

Background Paper

Educating Archivists About Information Technology

TERRY EASTWOOD

Abstract: Archivists need to know how information technology is applied to recordkeeping and to the management of records. The needs in the two areas complement each other. Learning in both areas should proceed from a solid understanding of archival theory and method in order to ensure the protection of the integrity of archives as evidence of decision and action. With this goal in mind, strategies and tactics to bring about greater understanding of information technology in archival science can be devised to meet needs in both preappointment and postappointment education.

About the author: Terry Eastwood is associate professor in the School of Library, Archival, and Information Studies at the University of British Columbia, Vancouver, B.C., where he has been chair of the Master of Archival Studies Program since 1981. From 1973 to 1981, he was an archivist at the Provincial Archives of British Columbia. He holds a B.A. and an M.A. from the University of Alberta. His children seem to know more about information technology than he does.

ARCHIVISTS ARE DOUBLY AFFECTED by information technology.¹ It is perfectly clear that the new technology affects both the objects of the archivists' work—records—and the processes and products of their work. It is not so clear how the profession can best instill a working knowledge of information technology in its members, teach them about its application to both record-keeping and archival processes, and assist them in keeping abreast of its rapid advances. To propose some direction to the exercise, this paper examines the following questions:

1. Is it better to educate archivists about information technology in the framework of information studies in general or in a dedicated curriculum of archival study?
2. Is it better to think of learning about the application of technology to recordkeeping separate from learning about its application to archival functions, or may the two be combined?
3. Is it better to provide instruction in the new technology in a distinct curricular component or to integrate it into other subjects?
4. What should be the overall strategy of the profession?
5. What tactics should be followed?
6. What is the appropriate framework for setting objectives?

The aim of this approach is to see if some logical and persuasive arguments can be marshaled to direct what has been a rather haphazard and responsive activity of the profession into one more clearly seen in its wider implications and significant pedagogical dimensions.

Information Studies or Archival Studies?

Automation now rules the world of management of information and the creation, storage, retrieval, and communication of documents. It is no longer easy to separate cause from effect as one regards the march of automation into all realms of public and private endeavor. For archivists, automation's power to change the ways people look at, treat, and communicate information is either a regular occupational reality or an ominous preoccupation, but in either case, that power is inescapable and worrisome. It is sometimes supposed that information technology so changes the nature of the way people operate that our traditional ways of distinguishing archives from other documentary materials are invalid—that the theory on which archival methodology and practice have been built does not apply in this new world. Much of the literature on electronic records wrestles with just this question of whether traditional principles and methods can be applied or adapted to treat the records of the new technology.² This discourse spills over into the literature on education. For instance, Robert Warner suspects that separate education of archivists

is an idea whose time has passed, made somewhat obsolete by fast moving technological change which has diminished the theoretical basis and need. The challenge of the future will not be to specialize and particularize the various segments of the

¹For the purposes of this paper, *information technology* encompasses all uses of the computer for document creation, storage, retrieval, and communication and includes all technologies allied to those processes.

²For example, see Trudy Huskamp Peterson, "Archival Principles and the Records of the New Technology," *American Archivist* 47 (Fall 1984): 383–93, and Charles M. Dollar, *Archival Theory and Information Technologies: The Impact of Information Technologies on Archival Principles and Methods*, Informatics and Documentation, vol. 1, edited by Oddo Bucci (Macerata, Italy: University of Macerata, 1992).

information continuum and call attention to their differences, but instead to see how they can theoretically and practically be brought together and how much they interrelate.³

It is true that the whole world of documentary materials and all the disciplines that use and study recorded information sustain human knowledge building. If that alone were what Warner means, there would be no argument, but he wishes to draw the conclusion that "new technologies are making long cherished concepts held by all information handlers—librarians, archivists, record managers— seem mere provincialisms rather than sacred theory or immutable principles."⁴

It is important not to confuse specialization in the workplace with the question of the viability of disciplines of knowledge building. The modern world has seen two documentary disciplines arise and flesh out a theory, methodology, and practice. These disciplines are library science and archival science: one concerned with documents purposely generated to disseminate knowledge, the other concerned with documents created as a product of utilitarian activity; one the product of human thought turned on any given subject of interest, the other arising naturally in the course of our transactions with each other.

In recent years, library science has, depending on the viewpoint, either expanded to become a broader information science or joined with information science in uneasy partnership. Library and information science are essentially concerned with locating, organizing, and facilitating use of information that exists external to activity.

Although this type of information may be drawn into the activity, it is not the direct product of the activity. By contrast, archival science deals with information that is internal to the activity in question, generated as part of it and lingering as evidence of it. Archival science properly includes study of the genesis and management of this internally generated information throughout its existence, so records management as it is commonly understood falls in the domain of archival science.

Of course, the trouble is that people do not conduct business with this distinction in mind. They combine the tasks of gathering information and applying it to the purposes at hand with the tasks of generating, preserving, and maintaining evidence of action and decision. Often they cannot see any difference between the two sets of tasks. Nevertheless, the distinction does make sense in developing disciplined study of the documentary world, and it is also badly needed in the world of affairs to provide proper management of records on the one hand and nonrecord documentation on the other.⁵

⁵Fritz Machlup, "Semantic Quirks in Studies of Information," in *The Study of Information*, edited by Fritz Machlup and Una Mansfield (New York: John Wiley & Sons, 1983, p. 649), estimates that "more than 90 per cent of all information received during a day (week, month, year) by people in all walks of life is not related to any decisions or impending actions." It is presumably from this 90 percent of information ("intelligence received," in Samuel Johnson's definition of the term) that people orient themselves for action. In the 10 percent Machlup estimates is related to activity, there will be information drawn from the 90 percent "out there" and used in the course of the conduct of some affair, on the one hand, and information drawn from existing records of action and decision, on the other. Thus, the amount of information available from records is in fact a very small percentage of the flood of information people must wade through in any given day. But when evidence of particular decisions and actions is needed as proof of them, no source other than a record will do. The discipline and practice of the archivist focuses precisely on distinguishing records from the rest of the world of documents, understanding their properties, and devising means to protect them. Of course, records can

³Robert Warner, "Librarians and Archivists: Organizational Agenda for the Future," in *Archives and Library Administration: Divergent Traditions and Common Concerns*, edited by Lawrence J. McCrank (New York: Haworth Press, 1986), p. 174.

⁴Warner, "Librarians and Archivists," 176.

It is precisely the effects of information technology on recordkeeping which call for careful attention to matters of archival theory and method. Electronic information systems often constitute a composite of processes and procedures governing production, storage, and retrieval of documents, only some of which are records. Managing recorded information with the aid of the new technology then becomes primarily a matter of identifying and distinguishing the processes and procedures generating records from those generating other "nonrecord" documents, and then developing methods for control of the entire documentary output of the organization.

The objection is often raised that modern databases are not really made up of transactional records, that they are instead a species of new "document" created by sifting and manipulating the mass of information derived from both external and internal sources. The new technology appears to disembody information from documents or to draw it directly from observations of the world and make it into its own form of thing, tied inextricably to the computer's capacity to store, manipulate, and retrieve in various patterns what we have come to call *data*. Nonetheless, two kinds of processes remain, depending on the purpose for which the technology is used. One kind of process gathers and manipulates information to orient activity; the other generates and stores records of that activity. The two have different origins and different characteristics, and they require different treatment. To view them as though they were the same only compounds the problems administrators, legal authorities, and scholars have had in determining the completeness, reliability, and trustworthiness

of the records portions of modern information systems. There is no "diminished theoretical basis and need." On the contrary, there is greater need than ever to distinguish the processes and procedures for managing records from those for managing "nonrecord" documents, and the place to start making the distinction is in the education given the professionals who are responsible for preserving society's record of action and decision. Above all, education about the new technology must proceed from a thorough understanding of traditional theory and practice, for one must first appreciate the universal terms in which records are generated before one can assess what new means are necessary to ensure their continued effectiveness in the new environment.

One Question or Two?

Ideally, one question is at issue: How does society use information technology to create, store, retrieve, and communicate documents? Because of their pragmatic bent, archivists have regarded the problem as twofold. On the one hand, they have addressed the question of the preservation and accessibility of trustworthy electronic records. On the other, they have used the technology to carry out archival functions, at first mainly in relation to description and intellectual access to records but increasingly in relation to the entire range of archival functions. In principle, the dichotomy is false, for much that archivists must understand to deal with electronic information systems they must also comprehend to automate the archival office. For instance, a computerized system of information about potential donors used to orient acquisition activity may or may not be separate from records of the various actions taken in effecting a given acquisition. The former may change with impunity; the latter may not. Therefore, instruction in the application of automation to the management of archival

be approached for the information they bear without regard for their properties as evidence, but to consider records merely as vehicles of information robs them completely of their inherent and special value as vehicles of accountability of decision and action.

institutions can be used to augment and support instruction in the management of electronic records, but that does not mean that the distinction between the two can be entirely dissolved. Much as we need to see the issue as singular in a strategic sense, that is, in philosophy of archival education, we may still look at the two aspects as eventually needing special treatment as we go about the tactics of curricular design.

The important point of intersection between the two is in understanding the capacities of the new technology and the processes followed to harness it to the tasks at hand. Ample evidence now exists that archivists and records managers have moved far beyond the application of automation to store and retrieve information about records holdings. So, whether as related to the electronic information systems they must manage or to the ones they create to do their jobs, archivists and records managers need a firm foundation of knowledge in what the technology can do and in the processes used to apply it in the most effective ways.

A Separate Subject or Integrated Across a Curriculum?

At first glance, this question may appear to have a simple answer. Surely, the complexity of automation in society requires specialized study. Everyone must learn what computers are, what they can do, and how they can be applied to given tasks. We speak of computer literacy, as if one were learning a new language. It may be true that learning the language of the computer leads to new ways of thinking. Possessing the new literacy certainly expands one's ability to manipulate one's picture of any given aspect of the world, to conceptualize in new ways. The computer is a powerful tool to assist us in conceptualizing complexity and regulating our activities. Therefore, on the face of it, archivists may be expected to engage themselves in the task of becoming literate in this new language. We are no

doubt in a phase of transition to a kind of new literacy, possession of which is a precondition of an active life in almost any field of endeavor. In this period of transition, people who need a foundation of literacy must be given it. But that question aside, how do we construct for archivists a curriculum of study that instructs them in using information technology in the course of performing archival functions, on the one hand, and in developing methods for management of electronic records, on the other.

Any regimen of study for archivists should be based on the general theory of the nature of archives, and each subject should be treated theoretically, methodologically, and practically. The whole is an attempt at logical thought proceeding by analysis of the various concepts in each and every subject realm in each of those three dimensions. Because the general theory of archives makes no distinction on the basis of the form or medium of the record, there is in principle no justification for treating electronic records as a separate component of a curriculum. There is no good philosophical reason for doing so, and much is to be gained from looking at electronic records and their treatment together with other forms and format of record. For example, because appraisal of electronic records requires comprehension of the whole system in which the electronic records are a part, looking at electronic records in a course of study on appraisal reinforces the universal need of the archivist to be a student of recordkeeping systems. Because the condition of automated recordkeeping forces the archivist to be involved at the very genesis of systems, study of automated records breaks down the always somewhat artificial distinction between current archives and historical archives, and that study opens up to modern archivists—so imbued for over a century with their role as agent of the professional historiographical enterprise—new vistas of service to society's documentary memory making and utilization.

Such reasoning is what I call strategic. One views the whole of a curriculum or program, either preappointment or postappointment, as an integrated whole aiming at an elucidation of the ruling concepts of theory, methodology, and practice. However, the tactics of building a curriculum allow much latitude for defining specialized study so long as its objectives are in keeping with the overall strategic goal. The trouble with an approach that is too market oriented or, in postappointment education, too job oriented, is that it can easily degenerate into an exercise in how facets of the work are to be done. This process of fragmentation reduces education to a narrow form of training that merely reinforces the status quo and divorces skill building from the larger conceptual framework within which it operates.

It is therefore a great mistake to consider teaching and learning about automation in either of its aspects divorced from a conceptualization of a total package of study. The Committee on Automated Records and Techniques (CART) should develop its own tactical measures to instruct archivists about information technology. At the same time, it should urge the Society of American Archivists to define a total program of continuing education into which its efforts can fit. Difficult as that may appear to be, given the various levels of knowledge of members of the Society and the professional community in general, it is a surer route to eventual success than with the current ad hoc arrangements. Ideal as it might be to construct objectives with the individual learner in mind, the best that can probably be done is to construct a graded scheme from a fundamental level to an advanced level. Any teacher will tell you that the greater the range of ability and preknowledge of students in any given group, the less effective the instruction can be overall. One prime tactic, then, is to determine at which level any individual belongs.

The first step is to develop a component

of instruction for those who need the basics of literacy, divorced entirely from questions of archival application. The next step is to work out a fundamental level of instruction on the nature of electronic records, dovetailed with study of archival fundamentals in general. Then, there should be a component of specialized study of the management of electronic records all along the continuum of their existence. Advanced study of highly specialized questions, such as treatment of shared databases, might eventually be worked into the scheme. On the automated techniques side, one builds on basic literacy (the common foundation of the two aspects) by melding the basics of arrangement, description, and archival adaptation of methods of bibliographical control with instruction in the concepts ruling automation of the archival office.

In either case, past efforts have been too piecemeal. To leap into instruction of the treatment of electronic records as if it were a matter of some arcane technical orchestration of a priesthood of specialists, or to leap into instruction in the USMARC AMC format as if it were a matter of formatting one's mind, leaves everyone dissatisfied and groping for more. The key issue is indeed to integrate instruction in automation into a broader effort at archival education, but not completely, for one can with good reason adopt the tactical measure of specialization once literacy and fundamentals are dealt with. CART cannot afford to ignore these decisions about curriculum design as it looks to build a sensible program of instruction in automated records and techniques. The overall design will then guide construction of specific objectives for particular components of the overall program of education in the area of automation.

Strategy

Archivists in the United States and Canada find themselves at a distinct educational disadvantage. Few have had either an ad-

equate preappointment education in the fundamental concepts of archival science or the opportunity to study in specialized areas. So there exists both a feverish desire to learn and a strong tradition of mutual self-help where education is concerned. That desire and tradition constitute a great strength of archivists, the backbone of their professionalizing culture. But it is not enough to desire to know and to be willing to help. Education is not something dispensed and received haphazardly by men and women of goodwill. A short workshop or two will not fill the need. The deficit of knowledge almost across the board is too great not to work out some overall scheme for the future of both preappointment graduate education and postappointment continuing education. Given the desire and goodwill that exists, it would not seem to be too much to ask that SAA devise plans in both areas to achieve the goal of adequate education for the profession.⁶

That goal should be that every archivist and prospective archivist have an adequate opportunity to acquire knowledge of the fundamental concepts of the theory, methodology, and practice of the profession, some knowledge of its history and development, and knowledge in more advanced and specialized areas. Instruction in automation fits into the strategy in several ways. Computer literacy is a *sine qua non* of being an archivist today; it is therefore one of the fundamentals. Study of automated records ought to be addressed in offerings on fundamental subjects like basic theory, ar-

rangement and description, appraisal, and reference service. Administration of programs for automated records should be the subject of advanced or specialized offerings. A similar pattern emerges when one considers automation of the archival office. The basis is a combination of the fundamentals of archival arrangement and description and aspects of modern methods of bibliographical control as adapted to archival needs, an area that might be called archival control. Design of automated systems of archival control would fall into the advanced category; use of the USMARC AMC format into the specialized category.

Tactics

If strategy is a grand plan of attack on our educational deficit, are there any useful tactics to pursue on the information technology front? CART could indeed devise its own interim scheme in consonance with the main features of a strategy built on progressive learning from fundamentals through advanced and specialized offerings.

In relation to computer literacy, the most sensible approach is to demand it as a prerequisite, with a well-defined statement of the knowledge to be acquired. Our society offers innumerable places in which one can acquire the basic knowledge and skills needed for entering the sphere of archival education properly equipped to address automated records and technology issues. The anyone-can-come approach may be democratic, but it is also pedagogically counterproductive.

Having established this basic prerequisite, one can begin to look at the substance of what needs to be learned on both the automated records and automated techniques fronts and on both the fundamental and advanced levels. It would be wise to desist altogether from starting at the wrong end of the scale with management of programs for electronic records or courses on the USMARC AMC format. Until such

⁶Since this paper was written, the SAA has issued, in draft, "Guidelines for the Development of a Curriculum for a Master of Archival Studies," which places study of theory and methodology at the heart of the curriculum. The guidelines also take the view that studies of information technology will be woven into the various subjects as appropriate. Although this may be reasonable in a well-articulated, preappointment graduate program of studies, continuing education may with equal reason address information technology issues directly from time to time.

specialized instruction can be built into the scheme, I would leave it to employers who feel archivists need training in managing programs or application of MARC AMC to see they get it. In that regard, it is appropriate and even wise for professional organizations to put some of the burden of knowledge building on archivists themselves and on their employers. All three parties must have a stake in the activity born of contribution. No free ride for any party, because free riders do not take the matter seriously, or so students of continuing education have found.⁷

Framework for Objectives

One cannot begin to define educational objectives without having an overall curricular plan and some notion of the actual scheme of courses one will devise to deliver on the plan. Something like the above suggestions for strategy and tactics will provide part of the framework, but there is more to the matter of defining objectives.

Educational objectives that express very specific outcomes along a narrow series of paths are quite inappropriate for professional education. Whether it is graduate education for prospective archivists, postappointment education of a remedial kind for those who missed the opportunity to study their discipline, or continuing education for well-formed professionals, objectives cannot be mistaken for curricular substance. The greatest problem the professionalizing archival discipline has is the lack of a common understanding of a common body of knowledge from which archivists acquire a common habit of mind. The field is already so badly fragmented by the specialization of work that some common outlook is urgently needed just so people can communicate on something like even

terms to get complex tasks done. Addressing this overriding problem would also help archivists overcome the sense that every minor change in technology constitutes some sort of fundamental challenge to the profession.

If archival education of every kind is to be an exploration by the student of theory, method, and practice rather than a step-by-step training process with narrowly defined outcomes, the objectives that are set for any offering ought to be clearly tied to the concepts to be explored or elucidated. All of the talk about educating archivists in information technology is a discussion of education for mature learners, people with at least one university degree, many of whom cannot abide a how-to, technique-oriented approach. Rather, they need ideas to animate the thought processes they bring to every situation they now face or will face in their daily work as archivists. Professionals think their way through everyday problems on the basis of a well-constructed mindset open to both the variety and anomaly of life. It is impossible to build real skills without building the basis of thinking, for them. Education is about *thinking*, not about skill building directly. People no doubt are comforted to think of education in terms of skill building, but a person who cannot think his or her way through the thicket of variety and anomaly cannot apply a skill. Indeed, one suspects that many archivists have been so overwhelmed by the variety and anomaly of their world that they do not believe there is or could be a common body of universally applicable concepts to order and direct their thinking, no matter the situation.⁸

Prior attention to the concepts that are to be the substance of teaching and learning

⁷See, for example, Elizabeth Stone, *Continuing Education for Librarians* (Metuchen, N.J.: Scarecrow Press, 1974).

⁸This is certainly the view of John Roberts; see "Archival Theory: Much Ado About Nothing," *American Archivist* 53 (Winter 1987): 66–74, and "Archival Theory: Myth or Banality," *American Archivist* 53 (Winter 1990): 110–20.

will ensure that objectives do not become narrow but disembodied skill building with no real purpose. Some of those concepts are about information technology, but others are the pillars of archival science. None of them fail to apply to the world of automation.

Archives are a natural outgrowth of administrative and personal activity. Archivists have an obligation to observe that naturalness so that their holdings represent proper memorials of past actions and events. Because archives are the natural outgrowth of continuing activity, no archival document stands alone; rather, each is part of a network of documents related by virtue of the activity and documentary processes and

procedures creating them. Archivists' obligation is twofold: they must not obscure or impair the relationships among interrelated documents, and they must make the relationships evident to the users of archives. Moreover, each archive and each archival document within it is a uniquely placed utilitarian creation. It is the archivist's duty to demonstrate and defend the uniqueness and utility of records as vehicles of accountability vital to the well-ordered and continued operation of society. Understanding and use of the tools of information technology in recordkeeping and archival work is obviously necessary to fulfill that duty in the information age.