
The Legacy of the Library Catalogue for the Present

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ABSTRACT

The specter of impending change in library catalogues is strong but not very clear. In an attempt to help the clarification process, the first part of the present report discusses historical themes from the modern library catalogue legacy that has developed since the mid-nineteenth century—the origins and subsequent dominance of the dictionary catalogue for more than a century, considerations of library catalogue users and use over the same period, developments apart from the library catalogue during the twentieth century that have affected it, and aspects of the idea of the objects of a catalogue. In a second part, the general environment for the most recent period of library catalogue development is described, after which aspects of the historical legacy are used as a basis for raising questions relevant to impending library catalogue change.

INTRODUCTION

The call for papers for this issue of *Library Trends* states that “the library catalogue, along with other traditional information retrieval tools, is in a state of flux” and that the contemporary library catalogue scene “marks a new phase of experimentation” not seen for some time (La Barre 2010a). The overall tone of the call suggests not only that change in the library catalogue is imminent but also that such change may well contain some sort of new approach to knowledge organization, discovery, and access. Certainly there is no dearth of proclamations that change is now upon us or of calls for change. But, what the nature of that change is or should be—whether it has to do with something fundamental in the catalogue itself or has to do with something apart from the catalogue—is not so clear, especially given the cacophony of sometimes conflicting voices.

The present remarks attempt to offer help in clarifying the current situation by providing some historical perspectives on the library catalogue that are relevant to the present. Their scope will be the entire period from the flowering of innovation that produced the dictionary catalogue after the 1840s up to the present. In the first part, four themes related to the library catalogue that are central to its overall legacy will be discussed: the first on the origins and subsequent dominance of the dictionary catalogue; the second on considerations of catalogue users and use; the third on how developments outside of the library catalogue have affected the library catalogue legacy; and the fourth on the idea of “objects” of a catalogue.¹ Afterward, the most recent period in the life of the library catalogue (from about 1994 to the present) is briefly described followed by comments on how past themes from the library catalogue legacy seem pertinent to it.

HISTORICAL THEMES PERTINENT TO THE LIBRARY CATALOGUE

The Dictionary Catalogue

A first historical theme of relevance to the library catalogue consists of the origin and subsequent fortunes of the dictionary catalogue since its beginnings after the mid-nineteenth century in the United States. A dictionary catalogue is one that displays all of its entries and its cross-references in one continuous alphabetical sequence. It can also be thought of as a practice (as in the practice of dictionary cataloguing) within which library catalogue entries are determined and rationalized.

The dictionary catalogue is an important milestone because it became the standard for library catalogues in the Anglo-American world for more than a century, that is, from the 1870s when it was first created for printed book catalogues to the 1980s when its representation in card catalogues began to be replaced by online public access catalogues (OPACs). However, even though it has now been replaced as a catalogue display device, its role as a basis for describing informational objects and in determining, formulating, and rationalizing entries has continued both in the form of rule sets covering description and author and title entry and in the form of subject headings derived from subject heading lists.

Charles Cutter and the Dictionary Catalogue. Charles A. Cutter (1837–1903) is usually cited as the originator of the dictionary catalogue. While he played a principal role in bringing it into existence, its actual creation was a much longer and more complex matter than merely the work of a single person. Its beginnings included both a long prior stage beginning in the seventeenth century during which alphabetical order was applied to author arrangements, and an intense shorter period from the 1840s to the mid-1870s in which alphabetical order was also increasingly applied

to subject arrangements and subject indexes. Cutter's work essentially capped the latter development in 1876 with the publication of the first edition of his *Rules for a Printed Dictionary Catalogue* (1876b).

Cutter contributed three basic tenets that, with some modifications, have been important features of the dictionary catalogue handed down after him. The forcefulness of the tenets are revealed not simply in his *Rules* but also in his article "Library Catalogues" published concurrently with his *Rules* (Cutter, 1876a) and in an article published seven years earlier (Cutter, 1869). All three of the tenets have to do with the subject element of the dictionary catalogue, however, rather than with either basic item description or the creation of author and title entries, both of the latter of which he considered "tolerably well settled except in regard to some details" when he first published his *Rules* in 1876.²

First, Cutter insisted that subject terms used for books be carefully created by the cataloguer and not simply consist of words taken from book titles. The latter was common practice in alphabetical subject cataloguing in the three decades or so before he published his *Rules*, but in his view the thoughtless title-dependency it led to was one of the greatest hindrances to adequate subject access. In actual practice not only were many such words inadequate for providing subject access—many books were not given any subject access at all when their titles contained no usable terms at all for their content. On the other hand, some book title words could be used, but they had to be considered independently of the title and meet his criteria for carefully derived subject words.

A concomitant but equally necessary feature of Cutter's insistence on carefully derived subject words for subject headings was his belief in the classificatory basis for such words. During much of the nineteenth century, thinking about subjects was dominated by European Enlightenment thought that was continued in the nineteenth-century classification of the sciences movement. Within this larger intellectual context, subjects in and of themselves were not thought of primarily as attributes of books (or of any document, for that matter), though obviously they could be spoken of as book attributes. Rather they were considered more principally as formal elements of a grand but natural hierarchical classification of all human knowledge. In contrast, the relationship of subjects to books tended strongly toward being derivative. A book or a document merely *treated of* a subject that otherwise existed in that natural classificatory realm. The subject could also be considered the book's theme or even topic, but its ontological basis as a subject came from being part of that grander scheme of things.³

For much of the previous two or three centuries, carefully derived subject words with origins in classificatory thought had been used to provide subject access, but they were the elements of classed rather than alphabetical catalogues. When alphabetical subject catalogues rose in popular-

ity, using title words as subject words rose in popularity with them, not because they provided equally precise and formal subject access but rather because they were simply easier to determine in an age when reducing the costs of printed catalogues and the amount of time required to create them was of paramount importance. Further, they provided at least some subject access even if imperfect. Cutter's own regard for the role of formally derived subjects came especially from his role in assisting Ezra Abbot in creating a classed (i.e., in this case, an "alphabetico-classed") card catalogue for the Harvard College library between 1860 and 1868. Subsequently, his enormous respect for the sense of subjects found in classed catalogues led him to import this aspect of them into a dictionary catalogue setting.⁴

The second basic tenet that Cutter incorporated into the dictionary catalogue consisted of what he called "specific entry." In this context specific entry meant entering a book description under a heading that was placed directly in the main alphabetical sequence of a catalogue's headings and not under a subdivision term of any direct heading. In his version of a specific entry dictionary catalogue, subdivision entry (i.e., classed entry) was simply not allowable because of the added burden of complexity that it placed on the searching of the most numerous but least capable kinds of readers.⁵

The third basic tenet that Cutter incorporated into the dictionary catalogue was that cross-references were absolutely necessary in it, not simply to link alternative forms of the names of persons, corporate bodies, etc., in its author and title parts, but to disambiguate synonymous subject words and to link subjects on the basis of the logical hierarchical relationships that they had by virtue of their membership in the larger schema of classed human knowledge. He based this tenet, which he called the "synthetic" feature of his the dictionary catalogue, not simply on his awareness that many alphabetical subject catalogues did not use such cross-references, but even more importantly on his estimate that cross-references were necessary to enable all readers to find books on the same subjects and in the same forms of literature gathered together in classes. Cross-references also helped a lesser number of catalogue users find those classes further linked to still other related classes in a hierarchical classificatory structure.

From Cutter to the Library of Congress. From 1876 to nearly the end of the century, Cutter's idea of the dictionary catalogue simply proved too difficult to construct from scratch for any but the most determined catalogueuers and the wealthiest of libraries (Ranz, 1964). What actually brought it into prominence during the twentieth century was, first, the publication and dissemination of lists of subject headings beginning in the mid-1890s from which cataloguers could choose subject headings and cross-references without going through the intellectual effort of creating them de

novo (e.g., American Library Association [ALA], 1895), and second, the creation of a master dictionary catalogue on cards at the Library of Congress beginning in 1898. When in 1901 the cards of the latter (replete with descriptive data and necessary headings of all kinds) began to be published, local libraries were able to purchase copies of them at very nominal costs for many of the books they owned. In addition, the Library of Congress began publishing lists of its own subject headings by the end of the first decade of the twentieth century and, besides the help they provided merely as lists from which to choose headings, they also became a standard against which other similar or even more specialized lists could be measured. The most significant result of these events was that a *given* form of the dictionary catalogue was created for local libraries to copy with only minimal modifications necessary. It is called *given* not simply because it was in many respects a gift but also because it became a de facto standard that eliminated the activities of planning and then creating from scratch a library catalogue as a basic system of relationships and operations.

Criticism of the Dictionary Catalogue. It should be noted that prior to the late 1930s, the dictionary catalogue was commonly spoken of as the product of using the 1908 author and title cataloguing rules (ALA, 1908) and lists of subject headings. Cutter came to be widely spoken of as the originator of the dictionary catalogue and, especially, of its subject heading part, only after that point, the tone of the comments often being negative in identifying him as the creator of a defective subject heading system (Stone, 2000; Miksa, 1983a). The opening salvo of what eventually became more than two decades of criticism of the dictionary catalogue subject headings came in the form of S. R. Ranganathan's *Theory of Library Catalogue* (1938), followed by important works by Patricia Knapp (1944a; 1944b) and Marie-Louise Prevost (1946). During the 1950s and 1960s, these were expanded by similar comments in a new spate of direct investigations of catalogue subject access and within investigations conducted by various persons and organizations in the United States who wished to apply mechanical and, afterwards, computerized means to provide subject searching.

Ranganathan scathingly indicted both Cutter and Margaret Mann for devising a system that essentially hid its true classificatory origins, and that in doing so degraded its classificatory base. Others simply blamed Cutter's interpretation of users' habits in searching as the source of what by then had become an increasingly complex problem of determining and writing subject heading syntax in a consistent manner. Interestingly, such criticisms did not then nor since diminish the use of alphabetically arranged dictionary catalogue subject headings of the kind made by the Library of Congress, not even after the dictionary catalogue display was replaced by database systems that provide different kinds of searches separately.⁶

Library Catalogue Users

A second historical theme of relevance to the library catalogue consists of considerations of the users of library catalogues. Such considerations have been present in discussions of modern library catalogues from their beginnings in the mid-nineteenth century, but they have not often occupied a central position in discussions. For much of the long period in which the dictionary catalogue was dominant, they have been used as a way to support claims about the propriety of a particular aspect or practice in catalogues or as a way to speak generally about justifying claims about the catalogue.

Users and Alphabetical Order. The oldest such user consideration was the claim that alphabetical order of catalogue entries was a far better approach to catalogue arrangement than any classed plan because classed catalogues tended to be difficult to use. The degree of ease or of difficulty of use was important when the modern public library movement got under way during the 1850s because one of the central features of that movement was to create libraries that provided open access to all classes of library users, including those who did not have the educational background that supported sophisticated catalogue use.⁷

In 1876, Cutter himself would add to the foregoing argument about the ease of use of alphabetical arrangement the simple assertion that “everyone knows the alphabet” (Cutter, 1876a, p. 543), but he may simply have been repeating Ezra Abbot, his mentor at the Harvard College library, in a statement of conventional wisdom that both were not very likely alone in believing (Abbot, 1864, p. 67). As conventional wisdom it raises a warning flag, however, not simply because it seems to have been made without much reflection, but because it belied the special context in which both did their library catalogue work. Cutter, for example, moved about in a very literate environment that was notable for how it valued educational institutions. Though not born to upscale Boston Brahmin life as were those for whom he worked at the Boston Athenaeum, he was a beneficiary of those institutions. Further, he was a member of the highly educated professional classes then greatly on the rise in the nation. Given this, how could he have easily resisted seeing all users through the lens of his own education and library catalogue use skills? The latter observation and question are important because they help one to understand the context in which Cutter made many of his statements of catalogue use.

Cutter and Classes of Catalogue Users. Cutter envisioned three classes of catalogue users on a single scale. The class of users at one end of the scale consisted of those who pursued general courses of study. The class of users at the other end of the scale consisted of desultory readers who merely wished to find their favorite kinds of books together as a group but with minimal or even no extended mental effort. Between these two end

points, he placed a third more amorphous class of readers, characterized more or less like the first class, but with narrower rather than broader subject areas central to their study.⁸

A close look at the three classes shows, however, that their differences really turned not only on the intention to use a catalogue to further an act of study but on the relative capacities of their members to think about and therefore search a catalogue for subjects in a classed manner. When searching for subjects, those who pursued general courses of study and those having narrower study goals had skills involving thinking in a classed manner, whereas desultory readers did not, at least to any meaningful extent. His characterization of the degree to which two of the three classes could think about subjects and search for them in a classed manner was important for it provided a justification for him to import the classed structure of subjects native to classed catalogues into the dictionary catalogue framework. But, his conclusion that desultory readers were nonetheless the “largest and loudest” class of all readers led him to justify the alphabetically ordered specific entry system that he promoted.

The second way that Cutter spoke of catalogue use occurred in discussions in his *Rules* in which he based choosing among options in applying rules on observations he had made about users habits in referring to subjects (1904, pp. 66–67, 70–75).⁹ First, his comments sometimes assume a good deal of knowledge on the part of users about subject classes and subject class structures. Second, some discussions revolve around the idea that users establish habits in relationship to subjects through a process of learning to use a catalogue, rather than simply using it “cold.” Third, Cutter more than once found users’ habits not determinative, the fallback position in those cases being to use systematic principles rather than users’ habits when making choices between options. Fourth, when Cutter did find it necessary to make choices based on clear user behavior or expectations in searching that amounted to exceptions from systematic applications, it was always after laborious considerations of all alternatives.

When Cutter’s statement, made at the end of his life, that “the convenience of the public is always to be set before the ease of the cataloguer” (1904, p. 6) began to be cited frequently after the 1930s, it has most often been made without reference to his other statements about users habits in searching in his *Rules*. Citing it out of context in this way has seemingly been directed toward portraying user considerations as if they are in opposition to a rational system, and decisions made on users’ behalf as more or less ad hoc and relatively thoughtless. Cutter’s comments on user considerations simply will not support that interpretation.

User Considerations to the 1960s. Far different approaches to user considerations in relationship to the library catalogue began to appear after the beginning of the twentieth century. One direction taken by such

approaches was to identify users with kinds of libraries (e.g., academic library users, school library users, public library users, special library users), and to assume that the users of one kind of library had specially important attributes that users of other kinds did not. This approach was eventually abandoned and replaced in the 1940s with assumptions about specializations, with a more simplified division of users into those who were specialist users and those who were not (Miksa, 1983a, pp. 236–331, 1983b; Pettee, 1946).

Still another direction user considerations took was as elements of the heavy criticism directed at the dictionary catalogue from the late 1930s to the 1960s for inconsistencies in its subject headings, the latter often citing Cutter's incorporation of exceptions for special cases based on users habits in searching (though without his other balancing statements about the value of system). Criticism of dictionary catalogue use eventually yielded a new genre of investigation called catalogue use studies. These empirical studies focused on how people used the dictionary card catalogue, but unfortunately, their findings tended to be very general and did not yield robust guidelines useful for changing dictionary catalogue practice (Jackson, 1958; Frarey, 1953, 1960; Miksa, 1983a).

User Considerations since the 1970s. Since the 1970s and in the context of the computerization of the library catalogue that led finally to OPACs, still another wave of interest in users has arisen that has continued to the present day. The approach to catalogue use within this period, however, has had two characteristics that make it different than previous efforts. First, this approach began with a concern to differentiate users as classes of persons from use purely as an activity of searching. Second, as catalogues were computerized, this approach became studies of online catalogue searching, which in turn merged with studies of searching all kinds of information retrieval systems, especially those that since the mid-1990s have included Web-based interfaces.

The results of these efforts are in some respects remarkable, for they have documented a wide variety of problems in searching that, were they to be addressed, might well provide a basis for making substantive improvements in library catalogues (along with improvements in other kinds of retrieval systems). Two of the more striking kinds of solutions that have been tried or suggested include intervention strategies that aid searchers, and separating the act of searching in systems from a preliminary step in which aid is provided to help users clarify and focus their thinking on what they are searching for (Bates, 2003; Markey, 2007a, 2007b). Markey concluded, however, that the opportunity to make such changes in online library catalogues passed without serious change being made (Markey, 2007c). One reason for the lack of change seems nearly insurmountable, however, because it has little to do with actual procedures and much to do with funding and organizational initiative. Given the reality that most

end-user searching developments applicable to library catalogues now lie in the province of commercial services or library catalogue vendors, how shall libraries contend with the costs and cooperative issues involved that could bring such improvements to library catalogues?

Developments Apart from Library Catalogues

A third historical theme of relevance to library catalogues consists of developments that have occurred primarily apart from making library catalogues but that have nonetheless affected them. Although specific developments of this kind are far too numerous to mention, two more general developments bear some attention—how subjects are conceived in relationship to documents, and the role of classification in relationship to library catalogues.

Subjects in Relationship to Documents. The relationship of the idea of a subject to documents has already been broached in the context of Cutter's initial work on the dictionary catalogue, more specifically in the form of the idea that the primary referent for a subject was its more formal status in relationship to the natural classificatory realm of human knowledge. In contrast, the idea of a subject as an attribute of a book or of any document tended to be of much less significance.

What was not mentioned when that was discussed is that this approach to subjects in relationship to documents also led Cutter to see the library catalogue as a means by which to collocate books on the basis of the one most specific subject in each. The latter required, in turn, a mind-set that treated books primarily as single units of content (with exceptions for what were commonly considered polytopical items such as collective publications, encyclopedias, and a relatively few monographs), each with, ideally at least, one subject attribute by which to characterize it.

Cutter's particular measure for accomplishing whole item subject access—a scale of subject generality or concreteness in which "most specific" meant "most concrete"—did not survive into the twentieth century. Yet, what did result did not greatly change the whole item approach to subject access, for in Library of Congress subject heading practice, the search for specificity simply metamorphosed into attempting to identify the "main" subject of a book.¹⁰

A competing view of subjects in relation to books did subsequently arise, but not inside the library catalogue community. Though it took some years to bear its greatest influence, this view took as its starting point that books and in fact all documents amounted to something more akin to collections of subjects that could be disassembled and given access separately.

The origin of this approach is most likely the documentation work of Paul Otlet and Henri La Fontaine, which they began in the mid-1890s, for they developed a version of this equation of documents and subjects

in their effort to provide highly particularized access to knowledge for scholars and specialists, especially those in the social sciences who focused on the political and social improvement of society and the advancement of world peace. However, their approach to subjects in documents did not begin to be widely applied until, beginning in the 1920s, the documentation movement itself underwent two significant changes in direction.¹¹

The first such change was a shift in focus from the social sciences to science and technology. The shift became important given the scientific and technical demands of two world wars and, following the second of those, of the Cold War, and with those three events a corresponding enormous rise in the publication of scientific and technical literature. Also important was the concurrent belief that arose during the same period that the universal control of information, especially that found in scientific and technological literature, was the necessary basis of the advance of humankind both scientifically and socially. Finally, the change in focus eventually provided a basis for the rise of massive funding for research and experimentation in the post-World War II era by both governmental agencies and private corporations (some of the latter becoming foundational to the information industry of online information services that eventually developed) on how best to store and retrieve the needed scientific and technological literature.

A second change in direction of the documentation movement was the rise of computerized applications of information storage and retrieval and, within that, the adoption over time not only of the view that documents held multiple subjects to which it was necessary to gain access but also the view that indexing rather than the whole item approach characteristic of library cataloguing was the best method of achieving access to those multiple subjects of documents.¹²

The overall effect of these two changes was for all practical purposes to place the library catalogue outside of consideration of the most effective way to achieve access to the contents of documents. Libraries and library cataloguing have been affected by computerization, of course, especially since the late 1960s when the Library of Congress created its MARC program. Though the latter was first used primarily as a means of controlling catalogue card inventory and publication, and though its use in computerized catalogues (OPACs) did eventually adopt some of the algorithmic procedures that had arisen first in the mechanization and computerization of documents (chiefly Boolean algorithms), the computerization of library catalogues ultimately has had little effect on how subjects in library catalogues are viewed in relationship to documents. For all practical purposes, library catalogues remain focused (with few systemic changes) on identifying the main or dominating subjects of whole documents (particu-

larly published books) rather than approaching even some of the latter for their more intense multisubject content.¹³

Classification. A second theme that has developed outside of library catalogue thinking has been the potential role of classification in information retrieval. As already noted in the discussion of the beginnings of the dictionary catalogue, the very idea of subjects in the dictionary catalogue began in the context of classificatory thinking, albeit in the form of the hierarchical arrangement of classed language terms rather than in the form of alphanumeric codes basic to enumerative classification systems that employed such codes in place of language terms. The dictionary catalogue as well as OPACs still retain subject heading relationships that arise from classificatory relationships and that are expressed by cross-reference structures. Book entries in OPACs also retain alphanumeric class notations laboriously derived from notational systems such as the DDC and LCC and attached to books for their shelf locations. But, the two systems of subject indication have come to be disconnected intellectually and systematically from each other in terms of subject access procedure, even though both focus on a whole-book approach to the relationship of documents to the subjects they contain. In short, classification has become one thing, subject heading work another.

The separation of these two systems began as early as the invention of the latter in the 1870s. For many years the differences between the two approaches was a central feature in the clash that flared up now and again between advocates of classified catalogues arranged by notations and advocates of alphabetically arranged catalogues. Understandably, such differences were critical when filing entries in manual catalogues was the chief consideration, given that entries filed under coded notations and entries filed under language terms simply do not mix. However, since the introduction of OPACs, that difference means little because multiple kinds of entries are not ordinarily intermixed in a single sequence anyway. To use both systems effectively would still be a stretch, however, for while the idea of assigning two or even three subject headings seems not to have bothered subject cataloguers, the idea of assigning more than one classification notation has tended to be incomprehensible.

Overall, the most important effect of the separation was the loss to the library catalogue of discoveries that occurred when classification was applied within a documentation context to provide access to multisubject document content. From its very beginnings in the work of Paul Otlet and Henri La Fontaine, classification had been used to organize the bibliographic catalogue they built of information sources. Though they began by using the fifth edition of Melvil Dewey's Decimal Classification published in 1894, within a decade their adaptation of Dewey's system had become so complex as to take on a life of its own. Its complexity arose

from including in it the sheer larger numbers of subjects that became identified in their approach to document subjects, many of which could only be listed in deep hierarchical subject structures or in structures that joined disparate subject and document form characteristics.¹⁴

Two striking features for using classification in documentation became important in the development of classification. One consisted not simply of special notational devices that showed subject access relationships but the grouping together of many groups or families of subject content attributes in a systematic manner. In the late 1940s and 1950s, when S. R. Ranganathan “discovered” documentation and applied his own classificatory thinking to its subject access needs (Ranganathan, 1950, 1963a, 1963, 1967), and thereafter when others, especially those in the Classification Research Group (CRG) in Great Britain, expanded his methods, Ranganathan’s own name for this activity, *faceting*, became the standard name for it. The second feature was the discovery, especially among members of the CRG, that formulating highly structured ways to represent subject content provided subject access systems with what amounted to a systematized “grammar” for both expressing and searching for subject content in resources.¹⁵

These developments in classification were for all practical purposes lost on those who made subject catalogues. They were also lost from a wider range of information retrieval from the mid-1960s to nearly the mid-1990s as computerized information storage and retrieval disregarded classificatory thinking for algorithm-based searching and retrieval based on language terms. Only more recently has one of those two discoveries—*faceting*—again come back into use, though chiefly in the form of information architecture for web sites and searching and without the highly developed classificatory structures with which such discoveries began (La Barre, 2010b).

Objects of a Library Catalogue

The last historical theme of relevance to the library catalogue consists of the idea of objects of a library catalogue. Lists of such objects have been used chiefly since the 1960s in conjunction with new codes of library catalogue rules to refer, ideally at least, to the basic purposes or objectives that a catalogue is designed to accomplish.

Background. Nearly a century earlier, however, Cutter included a list of eight objects (as well as a list of “Means”) in his *Rules* in 1876 (p. 10), and repeated them without change in the three editions that followed.¹⁶ They were not subsequently referred to in general discussions of the library catalogue until they were “rediscovered” in the 1950s during efforts to systematize the 1949 author and title entry cataloguing code (ALA, 1949). Their use within that context was primarily limited to those of his eight objects that had to do with how searching in a library catalogue for a particular

book by an author, for all of the works of an author, and for all of the editions of a particular work could be viewed in terms of a more fundamental distinction between the idea of a physical, actual publication (a “book”) and the *work* that such an actual publication embodied (Lubetzky, 2001; Svenonius, 2000; Wilson, 1989). Cutter’s objects functioned, in short, as a historically early effort to create a rational set of cataloguing rules based on underlying intellectual concepts of considerable significance.

Since their use in that mid-twentieth-century discussion, Cutter’s objects have been cited numerous times and even listed, but they have not been discussed in any detail, and they certainly have not been discussed historically in terms of the original context in which Cutter devised them. This “light” approach to Cutter’s actual objects presents the present library cataloguing community with a serious quandary, however. Are Cutter’s objects important at all in terms of their details, or do they exist only as a kind of venerated relic that has little value beyond the vague role of a past confirmation of present ideas?

Although the idea of the objects being something of a venerated relic has some merit—they are, after all, well over a century old—to assign them only that status would do them an injustice. Cutter’s objects of a catalogue are important, but in two perhaps not very obvious ways. When viewed in terms of how Cutter actually used their content, they offer a way to view how the modern library catalogue legacy began and was subsequently shaped. When viewed in terms of what they omit, however, they provide a basis for a critical view of aspects of the same legacy.

Cutter’s Use of His Objects of a Catalogue. Cutter apparently did not devise his list of eight objects as a formal set of conceptual principles for the dictionary catalogue as a whole in the manner of, say, Svenonius’s (2000) *intellectual foundation* of information organization (emphasis added). Their more limited role was to serve his own view of any library catalogue as a practical means to answer certain common but basic kinds of questions that readers asked of a library through its catalogue (1876a, p. 527). Cutter approached catalogues in this way because each of the actual kinds of catalogues of his day answered some but not all of the questions. To demonstrate this, Cutter proposed four hypothetical kinds of catalogues—author catalogues, title catalogues, subject catalogues, and form-of-literature catalogues—and then showed which questions were answered by each.¹⁷

By not answering all of his basic questions, access in any particular catalogue was deficient. His solution was to devise one catalogue—what he subsequently called a dictionary catalogue (of his own special design)—that that would answer all of the questions by integrating the entries basic to each of his four hypothetical catalogue kinds. His objects of a catalogue consisted merely of restatements of six of his questions in the form of practical goals, to which he added two additional practical goals related to choosing among “hits” (1876b, p. 10). When writing his *Rules* as the

details of his solution, he divided them into four sections, one for each kind of catalogue.

What Cutter's objects do not do is provide further goals or any explicit conceptual considerations for each of the four catalogues individually. They do not, for example, make any statements about the special principles of the subject catalogue, a part of the dictionary catalogue which he ultimately thought of as its most distinguishing feature. He confined his discussion of such matters to the long notes found in his *Rules* and to his article "Library Catalogues" published concurrently with his *Rules*.

When viewed this way, Cutter's objects are simply a practical map of the entry system of his version of the dictionary catalogue. But, even in that form they also serve a second purpose—perhaps inadvertently of being a signpost for what the dictionary catalogue would become during the next century—the master catalogue created by the Library of Congress, which other library catalogues would emulate to achieve a notable success. In the place of catalogues that answered basic questions posed by users incompletely or in a confused and nonintegrated manner, thousands of local catalogues were created that provided multiple kinds of access in a reasonably systematic fashion and in single integrated systems of entries.

What Cutter's Objects Omit. The second way to look at the importance of Cutter's objects of a library catalogue is in terms of what they omit. One group of objects he omitted, those related more specifically to the individual kinds of catalogues that he brought together in the dictionary catalogue, were, as already mentioned, outside the purview of the purpose of the objects as he wrote them. Another group of omissions that are likewise outside the specific purpose for which Cutter devised his objects that do bear serious attention, however, are those that belong to what can be called the general environment of the library catalogue that he made and that appear in the form of unquestioned assumptions. Despite not having a direct connection to his practical purposes in writing his objects, these are important because they nonetheless have a direct impact on them. Here, three such environmental assumptions that originated in Cutter's time and thereafter became part of the library catalogue legacy will be noted—the relationship of a library catalogue to a given library collection, the emphasis on books over other kinds of materials in the dictionary catalogue, and the emphasis on books and other materials within the dictionary catalogue as whole items.

The relationship of a library catalogue to a library's collection of resources refers to which resources in a library's collections are to be included in its catalogue and which, if any, are to be excluded. One might assume that this issue would be addressed in a set of objects even if the objects are in reality a practical matter because it directly affects how the critical or basic questions that Cutter saw readers asking of the catalogue

can be answered. Why this issue is not addressed by Cutter may simply be because it was a moot point for him. In his writing, all of a library's resources were to be included in the catalogue. There were simply no candidates for exclusion. The latter is the view one gains from his *Rules* where all resources are included, even if in the form of analytical cataloguing rather than in the form of entries for whole publications.

The relationship of a library catalogue to a library's collection takes on greater importance, however, when one looks at subsequent practice related to the dictionary catalogue, for over the decades one finds first one kind of resource and then others being omitted from the ordinary catalogue—individual articles in periodicals, individual works in collective publications, pamphlets, materials in vertical files, special media, and so on. Reasons commonly given for such omissions, that such materials have access provided in indexing, or that such materials are of a more ephemeral nature, usually appear reasonable, but the result of such exclusions over the long haul has been the slow but steady fracturing of access to what a library has collected and a resulting diminution of the effectiveness of the catalogue as its chief instrument of access.

A second omission from Cutter's objects of some importance is any direct comment on what appears to be an exceptionally strong emphasis on books rather than other kinds of library resources when talking about the catalogue as a means to answering the critical questions that are asked of a catalogue. One cannot easily explain this focus away with the simple statement that since books are chiefly what a library acquired, Cutter simply focused on them in his objects, especially given the ample evidence in his *Rules* and elsewhere in his writings that he was well aware of resources other than books. Nor does this kind of simple explanation explain why he not only focused on books exclusively when writing his objects but treated them in his *Rules* (with a small number of exceptions for certain polytopical publications) as single holistic items, each of which were thought of as having one most specific subject. Given the foregoing observations, a better question about this matter might be what role (or roles) did single books play for Cutter (and for others from that day) that not only turned his attention to them as relatively uncomplicated single holistic things but led him to assume that library catalogue users viewed them in the same way?

Little research has been done on this kind question historically within the library field and almost none in cataloguing, but certainly any answer seems likely to turn on the role of books as cultural implements useful for achieving certain cultural needs. One strong possibility in this vein is that books were central for Cutter and others of his time because they served ideals rampant in America during much of the nineteenth century related to the quest for rational self-improvement and self-education. With public education being limited for most of the nineteenth century principally

to elementary grades and focused mainly on teaching basic literacy and numeracy, further education after the lower grades was chiefly a matter of individual initiative in pursuing it. Books—by which are meant here in an ideal sense of publications of authoritative whole works written by well-reputed authors that a person could read as if sitting at the feet of such authors as masters—provided an opportunity for an individual to tend to his or her own educational and mental development. Could this be the source of Cutter's focus? If so, has the focus in library catalogues on books viewed holistically since Cutter's day simply continued a rationale the original sense of which has been lost?¹⁸

A third and final omission of significance from Cutter's objects is any reference to catalogue use beyond the goal of finding one or more whole books. Cutter seems never to have entertained the idea that the use of the catalogue and the questions of readers might well be for purposes other than finding whole books. It is at this point, of course, that the library catalogue comes face to face with the twentieth-century shift, already discussed, that occurred in how subjects are thought of in relationship to documents. If a single book can be conceived as a collection of various subjects, and if catalogue users are also sometimes interested in finding only those parts of documents that meet his or her subject needs, how can we avoid what is so obvious in Cutter's objects: that this possibility seems not to be in sight at all? Even though this shift had only just begun to appear as a wider phenomenon toward the very end of Cutter's life, it seems unlikely that he could have not been familiar with it, either for himself or as he observed the catalogue use of others. Regardless of Cutter's omission of it, however, this phenomenon has become prominent throughout the decades since he worked, even if attention to it has been primarily outside rather than inside the central legacy of the library catalogue.

THE PRESENT AND THE LEGACY OF THE LIBRARY CATALOGUE

What remains for this discussion is to assess how the historical themes of relevance to the library catalogue just discussed, which portray in some measure its legacy, might inform our present period and, more specifically, prompt some useful reflections on impending library catalogue change. By the present period, I mean the years since about 1994 when web browsing came into existence and helped to create a new sense of the Net. I focus on this point in time chiefly because it has been the rise of the digital realm that the Net embodies that has made the present period more fundamentally different for the library catalogue than anything it has previously faced. The library catalogue now exists in a digital environment that frankly defies one's imagination not simply in terms of its size but in terms of its use.

The Present Environment for Library Catalogue Change

When the modern library catalogue came into existence more than a century ago and provided access to recorded human knowledge represented in a print and paper culture, the access that was provided was, in reality, to only a very small portion of a larger whole. In fact, the totality of the print and paper universe that had begun centuries before the modern library catalogue was invented has never been completely conquered, and most likely could not have been conquered in any complete sense. The sheer size and complexity of that universe were, in reality, what made the quest of bibliography, of which library catalogues are only a part, both dynamic and in some respects, heroic.

As time has passed since the modern library catalogue began, not only has the production of print and paper documents increased, but new media of recorded knowledge have added to their totals—for example, film, sound recordings, other kinds of visual objects and artifacts, as well as archival and current records. Library catalogues have attempted to include some of these within their province, though many have also been excluded for one reason or another. As a result, for all their accomplishments, modern library catalogues have come to provide access to an even smaller portion of the whole than it had since they had come into being.

The appearance now of the Net in its broadest sense complicates the picture even more. What makes the new digital environment so breathtaking is that not only has it produced new digital forms of recorded knowledge as well as digital versions of some of what had already been available in print and paper format, it has also expanded even more so by providing digital records of what used to exist only as nonrecorded communication. In this respect, the role of the “Net” as a communication medium *is* its most dominating feature. That it also happens to produce records of what used to be mainly nonrecorded communication, while tangential to its communications role, has nevertheless expanded the total of all recorded knowledge exponentially.

Within this new environment, the future of library catalogues and other similar retrieval systems, as well as of the institutions in which they have traditionally been found (e.g., libraries, records agencies, archives, information centers, and museums) will depend on how information in this now vastly extended realm is differentiated as to value and use. If it is viewed simply as a single thing, as a vast realm characterized merely by its size in, say, exabytes or zettabytes, to all of which access must be given, then the future of library catalogues might well be questioned, for their strength has always been in differentiating in one way or another the more valuable or relevant from the less (regardless of the measures used), and by taking at least some of the valuable as their province.

Since I strongly believe that the differentiation of even digital recorded knowledge in terms of its value and uses must occur if it is ever to be

sensibly accessed (in short, that there will never be some grand overall retrieval system of the Net as a single thing, just as there was never a single catalogue or bibliography of the vast print and paper realm), I consider there to be a future for library catalogues, and it is toward that future that some concluding insights can be gained from reviewing its legacy. Here I will simply arrange my conclusions as a series of observations on the library catalogue legacy as discussed here earlier, adding comments and questions where it seems appropriate.

The Library Catalogue Legacy as a Whole

The dictionary catalogue has played a central role in the legacy of the library catalogue. Although it has been surpassed by OPACs in terms of display, the dictionary catalogue remains with us in terms of descriptive data found to be important in the library catalogue and, especially, in terms of deriving, formulating, and providing a rationale for its entries. When Cutter created the initial rendition of the dictionary catalogue, he was clearly trying to solve both a primary and a secondary problem that had arisen in his own time. The primary problem was that no one kind of catalogue answered all of what he conceived of as the basic questions that readers asked of them. The secondary problem was the need to accommodate alphabetical order to any solution to answering all of the questions in one catalogue, and especially with respect to its subject access element. His own solution—his rendition of the dictionary catalogue—which involved combining aspects of classed catalogue order with that of alphabetical order, was appropriate for his day. Because it was a time-bound solution, however, it seems appropriate to ask in what sense his solution has relevance to the present library catalogue environment. In fact, were we to begin from scratch today at least in a hypothetical sense, without any particular reference to the legacy we have, what central problem or problems today would provide a new context for creating a library catalogue, one best fitted for our present environment? And, should we be successful in both identifying the central problems we wish to solve and devising a solution for them, what means would we have to implement the result? On the other hand, are we simply so tied to the solution that was first created more than a century ago and that has since become something of a de facto standard that starting afresh is totally out of the question? Or could a solution be devised that could at least link to that past without adopting its rationale?

The Library Catalogue in Relation to a Collection

The dictionary catalogue central to our legacy did not have to deal with an initial decision that any library catalogue should seemingly address right at the start, that is, to what is it supposed to give access? The reason that it has never begun with that question is obvious, of course, for the very idea of a library catalogue included the assumption that it was to provide ac-

cess to the collection of physical resources that had been acquired by the library in which the catalogue was made.

Though Cutter also did not address this assumption explicitly, he took it quite seriously since in both his *Rules* and in his library practice he made provision for including what amounted to the entire range of a library's resources in one integrated catalogue. In the subsequent library catalogue legacy, a steady erosion of Cutter's initial inclusiveness has occurred to the point that libraries have developed a fractured approach to access and discovery. More recent attempts to improve the library catalogue such as envisioning catalogues as portals or, more recently, creating multisource integrative systems can be viewed as attempts to address that fracturing of access into separate elements. Whether a fresh start in making a library catalogue coextensive with its resources can or even should be attempted thus becomes an important reason for even raising the question of the relationship of the catalogue to a collection.

Unfortunately, the present environment makes any attempt to answer the question of what a catalogue should give access to more than simply a response to past fracturing of access, for two new problems have arisen to make the issue even more complex: (1) whether a library catalogue should include integrated access to digital versions of their nondigital resources even where they have not formally "acquired" them and (2) to what extent should the library catalogue provide access to open or freely available resources on the Net, including those that exist as unique digital resource genres with various kinds of content not previously targeted for inclusion, and those that have arisen in the Net primarily as expressions of its now domineering role as a realm of communication, namely social media of all kinds.

Library Catalogue Users and Uses

Identifying library catalogue users and describing their catalogue use has been perhaps one of the weakest elements of the library catalogue tradition, one that has raised more questions than it has answered. For much of its history, user and use issues appear to have been addressed primarily through the various lenses of librarians' own experience and interests in libraries and their own sense of catalogue use skills, with not a small use of deductive logic and anecdotal evidence to support their conclusions. Cutter himself appears to have based his ideas about classes of library users on his own experience of catalogue use, especially with respect to users' capacities to think and search in terms of subject class structures. Over the many subsequent decades of the tradition, other similar assumptions have been made, particularly in connecting classes of users with kinds of libraries, or with observations of the presence or absence of specializations on the part of searchers.

The value of all such considerations has never been convincing enough

to make decisive and systematic changes in catalogues, however, nor especially to change the master *given* catalogue on which most local library catalogues have been dependent. Only as user studies became more empirical and focused on searching behavior in online environments have more intriguing and possibly usable ideas for catalogue change been generated, but implementing these have in turn run into severe issues of funding and cooperation.

What has been discussed in this paper about catalogue use does raise three interesting questions, however. First, as noted of some of Cutter's observations about the general nature of the public's habitual ways of looking at things, as well as in more recent studies (see Markey, 2007b), there seems to be an important, perhaps even necessary, place for learning about library catalogues and their use on the part of catalogue users. Cutter noted in more than one place that catalogue users needed to learn the foundational principles of his subject catalogue before becoming able to use the dictionary catalogue well. If we leave out his specifics, does his observation take on a more universal aspect—that no sophisticated knowledge access tool can be built on the idea that it can be used with efficiency without a learning effort of some kind? We expect this kind of learning effort for other information-laden technologies, from handheld digital telecommunications devices to computer strategy games. Why not also expect it of the use of library catalogues rather than treating it as something exceptional? Perhaps the initial screens of a computer catalogue should have a warning posted—"Effective Catalogue Use has to be Learned"—but then provide ways for users to develop and relish levels of expertise (beyond, merely, "basic" or "advanced") that portray use in terms of, say, gaming skill levels?

The foregoing points about learning catalogue use skills prompts a second question about catalogue use. Is it sensible or even possible to provide only one approach to catalogue use that will serve all levels and kinds of user experience and capabilities? Does catalogue change depend upon finding only one approach to catalogue use in what would amount to a new master *given* catalogue?

This question in turn raises a third. What is the likelihood that libraries and library catalogues have ever had more than a small percentage of users who can handle or have learned to excel in information searching and knowledge use, and that a far larger percentage of the user population have neither had such skills or the capability or inclination to develop them? Does the possible existence of only a smaller percentage of the entire user population who can use or even learn to excel in such use reflect a more or less natural social division of society in general? This is a sociological question that may make some uncomfortable, and I will not pursue it further except to say that if it were to be demonstrated to have any truth at all, perhaps an appropriate approach for catalogue user

and use considerations is to focus on the smaller group of those who have the capacity to use catalogues, rather than those who do not, and simply minimize as much as possible the worst problems encountered for the larger group or even provide for exceptional alternative library catalogue venues for them.

Whole Items, or Bits and Pieces of Items?

A last observation on the legacy of the library catalogue is the fact that from Cutter to the present, the library catalogue has focused primarily on information resources as whole items. This is most obvious in the matter of subject access, but it strikes me that it has reappeared as an emphasis more recently in the form of the differentiation between works and books basic to the thinking behind the functional requirements for bibliographical records (FRBR) and the newest cataloguing code based on it—resource description and access (RDA). The latter has led to efforts to rationally assemble works (i.e., as whole items) in terms of their expressions, manifestations and copies. Two further clusters of questions seem pertinent to this newest complex aspect of the library catalogue legacy.

First, for what part of the library user population is distinguishing the idea of works from books (but both in terms of whole items) most relevant? Is it a principle somewhat similar to Cutter's emphasis on specific entry that he suggested catalogue users must learn in order to use a library catalogue effectively? Have any empirical studies been conducted to identify not simply who most benefits from this emphasis but when in the lives of ordinary library catalogue users this distinction arises or becomes pertinent? It has been noted here that an emphasis on a whole-item approach to access had at least some cultural warrant in the nineteenth century, a warrant that was related to how the public library movement perceived its mission in helping people pursue self-improvement and self-education. Does the emphasis on distinguishing works from books (as whole items) have some new general cultural warrant that has arisen in the twentieth century, or does its present day warrant spring mainly from the needs of a relatively small number of bibliographical and textual experts?

A second cluster of questions has to do with how a whole-item approach to content intersects with or can be coordinated with the twentieth century discovery of the usefulness of viewing documents as containers of multiple subjects and the possibility that users may be interested in searching for what might be called bits and pieces of items. The latter is, of course, the basis of many of the developments in information retrieval that have occurred since World War II and of the rise of indexing, especially now in providing access to full text, as the dominant approach to subject access since that time. Considering its dominance in our own day as an approach to information access, does the library catalogue need to incorporate it in its approach to subject access, not simply because of its possible benefits,

but also because catalogue users have come to expect it at least in certain contexts? In what sense, if any, could both a whole item and a multiple subject approach to content be included in the same catalogue? Finally, given the long adherence of the library catalogue to a whole item approach, would failure to make at least some use of a multiple subject view of resources, even in only some limited form, doom the library catalogue to some sort of a backwater of subject access?

CONCLUDING COMMENT

The four historical themes of relevance to the library catalogue presented here have produced what might be usefully labeled a thumbnail sketch of the legacy of the library catalogue. Aspects of that legacy were then discussed in a final section for what is hoped will be considered their possible relevance to impending library catalogue change. The presentation in that section is primarily in the form of questions to be considered, the hope being that raising questions is a useful component of searching for clarity in devising library catalogues for the present and for the future. Obviously, the results of this effort are very limited. It is hoped, however, that what has been covered will provide a basis for further explorations.

NOTES

1. This will have an unavoidable American bias for which apologies are offered in advance.
2. Cutter's *Rules*, to which the origins of the dictionary catalogue were attributed in the twentieth century, were never accepted as an official statement of cooperative practice for any aspect of library cataloguing, though they were often referred to as one of the principal "go to" sources for library cataloguing. His 1876 conclusion about the relatively settled nature of descriptive cataloguing seems strange when taken by itself. In an article Cutter had published seven years earlier about the Harvard College library catalogue (Cutter, 1869), he included more than five pages of comments about descriptive cataloguing issues that belied his conclusion, especially with respect to entry under the name of corporate bodies. A century later, Lubetzky (1969) referred to Cutter's 1869 article to show something of the difficulty of that aspect of cataloguing. Even Cutter recognized such difficulties in descriptive cataloguing during the 1880s and later. He eventually contributed vigorously to the creation of a cooperative code for description of authors and titles, first in the form of the brief "Condensed Rules for an Author and Title Catalogue" (American Library Association Cooperation Committee 1883) and afterwards in terms of his contributions to the initial discussions that led to the publication of *Catalogue Rules, Author and Title Entries* (ALA and [British] Library Association, 1908). His statement in 1876 seems to have been merely an expedient way to dispense with any discussion of descriptive cataloguing so as to get into subject cataloguing, which he thought of as the defining element of his version of the dictionary catalogue.
3. The foregoing might well seem incredible today, but it was a normal part of discourse among cataloguers during most of the nineteenth century and did not change until the twentieth century when books and other documents acquired by libraries became the chief source of subject words and, one supposes, also of the individual reality of those words. In sum, something of a major shift occurred in the primary referent of a subject. For an attempt to explain this shift, see Miksa (1983b).
4. An alphabetic-classed catalogue arranged subjects in a classed subject structure, but at each level of the structure, arrays of coordinate subjects were alphabetized. For example, if such a system had twenty main classes, these would be sequenced alphabetically rather than in some logical order at their main class position. Subject divisions (i.e., first-order

subject subdivisions) of those twenty main classes would be entered under their superordinate main classes, but likewise would be sequenced alphabetically at that location. Second-order divisions (i.e., sub-subdivisions) would likewise be sequenced alphabetically in their respective arrays even lower in the hierarchy, and so on until the lowest levels of arrays were reached. This approach to subject class structure was important. First, since the main classes were alphabetical in their sequencing, they could easily be integrated with the authors and titles of an alphabetical author catalogue, although subsequent subdivisions and their respective book entries would appear under their respective superordinate main subjects rather than with the main sequence of authors, titles, and main subjects of the catalogue. Second, should one desire to do so, any subdivision at any level of a main class heading (and the books under it) could also be displaced to the main alphabetical sequence of the catalogue. This was commonly done for certain lower level subdivisions in the system that ended up being scattered widely throughout the system, but which catalogue users would appreciate finding gathered together in one place. Abbot, and Cutter following him, used "Tobacco" as a subject to illustrate this point. Tobacco, a topic of some popularity during the nineteenth century, was a good candidate for such displacement to the main alphabetical sequence because books written on it were ordinarily scattered under subdivisions of such main headings as Agriculture, Medicine, Commerce, Sociology, etc. Cutter's debt to Abbot was very pronounced. One need merely to compare Abbot's two writings on classed catalogues (Abbot, 1853, 1864) with Cutter's most important early discussions of library catalogues (Cutter, 1869, 1876a, 1876b) to see that this was the case, even down to the level of Cutter's use of examples that Abbot had originally devised.

5. For the statement that subdivision entry was not allowed in the specific dictionary catalogue, one must be careful to note what was a matter of common agreement in Cutter's day, that subdivision referred essentially to a superordinate—subordinate structural relationship, the subordinate term having an "essential" rather than an "accidental" relationship to the superordinate term. This kind of distinction was common for the time and came from Aristotelian thinking as explicated, for example, in the works of William Stanley Jevons, particularly in his books on logic and in his *Principles of Science* (1874). Subheadings based on "accidental" relationships (e.g., by form of publication, and by aspects of a specific subject such as its History or its Philosophy) were allowed, however. This distinction has been lost for many twentieth-century subject cataloguers, and even the Library of Congress uses the name "subdivision" without further distinction for all of its subject subheadings. It should also be noted that describing "specific entry" as direct entry of a subject term in the main alphabetical sequence of a dictionary catalogue in contrast to placing it as a subdivision under a direct entry does not exhaust the meanings of that term in Cutter's work. For example, he wrote of placing a book description under a broader term without any subdivision (as in placing a book on Frogs placed under the term "Amphibians" in the main alphabetical sequence) so that direct entry is achieved, but the relationship of the book to the heading is in actuality class entry. The latter aspect of specific entry has to do with the relationship of the subject of an individual book to the heading chosen for it rather than with how a given subject structure hierarchy is used. He also spoke of specificity as a way to judge the character of a subject term in and of itself. For this he placed a term in a scale that stretched from being very general at one end to being increasingly less general and more concrete at the other end, the most concrete terms being individual subjects such as particular places and individual persons. In that context, *most specific* meant being *most concrete*. One of the best general discussions of the variant aspects of the idea of specific entry ever written remains that of Svenonius (1976).
6. One important reason for the persistence of the subject headings of the dictionary catalogue over the twentieth century has been the "given" nature of the system. To change the subject heading system in it in any substantive way would have meant changing the Library of Congress "master" catalogue, a prospect that the Library of Congress was in no position to do financially without decisive evidence that some other approach would yield definitively better access. And such decisive evidence was lacking. What did occur was a gradual warming up of relations between the Library of Congress and the broader cataloguing community to make less fundamental changes in subject heading terminology—for example, to lessen cultural bias and to provide greater consistency in syntax of

selected headings or heading types. Cooperation of this sort eventually led to the creation of the Library of Congress's *Subject Cataloguing Manual: Subject Headings* (1984), which revealed some of the rationale that subject cataloguers used at the Library for headings of various kinds.

7. It would be impossible in remarks as brief as these to include any substantive information on the nature of the modern public library movement. It will suffice to say that the movement was not simply about creating a tax-supported public social agency called the "public" library (much like tax-supported public schools), though that was certainly involved. Nor was it primarily about creating public as opposed to school, academic, or other *kinds* of libraries. All kinds of libraries actually bought into the movement as it gathered strength during the remainder of the century, and the specific designation of public libraries as a library kind became an important desideratum only after the turn of the twentieth century. The most important aspect of the public library movement was the creation of open access versus private access libraries. Within the latter context a first important feature of the public library movement that most affected the idea of a catalogue was its sense of being open to all ("all" becoming a greatly enhanced idea as time passed) in order to further self-improvement through reading among those who used such agencies. A second important feature had to do with how catalogue users were affected. When the movement began it had to contend with the primary way libraries had long been founded, that is, by the efforts and donations of citizen volunteers and most often as a service to specially defined clientele—for merchants, for tradesmen, for children, for speakers of foreign languages, for scholars, for particular groups of professionals, etc. The formal public library movement did not actually become dominant over that pattern of founding until nearly the end of the nineteenth century. As it did gain prominence, however, how one thought about a library catalogue fundamentally changed. Previously, one could justify the structure of a library catalogue (even if it was difficult to use) on the basis of claims that it could be used or learned by that library's reasonably homogeneous clientele. However, as public libraries replaced these voluntary special clientele libraries, their user populations became increasingly heterogeneous, thus making it necessary for library catalogues to accommodate their structures to a broader range of catalogue users, from those most able to use and learn them even if difficult, to those least able to do so on the basis of their backgrounds and education.
8. Cutter spoke of classes of users twice in his "Library Catalogues" article (1876a, pp. 529–530, 540–541), the first time when examining logically classed catalogues where he had only two classes of users, the two anchor classes discussed here, and the second time when he spoke of all three classes discussed here. Their difference is slight because the middling class simply refined the first anchor class slightly but did not change the idea of two anchor classes.
9. Though these comments are cited from the fourth (and posthumous) edition of his *Rules*, it should be noted that they are in fact without change from the first edition in 1876.
10. It is fair to say that over the years it appears that some drift has occurred within subject heading application to include some attention to more than simply the main subject of whole items by providing access to topics that cannot easily be considered *the* main subject of an item. However, for most, this action appears to have been erratic, sometimes pursued, other times neglected, but neither in a systematic rule-based fashion.
11. The assertion that documents are containers of subjects is very much oversimplified here in order to emphasize its main thrust, that a profound difference has come to exist between looking at documents holistically, each for their central subject aboutness and looking at them as containers with multiple subjects. The equation was not characterized precisely this way at the start. In fact, it took some years for the true ramifications of this difference to become accepted implicitly. Likewise, identifying the origination of the idea in the realm of documentation in the 1890s is also somewhat arbitrary, given that back-of-the-book indexing, which explicitly uses the notion of multiple subject (i.e., topics) in a given book, had been taking place for many decades and the fact that Otlet's views on the idea, described under the rubric of "the monographic principle," apparently developed slowly over the first decade and a half of the twentieth century. For Otlet's ideas on the matter, see especially Rayward's excellent edition of the works of Otlet (Otlet, 1990) and also Rayward (1997, p. 295). A useful reflection on some aspects of the change factors

- noted here and, especially, on particular features of information storage and retrieval systems (as well as a useful list of sources) will be found in Griffiths and King (2002).
12. Obviously, the adoption of indexing in the simplistic way described here did not happen overnight. It developed through stages in which the idea of indexing itself changed from a human-centered process of selecting terms to automatic machine methods for doing the same, and those changes were in turn affected deeply by both the growth of computer capabilities and the developments of handling larger and larger bodies of text. It has more recently reached a stage of full-text indexing of complete texts rather than of, say, abstracts or specially assigned vocabulary terms. The overriding consideration in adopting indexing in this manner over the long haul has been the accepted notion that human intervention in the indexing process is simply too much of a bottleneck to tolerate, especially considering the massive amounts of informational sources now available that need to be provided subject access. In all of this, few have seriously considered the possibility that indexing in this manner may not be appropriate or necessary for all sources or for all uses of resources.
 13. During the 1980s, Markey and Demeyer (1986) experimented with integrating DDC class numbers with catalogue subject access. Further, those responsible for the DDC, now owned by OCLC, have been attempting for over a decade to promote it as a knowledge organization device to enhance retrieval. However, it is difficult to see any groundswell for the use of classification in this way, at least in libraries.
 14. The classification system came to be known by the catch-name Brussel's Classification at first, but later became the Universal Decimal Classification. For useful background on the latter, see McIlwaine (1998).
 15. Ranganathan's idea of "micro-documents" served as a way to indicate what Otlet had already focused on in his "monographic principle"—that is, the smaller sections (smaller even than a paragraph if need be) of a larger document that could be chosen for indexing via a notational code. For the role of the CRG in the relationship to both of these features, one must look at CRG reports and, especially, the writings of its members (e.g., B. C. Vickery and J. L. Farradane).
 16. Cutter added to both the Objects and Means a third list entitled "Reasons for Choice" in his second through fourth editions. It is not clear from where Cutter got the idea for using the term "objects." Although more than one cataloguer before Cutter (e.g., Panizzi) had spoken of the purposes of a catalogue, the use of the specific term "objects" is itself not common. One possibility is that Cutter was prompted to use the term upon reading the work of Crestadoro (1856). Crestadoro had used the term specifically and prominently, and, given Cutter's praise of at least some aspects of Crestadoro's work (Cutter, 1876a, pp. 535–536), one might also assume that the term made an impression on his thinking.
 17. The four kinds of catalogues are called hypothetical here because only two of them existed in the form of actual examples—author catalogues and subject catalogues. The entries of the other two kinds of catalogues (title and form of literature catalogues) were merely folded into author and subject catalogues.
 18. This general cultural ideal is discussed in detail by Kett (1994), but its earlier manifestation is also covered in Howe (1979) in his survey of American Whig political culture. An especially interesting aspect of it pointed out by Sussman (1979) is how the quest for improving one's character in the nineteenth century differed from the twentieth-century quest for improving one's personality. Another aspect of it that bears some importance for the library movement is its Anglo-American connection that also brought the intellectual view of culture espoused by Matthew Arnold (1822–1888) (Arnold, 1993) to prominence in the post–Civil War decades, a particularly apt match to the library movement's stress on good reading. By the beginning of the twentieth century, criticism was already being made of the public library's ties to such cultural ideals. See, for example, John Cotton Dana's 1914 remarks about the evolution of the special library (Dana, 1991).

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