Classification: *An Introductory Manual*

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Classification

INTRODUCTION

Why classify? If all books are given accession numbers as received in the library and carefully cataloged, any of these books can be found at any time. With catalog entries all the related material in the library can be brought together whether the relationship is one of author or subject matter.

Some collections are handled in just this way—collections of manuscripts, slides, and museum specimens. In fact, it is the best method of arrangement for any material with which one wishes to minimize the handling because of fragility, value, or convenience.

It is not necessary to explain in detail the expense and waste of such a method—both in time and money—in handling books for general and reference use. To be sure, if the library contains millions of books it will not make any difference to the general public just how the books as a whole are classified; nor, for that matter, will it make any difference to the librarian, for it will be impossible to survey the whole collection at one, two, or a dozen glances. But it will make a difference to the librarian, and to the research worker, just how the books in psychology are arranged. A biologist is going to be concerned about biology, a mathematician with mathematics, and each specialist with his own field; but no one is going to be very concerned about the arrangement of the special fields in relation to each other. There will be no opportunity to see them on the shelves in their interrelationship, for each separate collection will be too large.

If the collection is limited to five or ten thousand books, however, or even some tens of thousands, the librarian will also be concerned about the relative arrangement of large subjects. It will then make a great deal of difference to the staff if philosophy and religion, philology and literature, pure science and ap-

plied science or useful arts are shelved in relation to each other. And if there are open stacks—even with limited privileges—it will make still greater difference to the users of the library. It is possible to survey the stacks of the average-size library more or less as a whole. It is self-evident that the arrangement of books in the small sections of the classification is the concern of everyone, for the arrangement contributes to the ease and efficiency of selection for the library, the finding of subject material in all its ramifications and relations, and the substitution, in some cases, of one equally good title for another.

When principles of classification are discussed here, from the standpoint of an ideal, it is the small-library collection that is considered, for in it are found all the factors which enter into the formulation of principles and rules for ideal classification.

DEFINITION AND KINDS OF CLASSIFICATION

Classification of books has always been a function of librarianship. Even in earliest times there were various attempts at subject classification as a basis of arrangement, as well as simple arrangements by size and author. Classifications have varied from those which aimed at ideal schemes of knowledge to those which were wholly utilitarian, that is, concerned only with the use of books.

To facilitate the use of reading materials is the purpose of library classification. Its function is to group like things together. Libraries are concerned with so many different aspects of books and reading, however, that the use of different arranging schemes is necessary in the grouping process.

Whoever goes to the shelves to find one title in history, or politics, or art, is very often interested in other titles in these subjects, and whoever uses one encyclopedia may want to use another encyclopedia. To have these materials which are alike because of subject-matter, or the form in which it is presented, arranged together on the shelves facilitates the use of the materials.

A book may also be wanted because of the period or time with which it is concerned or the geographic interest of its subject matter. It may be wanted because it is interestingly written or is simply and clearly expressed for the inexperienced reader. These last two characteristics are often the basis for segregating collections of books in a "popular reading room" in the public library.

What is classification? The answer already given, that classification is "the grouping together of like things," is only half of the answer. Classification is also a separating process, and the characteristic by which material is separated into groups determines the kind of classification.

The arrangement of books by subject is called a fundamental, or natural, classification. Big books and small books, interesting and dull, no matter when written, nor in what language, are naturally grouped together when about the same subject. Usually in a library we are interested in finding books and other materials arranged in this way.

But, as already suggested, material may be arranged in a sub-order according to the time or period in which the subject is considered, or according to the place with which it is concerned. Such supplementary arrangements are known as accidental classification. The differences occurring in the subject, on the whole, are only the incidental differences of time and place. There are, however, examples of some such differences which are more than incidental, as in a chronological arrangement of subject material on physics. In such cases, usually a new sub-subject evolves, e.g., *relativity*. The accidental classification is sometimes used as the main arrangement to bring together quite diverse subject materials concerned with the same geographic region or chronological period, e.g., economics, social problems and politics in a foreign country, or costumes, furniture, and decoration by period.

Books are said to be artificially classified when they are arranged alphabetically, numerically, by form, or by the level of

interest or readability for the reader. Arrangement by form brings together dictionaries, periodicals, society publications, annuals, etc. Alphabetical arrangement is used when books are arranged by author and title. Numerical order brings together editions, serials, etc., in the order of their publication. The numeric, or accession, order is used for arranging whole collections of records, slides, films, museum specimens, and other materials for which the elimination of handling is important.

As pointed out, all of the various methods of arrangement may be found in a good classification scheme using a basic arrangement by subject matter. Primarily, library materials are useful because of the subject with which they are concerned. One exception to this generalization is the literature class, in which form is more important, e.g., poems, fiction, essays, letters, etc.

Different attempts have been made to divide subject matter into classes and to arrange these classes systematically. Each of these attempts has, or has had, its adherents. Three systems to be discussed at length in this pamphlet are the Dewey Decimal Classification, The Library of Congress Classification, and the Brussels Classification. The Cutter Classification is discussed briefly in its relation to the development of book classifications.

The Dewey and the Library of Congress classifications are primarily book classifications. The Brussels scheme is an expansion of the Dewey and was devised for classifying bibliography. It is also used successfully for arranging catalog entries. The Dewey Decimal and Library of Congress classifications are used more generally than any others, and their use is increasing not only in the United States but in other countries. The reasons for this are probably attributable to their better conformity to the tests, or criteria, of a good classification scheme.

CRITERIA OF A GOOD CLASSIFICATION

There are several criteria by which a classification scheme can be judged theoretically and a number of tests of its practical use-

fulness. Experience has demonstrated that the more closely a scheme conforms to the following six requirements, the more useful and dependable it will be. As already pointed out, however, the larger the collection of books, the less important will be the requirement listed under number 2:

1. The inclusiveness and receptiveness to new subjects
2. The logical order of the main classes
3. The logical process of division and subdivision
4. The quality of the terminology
5. The practicability of the notation
6. The usefulness of the index

As stated first a classification should be judged by the *inclusiveness of its divisions and subdivisions* and *the ease with which new subjects can be added* in their natural relation to subjects already included. This characteristic is of prime importance. If it is not met, continued readjustments will be necessitated by new wars, new governments, new scientific discoveries, and other developments and changes.

The second criterion on the list is: *the main classes should be arranged in logical order.* The order of the main classes, however, has only a theoretical value, except in a small library where it will be useful to have philosophy and religion shelved adjacent to each other. In the large library each subject division will fill several sections, tiers, or floors of shelving. In such a case the relative position of each division in the classification is of little significance. The important factor always is that all of the books in a specific subdivision be shelved together or in conveniently located units of shelving.

This leads to the third criterion: *the divisioning and subdivisioning of the classes should be a logical process.* For example, in the fourteenth edition of the Dewey Classification there are three different places for a specific treatment of *relativity,* but one is a subdivision of astronomy, one of gravity, and the other of psychology. If the logical process had not been reliably com-

pleted there might have been but one place for books on *relativity* and these books could be concerned with three different subjects.

The three other criteria of a good classification are concerned entirely with practical features of the classification scheme: the quality of the terminology, the practicability of the notation, and the usefulness of the index.

Let us consider the first of these: *the quality of the terminology.* The terms used to designate the divisions, subdivisions, sections, etc., of the classification scheme must be exact. They must clearly indicate what material is excluded as well as what material is included. There can be no question about the meaning of terminology used in the tables or index, if the classification is to be most effective. For example in the fourteenth edition of the Dewey Classification there are several places listed for *dogs.* Two of these will serve to illustrate the point: "dogs, domestic animals, 636.7," "dogs, mechanical engineering, 621.837." There would be no doubt here where to place books about dogs as pets and mechanical dogs concerned with ratchet gearing. Because of the exact requirements served by the terminology, it needs to be chosen by authorities in the subjects covered.

The practicability of the notation adds considerably to the usefulness of a classification. The length of the class number is one important consideration. The shorter this can be and serve to indicate all necessary differences in grouping, the more useful it will be. It will be easier to remember, and it will take less time to record on the backs of books and on catalog cards.

If the notation is of such a nature that it readily indicates the relation of divisions and subdivisions, and allows for expansion within these relationships while still maintaining them, it has additional value. This is a feature probably best exemplified in the decimal notation, and can be illustrated in a comparison of the twelfth and fourteenth editions of the Dewey Classification. In the twelfth edition there is nothing on World War II. In the fourteenth edition there are two pages for World War II, in

logical relation to World War I, and providing for expansion with publication of material.

Any factor which contributes to the ease of remembering the notation increases its usefulness. Shortness is one such characteristic. The fewer the elements of the notation is a second. (A decimal notation consists of combinations of ten figures; an alphabetic one, of twenty-six letters.) The use of these elements of the notation always to indicate the same meaning is a third factor. The mnemonic feature of the notation is most useful in the small library with open access to the shelves. It will be discussed further in the sections on "Notation" and on "Individual Classification Schemes."

It is hardly necessary to elaborate on *the usefulness of the index.* Any technical book needs an index, and the greater the number of subjects included and the more numerous the relationships existing between these subjects, the greater the value of the index.

It is important that all topics covered in the tables of a classification be included in the index, and as the index is used for the purpose of discovering the best place in the scheme for classifying a book, it is important also to indicate the relations between topics representing various phases of a subject and the relation of these topics to topics in other subject fields.

SHELF ARRANGEMENT

Classification arranges books on the shelves. In the modern classified library it gives a relative location of books. That is, the place of each book on the shelf is always the same in relation to the books on either side of it, though its actual position on the shelf may vary as books are added, moved, or withdrawn.

In the medieval library, where classification was more or less arbitrary and usually by size, a fixed location resulted. That is, each book had a given position on a given shelf and was marked so that it always shelved in that position. Arrangement of books in accession order, which is the order of the receipt of books into

the library, produces a modified fixed location. With simple fixed location, the mark given the book is the number of the shelf plus the number of the book's position on the shelf.

There are examples of modified fixed location in most libraries today. The ready reference collection shelved behind the reference desk is one example. The titles shelved there are taken out of classification order from the standpoint of the whole collection. Various titles may be shelved there in certain places on the shelves for convenience in using. As new volumes are received, or new editions added, the old are put in the stacks. The volumes within this small collection, of course, are usually arranged relatively. This description is true of any small collection of books used for special reference purposes in different departments of the library. Fixed location also serves its purpose in any library, in the shelving of maps, atlases, and rare books.

In modern public libraries, and in the popular reading rooms of most libraries, many liberties are taken with the classification order in shelving books. Books are shelved in special groupings according to the purpose to be served. In some libraries, books in the popular reading collection are not marked on the back with the symbol of the classification. In a few instances they are not even classified. This omission of classification, or the classification mark, promotes a greater flexibility and freedom in shelving in conforming to the variety of demands of the readers.

NOTATION

Having arranged books on the shelves, the next function of classification is to make it possible to return individual books quickly and accurately to their relative positions on the shelves whenever removed, as in circulation. This is accomplished by the notation which makes up the class number and which can be described as a shorthand abbreviation of the classification scheme. For example, in the Dewey Decimal Classification, 500 is pure science; 531.5, gravity; and 531.51, the law of universal gravitation.

The best notation is probably the one which has the greatest mnemonic feature. This presupposes a notation which is brief and which shows the proper relation and subordination of divisions, subdivisions, sections, etc. To take another example from the Dewey Decimal Classification, 610 is medicine; 611, anatomy; 611.1, the circulatory system; and 611.1263, valves. Thus it is seen that as the subject divides and subdivides, this is indicated by additional figures in the number or in the decimal.

The mnemonic feature is probably better illustrated by the following notation taken from the history section of the Dewey Decimal Classification, 900: 942 is England; 943, Germany; 944, France; 945, Italy; 946, Spain, etc., for other countries. The second and third figures of 942-46 have the same meaning in the philology section which has the notation 400, e.g., 420, English; 430, German, etc.; and also in *literature* where "8" is substituted for "4," *English literature* being 820, etc. These same figures are also used throughout the classification wherever it is wished to indicate geographic subdivisions, sometimes without the "9," but more often with.

Theoretically, the pure notation is generally accepted as the best notation from the mnemonic standpoint; that is, a notation which is either all letters or all figures. Several examples of the decimal notation, which is the only widely accepted pure notation, have been given. Following are examples of a pure and a mixed notation taken from the Dewey and the Library of Congress schemes: 020 is library economy; 022, library buildings; 022.7, lighting for libraries. Z665 is library science; Z675, buildings; Z680, lighting. In the mixed notation, *lighting* is not indicated as a subdivision of *buildings* as clearly as it is with the decimal notation. Otherwise there is no pronounced difference in the usefulness of each. In one case 02 indicates *library* with additional figures for related topics, while in the other Z6 stands for *library*. One feels no conviction that one symbol will be any easier to remember than the other. However, in the following example the advantage is undoubtedly in favor of the decimal,

or pure, notation: Spanish literature is 860; Spanish drama, 862; Lope Félix de Vega Carpio, 862.31. The Library of Congress mixed notation is as follows: Spanish literature is PQ6001-PQ8929; Spanish drama, PQ6098; Lope Félix de Vega Carpio, PQ6438.A1.

As pointed out earlier, the value of a theoretically perfect arrangement of the main divisions of a classification scheme varies with the size of the library in which it is used, being of little importance in the large library. This is also true of the value of the mnemonic features of the notation. Undoubtedly the notation of the Dewey Classification scheme can be used with greater mnemonic facility than that of the Library of Congress scheme. This is one of the reasons why the Dewey Classification is more useful for the average-size and small library. In the large library, however, the very factor of size means that there will be many more small sections and divisions of these small sections of the classification than in the small library. This will necessarily lengthen any notation and diminish the value of the mnemonic feature.

Notation was earlier described as a shorthand abbreviation of the classification scheme. It could also be called a key to the classification tables. Whatever it is called, it is an important feature of the classification. Without notation there is no way of holding the tables of the classification together, nor of retaining the meaning of classification in use. The notation, or class number, makes up part of the call number by which the book is identified. The other part is called the book number.

BOOK NUMBERS

Book numbers are used to distinguish books having the same classification number. They are made up of a symbol for the author's name with additional marks for title, edition, translation, etc. This number provides a means by which books in the same classification may be arranged by authors, titles, etc., and thus be quickly identified. The book number and the classifica-

tion number together make up the call number, the symbol by which the book can be called for at the desk and charged.

In many small libraries, and in some large ones, only the notation, or class number, is indicated on the book and catalog card. This is of course a short cut and supposedly an economy. There is some question, however, as to whether the time saved in marking books and typing cards is not more than equalled by the extra time spent in finding and shelving these books.

The notation is also often used without the book number in special libraries, and in extensive vertical file collections. It is easier to use the notation alone in such instances than in a general collection, because in such cases the notation itself is more extended. The additional figures in the class number serve to subdivide classes into smaller subdivisions in which the number of books or subjects included is small. In general libraries, however, the book number is almost always used with the notation. The principal part of the book number is known as the author number and consists of the initial letter of the author's last name followed by numbers which are taken from author tables. Following is an example of the section of author numbers taken from the *Cutter-Sanborn Three-Figure Tables,* from which the author number will be chosen for Lope Félix de Vega Carpio, V422*

Vees	421
*Veg	422
Vegi	423
Vegl	424
Veh	425
Vei	426
Veil	427

The system of author numbers so widely used today was devised by Charles A. Cutter, the well-known pioneer librarian who contributed so much to the development of basic principles and techniques of library administration. He drew up a table

of author numbers, first published in 1880. This table assigned a letter and two figures to each name on the basis of the spelling. Thus within the same classification division the author number arranges books alphabetically by author. This first table was called the *Two-Figure Table,* but there were some exceptions to the two-figure principle. For names beginning with vowels, and S, a second letter was added and one figure used, as Am3 for American. For names beginning with Sc, three letters were used and one figure, as Sco8 for Scott.

The *Cutter-Sanborn Tables,* which are a revision of the Cutter author tables, made by Kate E. Sanborn, use one letter and two or three figures, according to the size of the collection. Three figures are used of course in the largest library. These tables were not compiled on the same basis as the original Cutter tables so can not be used to supplement them. The advantage of the *Cutter-Sanborn Tables* is that they can be used readily with large or small collections, using two or three figures when necessary to differentiate between similarly spelled names. The third figure can also be added as the collection grows.

Mr. Cutter also brought out a new edition of his own tables, planned on the basis of the first, with the same arrangement for the vowels and S. These tables, the *Cutter Three-Figure Tables,* are better adapted to larger collections than were the first tables. Since they are based on the same plan as the *Two-Figure Tables* they can be used to revise and extend the author numbers of growing collections whose author numbers were first taken from the earlier tables.

In certain divisions of the classification, book numbers are not assigned from the author's name. In biography, book numbers are taken from the name of the person written about; thus all lives of the same person stand together on the shelves. In genealogy the book number is taken from the family name; in author bibliography, from the subject of the bibliography; and in town histories, from the name of the town. Thus material which would not necessarily be brought together by classifica-

tion is brought together by the book number. The book number in this instance extends classification as well as distinguishes the individual book.

Two books on the same subject and by the same author can be distinguished by the addition of the initial letters of the titles to the book numbers. This is called a title mark, or a work mark. The work mark also includes additional marks indicating edition, translation, etc., necessary to identify the individual work. For an example of the title mark, if Dr. William Warner Bishop had written another collection of essays similar to *The Backs of Books* and called *The Pages of Books,* the two titles would be distinguished from each other by giving the first the book number B62b, and the second, the book number B62p. If Dr. Bishop had written a second edition of *The Backs of Books* including other essays, the book number would be B62b2. A translation of this into Spanish would be indicated by adding an S plus the initial letter of the translator's name, thus B62b2Sv. This symbol is the book number. It is made up of the author's number plus the work mark.

Suppose further that Dr. Bishop wrote *The Printing of Books,* and the library already had a book on this subject by Edward Bishop which had already been given the author number B62. If such were the case, Dr. Bishop's volume would be given the author number B622, using the *Cutter-Sanborn Tables,* to distinguish William Bishop from Edward Bishop because each author under a certain class number must have a different author number. Thus an author may have different author numbers in different sections of the classification.

It is also possible that instead of adding the number of the edition to the book number, the date of publication may be used to distinguish the edition. This method is used in the science classes and in useful arts where the date of publication is an important factor in judging the authority of the work. For example, take Arnold, *This Flying Game,* third edition, published in 1943. The book number might be Ar64t3, or it might be

Special author tables are used in classifying the complete works of authors who have written prolifically, especially when it is desired to class with their works all the books about them. Such a scheme is the following, found in the twelfth edition of the *Dewey Decimal Classification,* page 1242; and on page 1646 of the thirteenth edition. This table is used for an author who has a specific classification number in the Dewey scheme, or for whom one can be made. The alphabetical table serves to arrange the author's works within his individual class number.

A Bibliography; authorship controversies
B Biography
C Biographical collateral
D Higher criticism
E Minor criticism (textual)
F Sources; allusions; learning
G Miscellany; concordance; societies, etc.
H Quotations; tales and plays from, adaptations, condensations, etc.
I Complete works without notes
J Complete works with notes
K Complete works in translation (For living authors put works complete to date with I, J, and K.)
L Partial collections without notes
M Partial collections with notes
N Partial collections in translations
O-Z Individual works

As already suggested, some libraries do not use the book number, either to save time in classifying, or because the library is too small or so specialized that only a small number of books is included under any specific class number. In such instances the book number can be dispensed with without much difficulty.

Many libraries do not use book numbers in the marking of fiction and mark this group of books only with an *F.* Some li-

braries leave fiction unmarked altogether, using the accession number for charging.

HISTORY OF CLASSIFICATION

It is always interesting to know how professional methods and techniques have evolved. Library classification schemes have been in use a very long time, having originated in antiquity. They can be divided into two classes: those which are merely practical and convenient arrangements of library material made without any reference to an ideal or theoretical order of knowledge; and those which attempt to conform to a logical classification of knowledge.

In the first group there are a number of classification schemes, the ones which developed last being concerned with important book collections. One of the earliest was the classification of the clay tablets in the Assyrian library of Assurbanipal. These tablets were divided into at least two main classes: those tablets dealing with the knowledge of the earth and those dealing with the knowledge of the heavens. The libraries of Greece and Rome must have been classified, but little information concerning these classifications can be obtained from the remaining fragments of catalogs. The only description to be found of Roman libraries indicates that there was a division between pagan and Christian writers, the pagan writers being shelved on one side of the room and the Christian on the other.

The earliest recorded system is that which Callimachus (B.C. 310-240) devised for the Library at Alexandria. Callimachus was not librarian[1] of the great Alexandrian library, however, as is sometimes stated; so it is possible that the catalog might have been a union catalog for the principal libraries of Alexandria. The work has been lost, but it is known that five divisions of subject matter were distinguished: (1) Poetry, (2) History, (3) Philosophy, (4) Oratory, and (5) Miscellaneous.[2]

[1] James Westfall Thompson. *Ancient Libraries* (Berkeley, University of California, 1940) p. 78.

[2] *Ibid*, p. 79.

The medieval monastic libraries usually divided the books into a certain number of general classes, and then placed them on the shelves by fixed location according to size. Sometimes the books were shelved alphabetically, according to author's name, within the classes. The Jesuits usually divided their libraries into two collections: titles written by believers and titles written by the heretics.

The library of the old Carolingian monastery of Lorsch in the tenth century used an elementary classification which arranged the works of the library as follows: liturgical works, Old and New Testaments, historical and geographical books, theological and patristic writings, and lives of saints and poetry, including classical authors. The catalog of the monastery of Prüfening, in 1158, arranged the works of the "old fathers," the German ecclesiastics, and the theologists of France in chronological order.

As medieval libraries grew, the arrangement of books became more standardized, usually including seven classes: (1) Archives, (2) Scriptural Texts and Commentaries, (3) Constitutions, (4) Council and Synodal Proceedings, (5) Homilies and Epistles of the Fathers, (6) Lectionaries, and (7) Legends of Martyrdom. Where secular literature was admitted a subclassification was made including the seven recognized liberal arts: Grammar, Rhetoric, Logic, Arithmetic, Geometry, Music, and Astronomy.

Another example of classification in medieval libraries was found in the library of the Carthusian monastery of St. Margaret, in Basel, at the end of the fifteenth century. The works were separated into the rarest volumes, works in German for use by lay brothers, and "works of edification," as sermons and saints' lives.

In the sixteenth and seventeenth centuries bibliographical catalogs appeared in France. Among these was that of Gabriel Naudé (b.1600), the French bibliographer and librarian of the Mazarin collection. His *Advis pour Dresser une Bibliothéque,*

which was translated by John Evelyn, has twelve main classes: (1) Theology, (2) Medicine, (3) Bibliography, (4) Chronology, (5) Geography, (6) History, (7) Military Art, (8) Jurisprudence, (9) Council and Canon Law, (10) Philosophy, (11) Politics, (12) Literature.

Almost contemporaneous with Naudé's was the Paris Booksellers' system which was probably originated by Ismael Bouillaud. Some authorities, however, point out that Gabriel Martin, a bibliographer of note, who compiled many library catalogs between 1705 and 1761, used the same outline. Various contemporary bibliographers, in fact, used a similar outline in their publications, and one of these was Jacques-Charles Brunet.

Brunet first published his *Manuel du Libraire et de L'Amateur des Livres* in 1809. The classified section of this catalog was based upon the system of the Paris booksellers, although the system had been modified, and the subclasses considerably increased. Brunet's scheme had only five main classes: (1) Theology, (2) Jurisprudence, (3) History, (4) Philosophy, (5) Literature. This scheme has been many times revised and enlarged. It has had great vogue in France, especially for the arrangement of bibliographies and for booksellers' stocks.

The Bibliotheque Nationale, so far as it is classified, bases its arrangement upon Brunet, as does also the Bibliotheque St. Genevieve in Paris. The scheme in use in the British Museum bears a remote resemblance to Brunet, enough to show its influence.

German bibliographical classifications have not been used much outside Germany. The classification of Otto Hartwig, used from about 1888 in the University of Halle was probably the best. Italian schemes have not been important. That of G. Bonazzi, used at Parma from about 1890, was a combination of Hartwig and Dewey.

The Dewey Classification is probably first in importance in the second group of classification schemes, which is made up of those which attempt to conform to a logical classification of

knowledge. In time of development, the first of these was that of Konrad von Gesner (1516-65), a German-Swiss scholar, naturalist and author. His *Bibliotheca Universalis* was a catalog of Latin, Greek, and Hebrew books classified according to definite principles.

Other schemes of minor importance appeared between the *Bibliotheca Universalis* and Bacon's "Chart of Human Learning" which was published in his *Advancement of Human Learning*. This latter scheme has affected, to some extent, every scheme for the classification of knowledge, or of books, from the time it was published in 1605 until now. Bacon's scheme, as outlined in his chart, was a history of recorded thought to the date of the publication of the *Advancement of Human Learning*. It was an outline of the state of knowledge rather than of books and records. The influence of the Baconian scheme has been great. It was the basis of the classification of the French encyclopedia of Diderot and influenced the early classification of the Bodleian library. The outline of the first classification used in the Library of Congress followed it. In 1870, W. T. Harris, a well-known educator and school man of St. Louis (Missouri) devised the plan of the inverted Baconian classification for the St. Louis public school library.

The Baconian scheme was an example of high classifying ability and clear logic. Bacon's philosophy was this: The sense, which is the door of the intellect, is affected by individual objects only. The images of these objects, that is the impressions received by the senses, are fixed in the memory. These impressions the human mind proceeds to review. If it simply rehearses them, we have memory; if it makes fanciful imitations, we have imagination; and if the mind analyzes and classifies these impressions, we have reason. Bacon named these three groups of thought: History, Poesy, and Philosophy.

Harris simply inverted the order and took as the basis of his classification the three general groups: Science (in the broadest sense), Art, and History. The arrangement of the

main divisions of the *Dewey Decimal Classification,* which was first published in 1876, was roughly based on the Harris grouping. The number of the main divisions was increased, however, and the headings made more specific. The main divisions of the *Cutter Classification,* which first began to appear in 1891, are very similar to those of the Dewey Classification, but are arranged somewhat differently. What arrangement is discernible in the main divisions of the present *Library of Congress Classification* (first published in 1902) is probably due to the influence of the Cutter Classification. The *Brussels Classification,* first printed in sections, 1899-1905, is an expansion of the *Dewey Decimal Classification* devised for the arrangement of bibliographic entries.

INDIVIDUAL CLASSIFICATION SCHEMES

DEWEY DECIMAL CLASSIFICATION.—As has been pointed out in the preceding section, the arrangement of the main divisions of the Dewey Classification scheme is based on the outline of the W. T. Harris classification for the St. Louis public school library. The similarity in arrangement of the main divisions of these two schemes, and the process of evolution from the outline of Bacon's Chart of Learning to that of the Dewey Classification is illustrated in the chart on the next page. Various explanations are given of the arrangement of the Dewey Classification that have no particular value in describing the scheme. Dewey attempted to group all printed materials into ten main classes, and he succeeded in developing a fairly logical arrangement beginning with the most general subjects and proceeding to the more specific. In his printed scheme, his first class is *general works.*

The first edition of the *Dewey Decimal Classification* was published in 1876. It consisted of twelve pages of tables and eighteen pages of index. The thirteenth edition, which appeared in 1933, has 907 pages of tables and 718 pages of relative index, showing the vast increase in subject matter in those

years. Just nine years later, the fourteenth edition had increased to 1128 pages of tables with 748 pages of relative index, and 51 pages of supplementary tables. There is also an abridged

EVOLUTION OF DEWEY CLASSIFICATION ✓

BACON		HARRIS	DEWEY
(Original)	(Inverted)	*Science*	General Works
History	Philosophy	Philosophy	Philosophy
		Religion	Religion
		Social and Political Science	Sociology
			Philology
		Natural Sciences and Useful Arts	Science
			Useful Arts
		Art	
Poesy	Poesy	Fine Arts	Fine Arts
		Poetry	Literature
		Pure Fiction	
		Literary Miscellany	
		History	
Philosophy	History	Geography and Travel	History
		Civil History	Biography
		Biography	Geography and Travel
		Appendix	
		Miscellany	

edition of which the one published in 1945 contains 343 pages of tables and explanations and an adequate index.

A Standard Edition is being compiled in which the editors hope to achieve a balance of the various sections and a shortening of the notation.

The Dewey scheme fulfills the criteria of a good classification quite well. Its inclusiveness and its receptiveness to new subjects are well illustrated by the increased number of pages of tables

and relative index in the latest edition, which is on the whole an orderly expansion of the original outline.

The arrangement of the main classes of the Dewey Classification is not in a strictly logical order. *Sociology* is separated from *history,* to which it is more closely related than to any other subject, and *philology* is separated from *literature.* The logical process of division and subdivision, however, has on the whole been pretty well carried out, and is especially well exemplified in the 500 division.

The terms used to designate divisions and subdivisions are definite and clear and are well supplemented by more specific terms used in the index, which bring out all phases of treatment and points of view with reference to a subject. In the index are also listed synonyms, pseudonyms, and different forms of names. The decimal notation is easy to remember, it is equally useful with any language; and in general it shows the relation of divisions and subdivisions.

The weakness of the Dewey Classification is the arbitrary division, subdivision, and re-subdivision of subjects by tens. Knowledge itself does not always, probably seldom does, divide and subdivide in this way. One very just criticism of the Dewey Decimal Classification is that of the simplified spelling feature which is in no way a part of the classification scheme. In the fourteenth edition this has been eliminated from the relative index. This is a great improvement, but the scheme could be used with still greater facility if the simplified spelling feature were eliminated altogether. Such elimination of all simplified spelling is contemplated for the Standard Edition now in preparation.

The length of the notation of the Decimal Classification is determined by the size and character of the library. The small general library uses a brief notation of three to five figures. In a large library, or in a special library, or a special section of the small library, this may be extended to seven or more figures. Anything more than seven figures, however, is difficult to

print on the backs of books. In special collections requiring long decimals this difficulty has sometimes been obviated by using only the decimal part of the notation.

In classifying the small library the abridged edition may be used. Usually, however, it is more satisfactory to use either of the last three editions. Each of these is complete, and in the average-size and growing library, a notation of only three or five figures need be used. The detailed schedules serve to clarify the meaning of the classification. The very full relative index is invaluable.

The ten main divisions of the Dewey Classification are:

000	General works
100	Philosophy
200	Religion
300	Social sciences
400	Philology
500	Pure science
600	Useful arts
700	Fine arts
800	Literature
900	History

Each division usually has a form subdivision and nine subject subdivisions, each of which may be further similarly subdivided, and so on indefinitely. The following form divisions may be used with any division or subdivision. They are called form divisions because they subdivide material under subject according to the form in which it is written.

The form divisions are:

01	Theory
02	Outlines, compends, etc.
03	Dictionaries, encyclopedias
04	Essays, addresses, lectures
05	Periodicals
06	Societies, congresses, conferences
07	Study and teaching

08	Polygraphy
09	History

The History form division may be subdivided as follows:

0901	Ancient history
0902	Medieval history
0903	Modern history
0904	Twentieth century
092	Biography; case histories
093-099	Subdivided by country, like 930 - 999, the History division

The main classes under 930 - 990 are as follows:

930	Ancient countries
940	European countries
950	Asia
960	Africa
970	North America
980	South America
990	Oceania

Each one of the above geography numbers can be subdivided to indicate a particular country, as for example:

940		980	
940	European countries	980	South America
941	Scotland	981	Brazil
941.5	Ireland	982	Argentina
942	England	983	Chile
943	Germany and Austria	984	Bolivia
944	France	985	Peru
945	Italy	986	U.S. of Columbia, Panama, New Granada, Ecuador
946	Spain		
947	Russia		
948	Norway, Sweden, Denmark	987	Venezuela
		988	Guiana

949	Other countries of Europe	989	Paraguay, Uruguay

Mexico and Central America are 972 under North America.

The third figure from the above country numbers in the 940's can be used to indicate the language in the divisions of *language* 400, and *literature* 800; as, for example, 420 English language, and 820 English literature. There are exceptions to this rule, however, in the case of Russia, and Norway, Sweden and Denmark. In languages Russia is classed in 490, Other languages; and Swedish, Danish, and Norwegian are classed in 439, Other Teutonic languages. Material on the languages of Mexico and the South American countries is classed with Spanish 460; Portuguese 469; and South American dialects 498. Literatures are classed with Spanish literature 868.99; Portuguese literature 869.89; and English literature 819.92 and 819.98.

These exceptions are examples of definite weakness in the scheme for any library having extensive collections of foreign languages and literatures. The oriental languages have been similarly poorly provided for. This weakness is particularly apparent in classifying the libraries of foreign countries. For example, American literature is provided with the notation 810 to 819.989 whereas all Russian literature is confined to 891.7 and extensions of the decimal. This limitation is equally true of the other exceptions noted.

Used in the American library with a general collection, the geography subdivisions and the language subdivisions are quite adequate. With some variations as indicated in the tables, the geography subdivisions can be used with any subject desired.

The Dewey Decimal Classification is more widely used in the United States and England than any other classification, and in spite of the weaknesses indicated it has been used in many European countries, in Mexico, in South American

countries, in Hawaii, the Philippines, Java, Australia, Africa, and Asia.

CUTTER'S EXPANSIVE CLASSIFICATION.—The *Expansive Classification,* compiled by Charles A. Cutter, was first published in 1891. Mr. Cutter undertook the compilation in answer to criticisms of the Dewey Classification. The name "Expansive" means adjustable to increasing size, or capable of being expanded. This is not a characteristic of the Cutter scheme, however. It consists of seven separate classifications, the first extremely broad, and the seventh very detailed. A library changing from one to another of the seven classifications would have to change practically all of its notation.

The notation is another weakness of the classification. It was published after the Dewey Decimal scheme, and the decimal notation had been used in that. Mr. Cutter therefore used the letters of the alphabet, claiming that with the whole alphabet as a base the notation would be shorter. The notation, on the whole, is shorter, but the divisions and subdivisions of knowledge are divided less effectively by twenty-six than by ten. Thus the notation very rarely indicates the relation of divisions and subdivisions.

The arrangement of the main divisions of this scheme, however, is very logical; and the process of dividing and subdividing has on the whole been logically carried out. It has been said that the Expansive is the most logical and scholarly of modern bibliographical schemes.

The practical limitations of the scheme, however, are such as to limit its use to a small number of libraries. The notation, in most cases, is a mixed one. The main divisions and subdivisions are indicated by letters. (See an outline of the scheme on p. 27.) The geographic and form subdivisions are indicated by numbers. The index is also a weak feature. A complete index was published with the first six expansions; but with the seventh, which was published in sections, the index was published with each section. The incompleteness of the index, the

inability to expand readily, and the lack of a mnemonic notation are outstanding weaknesses of this classification scheme.

LIBRARY OF CONGRESS CLASSIFICATION.—The main outline of the Library of Congress Classification scheme is probably based on that of the Cutter Classification. The rather ideal order of the main divisions of the Cutter has been destroyed, however, by the adjustments made in the Library of Congress scheme. The resultant outline is an arbitrary arrangement rather than a logical or philosophical one. (See outline of scheme, p. 27.)

However, neither Dr. Herbert Putnam nor any of the others who took part in devising this scheme made any claim of an ideal order for the main classes. These were arranged as the collections of books were grouped on the shelves. The result, therefore, is practically a number of separate, mutually exclusive special classifications, having in many instances no logical sequence or connection except the accidental one of alphabetical notation.

These special classifications, however, have been devised by specialists in the various fields of knowledge working with the library materials. On this basis rests the value of the Library of Congress Classification. All subjects and topics are more adequately and consistently provided for in the Library of Congress scheme than in any other. As was previously pointed out the lack of a logical arrangement of the main classes is unimportant in a collection of several million volumes.

The general outline of the scheme and the schedules for each class are published separately. An index is included in each schedule, and the *Library of Congress Subject Headings* can usefully serve as a general index. The first edition of the classification was published in 1902, and publication of the third edition was begun in 1926. It is not yet completed. The revised editions of some schedules were published as recently as 1938, and the last revised edition of the *Outline* in 1942.

COMPARATIVE TABLE OF THE THREE PRINCIPAL BOOK CLASSIFICATIONS IN ENGLISH

DEWEY	CUTTER	LIBRARY OF CONGRESS
000 General Works	A References and General Works	A General Works
100 Philosophy	B-D Philosophy and Religion	B Philosophy and Religion
200 Religion	E-G Historical Sciences, Biography, History, Geography and Travel	C-F History and auxiliary Sciences G Geography; Anthropology
300 Sociology	H-K Social and Political Sciences	H-K Social and Political Sciences
400 Philology		
	L Physical Science	L Education
500 Natural Sciences	M-P Natural Sciences	M-N Fine Arts
600 Useful Arts	Q-V Useful Arts	P Language and Literature
700 Fine Arts	W Fine Arts	Q Science
	X Philology	R Medicine
800 Literature	Y Literature	S Agriculture
900 History, including Geography and Biography		T Technology
		U Military Science
		V Naval Science
	Z Bibliography and Library Science	Z Bibliography and Library Science

The subdivisions within the classes of the Library of Congress scheme are roughly arranged historically. Classes capable of chronological development follow this order of arrangement. Other classes are arranged in order of theory to application; first, general application, and then special application. Alphabetical topical subdivisions are used freely. Form and geographic subdivisions are repeated under every topic which justifies their use, but usually with a different notation each time, with the result that the tables and notation are greatly enlarged and any possible mnemonic feature is lost.

There are tables for countries and states to be used wherever alphabetical, decimal, and numerical geographic subdivisions are indicated. These are auxiliary to the geographical subdivisions of topics. Usually under general subjects the following form divisions are used:

1. Periodicals
2. Yearbooks
3. Societies
4. Congresses; exhibitions
5. Collections
6. Encyclopedias; dictionaries
7. Theory; method; scope; relations to other sciences
8. History of the subject
9. Biography
10. General works; treatises
11. Study and teaching; textbooks
12. General special

These few instances of tables with the same notation used with the same meaning under different subject divisions are not sufficient to provide a real mnemonic feature, but, as has already been pointed out, there was no effort on the part of the compilers to attain a mnemonic notation. The tables for the various classes and subdivisions were worked out independently by separate specialists, the emphasis being placed on providing adequately for all material. Such methods are not conducive to producing mnemonic qualities, but they did provide adequate tables for published materials.

The notation is mixed, as for example, Z769-Z770, Library reports of Brazil. The main classes are marked by letters, alphabetically; and the main divisions are also indicated by letters, alphabetically. The subdivisions are indicated by arabic numerals with sometimes the addition of letters, as; PQ7297.D35, Rafael Delgado, the Mexican author. The notation is therefore long, generally with two letters and four

figures. In addition, in almost every schedule are special schedules with a notation of additional figures or letters. In consequence the notation can not possibly show the relation of classes, divisions and subdivisions.

The terms used for headings are exact and explicit, being chosen by authorities in the various fields. In many instances, definitions are given of the sense in which the headings are used, which is a definite aid to classifiers using the scheme. As has been said, the index is relative, excellent, and very full. At present each class has a separate index, but eventually these will be consolidated into one.

There are many instances of special tables for special use. In the literature division form tables of varying fullness are provided, to be adapted for different authors according to the volume of their writing. Other special tables have been provided for special subject sections which may or may not be used, depending upon the extent of a collection.

These tables of the special subdivisions and sections of the Library of Congress classification can be used for classifying special collections and special libraries. The notation may be used as it is, or another notation may be applied to the tables. These tables can sometimes be used successfully in expanding the Dewey Classification for the needs of a special collection in libraries where the Dewey Classification is already in use.

The Library of Congress scheme is now used in many college and university libraries in the United States; and it is used to some extent in public, state and reference libraries, special libraries, and museum libraries. Outside of the United States, it has been used in Canada, England, Scotland, Ireland, Wales, New Zealand, South Africa, France, Belgium, China, Mexico, Cuba, and the Philippines.[3] Since it is a classification scheme which was planned for a very large and very specialized collection, it can be used successfully only in classifying very large libraries or very specialized libraries.

[3]For a list of the libraries, see Miss MacPherson's list in the *Library Journal*, May 1, 1932, p.421-22.

BRUSSELS CLASSIFICATION.—The Brussels Classification, or the Universal Decimal Classification, is an expansion of the Dewey Decimal system, with the addition of new subdivisions and signs of combination which indicate relations of subjects. It was devised for the Institut International de Bibliographie, which was organized as the result of an international conference of librarians brought together at Brussels in 1895 through the efforts of two Belgian librarians, LaFontaine and Otlet. The purpose of the Institut was to perfect and unify the methods of bibliography, to organize international cooperation in bibliographical work, and to produce the *Repertoire Bibliographique Universel,* a universal catalog of bibliography. At no time was it the direct or indirect purpose of this organization to build a library of books or to devise a classification for books.

The Institut, later known as the Institute of Documentation, and, since 1937, as the International Federation of Documentation Organizations, established a catalog on three-by-five cards located originally at the Musée Royaux des Beaux-Arts, Brussels; thus its name, Brussels Classification. It was the intent of this bureau to classify on cards the subject matter of all printed material of any significance, printed anywhere in the world, in books, journals, patents, trade catalogs, abstracts, etc.

The Dewey Decimal scheme was chosen as the basis because the notation was made of Arabic figures, which are universally understood. The Dewey Decimal scheme, having been devised for books, was much too limited to accommodate the vast variety of subjects, interrelations, and special phases of subjects to be included in such an infinitely comprehensive bibliography. The classification desired for this bibliography was one by which the card entries could be arranged systematically in the catalog.

The Dewey Classification tables were first translated into French, and then expanded and issued as the *Manuel du Répertoire Bibliographique Universel* in 1905. A much more expanded edition was published, 1927-32, as the *Classification Décimale Universelle.* It contains 1111 double-column pages

of tables, while the fourteenth edition of the Dewey Classification contains only 381 single-column pages. It is probably natural that the 500's and 600's were extended the most. The 500's in the Brussels Classification are 250 double-column pages in contrast to 111 single-column pages in the Dewey scheme. The Brussels' 600's have 861 double-column pages, and the Dewey, 270 single-column pages.[4] This contrast does not demonstrate the superiority of the Brussels scheme over the Dewey scheme as a book classification, but it does illustrate the greater facility of cataloging systematically all aspects of printed knowledge by the Brussels Classification.

The *Catalog* of the *Répertoire Bibliographique Universel* was supposed to answer the following types of questions: (1) Researches concerning a single book—a particular edition, a particular translation, all translations of the same work, the library or place where a work is located; (2) Researches concerning several books—of interest because of their connection with a certain subject, of interest because of the author connection, works connected with a certain epoch, of interest because of the place of printing, works in a given language, a special edition, etc.

To show all of this required a series of common subdivisions much more comprehensive than those in use in the Dewey Decimal Classification, as indicated in the outline at the end of this section. There is no change in the use of the figures for the main classes and main divisions, except the "three figure minimum" is abandoned for the contracted form: 5, *science;* 51, *mathematics;* 52, *astronomy.* This change was necessary because after the specific subject was indicated and all of the symbols of emphasis, relation, etc., were added, the notation was very long.

The Brussels' tables are valuable to use in expanding the Dewey Decimal tables, for use with special collections or special libraries, particularly technical ones. For example:

[4]Helen Rowley. "Universal Decimal Classification." *Special Libraries* 36:315, 1945.

. . . in Dewey, the number 578.6 is assigned to the topic, *preparation and mounting of objects* under the subject *microscopy*. The number is not subdivided further. The Brussels system adds twelve subdivisions to the number, thus:

578.6 Préparation et montage des objets
.61 Collectionnement et conservation sommaire des objets
.63 Traitement special des objets
.636 Traitement des matieres suspendues, deposes
.64 Dissection
.65 Coloration; décoloration; deshydration; impregnations metalliques
.66 Injection
.67 Préparation pour le travail an microtome; appareils pour inclusion
.68 Dispositifs pour examiner des etres vivants (lames à concavités); Compresseur; lames à anneau, à deux tubulures; frog plate
.683 Chambre à culture; chambre humide
.684 Chambre thermostatique; plaque chauffaute
.69 Reconstruction des sections, modèles.[5]

The symbols of subdivision (given in the outline on pp. 33-34) are not devised for use in the classification of books. The expansion of the Dewey tables made with the auxiliary tables and symbols of the Brussels system have made a notation necessary for the Brussels that is prohibitive in book classification. The Brussels notation is a key for arranging card entries, and is not a call number. The call numbers of the books and other materials referred to are included on the card entries.

The International Committee on Decimal Classification is responsible for any expansions and changes in the Brussels Classification. It is composed of representatives of the national sections of the International Federation of Documentation Organizations with headquarters at the Hague. Before the war this committee had begun the publication of two other editions of the classification:

[5]Rowley, *op. cit.*

Dezimal-Klassifikation, Deutche Gesamtausgabe, Bearbeitet vom Deutschen Normenausschuss (3. internationale ausgabe; Berlin; Beuthverlag, 1934—)

Universal Decimal Classification; complete English edition (4th international ed. Brussels: Keerberghen, 1936—)

BRUSSELS CLASSIFICATION[6]

The History Division compared with Dewey

DEWEY		BRUSSELS	
900	History, General	9	History
910	Geography and Travel	91	Geography and Travel
913	Archaeology	913	Archaeology
914-19	Local Geography and Travel		
920	Biography	92	Biography
929	Genealogy	929	Genealogy and Heraldry
940-99	Modern History		

The Common Subdivisions of Brussels

NAME	SYMBOL	REMARKS
Of generality and form	(01-09)	Like Dewey's common subdivisions
Special subdivisions by character of document	(0...0)	Special to Brussels
Of place	(1-9)	Like Dewey's geography subdivisions
Of time	"..."	The figures of the year included
Of language	=1-9	As Dewey's philology subdivisions
Analytics (general)	.00...	Special to Brussels
Analytics (special to each science)	.0...	Special to Brussels

Signs of Combination and Abbreviation of Brussels[7]

NAME	SYMBOL	REMARKS
The point	.	To break up numbers
Sign of grouping	+	Cross references

[6]W. C. Berwick Sayers. *A Manual of Classification* (London, Grafton, 1926), p.148.

[7]Sayers, *op. cit.*, p.149.

Of relation	:	Connection between two or more subjects
Of conjoint division	—	Used when two separate classes divide similarly
Of abbreviation and repetition	——	Used when two parts of one class divide
Of nonbibliographical documents	(O)	Special to Brussels
Proper names	A - Z	For final alphabetical arrangement

Order of Subdivision and Order in Which Symbols Are Used[8]

SYMBOLS	SUBDIVISIONS
336	Public Finance
336 (44)	French Public Finance
336 (45)	Italian Public Finance
336 (5)	Asiatic Public Finance
336 "18"	Public Finance in Eighteenth Century
336=4	Public Finance—work written in French
336-677	Public Finance—in relation to cotton, silk and linen manufactures
336-6-8	Public Finance—in relation to taxes, industry, etc.
336 N-	An alphabetical arrangement of works on
336 P	Public Finance generally
336.002	Public Finance—in relation to processes
336(05)	Public Finance—Periodicals on
336.1	
336.14	

THE CHOICE OF A CLASSIFICATION SCHEME

In making a selection of a classification scheme for a library, what are the points to be considered? The size of the library for one thing, and possibly this is the first point for consideration. As has been said, the arrangement of the main divisions of a

[8]Sayers, *op. cit.*, p.153.

classification for books is only of importance in a small library, particularly in a library with open shelves, where the books in the various classes can be seen on the shelves in their relation to the classes on either side of them.

As a library increases in size this value of classification, that is, the logical arrangement of the main divisions, very soon disappears. It would be very difficult to say in just what size library the arrangement of the main classes is no longer of concern to the user, but this is probably true in libraries of over a million volumes. The function of classification is always supplemented by cataloging. The larger the library, the more dependent the user becomes on the catalog entries for finding the material wished. If the catalog gives an expert analysis of all material in the library, the user is probably not conscious of the scheme of arrangement for the books when he does not have access to the shelves.

A point of equal importance for consideration in choosing a classification scheme is the character of the library collection. Is it a general collection or a special collection? If it is a special collection of literature, for example, or a very large general collection, it would contain titles of Mexican literature. The Library of Congress Classification has 197 whole numbers (PQ-7100-PQ7297) and any number of subdivisions assigned to this subject. In the Dewey Classification there are only two decimal numbers, each in a different place: 868.99792 and 819.92.[9] This example illustrates the fact that the Library of Congress tables are more adequate for a very large library or for a special library.

Other characteristics of a classification scheme which facilitate its use are a brief notation, clear and exact headings, and a good full index. The terminology of both the Library of Congress and the Dewey Classification schemes is excellent, although in the Dewey scheme this excellence is somewhat dissipated by the simplified spelling feature. The index of each is full

[9]Fourteenth edition.

and useful. In the Dewey Classification there is one consolidated index while in the Library of Congress, the index is split into as many sections as the scheme itself. On the whole, the notation of the Dewey Classification is briefer and easier to remember. For example, *Spanish literature* in Dewey is 860-868; in the Library of Congress, it is PQ6001-PQ6647. *Music* in Dewey is 780-789, and in the Library of Congress, M5-M2146, ML48-ML3925, MT40-MT883. These are characteristics which make considerable difference in the ease and economy with which a classification is used in a small library where assistants, space, and budgets are limited.

There are other considerations worth taking into account in choosing a classification. How constantly is the scheme revised and kept up to date? Is it possible to extend the tables to provide space for new material? Both the Dewey and the Library of Congress schemes have been continually expanded and kept pretty well up to date. The Library of Congress scheme, however, has probably been extended more successfully in all instances than the Dewey. This has probably been due to the fact that the extension has been made in connection with a process of growth in the library by specialists working with the books.

The use made of classification schemes by libraries in general is an indication of their accepted usefulness. When the American Library Association made its survey of libraries in 1926, 96 per cent of the public libraries reporting used the Dewey Decimal Classification; and 89 per cent of the college and university libraries used it. Of the public libraries 2 per cent used the Cutter Classification, and about 7 per cent of the college and university libraries used the Library of Congress scheme, including some which used it only in certain classes.[10]

PRINCIPLES AND RULES FOR CLASSIFYING BOOKS

In the preceding pages, the essential characteristics and tests of a good classification scheme were discussed, and the charac-

[10]American Library Association. *Survey of Libraries in the U.S.* (Chicago, The Association, 1927), v.4:7-8.

teristic features of two outstanding book classifications were described at some length. The purpose of this section is to explain the general rules for using classification tables which experience has shown, facilitate the process of book classification.

In his *Code for Classifiers,* Merrill[11] has listed practically all the decisions which apply where there is a choice of procedure; and these decisions are incorporated in the following general rules:

(1) *Classify first by subject, and then by form, except in form classes where form is paramount.* A very good example of this is Maurice Maeterlinck's, *Life of the Bee,* 1901. This is authoritative enough natural history to be classified in some libraries in 595.79 in the Dewey Classification. But it is primarily an essay by Maeterlinck who was a noted Belgian essayist, as well as dramatist, and better classifies in the literature form class in 844.91, the Dewey number for French essays of the early twentieth century. Particularly is this true in a university library or any library holding Maeterlinck's other essays.

(2) *With books covering two or three subjects, class in the first unless one of the others predominates, and this means in consideration of the number of pages written.* Anita Brenner's, *Idols Behind Altars,* 1929, falls in this class. Part one is about the religion and mythology of Mexican Indians which subject would class in 291 or 299. Part two is concerned with Mexican antiquities, and Mexican art; and part three is given up to art. Antiquities would class in 913, and art of Mexico in 709.72. Since of the three subjects, over half of the pages are concerned with Mexican art, this book is properly classed in 709.72.

(3) *Class polytopical books in the general division.* Collections of essays are generally very good examples of this type of book. The following is an excellent one. It is a collection of four essays on various scientific subjects and classifies in 504, scientific essays: Karl Taylor Compton, *Scientists Face the World of 1942.* The contents, in addition to the title essay, are:

[11]W. S. Merrill. *Code for Classifiers; Principles Governing the Consistent Placing of Books in a System of Classification;* 2d ed. (Chicago, A.L.A., 1939.)

Vannevar Bush, "The Case for Biological Engineering"; R. W. Trullinger, "The Case for Agricultural Engineering"; H. N. Davis and others, "Commentaries."

(4) *In the case of choice between specific subject subdivision and geographical subdivision, class in the specific subject. The geographic subdivision is intended for the general treatise.* The following two titles serve as good examples—the first, of a title which should go in the specific subject; and the second, of a title which classifies in the geographic subdivision: Frederick Lucien Bird, *The Present Financial Status of 135 Cities in the United States and Canada,* 1931, classifies in 352.1; Joseph Dorfman, *The Economic Mind in American Civilization, 1606-1865,* 1946, classifies in 330.973.

(5) *In the case of choice between person and country, class under country. This, of course, refers to the biography of an individual whose life has contributed to political, economic, or social development. The book will class in one of these three divisions by country, or in general history of the country.* The following example is a typical one which classifies in United States history, 973.911: Gordon Carpenter O'Gara, *Theodore Roosevelt and the Rise of the Modern Navy,* 1943.

(6) *Classify biography as a separate class in the public library, and as subject material wherever possible in the university and reference library.* The following title would be classed in B in the public library, and in the university and reference library in 347.6, under family law and inheritance: Nolan B. Harmon, *The Famous Case of Myra Clark Gaines,* 1946.

(7) *In the case of one subject modifying another, class under the subject modified.* The titles which follow give a variety of examples of this. In the first, engineering modifies mathematics and classifies in mathematics, 510: Robert Ernest, *Mathematics of Modern Engineering,* 1936. In the next, engineering modifies geology and classifies in geology, 550: Cyril Sankey Fox, *A Comprehensive Treatise on Engineering Geology,* 1935. And in the last, engineering modifies English and classifies in literary

composition, 808: Sada A. Harbarger, *English for Engineers,* 1923.

(8) *Classify most specifically in a reference, research, and special library.* For example, Luis Martius, *A Pintura Moderna no Brazil,* 1937, in the smaller general library would classify in 759 or 759.9, various schools of painting; but in the reference or special library, in 759.981, Brazilian school of painting. In the special library on art there would be so many titles on schools of art that each different school would have to be given its own number, to separate properly, or to group, the titles.

How is this question of what a book is about determined? In other words, what is the routine of "reading a book technically?" It is quite obvious that there is not time for catalogers to read completely all of the books that are added to the library, and also, that a title is not sufficient information, alone, by which to decide the subject of a book. However, the subject of many textbooks and general expository treatises can be determined from an examination of the title page, table of contents, preface and introduction.

No abstract or abstruse subject matter can be as easily determined; nor can a serious dissertation or complex exposition be immediately placed. The index of a book is of considerable aid in analyzing the contents, and of course summary chapters and paragraphs are very useful. When these do not exist, it is necessary to read parts, and sometimes all, of a book. Library of Congress numbers on Library of Congress cards, and the Dewey Decimal numbers also found on these cards and in the *Standard* catalogs, *The Booklist, Book Review Digest,* and in many public library printed book lists are useful guides and aids.

Once the aspects and scope of the subject matter are determined, the library catalog and the index of the classification scheme are the best guides for assigning the classification number in each library. In these tools, the cataloger finds indicated the specific interpretation of the classification for the individual library. The index of the classification scheme is

the best starting point for locating unfamiliar subjects and specific aspects of subjects. There, similar and related material is brought together, as for example under economics in the thirteenth edition of the *Dewey Decimal Classification*:

Economics

butter business	637.21
cheese	637.31
farm	631.1
forestry	634.92
lac industry	638.322
milk business	637.11
nature of	330.11
of fashions, dom. econ.	646.01
political economy	330
stockfarming	636.081

The interpretation of any classification number as used in the library can be checked in the library shelf list, which serves also as a limited classed catalog. When the class number and book number are finally assigned, the call number should be checked in the shelf list to avoid any possibility of assigning duplicate numbers and to assure a consistent policy. The interpretation of a classification scheme may vary with the libraries in which it is used, as the use of material varies in different types of libraries. Such variations in interpretation should be indicated in the cataloger's copy of the classification scheme in each library or confusion will result, with books about an identical subject being classified in two or more subdivisions.

In applying the general rules of classification, certain principles should be followed, of which the first and most important one is consistency. In the same library, the same rule must always be applied in the same way. The second principle is similar to the first: When there is a difference between precedent and theory, precedent should usually determine the procedure.

The third principle which will be generally useful is: Be only as specific and detailed as is necessary to fulfill the purposes of the library. Take for example, the title already cited: *A Pintura Moderna no Brazil,* by Luis Martius. In the average small library 759 is sufficiently detailed classification for this book. There will not be enough titles on this subject in a library of this size and type to justify carrying the classification to three decimal places, 759.981.

It must be kept in mind that the purpose of classification is to facilitate the use of books. If the cost of the preparation of books is so high that it limits the amount of money which can be spent on books themselves, the cost of the process is actually limiting the number of books which can be circulated. In the last analysis, such a process limits circulation rather than facilitates it. Therefore a process of book preparation should be no more detailed than seems necessary to circulate the largest number of books from a library to the users, in the easiest way.

CONSTRUCTION OF A CLASSIFICATION SCHEME

Quite frequently it is necessary to extend classification tables to care for newly developed subject material or greatly expanded library collections. At times it is also essential to devise special schemes for collections of special material. The principles involved in the construction of these extensions and special schemes have already been described under "Criteria of a Good Classification," but some explanation of the practical application of these principles is possible.

First of all, it can not be overemphasized that special subject-knowledge is essential to the construction of a classification scheme. The basis of a classification scheme is a systematic outline of the subject material. Such outlines are often obtainable from authoritative publications and can be adopted as the basis of the classification scheme by the specialist in classification technique.

The following are some examples of outlines of subject material:

Outlines of Chinese Art, by John C. Ferguson, 1919
An Outline and Manual of Logic, by Joseph McLaughlin, 1938
Outline Guide for the Study of Sociology, by E. T. Hiller, 1934
Outline History of English Literature, by M. H. Needleman and W. B. Otis, 1938
An Outline History of the Middle Ages, by G. F. Mott and H. M. Dee, 1936
An Outline of General Biology, by Gordon Alexander, 1936
An Outline of Political Science, by G. A. Jacobsen and M. H. Lipman, 1937
An Outline History of the World since 1914, by J. H. Landman, 1935

Such outlines should be detailed enough to include all items of published material, and also to allow for the possibility of new material as it is printed. Encyclopedic material, basic outlines, systematic bibliographies, indexes, handbooks, general textbooks, and monographs on special phases of subjects, all are useful in extending classification tables and in developing special schemes.

It should be stated here, however, that unless the cataloger has had special training and experience in devising classification tables, it is much wiser to wait for additions to the Dewey Decimal Classification and for new Library of Congress tables. A poor classification scheme gets increasingly more so, and is continually developing new problems.

After the outline of the subject has been finally adopted—and this question of adoption should include approval of the specialists who will use the classification—the problem of selecting a notation arises. The principles involved, as described under "Criteria of a Good Classification," are the same whether an extension is being made or a new special classification devised. In the case of the latter, however, there is much more freedom of application.

The notation of any extension must conform to the notation already in use. In the case of the Dewey Decimal scheme, this conformity is difficult to maintain and at the same time retain the values of a decimal notation in indicating main classes, divisions, subdivisions, etc. The whole numbers are used up as notation for the main classes, divisions and subdivisions. This necessitates the use of decimals in the notation of an extension which may suggest subdivisions of less importance than is the subject matter of the extension. For example, *Mexican literature* should have a whole number in the Dewey 800's, but it has two decimal numbers, 868.99792 in *Spanish literature* and 819.92 in *English literature.* The whole numbers in the 800's were already assigned before every country had been given a literature number.

For this reason the more or less arbitrary notation of the Library of Congress Classification lends itself more readily to extension. The addition of an auxiliary number, or letter, can create a whole new section to which can be applied newly expanded tables with a numbered or lettered notation, or, if necessary, a combination of both.

For the newly devised special classification scheme, the classifying expert is free in the selection of a notation. He can profit by all the advantages of a used and tested scheme. As for example, the Grolier Club, New York, uses the complete decimal notation entirely free of the Dewey tables, and applied to special subject materials of interest to editors and publishers. This provides all the advantages of the decimal notation, of exactness and flexibility, for this special classification.

The Library of Congress' more or less arbitrary use of letters and numbers, and a combination of both, makes for no mnemonic feature whatever, but it does make a notation which is easily adjusted to tables of differing lengths. An entirely new notation can be adopted, of course, which like that of the Library of Congress is a combination of the alphabet, and Roman and Arabic numbers.

After the tables have been devised and the notation applied, this material should be put in permanent form and a subject index compiled. But before this is done, the new scheme should be tried out on actual books to test its usefulness and to make sure that it really accomplishes what it proposes to do.

Bibliography [12]

BIBLIOGRAPHIES

ANNONS, H. G. T. Bibliography of Library Economy from 1876 to 1920. A.L.A., 1927, p.432-51 (Classification).

ibrary Literature, 1921-1932; a Supplement to Cannons' Bibliography of Library Economy, 1876-1920; compiled by the Junior Members Round Table of the A.L.A. under the editorship of Lucile M. Morsch. A.L.A., 1934, p.92-93 (Classification).

ibrary Literature; An Author and Subject Index-Digest to Current Books, Pamphlets, and Periodical Literature Relating to the Library Profession; edited by Marian Shaw. [1933 to 1942.] H. W. Wilson, 1936-43 (Classification).

RICHARDSON, E. C. Classification; 3d ed. H. W. Wilson, 1930, p.159-85.

SAYERS, W. C. B. Manual of Classification. London, Grafton, 1926, p.321-38.

CLASSIFICATION

AMERICAN LIBRARY ASSOCIATION. Survey of Libraries in the United States. A.L.A., 1927, v.4, p.7-57 (Classification).

BLISS, H. E. A Bibliographic Classification, Extended by Systematic Auxiliary Schedules for Composite Specification and Notation. H. W. Wilson, 1940.

BLISS, H. E. The Organization of Knowledge and the System of the Sciences. Holt, 1929.

BLISS, H. E. The Organization of Knowledge in Libraries and the Subject-Approach to Books; 2d ed., rev.... H. W. Wilson, 1939.

BLISS, H. E. A System of Bibliographic Classification. H. W. Wilson, 1935.

BOSTWICK, A. E. The American Public Library; 4th ed. Appleton, 1929, p.181-96.

BROWN, J. D. Library Classification and Cataloging. London, Librace, 1912.

[12] The bibliography in the first edition of CLASSIFICATION was compiled by Isabella K. Rhodes of the School of Library Service, Columbia University. The bibliography has been revised and extended by the author for this edition.

BROWN, J. D. Manual of Library Economy; 4th ed., ed. by W. C. Berwick Sayers. London, Grafton, p.211-44.

HERDMAN, M. M. "Simplified Spelling Considered a Weakness." *Library Journal* 58 (1933), 702.

JEVONS, W. S. Elementary Lessons in Logic. Macmillan, 1928, p.1-44.

MANN, MARGARET. Introduction to Cataloging and the Classification of Books; 2d ed. A.L.A., 1943.

MARTEL, CHARLES. "Classification." *Library Journal* 36 (1911), 410-12.

MERRILL, W. S. Code for Classifiers; Principles Governing the Consistent Placing of Books in a System of Classification; 2d ed. A.L.A., 1939.

PHILLIPS, W. H. A Primer of Book Classification. London, Association of Assistant Librarians, 1937.

PRESSY, J. C. "Decimal Classification Section and Its Work." Catalogers' and Classifiers' Yearbook Number 6 (1937), p.47-64.

RICHARDSON, E. C. Classification; Theoretical and Practical, Together With an Appendix Containing an Essay Towards a Bibliographical History of Systems of Classification; 3d ed. H. W. Wilson, 1930.

SAYERS, W. C. B. Canons of Classification Applied to the Subject, the Expansive, the Decimal, and the Library of Congress Classifications; a Study in Bibliographical Classification Method. London, Grafton, 1915.

SAYERS, W. C. B. An Introduction to Library Classification, Theoretical, Historical and Practical; 3d ed., rewritten. London, Grafton, 1929.

SAYERS, W. C. B. A Manual of Classification for Librarians and Bibliographers. London, Grafton, 1926.

THOMPSON, J. W. Ancient Libraries. University of California, 1940, p.51-98.

THOMPSON, J. W. The Medieval Library. University of Chicago Press, 1939, p.613-29.

VAN HOESEN, H. B. and WALTER, F. K. Bibliography, Practical, Enumerative, Historical; an Introductory Manual. Scribner, 1928, p.152-60.

DEWEY DECIMAL CLASSIFICATION

DEWEY, MELVIL. Abridged Decimal Classifications and Relativ Index ...ed. 6, Lake Placid Club, N.Y. Forest Press, 1945.

DEWEY, MELVIL. Decimal Classification and Relativ Index; 13th ed., rev. and enl. by Dorcas Fellows, editor; Memorial Edition. Lake

Placid Club, N.Y. Forest Press, 1932.

DEWEY, MELVIL. Decimal Classification and Relativ Index... ed. 14, rev. and enl. Lake Placid Club, N.Y. Forest Press, 1942.

DEWEY, MELVIL. "Decimal Classification Beginnings." *Library Journal* 45 (1920), 151-54.

ELLOWS, DORCAS. "Library of Congress vs. Decimal Classification." *Library Journal* 50 (1925), 291-95.

HAYKIN, D. J. "Decimal Classification Numbers on Library of Congress Cards." Catalogers' and Classifiers' Yearbook Number 2 (1930), p.124-27.

KELLEY, G. O. "The Decimal Classification; the Natural and the Applied Sciences." *Library Journal* 54 (1929), p.287-93.

MACPHERSON, H. D. "Simplification of the D.C. with Special Emphasis on D.C. Numbers on L.C. Cards; abridged." *A.L.A. Bulletin* 33 (1939), p.P108-9.

MACPHERSON, H. D. "Simplifying Dewey." *Wilson Library Bulletin* 14 (1940), p.736-38.

VAN HOESEN, H. B. "The Twelfth Edition of the Dewey Decimal Classification." *Library Journal* 53 (1928), p.1027-30.

LIBRARY OF CONGRESS CLASSIFICATION

CLEMENS, HARRY. "D.C. versus L.C." *Libraries* 35 (1930), p.1-4.

GROUT, C. W. An Explanation of the Tables Used in the Schedules of the Library of Congress Classification... School of Library Service, Columbia University, 1940.

GULLEDGE, J. R. "L.C. vs. D.C. for College Library." *Library Journal* 49 (1924), p.1026-27.

HANSON, J. C. M. "Library of Congress Classification for College Libraries." *Library Journal* 46 (1921), p.151-54.

"Libraries Using the Library of Congress Classification as a Whole or in Part." In Library of Congress. Report of the Librarian of Congress, 1937, p.241-44.

LIBRARY OF CONGRESS. Classification. Published in parts; revised editions of some classes have been issued. Washington, D.C., Library of Congress, 1904-date.

LIBRARY OF CONGRESS. Outline of the Library of Congress Classification.... Library of Congress, 1942.

MARTEL, CHARLES. The Library of Congress Classification.... New

Haven, Yale University Press, 1929, p.327-32.

BRUSSELS CLASSIFICATION

BRADFORD, S. C. "Why the Science Library (of South Kensington, London) Adopted the Universal Decimal Classification." *Library Journal* 55 (1930), p.1000-1005.

HOPWOOD, H. V. "Dewey Expanded." *Library Association Record* 9 (1907), p.307-22. Same article, slightly condensed: *Library Journal* 32 (1907), p.362-67.

INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE, Brussels. Classification Décimale Universelle; edition complète. Bruxelles, 1927-32, 4v.

INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE, Brussels. La Classification Décimale; exposé du Système et Tables Abrégées. Bruxelles, 1929.

MUESER, EMILIE. "A Universal Classification." *Special Libraries* 20 (1929), p.82-84.

POLLARD, A. F. C. The Decimal Classification of the Institut International de Bibliographie Partly Translated ... for a Universal Bibliographical Repertory Concerning Optics, Light and Cognate Subjects. Cambridge University Press, 1926.

ROWLEY, HELEN. "Universal Decimal Classification." *Special Libraries* 36 (1945), p.314-17.

BOOK NUMBERS

AMERICAN LIBRARY ASSOCIATION. Survey of Libraries in the United States. A.L.A., 1927, v.4, p.15-17.

BACON, CORINNE. Classification ... rev. (Manual of Library Economy) A.L.A., 1925, p.23-29.

BARDEN, B. R. Book Numbers; a Manual for Students with a Basic Code of Rules. A.L.A., 1937.

CUTTER, C. A. "How to Use Cutter's Decimal Author Table." *Library Journal* 12 (1887), p.251-2.

CUTTER, C. A. Explanation of the Alphabetic-Order Mark (Two-Figure Tables). The Kingsbury Press, 1929.

CUTTER, C. A. Explanation of the Cutter-Sanborn Author-Marks; Three-Figure Tables; rev. by Kate Emery Jones. The Kingsbury Press, 1935.

CUTTER, C. A. Three-Figure Alphabetic Order Table. Library Bureau, [1902.]

TTER, C. A. Two-Figure Alphabetic Order Table. Library Bureau, [1906.]
TTER, C. A. and SANBORN, K. E. Cutter-Sanborn Three-Figure Alphabetic Order Table. Library Bureau, [1896.]
WEY, MELVIL. Simplified Library School Rules. Library Bureau, 1898, p.53-60.
WS, A. C. Author Notation in the Library of Congress. Government Printing Office, 1930.
ANN, MARGARET. Introduction to Cataloging and the Classification of Books. A.L.A., 1930, p.114-26.
ANN, MARGARET. Introduction to Cataloging and the Classification of Books ... 2d ed. A.L.A., 1943, p.86-94.
ERRILL, W. S. "Merrill Book Numbers." *Public Libraries* 17 (1912), 127-29.

EXTENSIONS AND SPECIAL CLASSIFICATIONS[13]

NDERSON, WILLIAM. A System of Classification for Political Science Collections, With Special Reference to the Needs of Municipal and Governmental Research Libraries, by William Anderson and Sophia Hall Glidden .... University of Minnesota Press, 1928.
OSTON MEDICAL LIBRARY. Medical Classification; 2d ed., rev. and enl. Boston, 1925.
LIDDEN, MRS. SOPHIA (HALL). A Library Classification for Public Administration Materials, by Sophia Hall Glidden ... and Dorothy Marchus. A.L.A., 1942.
ICKS, F. C. Yale Law Library Classification .... Yale University Press, 1939.
UBBARD, H. V. Landscape Architecture; a Comprehensive Classification Scheme for Books, Plans, Photographs, Notes and Other Collected Material ... by Henry Vincent Hubbard ... and Theodora Kimball .... Harvard University Press, 1920.
YNN, MRS. J. M., *comp.* An Alternative Classification for Catholic Books; A Scheme for Catholic Theology, Canon Law, and Church History to be Used With the Dewey Decimal, Classification Décimale, or Library of Congress Classifications .... A.L.A., 1937.
EW YORK. UNION THEOLOGICAL SEMINARY. LIBRARY. Classification of the Library ... by Julia Pettee ... with a preface by W. W.

[13]This is not a complete list; but a list of illustrative publications which can robably be secured.

Rockwell ... rev. and enl. ... Union Theological Seminary, 1939.
UNITED STATES. DEPARTMENT OF AGRICULTURE. LIBRARY. Schem of Classification; 5th ed. Washington, D.C., The Library, 1940.
U. S. BUREAU OF STANDARDS. A Decimal Classification of Radio Sub jects; an Extension of the Dewey System. Government Printin Office, 1930.
YALE UNIVERSITY. SCHOOL OF FORESTRY. LIBRARY. Classification Literature on Forestry and Allied Subjects; rev. ed. Yale School Forestry, 1933.

THE AMERICAN LIBRARY ASSOCIATION

The American Library Association, established in 1876, is an organization of libraries, librarians, library trustees and others interested in the responsibilities of libraries in the educational, social and cultural needs of society. It is affiliated with more than fifty other library associations in this country and abroad. It works closely with many organizations concerned with education, recreation, research, and public service. Its activities are carried on by a headquarters staff, voluntary boards and committees, and by divisions, sections, and round tables, all interested in various aspects or types of library service. Its program includes information and advisory services, personnel service, field work, annual and midwinter conferences, and the publication—not for profit—of numerous professional books, pamphlets and periodicals.