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The DDC, The Universe of Knowledge,
And The Post-Modern Library

Extended Abstract

Discussions of the origins of the DDC are ultimately not very satisfying because they do not answer the more trenchant question of why Dewey developed this form of access tool in the first place. That question is especially important because now at more than a century's remove from the beginnings of the system many have concluded that the DDC is essentially outmoded, and that little more than this need be said of it. Yet, this conclusion is far too simplistic an answer to a serious question about the nature of the system and its origins. The intent here is to begin a more comprehensive answer to the question of the DDC's origins, first, by summarizing developments in the long history of the DDC; second, by addressing the relationship of the DDC to the nineteenth century classification of knowledge and the sciences movement which formed a significant broader context in which it was created; third, by addressing its relationship to the rise of library classification theory in the present century; and last, by commenting on the position of the DDC in relationship to the new post-modern library which has begun to appear.

1. DDC Developments

The history of the DDC can be usefully divided into three eras: the period of its establishment (Editions 1-6, 1876-1899); a middle period of conflict and struggle (Editions 7-15, 1911-1951), and a more recent period of expansion (Editions 16-21).

1.1 Establishment (Editions 1-6, 1876-1899)

The first six editions of the DDC extend from its founding to its wide acceptance in the library community during the 1890s. Editions one through three (1876, 1885, and 1888) represent the DDC's period of growth into a full-blown library classification system. The comparatively tiny first edition is surprising for it is actually much larger than is at first apparent, possibly larger in extent than any other contemporary system except Brunet's. The first edition also saw the beginnings of what now would be called faceted structures for form, genre, language, and geographic divisions, all of which Dewey called mnemonic aids. The second (1885) and third (1888) editions served chiefly to expand the DDC. Whereas the first edition contained all of the system in a bare 42 pages, the second edition was expanded to 314 pages and the third to 416 pages (although it did not contain the 48 page introduction of the second edition). The chief features of these two editions were:

1. Filling out all of the previously unused second hierarchical level sections of the scheme as well as a number of third level sections, incorporating as notational subdivisions topics previously listed only in the index, and in general expanding all sections of the scheme often to fourth and fifth levels of hierarchy.

2. Expanding the 800s by enumerating literary authors and by placing their names in the index.

3. Revising the order and extent of the general form divisions, supplying a special alphabetical index to form division terms by the 3rd edition, and enumerating form divisions in the schedules at many second hierarchical level locations and even at one third hierarchical level location.

4. Expanding philological subcategories to fifty-five by the 3rd edition, placing them in a special table with instructions as to how they should be synthesized with the notations for individual languages, and supplying a special index of those categories which by the 3rd edition had 159 entries.

5. Supplying a special alphabetical list of languages and their notations to be used in both the 400s (Philology) and 800s (Literature) which, together with the philological subcategories, amounted to a "mini" faceted structure within the system.

6. Expanding geographical "divide-like" provisions from one place in the 1st edition to 112 locations in the third, with a special alphabetical table of those locations in the schedules, the latter including cross-references.

7. Including at least one instance of a global "divide-like"—i.e., "divide like 100-999"—important as a harbinger of the kind of subject collocation which would become possible in the UDC and in the DC in later editions.

Dewey also relocated a significant number of subjects in the second edition and this led him to promise thereafter to observe a policy of "integrity of numbers" in the system by not changing the meanings of numbers unless it was critical to do so.

The fourth through sixth editions of the DDC (1891, 1894, and 1899) were edited by May Seymour and represented a plateau for the system because little new material was added to it during this decade. The decade of the 1890s also saw the system widely adopted in American libraries. This created a new kind of discussion regarding the system, one in which those who had adopted the system criticized it as users of the system, and others evaluated the system on the basis of the logic of its class order or on the basis of its usefulness for scientific and specialist subject areas. Two other significant events for the DDC were Dewey's permission for Paul Otlet and Henri LaFontaine to use and expand the system for the work of the Institut Internationale de Bibliographie (IIB) and his refusal to let the system be used and modified for the Library of Congress.

1.2 Period of Conflict (Editions 7-15, 1911-1951)

The second period in DDC development was marked by conflict related to the purposes and objectives of the system. The participants in the conflict included members of the DDC editorial and administrative staff, librarians of diverse backgrounds, the American Library Association, the Lake Placid Club Educational Foundation, and those responsible for the Classification Decimale Universelle (UDC) of the IIB. The conflict partly turned on personal issues of authority and loyalty, but it also arose from a variety of more general interrelated issues: the size of libraries that the system should serve (medium or large), the subject orientation that the system should serve (general or special), the bibliographical purpose of the system (shelf classification or catalog access), and the degree of theoretical or scientific accuracy in knowledge category arrangement that the system should reflect.

Editions 7 through 11 (1911 to 1921) were edited by May Seymour, although she died before the 11th edition was actually published and her place was taken by Dorcas Fellows. The seventh edition was published in 1911, a full twelve years after the 6th edition. However, if one
counts from the third edition in 1888 when major amounts of new material were last added to the scheme, the seventh edition represents the first time in nearly a quarter of a century that the system was expanded in a major way. Two groups of persons exerted pressure to expand the system—those whose library collections were becoming larger than the typical general library, and others, such as Otlet and LaFontaine of the IIB, who wanted to serve the information access needs of specialists. The latter group not only wanted the system to be expanded, but also to be changed where it was not considered up-to-date or scientific in its arrangement. Both of these groups were in conflict with those who wished for the system to remain relatively small so as better to serve the needs of the moderately sized general library. Further those who used the system primarily for shelf classification did not want it to violate Dewey's policy of integrity of numbers.

Expansions were made through the 12th (1927) and 13th (1932) editions, but in a very uneven way both in extent and timeliness. Some of the expansions were extensive and were made by specialists who occasionally also worked on the UDC. Others came from the DDC staff but these tended to be much more modest in scope. In all such changes, the DDC staff tended to approach expansions without a clear-cut policy in mind. In 1924 Paul Otlet and Godfrey Dewey convinced Melvil Dewey that concordance between the DDC and the UDC was possible and that should it be achieved it could become the basis for creating three related editions of a single decimal system—an Abridged edition for very small libraries; a Standard edition for the shelf classification needs of moderately sized general libraries; and a Bibliographic edition for use in large libraries and for classified catalogs. However, conflict among the participants in this task through 1931 caused the effort to fail.

The 14th and 15th editions of the DDC (1943 and 1951) were driven by the ideal of creating a Standard edition of the system. The 14th edition actually expanded in size over the 13th edition but also included the first efforts to even out levels of specification in various parts of the system. The 15th edition constituted a compromise. The system was radically pruned in size. But, it was also extensively modernized in terms of relocating subjects, in its terminology, and in the way the system was visually arranged. This edition changed the system so fundamentally (in fact, nearly fatally) that for all practical purposes it severed the system from the historic tradition which had accumulated up to that point.

1.3 Period of Expansion (Editions 16-21, 1958-1996)

The DDC has developed in a significantly different direction since the nearly fatal 15th edition. The 16th edition (1958) edited at first by David Haykin but afterward by Benjamin A. Custer, functioned as something of a holding action, restoring some of the system's size. But, it also kept the modernization basic to the 15th edition. Subsequent work on the system under Custer (17th through 19th editions, 1965-1979), John Comaromi (20th edition, 1989) and both Comaromi and Joan Mitchell (21st edition, 1996) has been marked by two general themes. First, some balance has been gained between the two extremes in the conflict of the previous period. For example, relocating and reordering subjects have been accommodated, but for the most part in a very judicious manner. Second, the system has rigorously and increasingly adopted new classification technologies, especially in adopting synthesizing devices and formal faceting structures.

2. The Relationship of the DDC to the Larger Realm of the Classification of Knowledge

One obvious factor in DDC development is that the work of those responsible for it has been related in some way to the broader realm of the classification of knowledge. At first glance
this seems to be entirely understandable because the system, along with other library classification systems of the late nineteenth century, appear to have arisen out of the seedbed of the classification of knowledge and of the sciences movement which had begun with Francis Bacon in the 17th century and had continued through the nineteenth century. That more philosophical movement is given two different names here (the classification of knowledge and the classification of the sciences) as a way to reflect its changing emphasis from the time of Bacon to the 1890s.

While the relationship between the classification of knowledge and of the sciences movement and library classification might seem to be a firm one, evidence exists to suggest that there was no essential connection between the two approaches to classification. Library classificationists simply did not approach the classification of knowledge and of the sciences with the concerns that their more philosophical counterparts had. Classificationists of knowledge and of the sciences were essentially engaged in creating apologies for the role of the sciences in society by enumerating the sciences and portraying their unity as both a cause and a result of the social evolution and progress of human civilization. Library classificationists had no less exalted task--to make knowledge accessible to a broad range of people--but this task did not require them to argue for the legitimacy of the role of the sciences in society. Library classificationists appear simply to have accepted the legitimacy of what those classifying the sciences were attempting to do and merely proceeded from there to the practical problems of their own work. Their most significant borrowing from the more philosophical movement was to accept without question the utility of the method that the classificationists of knowledge and of the sciences had used to portray knowledge—hierarchical classificatory structures of knowledge categories that proceeded from general to specific, from the theoretical to the practical, and from the abstract to the concrete.

The very practical attitude of library classificationists that began by assuming the legitimacy of the classificationists of knowledge efforts and which borrowed without questioning it the idea of a hierarchical classificatory structure of categories is nowhere better illustrated than in the work of Melvil Dewey. Dewey was the king of practicality among all the modern library founders. He did not pursue practicality merely for some broader social educational purposes, however, but also because of his business sense. The DDC in this context was an enormously successful invention (not unlike creating a successful piece of software for the Internet in our own day) for solving a very real problem—that of organizing library collections of books for easy access. That it was brilliant solution for the purpose for which it was invented goes without saying and in the end it made the man. It was essentially user friendly and practically sold itself. He had developed the original prototype of the system (i.e., its beta version) at Amherst College, and then obtained what amounted to free labor for further research and development of the tool at Columbia College. Thereafter he marketed the system with great skill, his most significant difficulties being how to estimate how many copies to print and how to keep standing inventories down. His sound business orientation regarding it is no better illustrated than in the idea of integrity of numbers. In the latter, he needed a system in which version 10.0 worked with version 8.0, version 6.0 and version 3.0, and so on. Only in that way could he insure the continuity and therefore the marketability of his invention. Looking at the DDC this way helps greatly to explain how the struggle of the middle years of the system developed. Dewey himself appears to have been intrigued with the possibility of expanding the system's influence and use by taking on a wider range of purposes, the latter including serving larger libraries and being adopted in classified catalogs for specialists. Ultimately, however, he balked at following this course of action because to do so would have necessitated redesigning the system, a prospect for which he had neither the energy nor the personnel.
3. The Relationship of the DDC to the Development of Library Classification Theory in the 20th Century

The classification of knowledge and of the sciences movement all but died out after the start of the present century. Classification remains vital as a methodology used by the sciences to organize their objects of study but its use as a motif for arranging knowledge categories in general schema has become lost in the backwaters of contemporary philosophical thought. R. G. A. Dolby surmises that this occurred not only because of the increasing artificiality of the arguments of many in the movement, but also because the sciences no longer needed philosophical explanations to justify their role in society. In the 20th century the sciences have resorted chiefly to showing the potential value of their work to society in order to justify their value and role. In contrast to the dying out of the philosophical classification of knowledge and of the sciences movement, librarianship has not only continued to classify knowledge but has built a sizable literature of classification theory and technique during the present century, not to mention several new general classification schemes. This raises the question of why this is the case?

Two basic factors help to explain the expansion rather than the contraction of an interest in the classification of knowledge in librarianship. To begin with, rapid growth in information production by and information access needs of specialists and scholars beginning in the 1880s and 1890s and continuing unabated ever since has fueled the continuation of an interest in the classification of knowledge in librarianship. However, this factor alone does not account for the development of a theoretical aspect to library classification. Any close look at the work of Otlet and LaFontaine, for example, those who most exemplified an interest in meeting the information access needs of scholars and specialists, or at the work of Samuel Bradford, A. F. C. Pollard, and Fritz Donker Duyvis, the principal persons who worked on the UDC from the 1920s to the 1940s, reveals no serious intent and effort to develop a philosophical or theoretical approach to the classification of knowledge. Here, just as among earlier classificationists, the most important problems were practical in nature.

It was only as a second important factor arose, a shift in the focus of the classification of knowledge from the classification of the sciences per se to the pursuit of scientific classification that a theoretical cast began to take shape in library classification. Approaching the classification of knowledge as a matter of being scientific first appeared in the writings of E. C. Richardson who proposed that for a classification of knowledge to have a trustworthy base, it must reflect the actual relationships of the real corresponding objects to which knowledge categories refer. Having concluded this, however, even Richardson backed away from pursuing it and concluded that any actual classification scheme must ultimately give place to issues of practicality. H. E. Bliss continued Richardson's theme that classification would take on a truly scientific cast only as it approached a scientific consensus about the objects which corresponded to knowledge categories. But, he also expanded greatly the realm of what might be called sound "scientific" technique that must accompany a truly scientific approach to classification.

Since Richardson and Bliss, these two themes—the scientific basis of knowledge categories and the scientific basis of classificatory techniques—have become the fundamental elements of library classification theory in the twentieth century. The first was continued in the work of the Classification Research Group in Great Britain as it struggled to found classificatory categories on the phenomena of material and human existence and in S. R. Ranganathan's appeal to a mathematical analogy for the universe of knowledge. The second was continued superbly in S. R. Ranganathan's development of an entire nomenclature of ideas and techniques related to faceted classification structure. These two themes also underlie the changes that have overtaken the DDC since its 15th edition, for they are fundamental to attempts to change categorical order in the DDC so as to become more modern and they also underlie the incorporation of modern
classificatory techniques in the DDC.

In all of this accumulation of theory, however, three basic assumptions have never been directly questioned—first, that classificatory structures of knowledge must necessarily be hierarchical in nature, second, that there is the possibility of discovering the one true or at least most accurate portrayal of such a knowledge structure, and third, that library classification is useful chiefly for document retrieval.

4. The DDC and the Post-Modern Library

The DDC as well as all other library classification work has now entered an age in which a post-modern library is emerging. The idea of a post-modern library specifically refers to a new kind of technologically based library which differs from the "modern library" invented towards the end of the 19th century. This new kind of library has the potential of creating electronic "personal-space" libraries rather than simply "public-space" institutions. This new kind of a library also has the potential for solving some of the information access problems of the modern library of the past century by having a more cohesive user target or focus rather than the heterogeneous user group focus necessarily served by the public-space modern library. One way to identify the impact of this new form of a library is to speak of it in terms of two additional laws to be added to Ranganathan's five laws of library science—"Every person his or her own library." "Every library its own user."

Another aspect of the post-modern library is the appropriateness for it of at least some of the ideas related to other themes in contemporary thought. First, post-modernism as discussed by literary scholars and others in the human sciences suggests strongly that there really is no single true classification structure of knowledge, but rather that there are any number of such schema which have arisen as kinds of discourse about the structural relationships of knowledge categories. This appears to be appropriate for the post-modern library for which the ideal appears not to be the imposition of classification schemes which serve a "public-space" in some economical and practical way, but rather the creation of individually tailored classificatory schema which serve individual personal space libraries via methods most appropriate for each. Second, other modern studies suggest that classificatory knowledge structures do not require formal or logical hierarchical structures to reflect the way people think about knowledge categories and their relationships. In a sense this has already been recognized in part within library classification, because the effect of Ranganathan's faceted techniques has been to flatten hierarchical knowledge structures in favor of what might better be called relational structures. Third, the use of classificatory structures in the field of librarianship has over the course of the twentieth century become strongly associated with the retrieval of documents and of information. The fact is, however, that a much broader base of purposes of classification suggests uses for classifying knowledge other than retrieval, not the least of which are the exploration of idea relationships for educational and teaching purposes, the creation of new ideas, and for analyzing relationships among information-bearing entities.

The potential uses for the DDC in the age of the post-modern library are enormous. However, those who work on the scheme must be prepared to deal with the scheme in terms of these different uses and this will require in turn that modern techniques for structuring and developing the scheme be explored. Possibilities for the latter include the systematic application of data-mining and knowledge discovery techniques to the scheme as a database of categories, to the application of the scheme in actual library collections, and to the transactions of actual use of the scheme in retrieval, in order to discover previously hidden patterns of relationships among categories. It might also include exploring the possible reformatting of the entire system as a
purely object relational database management system of categories. Finally, it will most likely include creating a system so supple that end users can use it to create their own structures of knowledge categories for their own personal space libraries and for their own discourse about the relationships that pertain among knowledge categories.