, Mass.: Academic Press, 1991).

more graduate archival programs and other professional settings. Such programs should seek to address several objectives:

- ensuring that all current and future archivists are exposed to and familiar with the issues and practices associated with the archival management of electronic records
- mainstreaming the administration of electronic records into traditional archival practice through the development of creative, innovative, flexible, and integrated archival programs
- building a strong archival role in intra- and interinstitutional information systems and policy development
- empowering archivists to conduct the rigorous research in electronic records issues necessary to develop the profession's theoretical and practical bases

The skills required to meet these objectives are wide-ranging, but they include an ability to look beyond the technical and theoretical issues associated with the technology, format, and record, the wider societal context within which such technologies, formats, and records are created. With all these objectives in mind, the course at the University of Michigan is designed not so much to teach archival students all the technical aspects of systems analysis and management techniques (much of which will be learned on the job), but rather to promote a core of knowledge and the intellectual skills necessary to develop the innovative and flexible archival programs the profession will need in forthcoming years.

The Changing Nature of Archival Electronic Records Literature

This article seeks to address the extent to which the archival literature supports the professional objectives listed earlier. With

reference to some of the key texts, the article reviews the educational role the archival literature should play in relation to the needs of the profession, discusses some of the strengths and weaknesses of this literature, and suggests steps that might be taken to enhance archival education literature and instruction. A more comprehensive bibliography of texts is included at the end of the essay.

In beginning this discussion, it is necessary to form some sort of definition of what constitutes archival literature in relation to electronic records. Until recently, with the notable exception of David Bearman's *Archives and Museum Informatics* publications, comparatively little electronic records material has appeared in core archival journals and other publications. The large body of such material has resided in expert reports compiled by or for governmental agencies and professional associations. Archival electronic records literature is becoming richer, however. Spearheaded by the North American archivists who developed pioneering programs at the National Archives and Records Administration (NARA), the State Archives and Records Administration of New York, and the National Archives of Canada, electronic records initiatives and the associated publications have an increasingly international perspective, as, for example, with the establishment of new electronic records management programs within and across United Nations agencies. Leading electronic records archivists are also reaching out to educate systems developers and our user communities through publications in their literature. A growing core of archival faculty and doctoral students are seeking out wider audiences and publishing archival writings in a variety of other disciplinary settings, especially in the information and library science literature. Archivists are also collaborating with other disciplines interested in electronic records research, with

the result that researchers from other disciplinary backgrounds are publishing in archival journals.⁷

Most importantly, many changes have taken place in recent years in archival electronic records practice and thought, and these changes are reflected in the literature. Whereas early literature concentrated largely on grappling with the technical components of electronic records systems and presented a reasonably unified approach to the management of machine-readable records, publications of the past three years—which Terry Cook refers to as signaling “the arrival of the second generation of electronic records archives”⁸—have begun to look more closely at theoretical, policy, and media concerns. The growing body of electronic records literature includes the following shifts in emphasis:

- from the supremacy of the informational value of discrete data retained in flat files⁹ to the more archival approach of preserving and documenting the evidential value of the system as a whole by retaining it in software-dependent or standard-format files

- in recognition of the collaborative and multifunctional nature of electronic recordkeeping systems, less stress on the creator and more on the creating function and nature of use
- from the permanence of the physical record to the enduring value of the record’s informational and evidential content, maintained or replicated in whatever appropriate medium
- from archivists’ passive role of records recipient, appraiser, and custodian, to the proactive role of cultural documentor and intellectual gatekeeper of archival information
- from appraisal after records creation, and sometimes even after the end of their active life, to the definition and identification of potential archival records at the time when the recordkeeping system itself is being created
- from archivists attempting to be as technically expert as computer systems administrators to their working in partnership with such experts
- from electronic records strategies based on the experiences of government archivists working in legally mandated circumstances, to modified, even new, approaches within institutions (such as colleges and universities) where there may be a less clearly defined records management mandate and a heightened emphasis on the cultural and research implications of electronic media.

⁷See, for example, Avra Michelson and Jeff Rothenberg, “Scholarly Communication and Information Technology: Exploring the Impact of Changes in the Research Process on Archives,” *American Archivist* 55 (Spring 1992): 236–315; and Anne J. Gilliland-Swetland and Carol Hughes, “Enhancing Archival Description for Public Computer Conferences of Historical Value: An Exploratory Study,” *American Archivist* 55 (Spring 1992): 316–30.

⁸For an excellent discussion of recent major electronic records publications, see Terry Cook’s essay, “Easy to Byte, Harder to Chew: The Second Generation of Electronic Records Archives,” *Archivaria* 33 (Winter 1991–92): 202–16.

⁹The practice of retaining data in “flat” or software-independent files was originally adopted from the practices of social science data archivists primarily working with numeric data. This change in emphasis is also being driven by the advent of complex multimedia systems whose records are virtually impossible to identify and retain in flat files and by the implementation of standards for data exchange protocols.

The Role of Archival Literature in Electronic Records Instruction

The archival profession, although it is grappling with all the inter-related questions of self-definition, professionalism, and graduate education, has yet to generate texts

specifically designed for educational use. Classroom instruction in more traditional archival areas has developed in ways that do not have to rely on two or three texts; instead, homework exercises, seminar paper research, site visits, and practicums make up an appropriate mix of theory and practice. This approach has also relied heavily on the extensive experience of instructors, most of whom are either former practitioners or practitioners teaching as adjunct faculty.

This approach has not characterized electronic records education, however. Practical experience, even sites to visit, may be hard to come by, and the teachers of course in this area may not have as much personal experience on which to draw. In fact, we are at a point where the entire profession needs to be educated. This means that the students come from many disciplinary perspectives, levels of experience and education, and institutional backgrounds. They include not only inexperienced students but also archival practitioners, theoreticians, administrators, historians, and records managers. The level of experience in the profession in general also means that literature that may be useful or comprehensible to the practitioner, for example, may be less useful to the graduate student. Moreover, curricula and syllabi will have to take into account that technological developments and the records they generate will always stay a minimum of one step ahead of practicing archivists and even further ahead of the literature, subject as it is to the delays of printed publication.

Until a wider base of practical experience is built, the literature must serve as a primary instructional tool for a variety of educational settings and audiences, from workshops to courses of several weeks or even months duration. The literature must also be able to support an educational program in teaching a specific core of knowledge and skills expounding and amplifying archival theory and encouraging the development of long-term approaches and attitudes.

Strengths and Weaknesses of the Literature

Basic knowledge and archival skills. An up-to-date and far-reaching instructional text in electronic records management would be most valuable for teaching basic knowledge and skills. The fact that publications in SAA's new Fundamentals Series make only passing references to this fundamental aspect of archival administration¹⁰ reinforces how far archival thinking and education regarding electronic records still have to develop before such materials are viewed as integral to archival theory and practice. Two seminal publications in 1984—Margaret Hedstrom's *Archives & Manuscripts: Machine-Readable Records* and Harold Naugler's *Archival Appraisal of Machine-Readable Records*—although they still contain some useful schematics and approaches to mainframe database systems, serve more as illustrations of how far the profession has developed in the past ten years than as practical guides for current use. The most recent text to come close to this manual approach is *Keeping Data: Papers from a Workshop on Appraising Computer-Based Records* (1991), a compilation of essays by several Australian archivists.

NARA's *Managing Electronic Records* (1990) gives a brief overview of federal archival electronic records practices in everything from data security to preservation and provides a quick and dirty introduction for archivists working with government records. David Bearman's *Electronic Records Guidelines: A Manual for Policy Development and Implementation* (1990) is the most comprehensive and readable text currently available to archivists and policy makers in all institutional

¹⁰See Carole Elizabeth Nowicke, "Managing Tomorrow's Records Today: An Experiment in Archival Preservation of Electronic Mail," *Midwestern Archivist* 13 (1988): 67-75.

environments, and it comes closest to giving a checklist of considerations for implementing an electronic records management program. The United Nations' Advisory Committee for the Coordination of Information Systems (ACCIS) *Management of Electronic Records: Issues and Guidelines* (1990), for which Bearman was a major consultant, not only clearly outlines a wide series of approaches and options but also gives much useful background about the many systems in place in U. N. agencies. Both of these texts, however, are set firmly within a records management and information policy framework, and they do not delve much into the cultural and theoretical issues associated with electronic records.

Emerging technologies. In-depth discussion and explanation of emerging technologies such as geographic information systems, hypermedia, and virtual documents are also poorly addressed in these works, which largely reflect the needs of systems currently operating in government. In fact, in 1990, *Taking a Byte Out of History*, a report of the House Committee on Government Operations, strongly criticized federal archivists for applying inappropriate and outdated approaches designed for use with mainframe database systems to these emerging technologies. Charles Dollar's thoughtful *Impact of Information Technologies on Archival Principles and Methods* (1992), however, is eminently clear and readable and should help to fill this gap in the literature.

Communications media. Electronic communications media have been around for over twenty years, but they also have been only obliquely covered in the past by the archival literature. This omission was largely because of the technical and political difficulties the media presented to archivists, such as how best to capture and appraise such transient media without violating, or being perceived to violate, the personal privacy of the correspondents. There has also been a pervading sense among

users and archivists alike that electronic communications are used not for truly important administrative activities but rather in an informational and affirmative way, much as telephones are used. The materials thus generated often mix official and personal business in a way that might not be considered a record. These attitudes are changing as the use of communications media becomes more sophisticated and widespread. More archivists are becoming familiar with the many uses and genres of electronic communications media and aware of their documentary potential. The archival community has been further empowered to work with these media by the 1993 Richie decision regarding the National Archives' role in scheduling and preserving the contents of the White House electronic mail tapes. Archivists are also being aided by the increasing implementation of communications standards and document control structures by electronic communications systems.

The only study available to students in the 1980s was the small pilot project conducted by Carole Elizabeth Nowicke at the Navy Laboratories History Program in 1985. Although this project was a landmark attempt to investigate the archival value of electronic mail, its methodology, scope, and unique environment made it hard to replicate and therefore validate in other settings.¹¹ Nearly a decade after Nowicke's pilot study, a literature is beginning to develop. New readings on computer-mediated communication, technologies, and approaches to archival management include recent articles by Christinger Tomer and Richard Cox, Avra Michelson and Jeff Rothenberg, and Anne Gilliland-Swetland

¹¹For example, electronic records terminology, now commonplace in the archival literature, is not mentioned in the Lewis J. Bellardo and Lynn Lady Bellardo's *A Glossary for Archivists, Manuscripts Curators, and Records Managers* (Chicago: SAA, 1992), meaning that archival educators must construct their own glossaries for student reference.

and Carol Hughes.¹² David Bearman's forthcoming publication on electronic communications will undoubtedly also become primary reading.

Research methodology. Some of the skills and knowledge that need to be taught have not traditionally been associated with archival education. One such area is training in research methodology. The critical need to prepare archival students and practitioners to conduct research into the most effective ways to manage electronic records was recognized at the NHPRC Working Meeting on Research Issues in Electronic Records held in 1991. At that meeting, papers were presented by both Tora Bikson of the RAND Corporation, who has herself conducted extensive research in electronic information systems for several years, and by Margaret Hedstrom. The archival profession is not accustomed to conducting rigorous social-science-style research. In fact, even the historical research methods to which many archivists were exposed in graduate history programs have gradually been disappearing, either because they have fallen into disfavor within the discipline or because they are no longer considered to be meeting a need. Archivists have trusted that their theoretical approaches have sufficient bases in commonsensical practice that they will not lead them too far astray. For a number of reasons, electronic records are forcing the archival profession to review this approach. Neither archivists nor anyone else understands enough about the media and the associated organizational and sociological phenomena to just muddle through. The risks of losing our documen-

tary heritage are too great, and the costs of implementing major programs or systems are too high not to test some of the assumptions on which archivists are basing their practices. In the absence of existing case studies, rigorous research should not only be conducted but should also be made widely available in published form. Its publication would help considerably both in illustrating to archivists and archival students the issues involved in the archival administration of electronic records and in actually teaching appropriate research methodologies.

The role of standards. A particularly difficult new area of knowledge to teach is that of standards. It is critical that students understand that some standards for information technology, data exchange, and media preservation already exist. They need to know which bodies are responsible for their development, and how and to what extent they are implemented. The literature that does this is technical and fraught with acronyms and a confusion of overlapping standards-setting bodies. An additional problem is that in this dynamic environment, standards and works about them tend to be dated from the moment they are published. Two texts that do a good job of laying everything out are a 1990 article by Vicki Walch on the role of standards in the archival management of electronic records and a 1990 report commissioned by NARA, *A National Archives Strategy for the Development and Implementation of Standards for the Creation, Transfer, Access, and Long-Term Storage of Electronic Records of the Federal Government*,¹³ al-

¹²See Christinger Tomer and Richard J. Cox, "Electronic Mail: Implications and Challenges for Records Managers and Archivists," *Records & Retrieval Report* 8 (November 1992): 1-16; Michelson and Rothenberg, "Scholarly Communication and Information Technology"; and Gilliland-Swetland and Hughes, "Enhancing Archival Description for Public Computer Conferences."

¹³See Victoria Irons Walch, "The Role of Standards in the Archival Management of Electronic Records," *American Archivist* 53 (Winter 1990): 30-43; National Archives and Records Administration, *A National Archives Strategy for the Development and Implementation of Standards for the Creation, Transfer, Access, and Long-Term Storage of Electronic Records*

though even these may require several readings to grasp.

Critical thinking. This raises another function that archival electronic records literature must perform—the literature must help students to understand and be comfortable with professional formats and styles and to know how to locate the information they will need to be involved in when they participate in information policy making and manage their electronic records. A richness of the electronic records literature is that it gives students examples of consultants' reports, technical reports, and grant reports on a variety of topics. It exposes them to the language of standards, systems analysis, and legal documents, and to the more theoretical thought pieces archivists are accustomed to reading in their own literature. Students should be encouraged to read widely and critically in this literature since this serves many purposes beyond factual learning. Such reading demonstrates the limitations of existing texts in terms of coverage and the audience being addressed. It shows the places where consensus exists within the profession, but it also exhibits the diversity of thought that leads to essential new approaches and initiatives. It documents archivists' common interests with other disciplines and information communities and with archivists from other countries. Perhaps most important, it illustrates the exciting new breed of archival professional now emerging.

Archival theory. In 1989, Catherine Bailey wrote an important article on the impact of electronic records on archival theory. The article, taken from her master's dissertation at the University of British Columbia, was notable for two reasons. First, it was the first time that the theoretical rather

than technical concerns associated with archiving electronic media had been substantively raised in a major archival journal. Second, it marked a chronological turning point in the nature of published discussion.¹⁴ Some particularly interesting subsequent discussions have included David Bearman's advocacy of a new high-profile role for the archivist in the era of the "post-custodial" archives,¹⁵ Katharine Gavrel's concerns with the impact of the archivist's presence during the design of a system on the objectivity of the resulting record,¹⁶ and, following the lead of Luciana Duranti's work, the revisiting by several authors of the science of diplomatics to ascertain whether such an approach might have some application to electronic records.¹⁷ Because of the networked and collaborative nature of many electronic information systems, several authors have raised the need for the concept of provenance to be applied to electronic records in its fullest possible sense with the inclusion of functional provenance and multiprovenance.¹⁸

¹⁴See Catherine Bailey, "Archival Theory and Electronic Records," *Archivaria* 29 (Winter 1989–90): 180–96.

¹⁵See David Bearman, "Archives in the Post-Custodial Age," in *Archival Management of Electronic Records*, Archives and Museum Informatics Technical Report No. 13 (Pittsburgh, Pa.: Archives and Museum Informatics, 1991).

¹⁶See Katharine Gavrel, *Conceptual Problems Posed by Electronic Records: A RAMP Study* (Paris: UNESCO, International Council on Archives, 1990).

¹⁷Luciana Duranti has published an extensive exposition of diplomatics in a series of articles in *Archivaria*. For sheer elegance and vision about this modern application, however, students should see David Bearman's "Diplomatics, Weberian Bureaucracy, and the Management of Electronic Records in Europe and North America," *American Archivist* 55 (Summer 1992): 168–81.

¹⁸For example, Charles Dollar writes that archivists might "focus upon the function or competence that produces the records rather than the records themselves." David Bearman states that "each of these three loci of functional provenance information (data content, data structure, and data context) provides documentation of . . . 'evidential historicity' and can

of the Federal Government, National Archives Technical Information Paper No. 8 (Washington, D.C.: National Archives and Records Administration, June 1990).

Probably more has been written about appraisal than about any other single archival construct in relation to electronic records. With electronic systems, the part often cannot be intellectually, logically, or physically extrapolated from the whole without a considerable amount of effort and expense. In recognition of this, the appraisal of entire information systems has been a focus point since the earliest machine-readable records literature. As Bailey indicated, a central paradox that has confronted librarians now also confronts archivists: The ease, density, and comparative inexpensiveness of digital storage media can lead archivists, librarians, and other information professionals to be less discriminating about what and how much they collect. In other words, it may be cheaper and technically less difficult to keep everything than to perform any appraisal to select records of archival value. There are, of course, several legal, professional, and descriptive perils inherent in this approach, and appraisal of electronic records is an area of emerging professional debate. Several different positions can be found in archival literature. They range from the landmark approach developed by Harold Naugler for use with mainframe, largely batch-processed systems, to the variety of thoughts regarding the appraisal of more modern systems expressed by current leading U. S. and Canadian electronic records archivists in a collection of papers included in David

Bearman's *Archival Management of Electronic Records*. More radical strategies based on statistical analyses have also been raised by Gilliland-Swetland and Hughes.¹⁹

Cultural, societal, and research issues. Probably one of the most interesting aspects of electronic records, and one of the least treated by archival literature and practice, is their enormous potential to document existing culture and cultural change due to the implementation of electronic information systems. Such change is manifested in many ways, including through developments in organizational structure and behavior, ethics, concepts of individual privacy and right-to-access records, ownership, and information use patterns. To be truly effective in working with electronic information systems, archivists must be aware of the wide-ranging cultural, sociological, and legal implications of such systems. This aspect has yet to be widely addressed by archivists, although it is integral to Luciana Duranti's work on diplomatics and also to Hugh Taylor's very thoughtful essay, "My Very Act and Deed."²⁰ It is an area that gets to the heart of the archival role and that should receive much more attention in archival literature. Instructors should also look outside the professional archival literature, however, to find valuable materials that support this aspect. For example, in September 1991, *Scientific American* published a special issue devoted to the organizational and societal impact of computer-mediated communication. The U.S. Office of Technology Assessment's 1988 report *Informing the Nation* contains many words of warning about the implications of federal electronic recordkeeping and privatization

be contributed either by individual employees, the bureaucratic system, or the underlying technology." Katherine Gavrel concurs that "selection should be based on the business functions of the organizations involved," but also that "multiprovenance" will increasingly be used to describe information systems that are generated collectively by a number of offices or individuals. See Charles Dollar, *The Impact of Information Technologies on Archival Principles and Method* (Macerata, Italy: University of Macerata, 1992); Bearman, "Diplomatics, Weberian Bureaucracy, and the Management of Electronic Records"; and Gavrel, *Conceptual Problems Posed by Electronic Records*.

¹⁹Gilliland-Swetland and Hughes, "Enhancing Archival Description for Public Computer Conferences."

²⁰See Hugh Taylor, "My Very Act and Deed: Reflections on the Role of Textual Records in the Conduct of Affairs," *American Archivist* 51 (Fall 1988): 456-69.

of information services for citizens' access to public records.²¹

Informing the Nation raises fundamental issues for archivists in all institutional environments. Access and use are major areas that must be addressed in the literature before the profession can move much further ahead with the archival administration of electronic records and traditional collections that have been digitized for access and preservation purposes. Electronic records pose enormous challenges and opportunities for dissemination and use in digital format by both traditional and new user communities. CART's draft guidelines specified that "the archivist will list user communities for electronic records, describe methods to promote the use of electronic records among these communities, and identify specific user requirements."²² Charles Dollar reaffirms the need for this as well as intimating the ways in which electronic records will require archival reference services to be rethought and reconfigured.²³

Limitations of the literature. The existing literature is rapidly becoming more complex, diverse, and sophisticated, but it does have limitations. Some have already been mentioned above. When Michigan students were asked to evaluate their reading in terms of accessibility for instruction, they found it as a whole self-referential and introspective, repetitive, theoretical (that is, written by authors who are not currently actual practitioners), dated, insufficiently anticipatory of emerging technologies, jargon-filled, and presupposing an unrealistic level of technological knowledge on the part of the average archivist reader.

Students can be tough critics, but their comments point to some definite deficiencies in the literature. Key electronic records texts tend to be written by a small core of electronic records archivists and consultants, and the literature would benefit by input from a wider group of perspectives and settings from within the archival community. Texts such as consultants' reports are frequently unpublished and are therefore difficult to obtain through institutional libraries or to provide as copies to students. Case studies—which could be most useful instructional tools for demonstrating that the theoretical is actually practically applicable—and rigorous empirical research for systems evaluation and program development purposes simply do not exist in the archival literature. The technology changes more quickly than literature can be published, and dated publications can be misleading.

Toward a Richer Literature

There are several actions the archival profession, its practitioners, educators, and outside colleagues could take to encourage this enriching trend and to enhance archival education. What follows are some suggestions, not inclusive but meant to provoke further thought. One of the many reasons David Bearman's publications have been so successful and influential are that they are timely—by publishing his own material, as well as quickly disseminating the ideas and work of others, Bearman has been able to circumvent the customary professional publication delays. These suggestions also seek to provide timely access to materials necessary for archival education and are based on the realization that this is, and will continue to be, an extremely dynamic field.

The most important literary contribution the SAA could make to the development of archival electronic records management programs and instruction would be the development of a state-of-the-art electronic

²¹See United States Office of Technology Assessment, *Informing the Nation: Federal Information Dissemination in an Electronic Age* (Washington, D.C.: Government Printing Office, October 1988).

²²Electronic Records Cluster, IV. Electronic Records. *SAA/CART Draft Curriculum*, 1992.

²³Dollar, *The Impact of Information Technologies*.

records manual. Such a manual should be made available in hard copy with regular updates, but it should also reside on line in updated form as a File Transfer Protocol (FTP) file, available for reference through electronic communications networks to any archivist or archival student anywhere in the world. Since the field is becoming so diverse, and electronic records archivists and consultants have experience with and knowledge of various different technologies and institutional settings, many experts should be encouraged to write chapters.²⁴ The manual should include a current glossary of electronic records and computer systems terminology as well as an annotated bibliography.²⁵ As a companion to this, a handbook of case studies and exercises prepared by archival faculty and graduate students at universities across North America could be cooperatively compiled and distributed. These would be developed as a result of the graduate course work and sponsored research that is already under way in several universities. Such an on-line publication series could be hosted and coordinated at very little expense on a file-server operated out of one of the several North American graduate schools with a major archival education program.²⁶ Pointers to the appropriate files could easily be

included in network "gophers," such as those already loading archival finding aids and educational materials at Johns Hopkins University and the University of Michigan.

The National Historical Publications and Records Commission, which has prioritized an electronic records research agenda, could also contribute to building these files through the development of a standard reporting format for sponsored projects. Such a reporting format might include executive summaries that could then be compiled annually and distributed on line or in hard copy to the archival community. Archivists could find out about specific projects and contact the funded institutions directly to obtain more information. The *American Archivist* can also play a role by actively encouraging the publication of interdisciplinary electronic records research. These measures would not only distribute the costs of research more widely but would also help archivists and other information professionals learn from each other about common issues and new approaches.

Instructors of graduate education programs could investigate other creative ways to enhance archival electronic records literature and instruction as a whole. These innovative measures could include using multimedia compact disk technologies to produce and distribute instructional materials capable of incorporating visuals, student exercises, and simulations. They also might include the development of semester-long courses to be offered through distance education programs. Distance education, conducted through teleconferencing, has been used for many years by some universities to offer continuing education classes directly within business and engineering facilities inside and outside the United States. With reduced telecommunications costs and increased technological capabilities, the expenses of such programs are dropping considerably, and several library and information science schools have already implemented them as a way of

²⁴Questions about appropriate compensation for authors, as well as editorial review processes would, of course, have to be addressed. Because a major asset of such a publication would be its availability for immediate reference and downloading by any individual or institution, the question of copyright would also have to be addressed.

²⁵A fairly comprehensive bibliography is currently available through the Archives Library Information Center (ALIC), but since it is not annotated and contains much dated and ephemeral material, it is not as helpful to students as it might be.

²⁶For example, selected course materials from the course "Archival Administration of Electronic Records" will be made available this summer. Archival students at the University of Michigan School of Information and Library Studies are also hosting an online newsletter on the school's fileserver for SAA student chapters.

reaching rural or commuting students and increasing their educational catchment area. Archival programs in electronic records administration could be offered either through telecommunications or through the distribution of cheap compact discs, such as Kodak Photo CDs, to full-time practicing archivists in even the most remote areas of the country.

Such developments may seem to represent a large leap of faith from the traditional archival literature, but for the issue at hand—educating the archival profession and future archivists in electronic records management—it is time to take a serious look at them. If the literature is to continue to grow and to support an archival curriculum in electronic records, it must avail itself of the very technologies it seeks to teach practitioners and students to manage.

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