A Framework for a Consideration of Diplomatics in the Electronic Environment

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Abstract: The author challenges the archival community to consider new sources and formulation for the understanding of contemporary documentation. He looks at the evolution of the information culture from the scriptora, through print culture onto our own post-print culture. Documentation culture has evolved as well from transaction-based to more organizationally sophisticated bureaucracies. He offers two models for the evaluation of the nature of organizational design and behavior, and argues that through these models, new categories can be developed for assigning to the documentation produced by these organizations. All this leads to a new conceptual framework for the very old discipline of diplomatics.

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BY NOW IT IS almost a cliché to allude to a new information environment. The increasingly widespread applications of computer-based technology to a variety of activities have become a fact of life. There are prospects for even more applications in the future. For archivists in the broadest sense of the term, that is those who manage the origination, transfer, storage, and retrieval of information, these new prospects present daunting possibilities of information (texts, images, and numbers) traveling over an information superhighway which not only presents the possibility of transmission, but also the possibilities of retrieval of material from remote locations in an instant.

Already we are seeing a by-product of this new technological capacity, that is, the bulk of the information. As archivists, we have long been aware of the problem of bulk—witness our overflowing repositories. However, it is the increased possibility of sophisticated access systems wherein lies a solution to the challenges of bulk in archives. Yes, there is a lot of ''stuff,'' but the possibility that by some electronic means we might be able to access texts from multiple sources in an instant constitutes a real vision in the information community.

There is, then, an ever-increasing challenge to archival institutions to enhance their capacities for retrieval of information from their holdings, particularly as they move toward an electronic environment. At this point, it seems that institutions are responding to these challenges with two basic conceptual paradigms. The first is the standard archival and the second is the bibliographic. Each offers a set of categories which can be applied to textual information. (For the purpose of this paper, I will not be considering visual images or statistical data.)

Briefly stated, bibliographic (book- and item-based) systems emphasize author, title, main entry, subject, and, in more sophisticated systems, full text key-word on selected search fields. By contrast, archival systems (records group-based) to date have emphasized the link between records and their relationship to the entity generating the records accompanied by a detailed listing of boxes, files, etc. Both systems offer enormous possibilities for retrieval of information and in a hard-copy environment have proved enormously effective.

Each system, in essence, offers a set of categories used to identify or describe an item or groups of items. In a hard-copy environment those categories, now well established for libraries and archives, are very effective. However, in a machine-based environment many of the categories of the bibliographic and archival paradigms become more difficult to determine. For example, there is the problem of multiple texts, the difficulty in browsing, the lack of a clear file structure, etc. Moreover, there seems to be the expectation in an electronic environment of better retrieval possibilities than in a hard-copy environment. Therefore, there is a need to look to new categories to assign documents or to use in the retrieval process, to locate a document and to facilitate evaluation of the document as a source of information relevant to a particular question. Are there other categories worth considering in the design of modern electronic-based retrieval systems?

One set of categories which is relatively undeveloped in relation to the modern bibliographic and archival practice can be derived from the principles found in diplomatics. This discipline, derived from concerns in Europe with the validity of charters and documents of the Middle Ages, is essentially the study of the form, structure, and context of individual documents. However, I would suggest that the principles underlying this well-developed discipline offer a framework for the creation of a new set of categories which may prove useful in the development of retrieval systems for the records of modern, large, structured, bureaucratic organizations. In this paper, I intend to present several frameworks

derived from the basic principles of diplomatics so as to suggest strategies for the retrieval of documents in electronic form.

Though the principles of diplomatics have long been associated with the study of medieval documents, it is time to revisit those principles. As recordkeeping moves from paper-based to electronic-based, the organizational principles which have governed the administration of archives need to be reexamined. The whole concept of the file, the record series, and even the document itself needs to be revisited. Because diplomatics focuses on the document, it seems very possible that the principles therein may hold solutions for the organization and retrieval of information in this new electronic format.

This inquiry into the relevance of diplomatics is part of a larger effort to define and explore extant models of the organization of information derived from traditional formats (books, manuscripts, and visuals, for example). Diplomatics is one such example. Organizational principles take on many forms dependent on the format of the material to be organized. What can be learned from traditional applications of the principles of diplomatics which might be useful in framing new models of organization of information required of records kept in electronic formats?

For purposes of this discussion, consider that diplomatics has two sub-fields. The first emphasizes the character and the content of individual documents and the second explores the organizational context from which the document was produced. Each of these aspects of diplomatics suggests specific kinds of categories and, in a substantive and methodical way, informs our understanding of: 1) the character and content of contemporary documents in electronic form, and 2) the organizational context of modern archival documentation.

I. Character and Content of Individual Documents

The relevance of traditional diplomatics to the study of individual documents may seem, at best, distantly relevant to the administration of large paper-based archival record groups. Archivists in the United States, working to understand the nature and challenge of records in new formats, seem to rely on concepts developed for the administration of large paper files. These concepts emphasize groups of documents in series, files, etc. Because of the sheer bulk of modern archival collections, work with individual documents has become, for the most part, impractical. Because diplomatics emphasizes the character and content of individual documents, it has been all but dismissed.

However, Luciana Duranti, in a series of several articles, suggests that the kind of document analysis common to diplomatics has relevance to all documents, even those found in large records series.[1] She argues that an understanding of the form of a document is as essential as a general understanding of content. She argues that traditional elements of diplomatics can provide attributes and categories additional to those normally considered in the organization of large paper-based files. She reminds her readers that documents have form and structure. This form is often the result of a specific legal requirement regarding documents.

Her presentation is the best available in English describing the principles of the science of diplomatics. Her work is comprehensive and emphasizes some of the large

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[1]Luciana Duranti, ''Diplomatics: New Uses for an Old Science'' are serialized in *Archivaria*: Part I, 28 (Summer 1989): 7–27; Part II, 29 (Winter 1989–90): 4–17; Part III, 30 (Summer 1990): 4–20; Part IV, 31 (Winter 1990–91): 10–25; Part V, 32 (Summer 1991): 6–24; and Part VI, 33 (Winter 1991–92): 6–24.

conceptual issues. What is particularly important for the discussion here is her emphasis on the intrinsic and extrinsic elements of documentary form.[2] For Duranti, the extrinsic elements of the documentary form are "considered to be those which constitute the material makeup of the document and its external appearance. . . . They are the medium, the script, the language, the special signs, the seals, and the annotations."[3] From this concept fundamental to diplomatics, Duranti suggests a series of terms to categorize extrinsic elements which include terms such as "layout," "pagination," "inscription," and "annotations included in the handling phase" of documents, for example.[4] Similarly, she analyzes the intrinsic characteristics of a document, arguing that "The intrinsic elements of documentary form are considered to be the integral components of its intellectual articulation: the mode of presentation of the document's content, or the parts determining the tenor of the whole."[5] These elements include the protocol or identification of the administrative context of the documents, the text of action of the document, and finally the "eschatocol" or the indication of the final responsibility of the text. She offers a set of categorical elements for the intrinsic as well. These include "superscription," "preamble," "final clauses," "attestation," "qualification or signature," etc.[6]

Duranti concludes with a summary tabulation of descriptive categories, which she draws from classic texts on diplomatics. These include, in addition to the intrinsic and extrinsic, such notions as "name of act," "type of document," and "relationship between document and procedure." Informed by centuries of study of individual documents, for Duranti, the sum total of these categories or analyses constitute the "structure of diplomatic criticism" of specific documents.[7]

Within an electronic environment to which Duranti only occasionally alludes, these attributes of specific documents could conceivably become a very important slice of the structure of a system both for the preparation of documents as well as for the searching and retrievability of the information contained therein. Although the culture and technology of communication has evolved considerably since the classic texts on diplomatic criticism were done, the principles are in place and the basic categories are still relevant. Individual documents generated in an electronic environment will need different tags of one sort or another. Yet, they still will have certain intrinsic and extrinsic characteristics which are relevant to the circumstances of their creation. A systematic attempt to exploit these characteristics in a modern information environment may require a degree of definition. However, more importantly, it may require a reconceptualization of how documents are prepared so that these categories are readily identifiable and searchable. This is particularly important when it is necessary to retrieve textual documents in large database systems where the traditional concepts of file, series, and box may be irrelevant.

Duranti's categories are particularly useful in defining the juridical standing, the authenticity and integrity, and the particular edition of a document. These attributes were particularly important to early documents created in an atmosphere where forgeries were common. In a manuscript culture, where documents could only be copied by hand, these considerations have always loomed large. However, with the coming of printing and with

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[2] Duranti, "Diplomatics," Part V, 6–24.
[3] Duranti, "Diplomatics," Part V, 6–7.
[4] See Duranti, "Diplomatics," Part V, 10 for complete list.
[5] Duranti, "Diplomatics," Part V, 11.
[6] See Duranti, "Diplomatics," Part V, 15.
[7] Duranti, "Diplomatics," Part V.

the possibility of fixed texts and multiple copies, the establishment of these categories became an easier matter. Thus, the archivist's role in defining the juridical standing or authenticity of a document was greatly diminished.

With the creation of documents in electronic form, many of the safeguards of the printing press are no longer applicable unless specifically designed in the system. In a distributed computing environment, characterized by the free flow of text, questions of the authenticity, integrity, and edition of documents will be of critical importance. Once again there will be a need to authenticate and assure the proper attributes of documents. The categories used in this process of definition have been very nicely outlined by Duranti. Their purpose, however, can go beyond definition to facilitate identification and location. These are core archival functions derived from the principles of diplomatics.

Purpose and form of a document essential to diplomatics are also attributes which have become less important within the context of modern archives because of the emphasis on the file. The purpose of a particular document is usually subsumed in the context of the file or series wherein the document lies. Likewise, the form of the document has become an attribute of diminishing importance. The file or series is seen as a more important context for the interpretation of the relationship of a document to the activity which generated the document. The retrieval of the document then relies on its relation to a particular file or series. In the electronic environment, the file may take on a more fluid nature. Therefore, the form of the document, in particular, may hold key elements for the structure of an access system.

The main point is that in a paper-based environment there has always been a certain predictability in the ways in which records are structured and kept. Based on an awareness of the categories of analysis of records as framed by the science of diplomatics, can we then see in specific types of communications patterns or forms which are sufficiently predictable to constitute the basis for a retrieval system?

II. The Organizational Context of Modern Archival Documentation

A second and equally important dimension of diplomatics emphasizes the organizational context of a document. Large-scale organizations require a certain amount of formal and structured communication through written documents. This emphasizes the relationship between the document and its part in the decision-making processes of the particular organization. Archivists have always emphasized the importance of the relationship between an organization and the documents it produces. However, as David Bearman argues, this dimension of archives has not been developed to its full potential. The typical administrative history of a modern finding aid contains basic types of information, but does not come close to its full potential.[8]

When the field of diplomatics was first articulated in the seventeenth century, there were complex organizations—most notably the church and the emerging governments of the nation states of Europe. However, it was only in the late-nineteenth century that bureaucracy took hold with the emergence of large-scale business enterprises and the modern welfare state. I would suggest two general ways of thinking about this relationship. The first focuses on broad cultural issues which shape the context of communication within the specific organizations. The second relates more to the inner workings of the organi-

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[8]David Bearman, "Archival Principles and the Electronic Office" in *Information Handling in Offices and Archives*, edited by Angelika Menne-Haritz (Germany: K.G. Saur, 1993), 177–99.

zation itself. Both approaches offer perspectives on the formulation of particular strategies to retrieve information generated by organizations. In looking at information culture, I want to propose that, over time, technology determines form of communication.[9] The texts which emerge from a particular culture begin to have certain common attributes which have been identified in diplomatics terminology. In looking at documentation culture, I want to suggest that the function of interaction yields a document or communication which, in most cases, has a certain form. Though this latter point may seem obvious, analysts of the modern organization raise some interesting categorical possibilities.

A. Information Culture

Since archivists deal with records over a broad spectrum of time, categories from one era may not have particular relevance for another. Because of technological limitations, the nature of the contents of archives changes from time to time. Determining the nature of an information culture would require an examination of the cultural and functional context of texts or information sources within a particular technological context. I can think of three obvious categories which follow a linear progression over time: 1) the Scriptora and preprint culture, a period characterized by limited production of texts and communication by very formal texts, implying a variance in the authority of those texts; 2) Print Culture based on a new technology which allowed for a fixed text and multiple copies which led, ultimately, to the rise of standardized bibliographic information retrieval systems; and 3) Post-Print Culture, a period characterized by texts in electronic form, a departure from the fixed text and from traditional forms and genres for holding texts.

1. The Scriptora.   The Scriptora was, of course, the period which began with the general availability of paper, but was prior to the invention of printing, a period of hand-written texts. Because of the absence of a technology which could fix a text, each rendering of a text was an edition in itself. The capacity to produce texts grew to the point where safeguards were needed to protect the authenticity of texts. This led to the introduction of seals and other devices which were used to distinguish a particular manuscript.

In her book, *The Printing Press as an Agent of Change*, Elizabeth Eisenstein suggests that the era of the Scriptora was characterized as a time when so much energy was required for the production of texts that circulation of texts and the information therein was relatively limited. From an information perspective, it was a chaotic period. In terms of the production of literary texts, Eisenstein notes that "Many valued texts were barely preserved from extinction; untold numbers failed to survive. Survival often hinged on the occasional copy being made by an interested scholar who acted as his own scribe." Moreover, there was a problem in the nature of the text itself. Each copy introduced errors to the point that Eisenstein argues that it is "doubtful whether one should refer to 'identical' being 'multiplied' before print."[10]

Eisenstein notes that

> no manuscript however useful as a reference guide could be preserved for long without undergoing corruption by copyists and even this sort of preservation rested

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[9]See Jo Anne Yates, *Control Through Communication: The Rise of System in American Management* (Baltimore: Johns Hopkins University Press, 1989).

[10]Elizabeth Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformation in early-modern Europe* (Cambridge: Cambridge University Press, 1979), Vol. I, 45.

precariously on the shifting demands of the local elite and a fluctuating incidence of trained scribal labor. Insofar as records were seen and used, they were vulnerable to wear and tear. Stored documents were vulnerable to moisture, vermin, theft, and fire. However they might be collected or guarded within some great message center, their ultimate dispersion and loss was inevitable. To be transmitted by writing from one generation to the next, information had to be conveyed by drifting texts and vanishing manuscripts.[11]

The point here is that there was an era when the fixity and authenticity of texts were a great problem. The field of diplomatics addresses these difficulties by defining categories for particular manuscript products of the Scriptora. In most cases, each of these products has a recognizable form and set of characteristics. Through an understanding of these forms and characteristics one can authenticate the texts, fit the texts within the context of the process of text production, and finally begin to develop some sort of scheme for the retrieval of specific manuscript texts based on categories or diplomatic form.

It was the nature of the technology of manuscript production that led to the relatively chaotic information environment described by Eisenstein. However, it is clear that during this time devices were perfected to overcome problems of authenticity, forgery, and authority. These devices defined the culture of communication at a formal level. Tracing the origin of a particular text was of particular importance. Each text thus had pointers in its structure, form, and appearance. Using these characteristics, paleography and diplomatics developed as disciplines for the study of the products of this culture.

2. Print Culture.   The advent of the printing press in western culture obviously led to significant social and psychological changes. Again relying on Eisenstein, we can identify several characteristics of this print culture. For the first time there was a widespread availability of texts and there was a push for standardization of texts, and for determining the precise texts of the Bible and other widely copied manuscripts into which variants had crept over centuries of hand copying. The reference book as a concept and as a product appeared, presenting standardized information to users who could be assured of the consistency of the information in each copy. These reference sources and the fixed order of information which they presented appeared only after a painstaking rationalizing, codifying, and cataloging of a particular group of data. These sources represent a particular genre of publication made possible by the technology of printing and an ability to conceptualize an order to specific categories of information. As with many of the print products of the day, each piece had certain similar characteristics such as a compiler and a title. This information could then be compiled in the production of the first alphabetical ''catalogues'' of reference and other books, an obvious and necessary instrument for the book trade. Moreover, these attributes of the print product then led to the establishment of bibliography as the study of the order and relationship of one book to another, categorized attributes of the printed work.[12]

Most important was the reality of typographical fixity. Eisenstein suggests that we underestimate the cultural implications of the capacity to fix texts, particularly in the transmission of information brought on by the capacity to produce a single fixed text in multiple copy. For the first time, one could rely on a printed work as a reference. A scholar

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[11]Eisenstein, *The Printing Press*, Vol. I, 114.
[12]Eisenstein, *The Printing Press*, Vol. I, 71–112.

in one location could know with certitude that a scholar elsewhere was using the same text or same numbers. The reference work then shifted from being a private compendium of particular knowledge to being a community resource in a public domain. Similarly, too, this new technology affected the realm of government with the publication of edicts. The legal authority rested not so much in the form and structure of the still generated manuscript edition, but rather in the multiples of copies of the published version sent to all corners of a realm.[13]

The important thing about the first decades of printing was the availability and the standardization of the texts. Only much later in print culture did the form of texts become more defined with title page, table of contents, author, title, publisher, and, much later, ISBN numbers, etc. From these characteristics there grew the bibliographic system for the identification and retrieval of texts—a clear by-product of a particular set of descriptive categories. Similarly, too, for archives, the development of the first printed forms resulted eventually in letterhead and other distinguishing printed characteristics which led to a refinement of the categories of diplomatics. The matter of authority could now rest on a printed as well as manuscript text.

The extrinsic and intrinsic elements of particular documents so important to Duranti's presentation of diplomatics seem obviously of less importance in the print environment. Issues of context and edition are still important, but the multiplicity and fixity of specific texts resulted in a whole new set of bibliographic attributes next to which information on specific items and editions seemed clearly secondary if still relevant.

3. Post-Print Culture. Post-print culture is the term for our current electronic age. This culture has two distinguishing characteristics, about which the social, cultural, and psychological implications have yet to be determined. First, the document is no longer a physical object readily apparent to even a casual observer. Rather the documents are machine-dependent. Second, the age is characterized by the capacity to distribute texts very rapidly without guaranteeing any fixity to that text. In other words, the possibility for corruption so common in the Scriptora is now again a reality. At the same time, this corruption creeps into a culture used to standardized sources, extensive reference works, and reliable information. Essentially, in our post-print culture we have the practices and culture of the Scriptora clashing with an established print culture leading to unforeseen results.

Diplomatics as a discipline focuses on a particular aspect of this dynamic, that is the production of manuscript documents of legal authority. These include writs, wills, deeds, and charters relating to the administration of particular entities, as well as more general documentation generated by administrative offices and private citizens. Electronic communication already has certain intrinsic and extrinsic attributes which are readily identifiable. Yet there is not sufficient awareness that these are, in essence, diplomatics categories and that their use opens up all the power of diplomatics analyses much in the same way that recognition of bibliographic categories, author, title, etc. opens up possibilities to exploit the power of bibliographic systems.

In looking at the three separate information cultural environments, I am not proposing a new set of categories that might be useful to a post-print culture. Rather, I want to suggest that the categories that we most commonly use, derived from bibliography, diplomatics, and archives, are essentially based on the products of a particular information

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[13]Eisenstein, *The Printing Press*, Vol. I, 112–20.

environment and are not necessarily easily transferred from one to another. Bibliographic systems have been used with some degree of success to organize literary manuscripts. Archival description has been applied to specific collections of printed material. Diplomatics analysis has been applied to both archives and printed sources, though diplomatics has seemed less then adequate for modern archival material.

This schema essentially suggests an evolving technology of communication. In each of the three environments the technology of communication and its resulting culture basically define the types and forms of records which are created. In each period, the document, manuscript, reference book, letter, writ, report, etc., has served a fundamental purpose as a conveyor of information and/or authority. How documents have been handled, retrieved, defined, or even prepared has been derived from the recognition of the attributes of the products of a specific technology of communication.

III. Documentation Culture

David Bearman rightly argues that ''Archivists selected records for their evidential historicity.'' Evidential historicity is the sum of all information that can be determined about an accountable transaction, which is defined as the real relationship between a record and an activity determined by archivists to require evidence. The information which contributes to evidential historicity is derived from analyzing the data, the structure and the context of records each of which testifies explicitly and implicitly.[14] This evidential historicity, which Bearman feels is so critical in the design of systems for the retrieval of information, can only function to the extent that a terminology is developed that distinguishes one document's historicity from that of another. The extant sources for particular language at the moment lie outside work being done by any of the experts in the information fields, with the exception of archivists such as Kathleen Roe. Historians and students of organizational behavior have some implicit sense of this relationship in their work. I find two perspectives particularly useful:

A. Transactional Culture

In simpler organization environments, documents are, for the most part, transactional—the recording of a particular decision. Ernst Posner wrote of the preponderance of such documents in the ancient world when the decisions of the sovereign were in need of some documentation so that their validity would survive death and memory loss.[15] Alfred Chandler also notes the preponderance of transactional information in the administration of business enterprise through the middle of the nineteenth century. In an analysis of accounting methods in the United States in the early nineteenth century, he concludes that there was a lack of interest in accounting beyond the recording of daily transactions. ''This lack of interest in accounting suggests that textile executives were not using their accounts to assist them in the management of their enterprises.''[16] This transaction-focused environment resulted in fairly simple and straightforward documentation environments where a single document or entry in a document confirms a transaction in property or goods. A

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[14]Bearman, ''Archival Principles and the Electronic Office.'' See also Bearman, ''Documenting Documentation'' *Archivaria* 34 (Summer 1992): 33–49.

[15]Ernst Posner, *Archives in the Ancient World* (Cambridge, Mass.: Harvard University Press, 1972).

[16]Alfred D. Chandler, Jr., *The Visible Hand: The Management Revolution in American Business* (Cambridge, Mass.: Harvard University Press, 1977), 70–71.

culture characterized by small independent organizations or individuals makes for a very simple recordkeeping environment.

The science of diplomatics has not focused on these sorts of documents or records. However, in that they have a form and structure, one could raise the possibility that transactional information has certain and repeating attributes that suggest a format for the retrieval of such information.

B. Bureaucratic Culture

Within the environment of economic institutions, the late nineteenth century saw enormous change. It marked the beginning of the large bureaucratic corporation. Bureaucracy has always been found in cultures characterized by large and varied organizations requiring multilayered bureaucracies which yield a very different recordkeeping environment. A bureaucratic culture produces several kinds of records: 1) literary and transactional records, a continuity from earlier times; 2) systematic recordkeeping, more standardized methods of recording information because of the amount and variety of activity and because of a need for oversight; 3) analytic records, not only to record transactions but to measure performance of bureaucratic organizations (these are characteristic of large bureaucratic governments as well as large bureaucratic private organizations); and 4) records generated in respect to the sovereignty of people in democratic societies. In such societies, public accountability requires particular forms and genres of recordkeeping.

All this is to suggest that bureaucratic cultures require an understanding of the relationship between the record and the organization that produced that record. This is a relationship long fundamental in the study of diplomatics. However, in modern times it is a relationship between not only the organization and the specific documents produced by that organization. It is also a relationship between the organization and the records system produced to facilitate information flow and accountability within an organizational design.

IV. Organizational Design Modules

The relationship between organizations and the records they produce is a well-established one in archival literature and a fundamental concept in diplomatics. In the twentieth century, archivists developed this relationship for the user primarily in the preparation of finding aids. For large, bulky twentieth-century collections, this retrieval tool has a now familiar structure: history of the agency, scope and content information, and a box listing. For earlier material organized within the context of diplomatics, the relationship between the agency and the record was also presented, usually in an extensive analysis of the operation of a specific office such as the papal chancery.[17] These extensive studies in diplomatics defined operational procedures and relationships which to the modern reader seem particularly arcane and, perhaps, overly detailed.

In a changing information environment it seems worthwhile to revisit the conceptual framework which was the foundation of these organization studies. In each case, I would argue, there is an important implication for retrieval in our modern information era. In order to adequately document an organization and to retrieve information from the sum

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[17]See Reginald L. Poole, *Lectures on the History of the Papal Chancery* (Cambridge: Cambridge University Press, 1915). See also Bernard Barbiche ''Les Legats à Latere en France et Leurs Facultés aux XVIe et XVIIe Siècles'' in *Archivium Historiae Pontificiae*, No. 23 (Rome, 1985): 93–165.

of the total documentation in a fluid documentation environment, some structural model of the organization has to be determined.

In the electronic environment, with documents traveling over the network at a great speed and with no tangible paper trail, systems will have to be adapted to retrieve documents of importance to the organization as well as to history. These systems will be based on the very principles which underscore the traditional analysis in diplomatics—what is the nature of the office?—how does it function?—what types of documents are produced?—what do they look like?—how can they be found?

To give some perspective to this approach, I offer three of what I call design modules drawn from various literature relating to organizations. Each has a particular language and conceptual framework which fits a particular set of concerns. Out of this, I argue, we can begin to create categories and typologies which will facilitate our understanding of organizations in a way similar to the categories discussed in the first section of this paper which pertain to specific documents produced.

A. The Chandler Model

Alfred Chandler has spent the better part of a long career studying the evolution of the modern industrial corporation. As a result of his extensive historical analyses, we have the beginnings of a useable vocabulary for the description of the complex bureaucratic organizational cultures which have characterized the twentieth-century economy. The extent to which this form of corporate organization will survive in a post-print culture has yet to be determined. In any case, I would suggest that the vocabulary in the Chandler model will remain relevant.

In his book, *Strategy and Structure*, Chandler painstakingly identifies the structural shifts in the organization of four major corporations.[18] In general he notes a shift from centralized management to a multidivisional structure. He identifies the nature of the various divisions and their particular responsibilities. In each division, he notes the particular area and nature of decision-making responsibilities assigned. In some cases, and at some levels, responsibilities were given for strategic thinking, while others were strictly in charge of executing a particular set of operational responsibilities. The multidivisional structure was never constant, but rather had to shift in response to changing market conditions and product designs. Throughout this new structure, information flow was essential.[19]

Chandler essentially provides a basic model for understanding the nature of the corporate organization. Had he emphasized the nature of communication and the types of records produced, his work would be enormously useful in the analysis of the particular archives of each of the four corporations he emphasized. His work is still useful because it suggests that within the multidivisional structure, there are particular units which have specific responsibilities for decisions. One can infer from this that the information flow to those offices is then more important and should somehow be captured in a records retentions scheme. Standard records management practices through scheduling may accomplish this in a hard-copy environment. How those practices will transfer into the post-print culture and to what extent they will be informed by a Chandler-type analysis remain to

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[18]Alfred D. Chandler, Jr., *Strategy and Structure: Chapters in the History of the American Enterprise* (Cambridge, Mass.: The MIT Press, 1962).
[19]See Yates, *Control Through Communication*.

be seen. However, it seems clear that this kind of analysis is fundamental to any real understanding of information flow and document production.

In a later work, *The Visible Hand*, Chandler looks more closely at the emergence of the professional manager in the context of the industrial corporation.[20] The large corporate organizations which he analyzes in *Strategy and Structure* require a type of skilled management in order to function effectively. He also introduces in more detail the impact of vertical integration and horizontal acquisition and collaboration in the process of growth and change within the turn-of-the-century industrial corporation. In this work he points out specific categories and documents, which were a direct result of this corporate organizational transformation. He cites reports, accounting practices, and reporting flows, each of which had a specific relationship to a particular organizational innovation of structural change. What makes the book particularly valuable for archivists is that he clearly identifies the role of records and records creation in the process of informing decisions and in the recording of decisions.

B. The Hult Model

Karen Hult has been a long-time student of the organization of government. In her study, *Agency Merger and Bureaucratic Redesign*, she takes a systematic look at the process of bureaucratic reorganization. Her purpose is to measure the effectiveness of various shifts in structure in a sample of government agencies. In order to do this, she did an extensive analysis of three organizations before reorganization and after. For purposes of this article, her conclusions are less important than the structure of her analysis.

In her comparative analysis, she developed a specific set of categories to describe the nature of the agencies at a specific point in time. She was interested in specific characteristics of the bureaucratic unit in order to gain some sense of how it worked. Four are worth considering as examples:

1. Tightness of coupling—"gets at the strength of ties between subunits and across levels of hierarchy."[21] Using this concept, one can study the ways in which units of the agency work together. How are subunits linked within the organization? What sorts of alliances are formed within the organization and outside? Out of what sorts of concerns are linkages formed?

2. Symmetry "taps the level and direction of the dependence and interdependence of internal relationships as well as whether the links are vertical or horizontal."[22] Vertical links involve questions of authority in the agency where horizontal links concern sub-units' "interest in pressing their own interest." Hult points out that "an oft noted objective of reorganization is to boost top-level control by weakening ties between lower level bureaus and interest groups."

3. Level of internal conflict. The "inevitable . . . clashing subgoals and divergent preference ordering" in an agency.[23] In an agency undergoing reorganization or merger,

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[20]See Chandler, *The Visible Hand*. See also Alfred D. Chandler, Jr., *Scale and Scope: The Dynamics of Industrial Capitalism* (Cambridge, Mass.: Harvard University Press, 1990).

[21]Karen Hult, *Agency Merger and Bureaucratic Redesign* (Pittsburgh: University of Pittsburgh Press, 1987), 20. See also Karen Hult and Charles Walcott, "Organizational Governance," *American Journal of Political Science* 31 (1987): 109–25.

[22]Hult, *Agency Merger*, 20.

[23]Hult, *Agency Merger*, 22.

one could assume that shifting alliances would be a source of conflict both vertically and horizontally.

4. The nature of conflict. "Around what do conflicts tend to crystallize?"[24] Hult finds that organizations facing raging battles over mission or organizations torn by turf fights between subdivisions are dealing with significantly different conflicts.

For Hult, "these four variables enable one to develop a profile of internal conditions and dynamics within newly merged agencies. The factors provide a framework within which internal dynamics (such as bureaucratic street fighting, increased cooperation, enhanced efficiency) can be understood."[25] These variables are particularly of interest within the context of a discussion of diplomatics because they suggest categories which can be used to describe the nature of organizations, internal relationships with organizations, and the structure of authority in an ever-shifting bureaucratic environment. Therefore, in my view, they also form the basis for a diplomatics of twentieth-century bureaucratic organizations. Just as it was important to understand the role of the court in the thirteenth century, so too, is it necessary to understand the importance of the bureaucracy in the twentieth century.

Moreover, these categories begin to suggest a vocabulary for a typology of organizational situations. Each suggests a kind of environment where documents are produced. We have no studies as yet of the relationship between shifting organizational structures and the types of documents likely to be produced in this process. In the Hult scenario, how does one identify corporate reorganization and anticipate likely documentation reflective of both corporate interests and individual concerns? Her language begins to suggest a typology upon which a more extensive set of categories could be developed, which, in a modern retrieval system, would build a specific link, fundamental to diplomatics, between the organizations and its resulting records.

C. The Organizational Behavior Model

There is a whole field of endeavor that studies the ways in which organizations function. The competitive environment of the modern world economy means that corporations must constantly reevaluate their strategies and structures in a search for more effective ways to compete. People in this field speak of diagnosis of particular organizational structures and patterns. The result has been, if not greater efficiency in the corporate environment, at least a greater degree of articulation of specific organizational structures and approaches. In this effort to understand the way organizations work, a whole language has emerged which has the potential for informing language structures which underscore typologies of organizational environments and taxonomies of specific organizations.

For example, John A. Wagner and John R. Hollenbeck, in their study of organizational behavior, point to three basic attributes of organizations: 1) the Mission, 2) the Division of Labor, and 3) the Hierarchy of Authority.[26] Basically, all organizations have these attributes in different configurations. This elementary set of three components then expands to a wide variety of permutations and situations.

[24]Hult, *Agency Merger*, 23.
[25]Hult, *Agency Merger*, 24.
[26]John A. Wagner III and John R. Hollenbeck, *The Management of Organizational Behavior* (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1992), 22–23.

Wagner and Hollenbeck present further categories for determining the nature of organizational structure, looking first at the unit groupings of specific units within the larger organization. These, they note, can be either by function or by task, by market or by product.[27] They then identify certain coordinating relationships or mechanisms. They identify one, "mutual adjustment," as one of "... coordination by face-to-face communications. Co-workers who occupy positions of similar hierarchical authority exchange information about how a job should be done and who should do it."[28] Or, co-workers relate by direct supervision, wherein "one person takes responsibility for the work of a group of others. She determines which tasks need to be performed, who will perform them, and how they will be linked together to produce the desired end result."[29] In other cases this relationship is standardized, when "work is coordinated by providing employees with carefully worked out standards and procedures that guide the performance of their tasks. It is coordination achieved on the drawing board before the work is actually undertaken and may involve standardization of work processes and behaviors, outputs, skills, or norms."[30]

The authors carry this analysis quite far in not only explicating various organizational situations but also assessing the possibilities for organizational design. The result is an array of categories which help to distinguish specific organizational structures. In each configuration, one can infer different communication structures and resulting documentation, however, the authors do not consider resulting documentation. In fact, the literature on organizational behavior is not very strong when it comes to this particular inference. The inference, though, is classic diplomatics informed by a body of literature which is very well developed. Diplomatics provides a conceptual framework for considering a set of categories which, like those of Hult and Chandler, can inform our efforts to more systematically address the nature of organizations which produce documentation.

V. Conclusion

Frameworks for the retrieval of information in the context of modern electronic technology are very much in need of more complex sets of categories which can be used as the basis for access systems. The old bibliographic framework of author, title, subject, and key word is simply no longer sufficient. In this paper, I suggest that the archival perspective has something to offer, more specifically, the area of diplomatics, which is focused on the form and structure of documents themselves and on the context from which documents have been produced. This simple relationship raises enormous questions about the nature and variety of documents, the changing culture and technologies in which documents are produced, and the organizational frameworks which sustain and are sustained by the efficient flow of communication through recorded information. This, in my view, constitutes a framework for the consideration of diplomatics in our own time. It constitutes an intellectual challenge to archivists based on questions which challenged our professional forebears centuries ago. Out of these questions still relevant today lie solutions to the information problems of the century to come.

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[27]Wagner and Hollenbeck, *The Management of Organizational Behavior*, 549.
[28]Wagner and Hollenbeck, *The Management of Organizational Behavior*, 552.
[29]Wagner and Hollenbeck, *The Management of Organizational Behavior*, 552.
[30]Wagner and Hollenbeck, *The Management of Organizational Behavior*, 552.