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History of Book Numbers

Dedicated to the Memory of Donald J. Lehnus,
a supreme scholar on book numbers.

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The history of book numbers starts only with Melwil Dewey, as before him books were shelved in fixed location systems. The article traces the early attempts by Dewey himself to combine class numbers with author numbers and shows the development in the individualization of book numbers by a great number of classificationists and classifiers, among which J. Schwartz, W.S. Biscoe, Ch.A. Cutter, K. E. Sanborn, J.D. Brown, A.F. Rider and finally S.R. Ranganathan whose faceted structure and ease of application of book numbers seems still to be the optimal solution. Two rival systems of book numbers are alphabetical by author and chronological by the year of publication of a book. The concluding chapter is devoted to the existing literature on book numbers and laments its vanishing quantity. The study of book numbers is not getting due attention. (Author)

1. The Beginning with Melvil Dewey

Book numbers are only an adjunct in a relative classification - a family sired in 1873 by Melvil Dewey (1851-1931). In the pre-Dewey days of fixed location systems these book numbers were not needed. Inevitably, the origin and development of book numbers is coeval with relative classification systems, though independent of these major, surviving library classifications. At Amherst, Melvil Dewey had tried placing the author's name in full or abbreviated form after the class number:

$\underline{570}$	or	$\underline{570}$:	$\underline{510}$	or	$\underline{510}$
DARWIN		DAR	RUSSELL		RUS

Letters below the class number represented the book number. This primitively simple method was soon found unwieldy. Dewey then decided to use the simplest method possible, that of numbering each book in a class according to its accession in the library. "Thus 160.1 would be the first book on logic, 160.2 the second"[1]. 3428.4 represented the fourth book in a particular library on child care the class number of which in the second edition of DDC (1885) was 3428. (It may be reminded here that in the first two editions of the DDC, no decimal point was used after the first three digits of the class number). This dot was placed slightly above the base line. Hence this raised "decimal" point was used as an indicator between the class number and the book number. In those latter days of the 19th century, the size of the book, too, was an important consideration in the arrangement of books. If the book was of abnormal size, the size number was added between the class and the book numbers. For example in 3428.4.17, 3428 is the class number, 4 means quarto size, and 17 is the book number. It simply means that, within a given class, the books were first arranged by size and then further subarranged by book numbers. This also- resulted in an orderly arrangement of books by size and gave the whole an aesthetic impression. In the be-

ginning, this accession method was considered satisfactory. Later, still considering it to be the simplest, Melvil Dewey himself cited the following two disadvantages: (1) The author, date, publisher, language, style of treatment are entirely disregarded and only an accession order exists, and (2) there is no way to locate a specific book except to know its precise number, while Cutter numbers arrange them by author"[2].

2. The Combined System of Jacob Schwartz

In the early 1880's, many systems of book numbers were experimented with and advocated. The method of book numbers that was to become popular had its antecedents prior even to 1876, though the origin of book numbers in the true sense of the word can only be traced back to the year 1878[3]. As early as 1872, Mr.M. Jacob Schwartz (1846-1926), Librarian of the New York Apprentices Library from 1871 to 1900, arranged all the sections of his library alphabetically. Schwartz considered as Dewey's early rival, devised a table to convert an author's name into numbers. Its mechanism consisted in assigning integral numbers 1-99 to a combination of letters from Aaa to Zyz. This method, called a combined system, was able to generate 6500 classes and subclasses by combining A-Z, 1-9 and a-z. His system also took account of the book size and consequently arranged books by size and author simultaneously within a given class. Schwartz created two author tables. His second table, part of his mnemonic classification, was published in 1882. According to Lehnus "This table had a dual purpose; is was an author table and also served to further subdivide each basic classification"[5]. Happily, both these tables are constructed on the scientific principles of the frequency of occurence of personal names to various letters. Comaromi has to say of Schwartz that " He might have risen in the library profession to a respected position had he not possessed a mordant sense of humour and an impudent tongue. As it was, after several bitter disputes he disappeared from library history"[5a]. C.A.Cutter preferred Schwartz's alphabetical book numbers to Dewey's accession method. He made a rather fundamental and everlasting improvement in 1878 by treating the numbers as decimal fractions -obviously struck by Dewey's use of decimal notation in his then recently published classification. Cutter was the first to advocate less emphasis on book size in book numbers, even suggesting to ignore it altogether. Later, Dewey described subarrangement by size as "utter nonsense".

3. Two Symposia on Book Numbers (1879 and 1885)

The late 1870's is a hectic period in the history of book numbers; their golden age being over by the end of the nineteenth century. Many new and varied book numbering ideas appeared on the classification horizon. In its February 1879 issue, the then incipient *Library Journal* published a symposium on book numbers in which many leading librarians of the day participated, Melvil Dewey, C.A.Cutter, Josephus Nelson Larned (Librarian, Young Men's Association Buffalo), John Edmands (Librarian, Philadelphia, Mercantile library), John Fitzpatrick (Librarian, Bronson Library Waterbury, Connecticut)[6]. John Edmands (1820-1915) added another facet to book numbers by suggesting that the initial letter of an author's surname should be prefixed to the decimal number standing for an author's name. At first Cutter objected to Edmand's idea of mixing

letters and numbers. He rather preferred alphabets for class numbers and numbers for book numbers. Later, however, he relented and became reconciled to Edmand's method. Dr.S.R.Ranganathan, the great Indian librarian and radical in the history of classification, not to say library science, never became reconciled to such numbers as he was basically against an alphabetical arrangement. He wrote "This serves hardly any purpose. This is perhaps due to blind mania for numerals, even when the alphabet serves the purpose equally. Much ingenuity has been wasted over translation of letters into numerals"[7]. Nobody listened to Ranganathan as he was criticizing popular and established methods. C.A.Cutter was later to advance Edmand's method to a highly developed system of author numbers for which he is now predominantly known. So alpha-numeric notation had come to stay. During an annual conference of the American Library Association held on September 25, 1885, another symposium was held on Cutter numbers. There, William I Fletcher (1844-1917), the then librarian of Amherst College, enquired of Cutter if the combination of letters and figures did not lead to trouble. Cutter was unequivocal and confident enough to say: "I think the combination of letters and numbers leads to just the opposite result. The mind does not easily grasp more than 4 or 5 letters or figures.... B29F44 is more easily read than BVDGMO or 129744"[8]. Melvil Dewey also endorsed Edmand's method of using an author's initial letter and translating only the rest of the name into numbers as "the best plan I can conceive for alphabetical arrangement and I hope some one will make the necessary table for applying it"[9]. This "some one" was to be C.A.Cutter.

4. The solutions of C.A.Cutter

Very soon after the symposium, Charles Ammi Cutter (1837-1903) was the first to devise a table for author numbers and sell it commercially in 1880. It was the first of the long line of Cutter author number tables. In 1879 Cutter had the Winchester Town Library catalogued on these lines. This author-table no longer exists. Comaromi, however, surmises that it "was probably composed (as was the third Cutter two-figure table) of three pieces of paste board held together by cloth tape"[10]. However, the 1888 version is available. Any name beginning with a consonant (except S) required one letter and two numbers; two letters for a word beginning with a vowel or S followed by one digit; and three letters for a word beginning with Sc. Here is an extract from the table:

Ger	31	Have	Ac	1	Ar	Sa	1	Sh
Gerr	32	Hax	Aid	2	Arc	Sai	2	Shao
Ges	33	Hayf	Aig	3	Are	Sal	3	She

Here are some illustrations of the use of the table:

Beard	B34	Abbot	Ab2
Holmes	H73	Anne	An7
Huxley	H98	Smith	Sm5
		Schopenhauer	Sch6

Cutter explained the mechanism of allocating decimal notation in a small pamphlet[11]. Later this table was included in the sixth expansion of his Expansive Classification 1893. Melvil Dewey used Cutter's author table in conjunction with his decimal classification in 1882 while classifying the collection of the Wellesley College Library. Since Dewey's personality and position was commanding, his approval of any idea gave it the required momentum and fillip. By 1885, the Cutter table was

quite popular and librarians swore by its usefulness in subarranging their collections. Many enterprising and innovating librarians put these book numbers to many ingenious uses, e.g. in arranging reports under place names[12]. By the mid 1880's "cuttering" had becomme a standard practice in US libraries, and the term "Cutter number" became synonymous with author number, even book number. Now "cuttering" is an accepted word in the English language.

Cutter's two-figure table suitable for small libraries, but "was found inadequate for the large classes of fiction and individual biography" writes Miss Barden[13]. To meet the needs of large and fast expanding libraries, Cutter decided to expand his table to 3 figures with more names. In 1892, this revision job was assigned to his former assistant at the Boston Athenaeum from 1883 to 1891, Miss Kate Emery Sanborn (later Mrs. Gardner Jones). Miss Sanborn was then working as a cataloguer in the Mercantile Library, St.Louis. Cutter was not able to supervise the work directly. The result was virtually an independent work and considerably improved on Cutter's defects. Sanborn devised a table in which every name irrespective of vowel or S, began uniformly with a single letter. It was a welcome change. Sanborn's first part, dealing only with vowels and S, was published in 1892 and sold by C.A.Cutter as:

C.A.Cutter's alfabetic order table. Alternatives for the vowels and S (single initials to be used instead of the first two letters), by Miss Kate E.Sanborn. Boston: Library Bureau, 1892. 4pp of table. 33x17cm.
A and S were followed by three decimal digits and E, I, O, and U by 2 digits.

The table for the remaining 20 consonants was published in 1895, and later these two tables were consolidated and reprinted as a single table: *C.A.Cutter's alfabetic-order table - consonants, except S. Altered and fitted with three figures by Miss Kate E.Sanborn. Boston: Library Bureau, 1895. 14p. 33x28cm.*
C.A.Cutter's alfabetic-order table - consonants, except S, and vowels and S. Altered and fitted with three figures by Miss Kate E.Sanborn. Boston: Library Bureau, 1896. 18p. 33x15cm.

· Sanborn uniformly used one letter followed by digits; two digits follow vowels except A and consonants J, K, Y, and Z; one digit follows Q and X; vowel A and the rest of the consonants including S are followed by three decimal digits. This table contains approximately 12 000 numbers. To illustrate:

Arnold	A757	Lewis	L676	Shaw	S537
Upton	U71	Maugham	M449	Stoddard	S869
Kimball	K49	Mills	M657	Quin	Q7
Yates	Y32			Xavier	X3

Since these numbers are decimal fractions, the numbers can be expanded or reduced at will without disturbing the other numbers. In a small library, these numbers can be reduced to one digit numbers; and they can be expanded to even four digits wherever the necessity arises. H.E.Bliss[14-15] and Zaidee Brown[16] proposed some simplifying methods.

5. Cutter and his Heritage

One major difficulty with this table was that it could not be used to expand the earlier two-figure Cutter author table. It was a totally new work. It proved popular for its merits, and libraries began to forget Cutter's two-figure table. Perhaps this irritated Cutter.

Later, obviously as an after-thought, Cutter not only disliked the new work, but also wished to supercede and repudiate it. He tried to discredit Miss Sanborn by describing the publication of the new table as a "mistake" on his part. In a letter to a journal, he candidly wrote that "through some misunderstanding the new ones were made without any reference to their predecessors, so that the two cannot be used together. I could not ask a volunteer to do her work over again, and so I printed them"[17]. Cutter, driven by these feelings, revised his table to three figures in 1901 and offered it for sale. In both these new and old tables, the first two figures were the same. Lehnus writes: "Cutter tried to have his new table replace that of Sanborn, but without any effect". Reasons -a closed book for the injured ego of a Charles Ammi Cutter - are not hard to find. The Cutter-Sanborn table is uniform in style and easy to use. It has also its individual scientific merit as the allocation of digits to letters is based on their frequency of occurence as the initial letter of surnames[19]. Moreover, the Cutter-Sanborn table had already become an established practice before Cutter's three-figure table was made available. It is irony of fate that the Cutter-Sanborn table, a work that Cutter described as a mistake, is the major existing and applied work associated with his name.

In 1969, Ms.Esther M.Swift, with the assistance of Mr.Paul K.Swanson reprinted the three Cutter and Cutter-Sanborn author tables. These tables, published and distributed by H.R.Huntting Co., 300 Burnett Road, Chicopee, USA, are now distributed by Libraries Unlimited, Littleton, CO, for the present owner, Richard Ammi Cutter, a grandson of C.A.Cutter. These tables have been entirely reset and all the letters arranged in consecutive A-Z order, which makes it easy to use. Printing errors have been corrected, the format has been given a face-lift. Since in most libraries only typed copies, disfigured and worn by use, were available, these reprinted tables in durable and attractive formats are a boon to worried librarians. These are known as the Swanson-Swift revisions.[20-22]

6. Adaptations and reprints of Cutter Tables

There have been other innumerable adaptations and reprints of the Cutter tables. This may be a necessity as the original tables or their authorised revisions are still not available everywhere. One such reissue of the Cutter-Sanborn table was made available in India in 1972 as a "revised edition". Its introduction was specially re-written to illustrate Indian names. This edition on thick card is in mimeographed form. It has been distributed and of course published by the Indian Bibliographical Centre, College Road, Ludhiana, Punjab, India[23]. In India, another Cutter-Sanborn reprint has been made available on thick card with improved printing but without any preface or introduction. How it has been fully revised is not known[23a]. On the pattern of the Cutter tables many other tables for other scripts have been locally devised and used.

Coming back to other book numbers. In 1881, A.P.Massey of the Case Library, Cleveland, proposed a method of arranging biography and literature. Massey used literal mnemonics for class numbers where B stood for Biography, F for Fiction, and so on[24]. The class number alphabet was further subdivided by numbers standing for an author's name; these digits preceded by a

dot were not decimal numbers. This very faulty table had no edge over other tables. Such systems have been swept away by the advent of stable systems. Nevertheless, this table has been described in some detail by John P.Comaromi[25].

7. Chronological Subarrangements

1885 witnesses a new line in book numbers based on chronological subarrangement. In this year, Walter Stanley Biscoe (1853-1933), a trusted lieutenant of Dewey, and at that time with him at Columbia, published his chronological book number system[26]. Since then it has become a worthy alternative to the accepted practice of alphabetical arrangement, though the alphanumeric notation remained the same superficially. Biscoe must be given the honour of being the father of chronological book numbers. Though the antecedents of the Biscoe table are easily discernible in Dewey's accession method, Biscoe strangely "credited Cutter, Edmands and Schwartz with the basic idea of his time table..."[27]. Perhaps the credit was for the overall idea of book numbers rather than for his table specifically. An extract from the table is given below:

A	BC era	G	1800 - 1809	V	1950 - 1959
B	1 - 999	H	1810 - 1819		
C	1000 - 1499	I	1820 - 1829	Y	1980 - 1989
D	1500 - 1599	....			
E	1600 - 1699	....			
F	1700 - 1799	N	1870 - 1879	Z	1990 - 1999

This table has been ingeniously devised so as to be based on literary warrant, as modern books, published from the 19th century onwards, (the majority of books in any library), are denoted by two digits only. For example:

| 1958 | V8 |
| 1987 | Y7 |

This table was applied to the science collection of Columbia College on an experimental basis, a chronological arrangement being considered logical and useful in such subjects. Melvil Dewey wholeheartedly approved this system, though it is not known as to how much he contributed directly towards its invention. He did everything to promote this system and recommended it in the second edition of his DDC (1885). In this he wrote: "Its advantage is in presenting the historical development of the subject, the books written earliest being on the left, the latest work on the right, and then of any given book it is evident that all those on the left were written before it, all those on the right after it. In science this has special value... A translation system of dates makes the numbering of the year more compact and satisfactory."[28]. Dewey, however, recommended that a chronological subarrangement should be used only in open-access libraries. As in closed-access libraries the readers do not have the advantage of being able to browse through the collection, the historical arrangement would be of no practical use. The situation will be analogous to a fine flower wasting its fragrance on the desert air. Moreover, a chronological arrangement is more a tool for organization than for retrieval. In closed-access libraries, an alphabetical arrangement as a comparatively better retrieval device is preferable. Biscoe's system offers no solutions for many other complications of the subarrangement. Later, Ranganathan was to apply such an idea to a highly developed system.

8. Other Attempts at Individualization

In 1893, C.R.Olin, Librarian of Buchtel College (later University of Akron), devised a table for collective biography based on Cutter's two-figure author table[29]. According to this table, collective biography arranged by editor/compiler preceded the individual biographies arranged by the name of the biographee (the subject). He used the letter A followed by the number 11 to 99 to represent all the names A to Z of compilers and editors of collective biographies...", as Lehnus describes[30]. To avoid confusion, all the biographies beginning with A were denoted by two letters; and the rest of the names of individual biographies by Cutter's two-figure author table. The author's initial was used as a work mark to distinguish two or more biographies on the same person by different authors.

L.Stanley Jast of the U.K. devised, in 1901, a scheme of alphabetical author marks[31] on the primitively simple tenet of using only the first two letters of an author's surname for alphabetical subarrangement by author. In case there were more than one author - as there would be many such cases -having the same first two letters in their surname, they would be differentiated by adding 1, 2, 3 etc. to the first two initial letters of their surnames for the Jast author marks, as W.H.Phillips describes[32]. For example:

Williams	Wi
Wilfred	Wi 1
Wilson	Wi 2
Wiston	Wi 3

Obviously the resulting arrangement will not be strictly alphabetical, as 1, 2, etc are to be added to the author's name as they are accessioned in the library, and not according to the dictionary sequence. It is a very simple combination using the author's surname initial combined with the accession method. The same principle is followed in distinguishing more than one work by the author on the same subject. This oversimple method has no better status than a locally devised method.

W.S.Merrill, in 1912, devised a table of 99 numbers (denoted by 01 to 99) for all letters and for some combinations of very selective surnames[33]. Merrill's table can be found on pages 27-28 of James Duff Brown's *Subject Classification*, 2nd edition, 1914 and in some earlier textbooks on classification. An extract from his table is given below to give the reader an idea of his sparsely numbered author table:

01	A	07	Ban	12	Brin	47	L	96	Wats
02	Agre	08	Bax	13	Bum	48	Lang	97	Wha
03	Ali	09	Bend	14	C	49	Law	98	Wit
04	Ap	10	Beno	15	Carr			99	X - Z
06	B	11	Bon	16	Cha				

Obviously, the resulting arrangement will be a crude approximation to the alphabetical order. The notation, however, is pure, being only of Indo-Arabic numerals. The author's surname initial is ignored. Consequently, it may bring confusion when used with DDC. And by no means does it show any advantage over Cutter's table. Though, as expected, not much used, it registers a retrograde step in the history of book numbers.

9. The Library of Congress Practice of Cutter Numbers

Based on Cutter's Expansive Classification, the Library of Congress (LC) developed an outline of its own classification system (Library of Congress Classifi-

cation, LCC) in 1898, the complete scheme being published in fascicules by 1940. The first fascicule to be published was Class Z, Library Science and Bibliography. And for the book numbers, the Cutter-Sanborn table was adopted in the beginning. LC also uses this table to form numbers for alphabetical topics as part of the class number; and for the fiction class, PZ, Cutter's three-figure table is used. However, none is followed strictly, wrote Anna C.Laws a long way back[34]. Since LCC is a close classification system, book numbers are broad and consist usually of an initial letter and a decimal digit. However, it varies from class to class[35]. Apart from Anna C.Laws, there are now other various sources of the book numbering practice of the LCC, e.g. by Comaromi[36], J.P.Immroth[37], and various issues of the LC Cataloging Service Bulletin.

In many cases, the book number is an integral part of the LC class number; and a dot separates the two. Though different sections follow somewhat different shelf-listing procedures, in general and simplified procedure one or two and, in rare cases, four decimal digits are added to the author's name as follows:
The digits are decimal in value and can be further expanded if need be

1) After the initial letter S, for the second letter of the author's surname use the number as follows:

| a | ch | e | h,i | mop | t | u |
| 2 | 3 | 4 | 5 | 6 | 7-8 | 9 |

For example: Smith .S6
here 6 is for the m - the second letter in Smith

2) After the initial letter in Qu for the third letter use number

| a | e | i | o | r | y |
| 3 | 4 | 5 | 6 | 7 | 9 |

For example: Queen .Q4;   Qureshi   .Q7

3) After other initial consonants for second letter of the author's surname use the number as follows:

| a | e | i | o | r | u | y |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |

For example: Robert .R6; Putnam .P8; Carter .C3; Corbett .C6

4) After initial vowels for the second letter in the word use the digit as follows:

| b | d | e-m | n | p | r | s-t |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |

For example: Adams .A3; Archer .A7

All these variations and the staff manual for assigning book numbers has been made known to the public through its various publications. To repeat, these alphabetical marks are also used as an alphabetical device to designate proper names in different subjects. By virtue of LC card services, MARC record and CIP services, the LC class numbers and book numbers are widely used all over the world.

10. The Book Numbering Method of J.D.Brown

James Duff Brown (1862-1914), a famous writer and pioneer among British librarians, in 1906 devised two book numbering methods, one alphabetical, the other chronological, and included these in his subject classification[38]. His "Extended Date Table" subarranged books by their publication year. The range of this table extended from 1450 to 2125 i.e. 126 years more than Biscoe's table intended for the same purpose. Within this span, every year is uniformly denoted by two lower case Roman letters. The outline of his table is as follows:

1450 - 1475	aa - az		
1476 - 1501	ba - bz		
1502 - 1527	ca - cz		
....			
1840 - 1865	pa - pz		
1866 - 1891	qa - qz		
....			
2100 - 2125	za - zz		

Some of the individual years will get denoted as follows:

1450	aa	1900	ri
1451	ab	1902	rk
1452	ac	1904	rm
......			
1700	jq	1918	sa
1701	jr	1919	sb
1702	js	1920	sc

The notation is pure, simple and easy to write. However, the table has not been built on a proportionate allocation of notation: the less used years of the 15th to the 18th century get also denoted by two letters just as the heavily used years of the twentieth century. Secondly, the table, though built on a regular structure, is not mnemonic: the table will have to be referred to every time when a book number must be assigned. This is no advancement over Biscoe's table.

An author table to suit Indian libraries was devised in 1916 by the famous American librarian Asa Don Dickinson (1876-1960), while on a short term assignment in India as librarian of the Punjab University, Lahore. Dickinson, credited with the honour of introducing DDC in India, devised this author table as a part of his book Punjab Library Primer (1916) - a pioneering book on library science in India[39]. This book numbering system is claimed to be still followed in some Indian libraries[40]. Though Dickinson's book is now rarely used, its book numbering system has been explained in another work written in Hindi by M.Zuber and S.P.Agrawal[40a]. This is a simplified Indian adaptation of the Cutter-Sanborn table. In this table each author number comprises a letter followed by two decimal digits irrespective of the initial being a vowel or an S. However, XYZ are followed by one digit:

Adams	A20
Bell	B42
Eddington	E27
Shakespeare	32
Xavier, A.	X3
Young, R.	Y7

11. Ranganathan's Book Numbering System

For his world famous Colon Classification (1933), S.R. Ranganathan (1892-1972), devised a system of book numbers, not less befitting, and no less systematic, sophisticated and minute than his classification scheme. His book number system is complete in itself and, like his classification, fully faceted in structure. It has been included and fully explained in every edition of the Colon Classification[41]. It is an integral part of his classification scheme and complements CC class numbers. So much space given to book numbers has been ensured by his Canon of Book Numbers enunciated in his Prolegomena[42]. Despite of its intrinsic adherence to the Colon Class Number, this book number system can be profitably applied in any classification system[43].

The formula for the CC book number is:

[L] [F] [Y] [A] .. [V] - [S] ; [C] : g [EVN]

Language [L] , Form [F], and Year [Y] of publication of the document are three major attributes taken into consideration. [A] is a device to distinguish two or more books published in the same year in the same specific class. The formula has also the provision to keep the host and the associated books together in the form Volume [V], Supplements [S] , Copies [C] , Commentaries :g and subcommentaries [EVN] . The Year facet remains the hub and is essential to book numbers. All other facets are secondary and not always present. Though complex in its entirety it still remains today the only scientific and complete book number system in the Ranganathan manner.

Ranganathan provided a special chronological Table [Y] facet for book numbers. An extract from the table is given below:

A	before 1880
B	1880 - 1889
C	1890 - 1899
D	1900 - 1909
....	
K	1960 - 1969
L	1970 - 1979
....	
R	2020 - 2029
....	
Y	2090 - 2099

(Letters I and O have not been used to avoid confusion with 1 and 0 (zero) respectively.) Every year thus gets denoted by a two digited alphanumeric notation. For example:

1881	B1	1900	D0
1889	B9	1905	D5
		1987	M7

The brevity in year numbers was achieved by designing the date table on the principle of literary warrant. Tables for [L] Language and [F] Form facet are provided in the 6th ed. of the Colon Classification on pages 2.26-2.27 and 2.3 respectively. Digits for the rest of the facets are got from the document itself. For example, the book number of a document published in 1986 of a lecture in the German language will be:

113p1M6

where [L] = 113, [F] = p1 (Lecture) and [Y] = M6 (1986).

Using the principle of favoured category, the first two facets, viz. [L] , [F] usually get omitted in the majority of cases. In about 90% of the cases the book number consists only of the [Y] facet. Hence contrary to its assumed presentation by the facet formula, Ranganathan's book numbers are in practice simple and brief.

One of the greatest advantages of this system is its high mnemonic quality. With a little practice the book numbers can be assigned in a twinkling without consulting any schedule. Moreover, it can be used with any system of classification.

Ranganathan's debt to Biscoe is obvious. Biscoe's system is the basis of Ranganathan's book number system. But Ranganathan does not only make use of these devices as such, he has transformed Biscoe's simple device into a complex and complete system. The nucleus still remains the same, the superstructure is Ranganathan's.

12. A.Fremont Rider's Chronologico-Alphabetical Method

In 1961 Arthur Fremont Rider (1885-1962) proposed another chronological book numbering method as part of his *International Classification*[44]. Rider did not invent any new date table, but modified the system without changing the table. Basically, it is a Biscoe date table. His book numbers first subarrange books according to the decade of their publication - one letter denotes a decade. Instead of individualizing them further down to the year, the decades are further subdivided according to author, which makes it a curious mixture of chronological and alphabetical arrangements. The Rider book number consists of two Roman capital letters, the first standing for the decade of publication as taken from the Biscoe table, the second being the initial letter of the author's surname. Obviously these two letters may not individualize the document completely as two or more authors with the same initial letter in their surname may happen to write on some specific subject in a given decade. In such cases, the two digits are further individualized by adding 1, 2, 3 etc. to the non-individualizing book number. This system, which may be termed chronologico-alphabetical, does not seem to possess any edge over purely alphabetical or purely chronological systems. A decade is too big a span in book publication to be taken as an unfragmented unit for arrangement. The subarrangement will be de facto an alphabetical one.

13. Author Numbers for Indian Names

Cutter tables based on Anglo-Saxon names are, inevitably, not so efficacious for other ethnic names. Demonstrating that the Cutter table is utterly unable to differentiate many Indian names, the National Library of India at Calcutta has shown that very often the Cutter table has to be expanded to unwieldy six or seven digits[46]. To obviate such difficulties, many locally devised tables for native names have come into existence. One such table was devised and published in 1961 by the National Library of India[45] - a depository of Indian publications under the copyright act. This table has been designed on the literary warrant of all Indian names of different linguistic, regional, and cultural groups. The table is able to differentiate authors even with the same surname, but different forenames. Many gaps have been left for further expansion. The table is complicated as, for the same initial, some names will begin with two letters:

| Bapu | B 628 | Sadasivan, K | S 152 |
| Bhajan | Bh 236 | Sekhron, P | Se 321 |

And for some letters, namely O, Q, W, X, and Z, two digits follow the initial (single) letter. For the rest, the number of digits is three. All Indian names have been transliterated into Roman script by the Hunterian system; and the original forms of the Anglicized Indian names have been used:

| Vasu | for Bose |
| Thakur | for Tagore |

Corporate and geographic names have not been included. It is not known if any other library is using this system.

In India, another author table for the English alphabet was devised by a young librarian, Gopi Chand Makkar (b.1944), in 1974. It is known as the three number author table, as for every name three digits are uniformly used and preceded by two initial letters of the surname[47]. This table, claimed to be "refreshingly original in concept", is said to have been prepared without any bias to any racial, ethnic or national names. In fact, it has not been prepared for any name and has been constructed in blissful ignorance of the principles and mechanism of an author table. It has been prepared according to the permutable combination of four letters taken one at a time and by uniformly allocating three decimal digits to every set of four letters. In the table, numbers for the letter "A" and its various combinations have been given, and for other names this "A" can be substituted by another corresponding letter. It means, say, that Ains, Bins, Dins, Kins, Lins, Zins, all have the same three digited number only distinguished by the initial letters. Every number begins uniformly with two initial letters of the surname:

Ains	Ai 562	Aam	Aa 511
Bins	Bi 562	Ram	Ra 511
Dins	Di 562	Sam	Sa 511

Accordingly, each letter yields 18,280 numbers, and the whole table can thus yield 18,280 x 26 = 475,280 numbers, though most of them will be numbers for a nonsensical combination of letters. In the printed table, only the group of words beginning with A have been given as an illustration. This way the scheme is symmetrical in structure. It also makes provisions to bring different volumes, editions and copies of the same book together. The author has enumerated some twelve points of dubious superiority over Cutter tables. It is a futile attempt to assimilate the best of both worlds, of Cutter and Ranganathan. If all the attributes are taken together, this book number system is a rather involved and unnecessarily complicated string of letters and numbers. The attempt is amateurish.

14. Book Numbers and Contemporary Literature

After Ranganathan, no noteable progress has been made in the development of book numbers. No new system has come to the fore for a long time past, and nothing seems to be in the offing. Book numbers figured largely in library literature in the early years of this now waning century. Periodical literature gradually ceased by the 1920's. A significant place used to be given to the study and description of book numbers in every standard textbook on cataloguing and classification up to the 1960's. Gradually, the significance of the study of book numbers has declined. W.C.B.Sayers made a considerably detailed study of book numbers and allocated them a respectable place in every edition of his famous classification manual. But the reviser of the manual, Arthur Maltby, has made only passing reference to them in the latest edition which he has rewritten. In many new books on classification hardly any vestiges are to be found of them. Classification conferences have totally forgotten this topic. For new generations, it seems to be a subject of bygone days. At least some books do exist on them. The first book on book numbers appeared in 1917, but was only devoted to LC practice. The theory and practice of book numbers was ably encapsulated in 1937 by Bertha Rickenbrode Barden (1883-?) in a manual for students and practitioners which gives rules for the use of some schemes. It is a pioneering pamphlet. Its reprint in 1971 is an indication of its continuing value. The next book after a long pause came in 1980 as a full volumed and stimulating study on book numbers

by the late Donald J. Lehnus (1934-1983). In this book, the history of book numbers has been closely followed; a book which is not lacking in practical details. In 1981, another study on book numbers by John P.Comaromi with major emphasis on explicating and explaining the LC book number practice followed closely on its heels. Both are standard works, but, regretfully, neither attracted many reviews, nor did they create any stir in library literature. This only confirms the lack of interest in such a practical subject. These two books have also ignored Ranganathan's book numbering system completely. This vacuum, however, has now been filled[48].

15. Outlook?

This small chronicle cannot hope to be complete; it is rather a descriptive catalogue of major and published book number systems. Home-made and local conventions of book number systems are innumerable. Perhaps it prompted Anna C.Laws to say: "Author notation may be defined as a system of rules to be judiciously broken"[50]. There are far more practical systems in use than are printed in literature. Literature is in arrears of practice; what we are now experiencing is a literature deflation. Theories on book numbers are falling into oblivion; their future is uncertain, ingenious minds are not addressing themselves to these problems, and so new systems of book numbers are not coming. In many classification systems and consequently in libraries, book numbers are paid but scanty attention, and are even treated step-motherly, as Comaromi aptly writes[49]. Many classification systems are silent on the issue; this is another reason for their unaccounted mushroomed growth and for ad hoc or hotch-potch methods that pass for book numbers. For this reason, no formal history can be traced in its entirety; and without the history of book numbers, the history of our library classification cannot be told completely, as I.Dahlberg confided in a personal discussion[51].

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