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ANDREAS SCHLEIERMACHER'S BIBLIOGRAPHIC CLASSIFICATION
AND ITS RELATIONSHIP TO THE
DEWEY DECIMAL AND LIBRARY OF CONGRESS CLASSIFICATIONS

by

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ABSTRACT

The Bibliographic Classification (BC) of Andreas Schleiermacher, published in Germany in 1847, contains a number of structural features similar to those later used in the Dewey Decimal Classification (DDC): tables of standard subdivisions, a relative index, and a synthetic notation. Its basic notation is an alphanumeric system not essentially different from the notation of the Library of Congress Classification (LCC). It is not based on a detailed hierarchical system of subject
analysis or on philosophical or scientific systems. Its inner structure is
different from LCC, but is based on the same practical approach to the analysis
of knowledge and literature.

INTRODUCTION

Not many librarians can get enthusiastic about studying outdated and unused
European library classification systems from the nineteenth century. If the
Library of Congress Classification (LCC) and the Dewey Decimal Classification
(DDC) are only slightly more intriguing to students of classification, it is
because we can say this for them: outdated they may be (as some librarians claim),
but unused they are not. Therefore, some of the earlier European systems are
worth examining if it can be shown that they have some historical relationships
to DDC or LCC, or have otherwise contributed something to classification as it
is known today. In this respect it is instructive to examine primary sources,
rather than depending exclusively on the Anglo-American library literature.
For example, the following statements are more or less typical and, I believe,
somewhat misleading in that they suggest a very sharp departure from European
traditions:

In Dewey's day the notion of a universal classification scheme was
revolutionary. Librarians made their own schemes, according to the
vagaries of local academic preference or uncomfortable architecture.
They borrowed schemata from philosophy...and notation from anything
from an inchoate mnemonic urge to a reflection of the names of bene-
factors of parts of their collections.  

The real beginnings of library classification, as we know it today,
took place in the nineteenth century and most of the important steps
forward were made by librarians in the United States.  

It is not profitable for us to enter upon the fertile and interesting
field of German bibliographical classifications, as their vogue has not
been great outside the country of their origin. 

Each of these statements is valid in its original context: specific German
bibliographic classifications found little vogue outside of Germany. For
librarians who use DDC or LCC, the late nineteenth century was a crucial turning
point that could be categorized as a beginning; most librarians constructed their
own classification systems, but if such a procedure doesn't make much sense
in the twentieth century, it did in the nineteenth century. In any case, one
gets the distinct impression that European librarians contributed nothing
constructive to the development of classification. Since so few European
classifications have been studied in any detail, it is not clear how we can so
easily dismiss them. Moreover, there is another historical problem: on one
hand, we are told that "there is nothing traditional" about LCC,  and on the
other, that both LCC and DDC are traditional classifications. Was there a
tradition or not? If there was a tradition, what was it, and how do DDC and
LCC continue it or depart from it?

One European system which cannot be ignored when looking for transatlantic
connections is the Bibliographic Classification (BC), which Andreas Schleiermacher
(1787-1858) created for the Ducal Library of Hessia-Darmstadt. Although best
known in the edition of 1852, the BC was first published in 1847, almost 30 years
before the first edition of DDC and 50 years before Charles Martel and James C.M. Hanson set about constructing a new classification for the Library of Congress.

At the time it was published, the BC does not seem to have attracted much attention among librarians. During the next 100 years, although frequently mentioned in the German library literature, no detailed studies of it were published. However, in the 1950s the Russian historian E.I. Shamurin took a very close look at it, bringing to it his encyclopedic knowledge of the history of European classification. It was then examined by Rasmussen and Stephenson, and Paunel showed that it had a decisive influence on the Berlin Realkatalog. These writers all came to the same conclusion: Schleiermacher was the first to use certain structural features of classification construction which had long been thought to be innovations of Melvil Dewey. As fascinating as this may be, one is even more intrigued upon examining the BC to find that some of its structural features are very similar to those found in LCC.

John Comaromi has shown that almost from the day it was published, the DDC has had critics who have done their best to prove that nothing about it is original. Other librarians, however, see the DDC as a landmark in the history of classification, and believe that Dewey's contributions were significant enough to be described as "almost incredible." These librarians find in the DDC the primitive origins of modern analytico-synthetic classification. The LCC, on the other hand, has enjoyed fewer critical reviews, and its relationship to earlier classification systems is thought to be well known.

If wide use is a measure of success, then both LCC and DDC have been spectacular successes. I am inclined to believe that this has had little to do with any specific innovations either may contain. All of their individual parts added up to systems which for many reasons—some of which have little to do with principles of classification—have been useful enough to serve librarians for between 75 and 100 years. It is astonishing that there is still no sign that either system will soon be replaced. Partisan loyalties notwithstanding, it seems that each system is quite remarkable in its own way. Each has had a powerful impact in the United States and, in the case of DDC, in many other countries. It is not my purpose to "debunk" the contributions of either of these systems or argue the advantages of one over the other.

There would be no particular point in this exercise if Schleiermacher was an isolated genius whose work was not part of the mainstream of European classification. Although there certainly seem to be unique features in the BC, I believe that much of what Schleiermacher did was a clarification of the best thinking of his time and was firmly based in tradition. But there were a number of well-established or emerging traditions between 1800 and 1850. The two main threads of classification history seem to stem from postrevolutionary France and from the eighteenth-century German Enlightenment. Schleiermacher certainly knew the former; and he continued the latter, placing on it his own special imprint. This classification tradition of the Enlightenment was modified and continued in Germany, and it is there that I believe the origins of LCC can be found. Dewey's relationship to European classification seems considerably more tenuous and controversial.
I have seen no documentation which would link any of the authors of the American systems directly to the BC, but base my arguments on the mechanical features of classification construction. Much of what has been written about the history of library classification deals with the structure of the intellectual content of various systems (i.e., the contents of the classes and their order). It was within this framework that the historian of LCC, Leo LaMontagne, said that the influence of German classification was slight. Almost everyone who has written about the origins of LCC has pointed out the great extent to which that system was influenced by Charles Ammi Cutter's Expansive Classification. But what has not been sufficiently emphasized, except by Shamurin, is that Hanson and Martel rejected several novel features of Cutter's system, i.e., its expandable notation and synthetic tables of standard form and place subdivisions. They were interested in the intellectual structure of Cutter's work. The claim for a preeminent historical role for the BC in the development of library classification is not based on an examination of its intellectual content, but on Schleiermacher's method of structuring this intellectual content and the mechanical features (e.g., classification notation) which were necessary to make the system a practical library classification.

GENERAL CONSIDERATIONS

An English translation of the complete title of the BC will give some idea of Schleiermacher's intentions: Bibliographic Classification of all the Sciences, with a Guide to the Arrangement of Libraries, Engravings, Music, Scientific Papers and Business Papers. Published in two volumes, it contains a total of 1178 pages. It has over 12,500 classes and an index of approximately 27,000 terms, making it one of the most detailed and comprehensive library classifications published in the nineteenth century. The first edition of DDC was a modest pamphlet of 44 pages, with fewer than 1000 classes and an index of about 2500 terms.

Schleiermacher intended that the BC be used both for the arrangement of entries in classified catalogs and for the physical classification of books on shelves. Both DDC and LCC were originally planned for this dual purpose. In other words, all three systems presumed what was later identified as "relative location." If the physical location of a book is determined by its subject relationship to other books, and if this location is identified by a symbol which reflects this subject relationship, the system is one of relative location, as opposed to fixed location. It has frequently been stated (although not by Dewey himself) that one of the innovations of DDC was the use of relative location. In fact, both systems were well known in Europe long before the rise of DDC. Classified shelving systems were used at the library of the University of Göttingen in the eighteenth century, and in the nineteenth century were common practice in Germany. The genius of the American systems, DDC and LCC, was in the simplicity of the notation—most of the European systems required extremely complicated notational devices to make the shelving systems correspond to the entries in the classified catalogs.

Although specifically arising from his work at Darmstadt, Schleiermacher tried to make the BC a universal general classification. The LCC was more traditional in this respect since it was originally planned exclusively for the collections of the Library of Congress. But the standardization which the rise of DDC and LCC brought to the United States was slow to take place in Europe, and the BC
never found wide application. Be that as it may, what was revolutionary about DDC, and later LCC, was not the idea of standardization—which was something Schleiermacher and others had proposed—but the fact that it took place.

PRACTICAL AND THEORETICAL FOUNDATIONS

Schleiermacher provided the users of the BC with a detailed explanation of the practical and theoretical foundations of the system. This introductory material (which takes up 256 pages of the first volume of the BC) is the most detailed discussion of library classification that I have found from the nineteenth century. The essay is divided into 3 main parts: (1) an introduction explaining the implications of a bibliographic classification (as opposed to other types of classification, scientific and philosophical); (2) a practical discussion of library catalogs; and (3) a survey and analysis of the structure of the major areas of recorded knowledge in terms of their bibliographic organization. The third part, the longest and most complex, is Schleiermacher's rationalization of the inner structure of the BC.

Students of LCC will be particularly interested in the methods by which Schleiermacher went about determining the substantive content of the BC. Although his schematization of knowledge is a gold mine of information for anyone interested in the history of ideas, it is obviously obsolescent. However, the way he thought about library classification and the way he went about constructing his system still have some validity. His method has been perpetuated in the twentieth century by LCC and probably by some European systems. The BC is not based on class logic with a detailed system of hierarchical subdivisions, as is found in DDC. It makes some use of hierarchical structures, but no more and no less than LCC. Furthermore, the idea of a philosophical base (as in the presumed Baconian foundations of DDC) is foreign to the BC. Schleiermacher also went to some lengths to explain the limitations of purely scientific classification as the basis for bibliographic organization.

By identifying his work as a bibliographic classification, Schleiermacher meant that its sole purpose was to provide a practical system for arranging books and other library materials for use. Of course, most library classification systems, both before and after Schleiermacher, were constructed to this end. The issue has always been determining the best way to go about doing this. Without the use of class logic, and with the rejection of scientific and philosophical systems, Schleiermacher was left with an approach which is best described by the term later used to describe the approach used in LCC: literary warrant. The BC is "logical" only in the sense that LCC was described as logical by LaMontagne when he wrote: "The subjects, divisions, and subdivisions progress from general to specific as far as possible in logical order."23 Schleiermacher was aware that in many areas of knowledge only arbitrary and subjective systems could be constructed.

His comments on the selection and order of main classes are unlike anything we have been led to expect from the nineteenth century. He said that the division of knowledge into individual sciences and the organization of these into some meaningful pattern are highly arbitrary processes. By this he meant that different scholars classify knowledge from different points of view and that these different points of view can be justified. Most of us have been taught to believe that the history of library classification has been the history of a search for "a universal 'order of nature' that, when discovered, will reveal a permanent conceptual
framework for the entirety of human knowledge." If this is true, then the BC was an exception; but I am more inclined to think that the stereotype of traditional classification has little to do with what most librarians in the nineteenth century actually did when they constructed their classification systems.

**THE MAIN CLASSES**

The BC consists of 14 main topics which are arranged in 25 main classes. This is achieved by dividing some topics, such as History and Literature, into a number of main classes.

A Encyclopedias, History of Subject Literature, Bibliography, Printing, Libraries
B Miscellaneous Works and Collections
C Language, Writing, Philology
D Literature: Latin and Greek
E Literature: Romance Languages
F Literature: Germanic Languages, Oriental Languages, etc.
G Fine Arts
H Historical Sciences in General, Geography, Travel, Auxiliary Sciences (Chronology, Heraldry, Statistics, etc.)
I History of Religion
K World History in General, History of Greece, Turkey, the Italian States, etc.
L History of Spain, Portugal, France, Switzerland
M History of the Germanic States
N History of the Netherlands, Belgium, Great Britain, etc.
O History of Non-European Countries
P Mathematics, Physical Sciences
Q Natural Sciences
R Medicine
S Medicine: Special Pathologies and Therapies
T Industry (Economics of Forestry, Agriculture, Hunting), Technology, Trade, Sea Traffic, Military Sciences
U Philosophy, Education
V Theology
W Works of the Church Fathers, Christian Theology
X Law and Political Science
Y Civil Law, Feudal Law
Z Business Law, Trade Law, Church Law, Criminal Law, etc.

An analysis of this structure in terms of the organization of knowledge would note such features as these: Class Z of LCC is similar to class A of the BC, for Schleiermacher classed bibliographies here rather than with the subject classes. The close relationship between Philosophy and Education in class U is a German tradition. Class T is somewhat similar to class 600 of the DDC. The social and political thinking of Schleiermacher's time found a place in the BC, for he included categories for such topics as unemployment, working classes, communism, and the reform of social conditions. Although a detailed analysis along these lines would be fascinating, the extent to which the BC survived into the twentieth century is the extent to which Schleiermacher's techniques of classification anticipated or influenced systems still in use today.
The BC uses an alphanumeric system of notation which, as Schleiermacher himself pointed out, is a system that was well known in Europe before 1800. Frederik Rostgaard, in his book published in 1697, used letters of the roman alphabet to identify main classes, and long before Rostgaard the system had been used in medieval cloister libraries. In the BC, following the single capital letters, a series of arabic numbers is used to identify subclasses. For example, class T, Industry, begins as follows:

T Industry
T 1 Introduction to the industrial sciences
T 2 General guides
T 3 Dictionaries
T 4 Periodicals
T 5 Mixed collections

Following these classes, and continuing in a single numerical sequence that ends with class T 922, Schleiermacher has used blocks of consecutive numbers to identify 25 topics dealing with aspects of economics, production (including agriculture), trade, and ending with Military Science, T 752-922. The last topic ends with a series of subclasses for military science in different countries:

T 919 Russia and Poland
T 920 United States
T 921 South American free states
T 922 Brazil

In this system, there is little possibility of the mechanics of notation influencing the organization of the intellectual content of the classification. Some librarians have criticized DDC on the grounds that its decimal notation was developed before its intellectual content, thus becoming a Procrustean bed into which ideas were forced. In the case of the BC, the intellectual content was laid out, classes were identified and organized into a useful order, and only then were the classes provided with notational symbols.

If this system of notation looks familiar, that is because it is exactly the same as the system used in LCC. However, in many places LCC supplements this basic numbering system by the use of alphanumeric cutter numbers to identify subclasses which are arranged in alphabetical order by subject words. Another notable advance of LCC over the BC and other nineteenth-century German systems is that in LCC (as in DDC) the notation is exactly the same for both the classified catalog and the shelving system. In the BC, the notational system described above is modified to provide symbols for the physical shelving of books. The LCC system is also different in that it uses a system of two capital letters, and frequently distributes the arabic numbers so that some classes go as high as 9999. The BC has no fixed number of subclasses and runs only as high as is necessary to provide a number for each class. Since these are ordinal, not decimal, numbers, internal expansion (i.e., the later interpolation of new class numbers) would not be possible unless the basic system were completely rewritten or changed in some way. The LCC system, when first issued, provided for future internal expansion by leaving gaps (unused class numbers) in the numerical sequence. For example, in LCC one finds class T 7, Collected works, followed by T 9, Dictionaries and Encyclopedias. The symbol T 8 is not used, but can be if the system requires a
new class at this point. The idea of a discontinuous ordinal series became fairly common in Germany after Schleiermacher's time. The system was identified as springende Nummern, which is worth mentioning because when Hanson described the LCC notational system, he referred to the German term.28

Thus, like LCC, the BC has a nonheirarchical, nonexpressive notation which is quite different from the DDC notation. There are several sorts of relationships which may exist between the substantive content of a classification system and the classification notation used to represent this substantive content. A system such as DDC, which is internally constructed by a hierarchical method of subject analysis, does not necessarily have to have a corresponding hierarchical notation. For example, the following excerpt from DDC shows that the notation is hierarchical--each further subdivision of the topic extends the class number by one digit:29

```
338   Production
338.2  Mineral industries
338.27  Specific products
338.274  Nonferrous metals
338.2741  Gold
```

For the purpose of comparison, if we rewrite this using an ordinal notation, beginning with 338 and consecutively numbering all intervening coordinate and subordinate classes (which have been omitted from the above) we would have the following LCC-type notation:

```
338   Production
399   Mineral industries
409   Specific products
421   Nonferrous metals
422   Gold
```

In the nonhierarchical system of notation, the substance of the classes, the concepts and their order, is not changed, for the two systems produce the same order of entries in classified catalogs and the same sequence of books on shelves. In this system the class numbers have no expressive significance. The system actually used in DDC may properly be described as hierarchically expressive. It is in the nature of such expressive systems that they frequently produce longer class numbers than the nonexpressive systems. The following excerpt from the BC shows that even when the classification is internally constructed in a hierarchical chain, its structure is not reflected in the notation:

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Q   Natural sciences
Q 158   Metals
Q 161   Single metals
Q 162   Gold
Q 163   Mining gold
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The inner structure of LCC (specific classes and their order) is different from the BC, but within the schedules one can also find some hierarchical structures. As can be seen from the following LCC excerpt, the notation is not essentially different from the BC:
FIRST LEVELS OF DIVISION

The following excerpt from the BC shows how a major class, identified by a capital letter, is subdivided into a series of subclasses which are allotted series of consecutive numbers:

G Fine Arts

G 1-17 Theory of the fine arts
G 18-61 The arts of drawing and painting
G 62-69 Woodcuts, cooper engraving, lithography, etc.
G 70-72 Art of stone cutting
G 73-78 Sculpture
G 79-195 History, guides, etc.
G 196-212 Woodcuts, engravings, lithographs, etc. in single sheets
G 213-290 Architecture
G 291-500 Music
G 501-527 Theater and dramatic arts
G 528-534 Dance
G 535-548 Gymnastics
G 549-567 Play

In this excerpt, one can see the arbitrary nature of the numerical notation. The alphanumeric symbol G 18 is the beginning of a new class, not because the number is expressive of anything substantive, but simply because only 17 numbers were needed for the previous class. The class for materials on dance begins with G 528 simply because the previous class ended with G 527. This phenomenon occurs throughout the LCC schedules. In the BC, we find this final breakdown of the beginning of the class for Theory of the Fine Arts:

G Fine Arts

Theory of the Fine Arts

G 1 Introduction to the fine arts in general, influences, use, and excellence of the same
G 2 Methodologies for the study of the fine arts; the education of the artist
G 3 Theory of the fine arts in general
G 4 Dictionaries of the fine arts
G 5 On art collections and museums in general (see also A 88)
G 6 Art academies in general; reports of single art academies, artists' associations and their papers
G 7 Periodicals
G 8 Mixed collections
G 9 Collections of single authors
Schleiermacher, in listing his classes, sometimes went to great lengths to explain their subject content precisely. Unlike DDC and LCC, only rarely does the BC identify a class by a single word or phrase. In some cases, long explanations are used because Schleiermacher included a number of aspects of a topic in one class number, rather than subdividing them among 2 or more class numbers. Hundreds of these lengthy class identifiers are found throughout the system. Here is an example from class W, Theology:

W 177 On the moral depravity of mankind and its origins in general; on original sin, Peccatum originis, originale; history of the study of original sin; on the nature of original sin, whether it is positive or negative, whether it is located in the body or in the soul; significance of the words "flesh" and "spirit"; the Biblical position on original sin; controversies in the Lutheran church with Matthias Flacius Illyricus on whether original sin belongs with the substantive characteristics of mankind or if it is an accidental quality; on the transmission of original sin and the degree of original sin; God's attribution of the sins of Adam to his descendants (and whether it was his own) or a foreign sin, Imputatio divina peccati Adami posteris, peccati proprii et alieni; the attribution of consequences of Scientia media of God; death as a consequence of falling into sin; the necessity for the public study of original sin.

Despite the considerable detail outlined in this class, one would be wrong to conclude that Schleiermacher intended that class W 177 should contain all there is to know about original sin. Turning to the index of the BC, we find that he has provided a place for original sin in the sections of Judaica (class W 574). Many other long identifiers such as this are found in class W, and also in the classes for Law, Medicine and the History of Religion. Somewhat less awesome identifiers are found elsewhere in the schedules, such as in this excerpt from class P, Mathematics and the Physical Sciences:

P 269 General guides to the mechanical sciences, principally in relationship to fixed bodies; the theory of force; dynamics; equilibrium, statics; movement, mechanics.

P 270 Mathematical theories of the mechanical sciences; analytical dynamics; analytical mechanics.

P 271 Guides to statics; on the statics of fixed bodies; geostatics.

P 272 Mixed contributions to the mechanical sciences; problems of dynamics, statics and mechanics.

One significance of this sort of detail is that the BC, although consisting of only around 12,500 class numbers, provides a system which can accommodate at least twice this number of topics. My assumption is that Schleiermacher did not further subdivide certain topics because he felt that the literature was not extensive enough to warrant a more detailed system of classes. In the terminology of DDC, we would say that in these cases the BC provides broad, as opposed to close, classification. An interesting innovation of DDC is that its users have the option of either broad or close classification, an option not available in BC or LCC—only systems with hierarchical notations can provide such an option.
RECURRING SUBCLASSES

Most twentieth-century library classification systems recognize that certain types of subclasses occur in many diverse subject areas, and that there is something to be gained by following a consistent pattern in defining and ordering these subclasses. There are a number of possibilities for such systems. The following are the ones most frequently found: (1) subdivisions by place (i.e., local subdivisions); (2) subdivisions based on the form of publication (e.g., periodicals, dictionaries); and (3) subdivisions based on substantive content (e.g., philosophy of the subject, study and teaching of the subject, theory).

The first step in making use of the phenomenon in the construction of a library classification system is simply to identify the subclasses and then use them in a consistent order when they are appropriate. Today this idea does not seem to be particularly striking, but its introduction and extensive use late in the nineteenth century had a profound impact on subsequent developments in library classification. The BC was one of the first library classification systems to make extensive use of the idea.

Such subclasses may be listed in a separate table or they may be printed in the main body of the schedules wherever they are to be used. Both LCC and DDC provide tables of place names to be used for local subdivisions, although LCC frequently has local subdivisions printed in the main body of the schedules—a procedure found much less frequently in DDC—and also makes use of a system of cutter numbers to arrange local subdivisions in alphabetical order. For his system, Schleiermacher worked out a logical system of place names which he used whenever he needed local subdivisions. However, he did not list these in a separate table. The use of a separate table is not particularly significant unless this table is accompanied by a system of synthetic notation, as is the case in DDC. In other words, the fact that LCC has geographical tables (as, for example, in the H schedules) has no significant notational consequences (except, perhaps, to make it difficult for the classifier to find correct numbers for local subdivisions). Schleiermacher started his series of place names with Greece, Italy, Portugal, Spain, and France, and continued with other European and non-European countries as they were known in his day. This sequence is based on the sequence used for the historical-geographical main classes K through O. Similar structural relationships between main classes and local subdivisions are found in DDC and LCC. Compare, for example, the geographical tables of the H schedules of LCC with the main classes DA through DU.

It is in the nature of the basic notational systems of both LCC and BC that the class numbers for specific countries have no expressive significance, which is to say that the number for any specific country will be different in each subclass in which it is used. For example, subdivisions for France—of which there are hundreds in the BC—include such diverse class numbers as these:

- A 71 History of printing in France
- A 150 Bibliography of French history
- B 4 History of French scholarly societies
- U 175 History of public education in France
- U 335 History of French universities

For the most part, the BC follows a consistent pattern, so that the subclass for France is preceded by a subclass for Spain (or Spain and Portugal combined)
and is followed by a subclass for Switzerland. In this system, the notation of the BC is no different from LCC (except the order of the countries is different and of course the specific class numbers are different).

In LCC and BC the same general procedure is followed in dealing with other types of general subclasses. The types of subclasses used in LCC were proposed by Martel in his "seven points." He used this order: "(1) General form divisions: Periodicals, Societies, Collections, Dictionaries, etc.; (2) Theory, Philosophy; (3) History; (4) Treaties, General works; (5) Law, Relations; State relations; (6) Study and Teaching; and (7) Special subjects and subdivisions of subjects progressing from the more general to the specific and as far as possible in logical order." It is rather astonishing the extent to which the BC anticipated Martel's plan. In the BC, we find such subclasses as these at the beginning of each class: introductions, guides, collections, dictionaries, history, theory, periodicals, study and teaching, and the relationship of the subject to other subjects or sciences. As is the case in LCC, the BC is not entirely consistent in the uses of these subclasses, nor are subclasses listed in separate tables or provided with unique notational symbols. Thus, in the BC we find the following classes, along with many others, for dictionaries:

- T 39 General dictionaries of economics
- T 115 Dictionaries of gardening
- T 390 Dictionaries of forestry, hunting, and fishing

In LCC there are also hundreds of subclasses for dictionaries, classed by subject. Each has a unique class number. For example, in class TS of LCC, we find these:

- TS 804 Lumber and woodwork dictionaries
- TS 947 Leather industries dictionaries
- TS 1085 Paper manufacturing dictionaries

Both the treatment of local subdivisions and other types of standard subdivisions are different in DDC. Dewey formalized such subdivisions into separate tables and identified each with a unique symbol. For example, in DDC, the class number for France as a local subdivision is 44. The classifier adds 09 in front of the 44 and then adds the 4-digit number to the end of any number taken from the main schedules. But this aspect of the DDC is too well known to require further explanation here. What is not so well known is that Dewey was not the first librarian to use such a system.

SYNTHETIC DEVICES IN BC

One of the most historically significant aspects of the BC is that it uses both the nonsynthetic system later used in LCC and the synthetic system later used in DDC. For the bulk of his system, Schleiermacher used the system described above: general subdivisions and local subdivisions are printed in the main body of the schedules without any unique system of notation. But in several places he introduced synthetic tables which—although they do not use a decimal notation—are not essentially different in principle from the system used in DDC.
In the section for the Constitution and Administration of Individual States, the BC lists the individual countries, providing for each a single class number between X 911, Austria, and X 960, Brazil. Since each of these countries needs to be subdivided in essentially the same way, the BC includes a separate list of what are in fact standard subdivisions for Constitution and Administration. This table, which includes a total of 64 subclasses, begins as follows:

1. Introductions
2. History of constitutions and administration
3. General guides
4. Collections of a mixed nature
5. State calendars

Thus, if one were classifying a text on the history of constitutions of Austria, one would find the class number for Austria in the place-name list, X 911, then find the notation for histories, (2), and combine them: X 911 (2). The parentheses are integral parts of the class number, and serve the same general function as the 0 in the DDC. I don't think it is going too far to say that in this we have the beginnings of facet indicators. Without this system, the BC would have to list all of the subclasses after each country in the schedules and incorporate the notation for them in the basic numerical sequence:

Constitution and Administration
X 911 Austria: Introductions
X 912 Austria: History
X 913 Austria: Guides
X 914 Austria: Collections
X 915 Austria: State calendars

Readers familiar with the details of LCC can see that one could easily convert the above list of classes into a typical LCC-style geographical table by setting up a list for "sixty-one number countries" as LCC now has "Tables for Geographical Divisions" in the H schedules for a series of subdivisions in which countries are given numbers from 1 to 5.32

In dealing with literature, the BC has one system printed in the main body of the schedules of classes E and F, but presents an alternative system in the preface to the BC. The layout of class E in the body of the schedules is this:

E 1-44 Italian literature
E 45-49 Portuguese literature
E 60-85 Spanish literature
E 86-136 French literature

Within each of these, the blocks of numbers are used to identify appropriate subdivisions by form. For example, the section on Italian literature includes such subdivisions as these: E 1, General collections; E 9, Collections of novels; E 21, Collections of tragedies. Similar subdivisions are used in other languages, such as: E 88, General collections of French literature; E 99, Collections of French novels. The alternative method of classifying literature uses a table of standard subdivisions with a synthetic notation. Here, as in classes X 911 through X 960, the main classes—in this case, the names of languages and dialects—are enumerated: E 1, Romance languages; E 2, Italian; E 3, Venetian dialects; and continuing through E 38, Lorrain and Messin dialects. With this
there is a table listing 84 standard subdivisions which may be used with any of the languages or dialects. It contains such subdivisions as these: (1), General collections; (20), Collections of novels; (21), Individual novels.

To use the synthetic version of the BC, the classifier takes the language number from the list of main classes, then finds the appropriate symbol to represent the subclass for the item being classified. The class number for French literature is E 22. Thus, collections of French novels are classified in E 22 (20). The class number for Spanish literature is E 18, so collections of Spanish novels are classed in E 18 (20). Similar synthetic tables are used in 3 other sections of the BC: classes beginning at H 61, T 736, and T 886.

Aside from their different notational details (i.e., the DDC uses decimal numbers and the symbol 0, the BC uses ordinal numbers and parentheses), DDC and BC are different in that the bulk of the DDC tables can be used anywhere in the system, whereas the BC tables are for certain specific classes.

In Schleiermacher's time, apparently no one paid much attention to his introduction of this synthetic structural method—in any case, I have not found it mentioned in nineteenth-century German library literature. Later it was used by both Dewey and Cutter (in his Expansive Classification). It was rejected by the architects of the LCC, who must have known of it from Cutter and Dewey, if not from Schleiermacher. It was reintroduced into Europe in their system of the Italian librarian Giuliano Bonazzi (who probably got the idea from Cutter) and in the system proposed for the International Catalogue of Scientific Literature. In the 1920s, H.W. Eppelsheimer devised a method for constructing a classified catalog which used the idea, and since then most of the new German systems have used it.

THE RELATIVE INDEX

In classification systems which are basically enumerative (as opposed to faceted systems), a given topic is frequently listed in many different parts of the schedules. In LCC, DDC, and BC, for example, the concept "water" must be dealt with in classes for physics, chemistry, technology, medicine, and other classes. Turning to the index of the BC, we find this entry:

Water in general, its nature, characteristics  P 291-294

--use as a moving force  P 292
--the search for water by drilling in the earth  P 299
--its stability and transformation in other bodies  P 293
--Cologne water  T 583
--elasticity  P 294
--fluidity and its uses  Y 721
--as a drink, its quality and purification of foreign matter  R 497
--of the pericardium  R 245
--transmission through pipes and small canals  P 297
--medical uses  R 708-762
--the worship of water  I 5
This is what Dewey called a "relative index," and although he may have reinvented it and named it, he most certainly did not invent it. It might more appropriately be identified as a "contexts index" or a "relationships index," since its purpose is to show how different aspects of a specific concept are diffused by different classified relationships or contexts. Although relative indexing in the BC is far more sophisticated than anything found in the early editions of DDC, Schleiermacher did not exploit its potentials as much as he could have. One reason for this probably has something to do with the nature of word-building in the German language. German is notorious for the extent to which new complex words are formed from combinations of single words. In the BC index, when a concept is expressed in one of these complex formations, Schleiermacher usually lists it separately. Thus, following the relative section quoted above, the BC index continues with 40 more terms which are compounds beginning with the word Wasser (e.g., Wasserampfer, R 965; Wasserandron, R 959; Wasserbalggeschwulst, B 390).

Schleiermacher placed more importance on the role of the index in classification systems than any other nineteenth-century classificationist before Dewey. Only late in the century do we find anything comparable to the index of the BC. The index Dewey provided for the first edition of DDC, though much smaller than the BC index, was thought by Dewey to be an important and integral part of the system. As commonplace as this idea is today, it was an innovation in Schleiermacher's time.

Schleiermacher was clearly committed to the classified catalog. But in the late eighteenth and early nineteenth centuries in Germany, the alphabetical subject catalog was well known, and some librarians preferred it to the classified catalog (e.g., Kayser and Schrettinger). With its detailed index, the BC exploited the best of both systems. In his preface, Schleiermacher commented on the alphabetical subject catalog and suggested that those librarians who preferred it to the classified catalog could use his index as a list of subject terms. It is not known if any librarians did indeed do this, but Schleiermacher at least has to be given credit for proposing a method—if not a theory—of vocabulary control about 50 years before the publication of the first American Library Association list of subject headings.
CONCLUSION

The structure of the BC shows enough similarities to both LCC and DDC to suggest that there was probably much more interaction between classification in the United States and classification in Europe than has been heretofore suggested in the Anglo-American library literature. In any case, it is a proposition that clearly needs looking into. Of the 2 modern systems, LCC seems to be much more related to nineteenth-century practice than DDC. I doubt that this relationship is accidental. One is easily persuaded that Hanson and Martel (and even the librarians of Congress who made decisions about the structure of LCC, i.e., Herbert Putnam and A.R. Spofford) were apt to be more familiar with European library literature and classification than the undergraduate from Amherst College. On the other hand, I do not know whether Dewey got the ideas for a relative index and synthetic tables of standard subdivisions from the BC, from some other source, or from his own fertile imagination.

A curious aspect of the treatment of DDC by some of its critics is that it has been assumed that Dewey continued a long European tradition of library classification based on a consistent use of class logic which resulted in finely divided hierarchical systems. Whether this is a sound method is one question; whether the DDC is traditional in this respect is another. What is bothersome is that in examining nineteenth-century European systems, not much evidence of this tradition can be found. Most of these library systems show no more logic than BC or LCC.

I do not claim that the matter of historical origins is closed, for many more European classifications need to be studied, and as yet little has been done with the surprisingly large nineteenth-century European literature on classification. In the meantime, here is some circumstantial evidence which may relate LCC to German library traditions:

German higher education, with its emphasis on research and scholarship, had a considerable impact in the United States during the last quarter of the nineteenth century--it is very possible that this intellectual milieu influenced the librarians who constructed LCC.

In his bibliography of librarianship, published in the U.S. Bureau of Education's Special Report of 1876, Spofford listed the BC, along with a wide range of European texts on library science, including excellent coverage of the German literature. The German classification theorist Rudolf Focke published his first paper in Germany in 1900, and in 1904 wrote a paper for the St. Louis meeting of the American Library Association. His ideas about the construction of library classification systems are remarkably consistent with the principles underlying the construction of LCC.

We know that Hanson was sensitive to German ideas about classification, not only because of his reference to springende Nummern, but also because he decided not to use the DDC at the University of Wisconsin in 1893 largely as a result of Karl Dziatzko's negative evaluation of Dewey's work.

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On the basis of the evidence that I have seen, I am inclined to believe that almost everything about LCC is traditional, and that it is based on the most conservative European practice of the late nineteenth century, with quite specific connections with classification in Germany. Even given this theory, LCC was still a formidable accomplishment. With a small army of subject specialists, Hanson and Martel improved many details of the German method and constructed a massive system, broader in scope and with greater detail than any system published to that time. As to the DDC, if Dewey had little trouble throwing off the shackles of nineteenth-century European classification, that was probably because he knew little about them. If he had, his system would perhaps have been the worse for it. But this, like most matters involved in a comparison between DDC and LCC, is one on which opinions are sharply divided.
REFERENCES


3. Ibid., p. 114.


5. Since the rise of faceted and other new systems of classification construction after the 1940s, the term "traditional classification" has been used to identify earlier library systems. Sometimes the term is used to identify only DDC and LCC, but at other times it is used to identify loosely all prefaceted systems. See, for example, Abrera, Josefa B. "Traditional Classification: Characteristics, Uses and Problems," Drexel Library Quarterly 10:21-36, Oct. 1974. Beyond DDC and LCC, the concept seems to be based on only a few Anglo-American library systems, several European bibliographic systems (e.g., Brunet's work), several European philosophical systems, and the writings of E.C. Richardson. In other words, the concept does not seem to be based on a close analysis of the hundreds of nineteenth-century library systems.


All references to the BC in the present study are to this 1852 edition. Besides its use in Darmstadt, the BC was used at the libraries of the University of Giessen and the Senckenberg Institute in Frankfurt. It remained in use at Darmstadt until the 1930s, and at the other 2 libraries until after World War II. The original classified catalog which Schleiermacher started is still preserved at the Darmstadt Library, which is now the Hessische Landes-und Hochschulbibliothek.


14. In libraries of the German language sphere, between 1800 and 1850, there were conflicting ideas about the structure and uses of library classification. Prussia eventually dominated German librarianship, and classification was to reign supreme. The pattern set in the eighteenth century by the library of the University of Göttingen was highly influential in the north. But even before 1800 there was a tradition which was opposed to the sort of detailed system proposed by Schleiermacher. Friedrich Adolf Ebert, for example, did not believe that detailed classified shelving systems were useful or even possible. In Bavaria, Martin Schrettinger abandoned detailed shelf classification for broad subject groups supplemented by an alphabetical subject catalog.


19. There were surely library classification systems just as detailed and comprehensive as the BC, however their schedules were never published (e.g., the systems of the University of Göttingen and the Royal Library at Berlin).


23. LaMontagne, op. cit., p. 267.


25. Shamurin, op. cit.


27. For example, in LCC's class HE 7677, subdivisions for Aeronautics, Automobiles, and Bakers are given cutter-type numbers: .A4, .A8, and .B15, which are added to the base number HE 7677. Subdivisions by place sometimes have a similar system: Afghanistan is .A3, Algeria is .A4. It is interesting that Cutter did not use this system (except for authors and titles) in his Expansive Classification.


31. Immroth, op. cit.


36. In the original German, all subdivisions (everything below the first line) are arranged in alphabetical order.


40. Hanson, op. cit.


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