Medieval Manuscript Cataloging and the MARC Format

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In the special collections departments of most American libraries, medieval manuscripts are both the jewels and the orphans of the collection. When placed on exhibition they draw crowds of fascinated viewers, and the greeting cards and exhibition catalogs provided by those institutions that can afford to reproduce manuscripts in this fashion find ready purchasers. Even in the smallest, most remote libraries, the local Book of Hours, however modest in execution, remains the treasure to be brought out for the pleasure of distinguished visitors. Yet few libraries can afford specialized curators for their medieval manuscripts, and most manuscript librarians, who are not often medievalists by training, must devote most of their attention to the modern literary and historical manuscripts assigned to their care. Relatively few collections provide proper cataloging for their medieval codices, whether in traditional scholarly form or in current library formats. Scholars tend to seek and study manuscripts in the larger and better-known collections, although a dedicated faculty member almost anywhere may find that the college or university rare book room contains codices or fragments suitable for scholarly investigation or for use in teaching.

The large-scale deliberate collecting of medieval manuscripts, as of incunabula, seems to have begun in the United States in the decades between 1890 and the beginning of World War I. It was during these years that private collectors, men such as Pierpont Morgan, Henry Walters, and Henry Huntington, began to buy numbers of manuscripts, and this was also the period when American universities began to establish programs of graduate study and to acquire the library resources to support original research.[1] Private and public acquisitions have continued, particularly in the period between the world wars, when economic hardship forced European monasteries and others to sell valuable books as a way of raising money. Even today manuscripts change locations as collections are sold—for example, the John Carter Brown or Doheny manuscripts—or privately owned codices are given to institutions.[2]

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For a long time, and in many places still, the only access to medieval manuscripts in American libraries has been through De Ricci's *Census of Medieval and Renaissance Manuscripts in the United States and Canada*, a compilation of the 1930s that was updated once in a supplement published in 1962.[3] De Ricci, and even the supplement by Bond and Faye, are now badly out-of-date as to the location of manuscripts, and their summary descriptions, based on rapid surveys or on information received from librarians and collectors, no longer answer very well to the needs of scholars. A typical entry in De Ricci includes brief identifications of the principal texts found in the codex; a list of the previous owners of the codex; and a very short description that mentions writing support (vellum or paper), place and date of origin, number of folios, dimensions, and binding. Many manuscript curators maintain local files that contain additional information about the individual codices in their collections, but this information varies in nature and format, is often unpublished, and is seldom accessible to scholars working at a distance.

In the past three decades medievalists world-wide have made considerable progress in developing and implementing new standards for the scholarly cataloging of medieval manuscripts. The work of Roger Mynors and Neil Ker in Britain and the rules and catalogs sponsored by the West German Deutsche Forschungsgemeinschaft have influenced recent developments in America, where a number of collections have published or begun work on modern scholarly manuscript catalogs.[4] The Huntington Library and the Newberry Library have issued detailed up-to-date catalogs of their holdings; the third and last volume of Yale University's Beinecke Library catalog—the American pioneer in this field—is in preparation; the Walters Art Gallery and the Library of Congress have published the first volumes of larger projects; and similar cataloging efforts are underway at Harvard University's Houghton Library and the University of California, Berkeley.[5] Recent work done at the Hill Monastic Manuscript Library exemplifies the same cataloging standards with regard to texts, although the descriptive inventories published by HMML are based on microfilms rather than on the original codices and this precludes detailed codicological or paleographical analysis.[6]

Although there are some differences in the amount and choice of detail reported, in the amount of scholarly discussion provided, and in the format of presentation, all of these catalogs offer careful and complete identification of texts by author, title, incipit (i.e., the first words of texts), and citations to editions and bibliographies. They structure the presentation of this information so as to represent both the physical and the intellectual organization of the codex; they describe the codicological and paleographical characteristics of the manuscript in some detail; they record marks of previous ownership and trace the history of each book; and they provide citations to significant current and past scholarship concerning the manuscript. Characteristics such as illumination, music, and bindings that may require special catalogs for their full presentation are at least noted in the general descriptions. These catalogs usually

include indexes of names, places, and subjects and one or more indexes of incipits according to the number of languages represented.

Catalogs on this model, all of which have been published as books, are highly refined and flexible instruments of research that answer well to a wide range of scholarly needs. Individually these volumes are completely portable, but to consult them in the aggregate requires access to a research library prepared to maintain an increasingly large collection of expensive and specialized books. Moreover, comprehensive searches for works by a particular author, copies of an individual text, or examples of a certain codicological characteristic require that one read or consult the indexes of many individual volumes that reflect various standards of description and indexing. The Deutsche Forschungsgemeinschaft has recently cumulated the indexes of the catalogs published under its sponsorship, but these microfiche are available only to the participants in the project.[7] At the Hill Monastic Manuscript Library a laudable effort has been made to create a card file of incipits transcribed from many published and unpublished manuscript catalogs, but this extremely useful research tool has not been kept up-to-date, owing to the cost of the labor involved, and the HMML incipit file can be consulted only in Collegeville, Minnesota.[8]

For these and other reasons, a number of medievalists have begun to seek ways to provide computer access to medieval manuscripts. At present there are at least five projects that actively compile information about manuscripts, using mainframe or personal computers, and varying in the amount, type, and organization of the information they include. Two of these databases, the Benjamin Catalogue for the History of Science (located in Dunellen, New Jersey) and the International Computer Catalog of Medieval Scientific Manuscripts (in Munich), concentrate on materials relating to the history of science. The Zentralinventar mittelalterlicher Handschriften (ZIH), at the Deutsche Staatsbibliothek in East Berlin, aims to provide a central inventory—primarily in the form of an incipit register—of manuscripts in the libraries of the German Democratic Republic. MEDIUM, the database of the Institut de Recherche et d'Histoire des Textes in Paris, is based on the manuscripts available on microfilm at the IRHT, and the database being compiled by HMML covers, at present, manuscripts from Portuguese libraries, but could be extended to cover manuscripts microfilmed by the HMML in any countries of Europe. Thomas L. Amos, in the article following this one, provides more information about these very promising undertakings, as well as about the effort to create a communications protocol linking them to one another.[9] For the present, it is necessary to point out that when each of these projects was begun, its founders decided independently what information about a manuscript to record, how to encode it, and how to retrieve it. Although the Benjamin Catalogue and the Munich project have subsequently coordinated their field tags, so that they can exchange information, each of the five databases has adopted different solutions to the basic

problems of description and indexing, and each project still has internal shortcomings with regard to the completeness of the data entered or the modes in which it can be retrieved. There are also external difficulties of communication, in that these systems are local systems; they support no common mode of access, and there are no standard protocols for searching the various databases.

The librarian, listening to medievalists discuss these and related issues, realizes immediately that in the MARC format there exists a highly articulated, well-tried, and widely accessible means for recording and transmitting bibliographical information in computerized form. During the past two decades, American libraries have come to rely almost entirely on MARC-based systems for cataloging books, for locating research materials in other libraries, and increasingly for controlling library materials other than printed books. Developed in the late 1960s to facilitate the compilation of basic bibliographic information about modern monographic publications, the MARC format has been progressively extended to the description of serials, music, visual materials, maps, and computer files. Rare book librarians have expanded its capacity to describe the special features of older printed works, and the Archival and Manuscripts Control format has introduced several revolutionary features, such as extensive use of specialized note fields, collection level cataloging, and multi level description, that will increase the versatility of all MARC-format cataloging when format integration is effected.

Do medieval manuscripts have a place in this universe? As codices transmitting literary, historical, and scientific texts from Antiquity and the Middle Ages, they are books similar in many ways to early printed books. As handwritten and hand-decorated artifacts, they are unique items, similar to works of art or later literary manuscripts. Most medieval manuscripts are found in libraries and are sought by the same readers who consult printed books. It would seem logical and efficient to provide access to them through the same catalogs that serve the library's other holdings. However, any medievalist who has been frustrated by the amount of information contained on traditional library catalog cards, or the screens of most online library catalogs, and who has struggled with the illogicalities of Anglo-American name forms and uniform titles, as applied to early texts—this person will tell you vehemently and at length that MARC cataloging can never serve the needs of scholarship.

Last summer, as the result of an invitation to participate in a symposium on "Computers and Access to Medieval and Renaissance Manuscripts," I undertook to evaluate the use of MARC cataloging for medieval manuscripts. This was a first effort in which I borrowed up-to-date scholarly cataloging from the *Guide to Medieval and Renaissance Manuscripts in the Huntington Library* and, on the basis of UFBD, AACR2, BDRB, and APPM, tried to fit as much of this information as possible into the MARC format using current library standards for description and indexing.[10] The experiment yielded a number of results.[11]

For a relatively simple manuscript, containing a single work or a few works by known authors, it is possible to go quite far in assigning MARC tags to the elements of information contained in a traditionally formatted scholarly description. Since medieval manuscripts lack title pages, another source is needed for the title area of the description (245). The manuscript may provide suitable information in a titulus (the medieval equivalent of a caption title) or colophon, or it may be necessary to supply a title. Place and date of origin are seldom stated explicitly in a manuscript but can often be supplied, at least approximately, e.g., in the form "France, first half of the 13th cent." However, the current rules for manuscript cataloging (APPM2 1.4) permit only the date, but not the place, to be recorded in what catalogers of printed books call the publication or imprint area (260), leaving the place of origin to be mentioned in a note if at all. For a manuscript that contains more than one work, these can be listed in a contents note (500 or 505) and indexed by added entries for authors and/or titles (700, 740). Names of scribes and illuminators and information pertaining to the previous history of the manuscript, including the names of its previous owners, can be reported in notes (5XX) and indexed with added entries (700, 710). Most of the physical characteristics of a codex that are of interest to medievalists do not fit into the pattern used for describing printed books (300) but must be reported in notes (5XX), where they cannot at present be easily retrieved. In rare book cataloging, special physical characteristics can be indexed in an added entry field created for this purpose (755), but this requires the use of standard terms from approved thesauri, and no such list exists for medieval manuscripts. Moreover, many systems do not index 755, and not all systems offer direct searching of note fields.

These difficulties notwithstanding, a MARC-format cataloging record of the sort familiar to users of RLIN and OCLC can be made to provide reasonable description of and access to a simple manuscript. In the MARC format, under current cataloging rules, authors and titles are easily reported and indexed, as are the names of scribes, artists, and previous owners. Place and date can be made accessible, if not directly from the "publication" area of the record, then by re-entering these elements in indexed fields. For reporting and indexing the physical description of a codex, the mechanism, at least, exists, although much work needs to be done in systems implementation and in the construction of a suitable thesaurus before this information will be easily accessible. Nonetheless, the medievalist who attempts to use such a cataloging record will have several justified complaints about the information contained in it. First, this will be presented in a different, and for the scholar less efficient, order than it is in a traditional printed description, although for a very simple manuscript, containing only one work, this need not be a real obstacle to understanding. Second, the indexing provided by a "normal" MARC record will be inadequate for scholarly purposes. In addition to the difficulties already mentioned regarding place, date, and physical characteristics, the scholar will wish to see the repository designation indexed comprehensively and consistently; the failure of the current

rules to provide for this element, in addition to the "popular names" of manuscripts, already constitutes a major obstacle to producing useful cataloging for facsimile editions of manuscripts. Further problems with indexing concern genre and subject indexing. Medieval manuscript catalogs make extensive use of genres to characterize works, but even though the MARC format now provides a field (655) for indexing form and/or genre, this requires the use of terms from an approved list, and no thesaurus exists that makes adequate provision for the genres of medieval texts. In the most commonly used MARC systems, subject cataloging utilizes standard subject vocabularies, such as the *Library of Congress Subject Headings* or *Medical Subject Headings*, but these are not adequate for characterizing the kinds of texts found in medieval manuscripts.[12] Indexing questions are also an aspect of the third and most serious set of problems, those that result from the forms assumed by names, titles, and uniform titles transcribed from the manuscript or constructed under the *Anglo-American Cataloguing Rules*. Any cognizant cataloger of early materials knows how completely inadequate these are in their provisions for standardizing archaic letter forms and spellings, for handling the abbreviations common both in manuscript and in early printed texts, and for establishing early names or uniform titles. The inaccuracies and inconsistences introduced into transcriptions and descriptions produced by these rules constitute major obstacles to using Anglo-American cataloging records as the source for precise scholarly information about any early textual material, whether manuscript or printed. Any serious effort to catalog medieval manuscripts into current MARC systems that require the use of Anglo-American cataloging standards will virtually necessitate the revision of the rules on these points, a change that would also be of great benefit to rare book catalogers.

Many medieval manuscripts, however, are more complex than the model posited above, and this complexity introduces a new range of difficulties. A manuscript may contain large numbers of texts, anonymous texts that may be well known or not, or complex texts, such as sermon collections, where both the collection and its individual units are of interest. For a single text, titles and attributions may vary from manuscript to manuscript. Author and title information is often omitted from medieval manuscripts, and different manuscripts may contain different versions of a text. Physically, a manuscript may have been written at one time by one or more scribes. Such a manuscript may also contain texts added later in the margins or on blank leaves and often continued from one blank section to another. Or the codex may be a *Sammelband*, i.e., it may consist of several originally independent manuscripts bound together at a later date, and these booklets may themselves contain any variety or combination of texts. Medieval manuscript catalogers using traditional formats have devised efficient ways to deal with these situations. When the codex has a complex physical structure, this is made visible in the structure of the description, which thus reflects the intellectual structure of the manuscript. For a given text, the catalog entry may include the author's name, the title, the incipit, and one or more citations to

printed editions or other reference works. In these situations, it is important both to record the information transcribed from the manuscript and to give supplied and/or standardized forms of author and title. It is also essential that the basic identifying elements of author, title, incipit, and citations be comprehensibly linked to one another for each text. Most important of all, the incipits of all significant texts—and the good cataloger considers virtually all texts significant—must be reported and indexed as they appear in the manuscript being cataloged. Given the variations that often exist among manuscript versions of a text and the varied practices of medieval manuscripts in giving titles or attributing texts, the incipit is the fundamental identifying element that is present for all texts, whether or not they are otherwise known.

None of these situations is easily accommodated in the MARC format as this is presently implemented in the large bibliographic databases or in most systems that utilize RLIN or OCLC tapes as the source of their bibliographic data. The MARC tagging structure provides no ready system for clearly linking author, title, incipit, and citation for a single text if a cataloging record contains references to more than one text, e.g., if a manuscript includes three separate works that are listed in a contents note and indexed by author-title added entries. In theory, a codex containing many texts could be treated as a collection and cataloged with a parent record to describe the whole and component-part records to give the detailed identifications of the individual texts, but under this system it is very difficult to obtain an accurate sense of the nature of the entire manuscript, an important contribution made by the format now usual in printed scholarly manuscript catalogs. Finally and specifically, but also most significantly, the MARC format makes no special provision for incipits, which must be recorded in notes (500) and indexed as alternate titles (740).

These are fundamental problems from the scholarly point of view. Before practical solutions can be sought, several distinctions must be made and their consequences assessed. The most fundamental is that which regards the format itself separately from the cataloging rules used with it and from the implementation provided by the system—bibliographic utility, special database, or online catalog— which processes and gives access to the catalog record. The failure to account specifically for incipits and the failure to provide for hierarchical description lie in the MARC format itself. The first problem could be remedied most simply by designating a tag, presumably in 7XX, for reporting and indexing incipits. The lack of a true hierarchical cataloging structure, though compensated for in part by the concept of linking parent and component-part records, might be more completely overcome by programming a system to call component-part records as it processes and displays the parent record. After all, MARC is, most fundamentally, a communications format, and depending on circumstances, programs could presumably be written to manipulate MARC-tagged data in ways substantially different from those most familiar to us. Most of the cataloging difficulties I have enumerated above result not from the

character of the MARC format as such, but from the application of the *Anglo-American Cataloguing Rules* to a type and format of material that was not familiar to or envisioned by the compilers of the rules. To integrate full descriptions of medieval manuscripts into the existing bibliographic databases would require some changes in the general rules and the compilation of special rules, parallel to BDRB and APPM, that would take into account the special characteristics of medieval codices and texts. These changes would resolve indexing problems as they relate to choice and form of access points. However, the question of which fields, which MARC tags, are indexed in a given environment is a question of systems implementation and must be addressed in a different context.

This leads to the second distinction, which concerns the nature and utilization of the format itself. Americans are accustomed to thinking of MARC cataloging in terms of RLIN or OCLC records, although as I have tried to show, these are shaped as much by the *Anglo-American Cataloguing Rules* as by the protocols of the format. This is not the only option available. ESTC, the Eighteenth-Century Short Title Catalogue, and ISTC, the Incunable Short Title Catalogue, are MARC databases that utilize their own rules for descriptive cataloging and that implement some aspects of the format differently from other systems.[13] My proposal for a program to integrate parent and component-part records into a hierarchically structured report is not likely to be implemented within existing MARC systems, and some of my proposals for description and special indexing would be more easily effected in a special database. If an independent database of medieval manuscripts were structured so as to meet the basic standards of the MARC format, it could employ any cataloging rules and customize programs for indexing and retrieval, while remaining formally compatible with bibliographic information recorded in other MARC-based systems.

A third and last distinction to be considered concerns the function of the catalog record: does it serve merely to locate an item, or should it provide information that can itself serve as the raw material of scholarly investigation? Modern detailed book-format manuscript catalogs serve both functions, with emphasis on providing support for scholarship. The recently developed non-MARC databases of manuscripts also aim to serve both functions, but most emphasize access to the locations of texts and manuscripts. MARC library cataloging in the national databases has tended to serve the function of location, although rare book cataloging, and now AMC cataloging, are blurring the distinction by attempting to adopt scholarly standards of transcription and by adding elements of detailed description for older books and for unique, unpublished materials.

If there is to be a useful application of the MARC format to medieval manuscript cataloging, what form can or should this take? For full records, one possibility is a stand-alone database with customized programming and cataloging rules. Such a database might, like ESTC and ISTC, be incorporated into a larger network and in

the meantime, would be accessible independently, at least to some scholars. This solution would permit the greatest conformity to traditional forms and standards for medieval manuscript cataloging. It would, however, require computer support, special programming, and some standards work of the sort already engaged in by the independent non-MARC databases. The alternative is to integrate cataloging records for medieval manuscripts into the existing bibliographic databases. To use RLIN and OCLC as a primary source for full cataloging of medieval manuscripts would require substantial compromise on all sides. AACR2 rules for transcription, early names, and uniform titles of early texts would have to be modified, and some other rules would need to be changed. Special supplemental rules would have to be drawn up, taking into account the character of medieval codices and texts, and suitable indexing terms would have to be established. A useful model for this endeavor, and for the way in which such developments should complement each other, lies in the set of works—cataloging rules, form/genre thesaurus, and subject thesaurus—prepared by the Prints and Photographs Division of the Library of Congress to provide detailed, consistent rules and terminology for MARC cataloging of modern graphic materials.[14] The MARC format itself would require some modification, at least by designating a field for indexing incipits. Systems would need to devise ways to index place and date and would have to prepare themselves to accept long records and multiple levels of parent and component-part records for complex manuscripts. Under the best of circumstances, scholars would have to make some compromises concerning the order in which information is presented, and full descriptions for complex manuscripts would probably have to be constructed through separate searches for their component parts.

For both scholars and librarians, this price may be too high for the results that can be expected. In seeking another approach, it is instructive to look again at De Ricci's *Census*. The function of this work was—and often still is—to locate texts and manuscripts through basic descriptive information and indexing and through summary lists of the holdings of the libraries and collectors surveyed. De Ricci's descriptions as well as many of his locations are outdated and should not be perpetuated—least of all by typing them uncritically into computers—but the notion of a census of manuscript holdings, whether by nation or by subject, still has its place. The proprietors of the non-MARC manuscript databases have discovered the difficulties of always manipulating full records, and discussions are underway among medieval manuscript catalogers concerning the appropriate standards for a first level search or census level record for medieval codices.[15] The proposal to identify a few basic elements which should be present and searchable in each record in all databases and systems, whether or not individual records offer additional information, has grown in the first instance out of concern for establishing a communications protocol for the independent databases. Such standards would in fact approximate minimal level cataloging for medieval codices. If the descriptions conforming to them could

be stored in MARC format, it might prove possible to integrate these records into the national bibliographic databases, where they would increasingly provide a new national census of locations. Such records would not answer to all the needs of medieval scholarship, but like AMC records which are based on finding aids for the collections cataloged, these summary records could refer the searcher to fuller published or unpublished scholarly descriptions. In local online catalog systems they could also be linked to local, computerized, possibly non-MARC descriptions.

Medievalists and librarians must ask themselves what, if anything, they want from computerized cataloging of medieval manuscripts and what they would most need from a MARC system used for this purpose. All of the options I have outlined deserve exploration. Any satisfactory choice among them, and any solution to the questions of database structure and standards for cataloging, must be based on informed dialogue between traditional manuscript catalogers and those familiar both with library systems and with special materials cataloging in a machine environment. Adequate implementation of any MARC cataloging of medieval manuscripts will require continued contributions from both these groups, for above all, it must be based on accurate and up-to-date information about the manuscripts, provided by those equipped to study and interpret these materials.

NOTES

1. A brief sketch of Pierpont Morgan's collecting is given in Francis Henry Taylor, *Pierpont Morgan as Collector and Patron, 1837–1913* (New York: The Pierpont Morgan Library, 1957); see also Carl L. Cannon, *American Book Collectors and Collecting* (New York: The H.W. Wilson Company, 1941), pp. 277–91. For Walters and Huntington, see the introductions to the catalogs cited in note 5 below. The nascent University of Chicago acquired its first manuscripts with the purchase of the so-called "Berlin Collection" in 1891; see *The Berlin Collection: Being a History and Exhibition of the Books and Manuscripts Purchased in Berlin in 1891 for the University of Chicago by William Rainey Harper with the Support of Fine Citizens of Chicago*, introduction by Robert Rosenthal (Chicago: The University of Chicago Library, 1979). To judge from the dates of acquisition reported by De Ricci (full citation in note 3 below), the manuscript collections at Harvard and Yale began to increase significantly at about the same time. De Ricci in his Preface, p. vii, attributed the growth of substantial American manuscript collections to the first three decades of the twentieth century, despite occasional earlier acquisitions; however, it is worth noting that as early as 1838 Leander van Ess supplied Union Theological Seminary with a significant collection of medieval manuscripts and incunabula (De Ricci, p. 1637; Robert T. Handy, *A History of Union Theological Seminary in New York* (New York: Columbia University Press, 1987), p. 18).

2. The nineteen Western illuminated manuscripts belonging to the John Carter Brown Library were sold at Sotheby's London on 18 May 1981. The medieval and Renaissance manuscripts of the Estelle Doheny Collection, given by her to St. John's Seminary, Camarillo, California, were sold on behalf of the Archdiocese of Los Angeles at Christie's London on 2 December 1987. As examples of privately owned manuscripts transferred by gift or bequest one may cite the collections of William S. Glazier and Curt F. Bühler, both now the property of The Pierpont Morgan Library.

3. Seymour De Ricci and W. J. Wilson, *Census of Medieval and Renaissance Manuscripts in the United States and Canada* (New York: The H.W. Wilson Company, 1935–1940); C.U. Faye and W.H. Bond, *Supplement to the Census of Medieval and Renaissance Manuscripts in the United States and Canada* (New York: The Bibliographical Society of America, 1962).

4. British standards are exemplified in R.A.B. Mynors, *Catalogue of the Manuscripts of Balliol College Oxford* (Oxford: Clarendon Press, 1963), and especially in the work of N.R. Ker, *Medieval Manuscripts in British Libraries* (Oxford: Clarendon Press, 1969–). The latest edition of the German rules, *Richtlinien Handschriftenkatalogisierung* (4th ed., Bonn-Bad Godesberg: Deutsche Forschungsgemeinschaft, 1985), also includes a bibliography of the manuscript catalogs published in West Germany since 1945.

5. C.W. Dutschke, *Guide to Medieval and Renaissance Manuscripts in the Huntington Library* (San Marino: Huntington Library, 1989). Paul Saenger, *A Catalogue of the Pre-1500 Western Manuscript Books in the Newberry Library* (Chicago: University of Chicago Press, 1989). Barbara A. Shailor, *Catalogue of Medieval and Renaissance Manuscripts in the Beinecke Rare Book and Manuscript Library Yale University* (Binghamton, N.Y.: Center for Medieval & Early Renaissance Studies, 1984–). Lilian M.C. Randall, *Medieval and Renaissance Manuscripts in the Walters Art Gallery* (Baltimore: The Johns Hopkins University Press, 1989–). Svato Schutzner, *Medieval and Renaissance Manuscript Books in the Library of Congress: A Descriptive Catalog* (Washington, D.C.: Library of Congress, 1989–).

6. *Descriptive Inventories of Manuscripts Microfilmed for the Hill Monastic Manuscript Library*. Austrian Libraries, 1981–. Portuguese Libraries, 1988–.

7. See Joachim-Felix Leonhard, "Manuscripts and Humanist Research. Functions and Goals of Manuscript Cataloguing in the Federal Republic of Germany," *Libri* 37 (1987): 187–88. One result of this cumulation has been to point out considerable inconsistencies in existing approaches to indexing.

8. On indexing practices and standards for manuscript catalogs, see Hope Mayo, "Standards for Description, Indexing and Retrieval in Computerized Catalogs of Medieval Manuscripts," in *The Use of Computers in Cataloging Medieval and Renaissance Manuscripts: Papers from the International Workshop in Munich, 10–12 August 1989*, ed. Menso Folkerts and Andreas Kühne (Algorismus, Heft 4; Munich: Institut für Geschichte der Naturwissenschaften, 1990), pp. 19–40.

9. Thomas L. Amos, "Non-MARC Databases and the Census Level Record," *RBML* 6, no.1 (1991): 23–37; Appendix 4 to Amos's article provides the formal identification for each of the non-MARC databases.

10. UFBD: *USMARC Format for Bibliographic Data Including Guidelines for Content Designation*, prepared by Network Development and MARC Standards Office (Washington, D.C.: Cataloging Distribution Service, Library of Congress, 1988). AACR2: *Anglo-American Cataloguing Rules*, 2nd edition, 1988 revision (Chicago: American Library Association, 1988). BDRB: *Bibliographic Description of Rare Books: Rules Formulated under AACR2 and ISBD(A) for the Descriptive Cataloging of Rare Books and Other Special Printed Materials* (Washington, D.C.: Library of Congress, 1981); a second edition is in preparation. APPM: *Archives, Personal Papers, and Manuscripts: A Cataloging Manual for Archival Repositories, Historical Societies, and Manuscript Libraries* (2nd ed., Chicago: Society of American Archivists, 1989; 1st ed., Washington, D.C.: Library of Congress, 1983); both editions were prepared by Steven L. Hensen.

11. The proceedings of the symposium, which took place under the auspices of the XVIIIth International Congress of History of Science (Hamburg and Munich, 1–9 August 1989), will be published as *Computers and Access to Medieval and Renaissance Manuscripts*, ed. Wesley M.

Stevens (Binghamton, N.Y.: The Haworth Press, 1991) [= *Primary Sources & Original Works* 1, no. 3–4 (Spring 1991)]. My article, "MARC Cataloguing for Medieval Manuscripts: An Evaluation," includes sample MARC records based on the published descriptions of Huntington Library, HM 1035 and HM 64, as well as a detailed analysis of the process by which they were created. The remainder of the present article summarizes the conclusions to be drawn from that attempt to combine traditional manuscript descriptions, MARC tagging, and Anglo-American cataloging standards.

12. *Library of Congress Subject Headings*, 11th edition (Washington, D.C.: Cataloging Distribution Service, Library of Congress, 1988). *Medical Subject Headings—Annotated Alphabetic List 1990* (Bethesda, Md.: National Library of Medicine, 1989).

13. On ESTC, see R.C. Alston and M.J. Jannetta, *Bibliography, Machine-Readable Cataloguing and the ESTC* (London: The British Library, 1978). On ISTC, see *Bibliography and the Study of 15th-Century Civilization: Papers Presented at a Colloquium at the British Library 26–28 September 1984*, ed. Lotte Hellinga and John Goldfinch (London: The British Library, 1987).

14. *Graphic Materials: Rules for Describing Original Items and Historical Collections*, compiled by Elisabeth W. Betz (Washington, D.C., 1982); *Descriptive Terms for Graphic Materials: Genre and Physical Characteristic Headings*, compiled by Helena Zinkham and Elisabeth Betz Parker (Washington, D.C., 1986); *LC Thesaurus for Graphic Materials: Topical Terms for Subject Access*, compiled by Elisabeth Betz Parker (Washington, D.C., 1987).

15. Thomas L. Amos, "A First Level Approach to Sharing Information From Manuscript Description Databases," in *The Use of Computers in Cataloging Medieval and Renaissance Manuscripts* (Munich, 1990), pp.1–18.