Managing the Present: Metadata as Archival Description

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Résumé

Une description archivistique entreprise lors des dernières étapes du cycle de vie des documents a deux effets nuisibles sur la profession d'archiviste: d'abord elle crée un énorme, et parfois insurmontable, arrérage; ensuite, cette pratique limite notre capacité de saisir l'information contextuelle et structurelle tout au long du cycle de vie des systèmes de gestion des documents, lesquels sont essentiels à la pleine compréhension des fonds de nos institutions. Cette situation a résulté en un savoir incomplet qui rend difficile l'évaluation et complique l'accessibilité des documents. De telles complications n'iront que s'accroisser avec le développement rapide de l'informatique et l'utilisation de logiciels de plus en plus complexes dans les organisations. Une approche méta-informationnelle de la description archivistique aidera à résoudre ces problèmes et à rehausser le profil des archivistes qui seront progressivement perçus comme des gestionnaires au savoir précieux et responsables.

Abstract

Traditional archival dsecription undertaken at the terminal stages of the life cycle has had two deleterious effects on the archival profession. First, it has resulted in enormous, and in some cases, insurmoutable processing backlogs. Second, it has limited our ability to capture crucial contextual and structural information throughout the life cycle of record-keeping systems that are essential for fully understanding the fonds in our institutions. This shortcoming has resulted in an inadequate knowledge base for appraisal and access provision. Such complications will only become more magnified as distributed computing and complex software applications continue to expand throughout organizations. A metadata strategy for archival description will help mitigate these problems and enhance the organizational profile of archivists who will come to be seen as valuable organizational knowledge and accountability managers.

Sue Gavrel has recently observed that within the electronic environment, archivists

> may not be able to continue to perform functions in the way they are presently undertaken.... Electronic records cannot be left to sit on shelves for years before being processed. New archival organizational structures must be created to ensure that records can be maintained in a useable form.[1]

This essay affirms this call for evaluation and asserts that the archival profession must embrace a metadata systems approach to archival description and management.

It has been noted that archival description systems have always been metadata systems—systems of information describing information systems.[2] Within the realm of electronic records management, metadata has been defined as "[d]ata describing data and data systems, that is the structure of databases, their characteristics, location, usage and the like."[3]

Evidently the term metadata can carry different connotations for archivists. Some archivists have used the term metadata to refer to such sources as the US Federal Register, personnel systems containing information on organizational structure, legislative information systems documenting the establishment of new offices and the assignment of new functions, policy files, internal reports, organizational charts, programme audits and evaluations, and any other documentation that illuminates organizational mandates and functions.[4] Other archivists have drawn upon the term to identify various aspects of electronic information systems. Here metadata has alternatively been associated with information locator systems (ILS), information resource directories, data dictionaries, and document profiling software.[5]

The recent report of Society of American Archivists (SAA) Committee on Automated Records and Techniques (CART) on curriculum development has argued that archivists need to "understand the nature and utility of metadata and how to interpret and use metadata for archival purposes." The report advises archivists to acquire knowledge on the meanings of metadata, its structures, standards, and uses for the management of electronic records. Interestingly, the requirements for archival description immediately follow this section and note that archivists need to isolate the descriptive requirements, standards, documentation, and practices needed for managing electronic records.[6] Results from a pioneering investigation into different software applications including databases, data dictionaries, and electronic mail conducted by the New York State Archives and Records Administration has found that, while containing much useful resident metadata, such systems do not naturally produce a full compliment of archival quality metadata that will assist archivists in their myriad of descriptive tasks. While some metadata was found to provide insight into the "business function and systems context of records," the utility of other metadata was constrained by the original non-archival intentions the metadata was designed to support.[7] In addition to New York State, recognition of the failure of existing software applications to capture a full compliment of metadata required for record-keeping and the need for

such records management control tools has also been acknowledged in Canada, the Netherlands, and the World Bank.[8] In Australia, David Roberts has differentiated electronic records from both electronic documents and electronic data. Here the uniqueness of the record is characterized by the spotlight it shines on accountability, transactional origins, and evidential qualities.[9] Clearly, archivists need to identify what types of metadata will best suit their descriptive needs, underscoring the need for the profession to develop strategies and tactics to satisfy these requirements within active software environments.

Underlying the metadata systems strategy for describing and managing electronic information technologies is the seemingly universal agreement amongst electronic records archivists on the requirement to intervene earlier in the life cycle of electronic information systems. Data within the digital environment is highly transformative, participating in a plethora of transactional activity. Archivists must identify what is required to define and capture records as evidence within this environment. It is held here that the requirements for records capture and description are the requirements for metadata.

Metadata has loomed over the archival management of electronic records for over five years now and is increasingly being promoted as a basic control strategy for managing these records. Some archivists forecast that a metadata approach will fundamentally recast archival description.[10] Charles Dollar, for example, has asserted that in the electronic realm

> arrangement and description [would be treated] as a single activity.... description would occur at the time of information systems design and would be reflected in an information resource dictionary system, which, among other things, would identify all of the information elements, define their relations, explain their context of creation and use, provide audit trails of use, and specify organizational responsibility for their maintenance.[11]

Additionally, Margaret Hedstrom has argued that electronic records provide an environment where

> the descriptive paradigm will shift from the current practice of augmenting scarce descriptive information to one of selecting from an abundance of metadata, which could form a complete audit trail of all actions taken to create, update, and modify a record, and of all its uses. Automated systems have the capacity to capture and record far more descriptive information than was technically possible or economically feasible with manual systems. [However, she also warns that as] descriptive practices shift from creating descriptive information to capturing description along with the records, archivists may discover that managing the metadata is a much greater challenge than managing the records themselves.[12]

One factor driving this shifting focus is the fact that not all electronic information systems are record-keeping systems. Unfortunately, non-record-keeping systems are the norm within organizations and reflect the dominant database design methodologies, which treat redundant data as wasteful and contributing to inaccuracy. The timeliness and reusability of the data is prized over its utility for organi-

zational accountability. Such systems do not produce records because they were never intended to do so. In sharp contrast, record-keeping systems capture, maintain, and provide access to evidence of organizational transactions and functions. Archivists must seek to influence the creation of record-keeping systems within organizations by connecting the transaction that created the data to the data itself. Such a connection will link informational content, structure, and the context of transactions. Only when these conditions are met will we have records and an appropriate infrastructure for archival description.[13]

Multilevel archival description takes the record as its base. In a recent exploration into the genealogy of the "record," Richard J. Cox found that by mid-century the legacy of Muller, Feith, and Fruin, Jenkinson, Norton, and Schellenberg had bestowed a "firm sense of a record as a transaction and as evidence of transactions."[14] This principle has become accepted doctrine within the United States,[15] Australia,[16] and Canada.[17]

More recent archival literature has continued the adherence to transactions and evidence, promoting them as keys to understanding records and recordness.[18] The barrier faced by archivists in the electronic environment is that software applications are often remiss in capturing the breadth of contextual information required to document transactions and create records.[19] Charles Dollar has argued that archivists increasingly will have to rely upon and shape the metadata associated with electronic records in order to fully capture provenance information about them.[20]

As hinted at above, the central change wrought by the computer is the looming mutability of the record itself. Both the archival community and the larger society are struggling with these complexities and their fallout. The National Archives of Sweden has initiated an ongoing research project that is addressing the issue of recordness in the electronic environment.[21] In an ongoing lawsuit dealing in part with the record status of electronic mail messages created within the Executive Office of the President of the United States, a federal appeals court has upheld a prior ruling by stating that print copies of electronic mail messages are incomplete surrogates, noting that a

> paper rendering will not ... necessarily include all the information held in the computer memory as part of the electronic document. Directories, distribution lists, acknowledgements of receipts and similar materials do not appear on the computer screen—and thus are not reproduced when users print out the information that appears on the screen...[Thus] essential transmittal information relevant to a fuller understanding of the context and import of an electronic communication will simply vanish.[22]

There is a fear in the electronic environment that, by relying on traditional methods, by the time archivists even see these systems, such information, as well as traces of such volatile systems features as configuration management, user views, and permissions, will have been lost. This reality helps to distill further the basic challenges electronic records pose to traditional methods of archival description.

In conjunction with experts in electronic records management, an ongoing research project at the University of Pittsburgh has developed a set of thirteen

functional requirements for record-keeping. These requirements provide a concrete metadata tool sought by archivists for managing and describing electronic records and electronic record-keeping systems. Before moving on to a discussion of these requirements, however, let us review the process of traditional archival description and more concretely elucidate the metadata systems approach.

In a recent examination of the shifting notions over what properly constitutes "archival description," Luciana Duranti found that the term itself remained undefined until the 1970s. Over the following decade concern over the *concept* of archival description emerged, evolving from a product-oriented focus (i.e., finding aid preparation) to a process-oriented focus characterized by a broader array of archival activity. Here, the development of knowledge bases of the entities, functions, and processes that circumscribe records creation and use is increasingly coming to be seen as centrally important.[23] A metadata systems approach seeks to satisfy these requirements.

Archival description has normally been wedded to either deciphering or creating the arrangement of *accessioned* records. The assumption that description requires custody and that the archivist's best labours are spent on creating description are basic tenets of the discipline. Upon the transfer of a part of a fonds to the archives, the archivist pores over the accessioned records and uses additional documentation to create finding aids that reflect both the external provenancial and internal documentary structures of the accession.[24]

Frederic Miller has provided the profession with a useful breakdown of the types of descriptive tools currently created and employed by archivists. Internal descriptive tools, those that are used within the archives repository itself, are exemplified by Accession Documents, Creator-Supplied Finding Aids, Inventories, Series-Record Creator Linking Systems, Indexes, and Catalogues. External descriptions are designed to inform potential users as to the holdings of a particular repository. Guides, Specialized Descriptions such as lists of individual documents with high research value, and Summary Collective Descriptions such as entries for the National Union Catalog of Manuscript Collections (NUCMC) or USMARC AMC records loaded into the Research Libraries Information Network (RLIN) are examples of external finding aids.[25]

The assumptions and practices underlying the production of the vast majority of these archival descriptive tools was first directly challenged by David Bearman in *Archival Methods*.[26] Bearman asserts that the dominant processing and description procedures employed by archivists are inadequate from both a resource and documentation perspective. We are underequipped to describe the holdings in our repositories and have been remiss in exploiting existing documentation to facilitate intellectual control. It has been demonstrated by other researchers that our finding aids have been relatively ineffective in drawing researchers into our institutions.[27] Bearman proposes a metadata systems strategy, which would focus more explicitly on the context out of which records arise, as opposed to concentrating on their content. This axiom is premised on the assumption that "lifecycle records systems control should drive provenance-based description and link to top-down definitions of holdings."[28] Overseeing this process is a concrete tactic wherein archivists would collect and manage existing descriptive metadata instead of independently

creating it. Bearman's argument centers on a methodological and operational reorientation wherein archivists would utilize the information about an organization and its record-keeping systems that was organically created by the organization, instead of drafting post hoc descriptions drawn largely off these same sources. The impetus and requirement for this is quite evident in the electronic realm, where the absence of archival intervention during all phases of information systems life cycle will perhaps largely negate the need for post hoc analysis. The documentation associated with these systems may be incomplete or inadequate and/or the records may no longer exist due to either technological obsolescence, deteriorating media, or poor original software design that neglected records creation and capture in the first place. Bearman asserts that archivists need to "develop systems that enable descriptions of records to grow dynamically from their entire history of creation and use," including their administration by the archives and their use by creators and external users.[29]

Bearman and Margaret Hedstrom have built upon this model and contend that properly specified metadata capture could fully describe systems while they were still active and eliminate the need for post-hoc description. The fundamental change wrought in this approach is the shift from *doing things to records* (surveying, scheduling, appraising, disposing/accessioning, describing, preserving, and accessing) to *providing policy direction for adequate documentation through management of organizational behavior* (analyzing organizational functions, defining business transactions, defining record metadata, identifying control tactics, and establishing the record-keeping regime). Within this model archivists focus on steering how records will be captured (and *that they will be* captured) and how they will be managed and described within record-keeping systems while they are still actively serving their parent organization.[30]

Through the provision of policy guidance and oversight, organizational record-keeping is managed in order to ensure that the "documentation of organizational missions, functions and responsibilities ... and reporting relationships within the organization, will be undertaken by the organizations themselves in their administrative control systems." Documentation compiled by organizational members within this framework has the potential to be more comprehensive and easier to collect than what will be possible through post hoc description. If adequately modelled, such documentation systems could facilitate the creation of linked knowledge bases such as persons, functions, activities, procedures, and organizational structure reference files.[31] This process will incorporate systems and organizational documentation from active office settings directly into archival information systems designed to serve ongoing operational and organizational memory requirements. Through a metadata systems approach, archivists can realign themselves strategically as managers of authoritative information about organizational record-keeping systems, providing for the capture of information about each system, its contextual attributes, its users, its hardware configurations, its software configurations, and its data configurations. By linking documentation about these systems to the actual record-keeping systems themselves, archivists may come to find that their efforts will focus more on gathering and managing descriptions than on creating them.[32]

The University of Pittsburgh's functional requirements for record-keeping provides a framework for such an information management structure. These functional requirements are appropriately viewed as an absolute ideal, requiring testing within live systems and organizations. If properly implemented, however, they can provide a concrete model for metadata capture that can automatically supply many of the types of descriptive information both desired by archivists and required for elucidating the context out of which records arise.

Their main objective is to ensure that the parent organization is compliant, that it has accountable record-keeping systems, and that its records are captured, maintained, and usable over time. Satisfaction of these functional requirements will result in the creation of a broad range of descriptive metadata, including such items as:

* An authority system of laws, regulations, and statements of best practices that are linked to internal retention rules attached to records.

* A knowledge-base of persons authorized to engage in business transactions and the business transactions they are authorized to engage in.

* Business rules for transactions that link the transaction to its associated business function.

* Documentation of transactions that either index, classify, schedule, file, view, copy, distribute, or move a record via audit trails attached to the original record.

* Information on the content, structure, and context of records and a link to the business transaction that generated them and to other processes they participated in.

* Linkages between records participating in the same business activity.

* System-defined user views and permissions.

* Written system policies and procedures.

Each of the thirteen functional requirements making up this model can be broken down into metadata specifications, which themselves can be broken down into production rules that can be written into software code and incorporated into live systems.

It is possible that satisfying these requirements will contribute to the development of a robust archival description process integrating "preservation of meaning, exercise of control, and provision of access" within "one principal, multipurpose descriptive instrument" hinted at by Luciana Duranti as a possible outcome of the electronic era.[33]

In 1989, the Society for American Archivists' Working Group on Standards for Archival Description (WGSAD) defined description as the

> process of capturing, collating, analyzing, and organizing any information that serves to identify, manage, locate, and interpret the holdings of

> archival institutions and explain the contexts and records systems from which those holdings were selected.[34]

Taking this definition seriously requires that the archival community adopt innovative and largely unexplored methods of description. Archivists need to create an environment where the required bases for knowledge representation and archival description will largely be captured and not written by archivists.

Archivists have adopted broad collective description of records not because we necessarily wanted to, but rather because we had to. The physicality of the records made their analysis, processing, and retrieval a rigorous process. However, since electronic records are logical and not physical entities, there is no physical effort required to access and process them, just mental modelling. We can have systems label individual records as they are created with the types of collective description we want attached at creation and throughout their use.

Depending on the type of metadata that is built into and linked to electronic information systems, it is possible that users can identify individual records at the lowest level of granularity and still see the top-level process it is related to. Furthermore, records can be reaggregated based upon user-defined criteria through metadata links that track every instance of their use, their relations to other records, and the actions that led to their creation.

First and foremost, the promise of metadata for archival description is contingent upon the creation of electronic *record-keeping* systems as opposed to a continuation of the *data management* orientation that seems to dominate most computer applications within organizations. The University of Pittsburgh's functional requirements for record-keeping present the discipline with a model for capturing records within computer environments, consciously linking the elements of content, structure, and context that produce records and evidence. As with so many other aspects of the archival endeavour, these requirements and the larger metadata model for description that they are premised upon necessitate further exploration through basic research.

Traditional archival description undertaken at the terminal stages of the life cycle has had two deleterious effects on the archival profession. First, it has resulted in enormous and, in some cases, insurmountable processing backlogs. Second, it has limited our ability to capture crucial contextual and structural information throughout the life cycle of record-keeping systems that are necessary for fully understanding the fonds in our institutions. This shortcoming has resulted in an inadequate knowledge base for appraisal and access provision. Such complications will become magnified as distributed computing and complex software applications expand throughout organizations over the next decade. A metadata strategy for archival description will help to mitigate these problems and enhance the organizational profile of archivists, who will come to be seen as valuable organizational knowledge and accountability managers.

Notes

* Article based on a paper read at the annual conference of the Association of Canadian Archivists, Ottawa, 25 May 1994.

1 Katharine Gavrel, *Conceptual Problems Posed by Electronic Records: A RAMP Study* (Paris, 1990), p. 45.

2 David Bearman, *Archival Methods* (Pittsburgh, 1989), p. 37.

3 This definition has been used in three different archival glossaries. See United Nations, Advisory Committee for the Co-ordination of Information Systems, *Management of Electronic Records: Issues and Guidelines* (New York, 1990), p. 167; Charles M. Dollar, *Archival Theory and Information Technologies: The Impact of Information Technologies on Archival Principles and Methods* (Macerata, 1992), p. 87; and, Lewis J. Bellardo and Lynn Lady Bellardo (comps.), *A Glossary for Archivists, Manuscripts Curators, and Records Managers* (Chicago, 1992), p. 22.

4 Bearman, *Archival Methods*, pp. 35-36; Terry Cook, "Mind Over Matter: Towards a New Theory of Archival Description," in Barbara L. Craig, ed., *The Archival Imagination: Essays in Honour of Hugh A. Taylor* (Ottawa, 1992), fn. 6, p. 60.

5 New York State Forum for Information Resource Management Reports: "New York State Sourcebook Pilot Project: A Metadata Approach to Information Management" (March 1992); From the Sourcebook to a Government-Wide Information Locator System: "Next Steps for Sourcebook Expansion" (March 1992). Chuck Robb, "Information Resource Management in Kentucky State Government," *Archives and Museum Informatics* 5 (Winter 1991), pp. 2-4. Charles M. Dollar, "Archivists and Records Managers in the Information Age," *Archivaria* 36 (Autumn 1993), p. 47. Tom Ruller, "Sharing the Pain, Using Data Administration Tools to Describe Electronic Records." Nicklaus Butikofer, Presentation to the Working Meeting on Electronic Records Management, Pittsburgh, 8-10 April 1994. Butikofer described the Swiss National Archives automated registry system. National Archives of Canada, "The IMOSA (Information Management and Office Systems Advancement) Project: Phase I Report" (1991). Karl Lawrence, "World Bank: Electronic Document Management System: Functional Requirements, Working Draft, 19 April 1994.") For a review of the archival literature on metadata see David A. Wallace, "Metadata and the Archival Management of Electronic Records: A Review," *Archivaria* 36 (Autumn 1993), pp. 87-110.

6 Committee on Automated Records and Techniques, "Final Report: Automated Records and Techniques Curriculum Development Project," *American Archivist* 56 (Summer 1993), pp. 488-489.

7 Alan Kowlowitz, Presentation to the Working Meeting on Electronic Records Management, Pittsburgh, 8-10 April 1994. The author wishes to thank Mr. Kowlowitz for sharing his "Draft Thinking" Summary Report of the New York State Archives and Records Administration Metadata Projects.

8 John McDonald, "Managing Active Records: Office Records Management: Lessons from Project IMOSA," Presentation to the Working Meeting on Electronic Records Management, Pittsburgh, 8-10 April 1994; T.K Bikson and E.J. Frinking, *Preserving the Present: Toward Viable Electronic Records* (The Hague, 1993), pp. 25, 64; and, Lawrence, "World Bank: Electronic Document Management System: Functional Requirements, Working Draft, 19 April 1994."

9 Roberts, "Defining Electronic Records, Documents and Data." In his chapter on special formats in the second edition of *Keeping Archives*, p. 417, Roberts provides the following working definition for electronic records:

* information
* created and used in the transaction of business
* kept as evidence of that business
* capable of being processed in a computer system
* stored at any instant in a medium which requires electronic or computer equipment to retrieve it.

For detailed insights into the relationships between accountability, context and transactions, see David Bearman, "Archival Data Management to Achieve Organizational Accountability for Electronic Records," pp. 215-228, and Frank Upward, "The Significance of Bearman's 'Simple Shared Goal' for Australian Records Managers," pp. 229-244, in Sue McKemmish and Frank Upward, eds., *Archival Documents: Providing Accountability Through Recordkeeping* (Melbourne, 1993). Upward goes so far as to suggest that "links between context, transactionality and organisational accountability could be the salvation of the profession [records management]," p. 240. A recent document produced by the World Bank strictly defines records as documents which "document the transactions, business processes and activities of the organisation." See Lawrence, "World

Bank: Electronic Document Management System: Functional Requirements, Working Draft, 19 April 1994."

10 David Bearman, "Documenting Documentation," *Archivaria* 34 (Summer 1992), pp. 33-49; David Bearman, "Record-keeping Systems," *Archivaria* 36 (Autumn 1993), pp. 16-36; Dollar, *Archival Theory and Information Technologies*, pp. 60-62; Margaret Hedstrom, "Description Practices for Electronic Records: Deciding What is Essential and Imagining What is Possible," *Archivaria* 36 (Autumn, 1993), pp. 52-63; and, David Bearman and Margaret Hedstrom, "Reinventing Archives for Electronic Records: Alternative Service Delivery Options," in Margaret Hedstrom, ed., *Electronic Record Management Program Strategies* (Pittsburgh, 1993), pp. 82-98.

11 Dollar, *Archival Theory and Information Technologies*, p. 62. Dollar continues on, arguing that "an information resource dictionary would constitute a first draft of a rudimentary inventory of an information system, and a finding aid to the products of the information system to which a more comprehensive archival description would later add value."

12 Hedstrom, "Description Practices for Electronic Records," p. 59.

13 David Bearman, "Creating Electronic Evidence: Functional Requirements for Recordkeeping." Presentation to the Working Meeting on Electronic Records Management, Pittsburgh, 8-10 April 1994.

14 Richard J. Cox, "The Record: Is It Evolving?" *Records & Retrieval Report* 10 (March 1994), pp. 10-11. Cox cites the works of Samuel Muller, J.A. Feith, and R. Fruin, *Manual for the Arrangement and Description of Archives*, trans. by Arthur H. Leavitt (New York, 1968; orig. 1898); Hilary Jenkinson, *A Manual of Archive Administration* (London, 1966; orig. 1922); Thornton W. Mitchell, ed., *Norton on Archives: The Writings of Margaret Cross Norton on Archival and Record Management* (Carbondale, 1975); and, T.R. Schellenberg, *Modern Archives: Principles and Techniques* (Chicago, 1956).

15 44 USC 3301 defines records as "all books, papers, maps, photographs, machine-readable materials, or other documentary materials regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal Law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the informational value of the data in them."

16 Glenda Acland, "Glossary," in Judith Ellis, ed., *Keeping Archives*, 2nd ed. (Port Melbourne, 1993), p. 477, has defined a record as "Documents containing data or information of any kind and in any form, created or received and accumulated by an organisation or person in the transaction of business or the conduct of affairs and subsequently kept as evidence of such activity through incorporation into the recordkeeping system of the organisation or person."

17 Planning Committee on Descriptive Standards, *Rules for Archival Description* (Ottawa, 1990), p. D-6, has defined a record as "A document made or received in the course of the conduct of affairs and preserved."

18 For example, see Sue McKemmish and Frank Upward, "The Archival Document: A Submission to the Inquiry Into Australia as an Information Society," *Archives and Manuscripts* 19 (May 1991), pp. 19, 26; Terry Eastwood, "How Goes it with Appraisal," *Archivaria* 36 (Autumn 1993), p. 112.

19 Dollar, *Archival Theory and Information Technologies*, pp. 47-48. David Roberts has also commented on this inadequacy of contemporary software. See his "Defining Electronic Records, Documents and Data," *Archives and Manuscripts* (forthcoming).

20 Dollar, *Archival Theory and Information Technologies*, p. 74.

21 Claes Granstrom, "Will Archival Theory Be Sufficient in the Future?" in Angelika Menne-Haritz, ed., *Information Handling in Offices and Archives* (New York, 1993), p. 166.

22 United States Court of Appeals for the District of Columbia Court. Case No. 93-5002. Scott Armstrong et. al versus Executive Office of the President. Office of Administration et. al. Decided 13 August 1993.

23 Luciana Duranti, "Origin and Development of the Concept of Archival Description," *Archivaria* 35 (Spring 1993), pp. 47, 51.

24 The definition of description in Bellardo and Bellardo (comps.), *A Glossary for Archivists, Manuscript Curators, and Records Managers*, states that description is "The process of analyzing, organizing, and recording information that serves to identify, manage, locate, and explain the HOLDINGS of ARCHIVES and MANUSCRIPT REPOSITORIES and the CONTEXT and records systems from which those holdings were selected." (Capitalization original.) On a more somber note the US National Archives' *Federal Records Management Glossary* (1989 edition) tersely defines

archival description as "the process of preparing finding aids." Oddly, it is the records management definition which entails "the process of giving a written account of the contents and characteristics of a record series or system."

25 Frederic M. Miller, *Arranging and Describing Archives and Manuscripts* (Chicago, 1990), pp. 91-108.
26 Bearman, *Archival Methods*, pp. 28-38.
27 See citations to studies listed in Bruce W. Dearstyne, *The Archival Enterprise: Modern Archival Principles, Practices, and Management Techniques* (Chicago, 1993), p. 137.
28 Bearman, *Archival Methods*, p. 31.
29 Ibid., p. 37.
30 David Bearman and Margaret Hedstrom, "Reinventing Archives for Electronic Records: Alternative Service Delivery Options," in Margaret Hedstrom, ed., *Electronic Records Management Program Strategies* (Pittsburgh, 1993), pp. 82-98.
31 David Bearman, "Documenting Documentation," *Archivaria* 34 (Summer 1992), pp. 39-40, 44.
32 David Bearman, "Record-Keeping Systems," *Archivaria* 36 (Autumn 1993), pp. 23-26, 33.
33 Duranti, "Origin and Development of the Concept of Archival Description," p. 52.
34 "Report of the Working Group on Standards for Archival Description," *American Archivist* 52 (Fall 1989), p. 442.