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HOSPITALITY IN THE NOTATIONAL PLANE.

(Classification problems. 17).

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After showing the prepotence of the work in the Idea Plane, illustrates how the poor capacity of the Notational Plane had been inhibiting the former. Traces the gradual

development of the increase of Hospitality of the Notational Plane from the Pure Notational Base of 10 digits of DC to the Mixed Notational Base of 60 digits and the capacity of an array to as high as 901 Array Isolate Numbers in CC. Describes how the concepts of Empty Digits, Zones, and Sectors have increased the capacity of an Array in CC. Describes the use of the newly postulated Emptying Digits in making potentially infinite both extrapolation in an array and interpolation at any point of it. Traces the development of the number of Connecting Digits from two in Ed 1 (1933) to eight in the forthcoming Ed 7 (1967) and the advantages of it. Outlines the main changes in Ed 7 of CC and shows that they mostly consist of changing the Connecting Digit of Time Facet and of changing the Connecting Digit of certain isolates hitherto taken as Energy Isolates and now taken as Property Isolates — that is, manifestations of Matter. Some newly emerging Main Classes have been given Class Numbers. The paper is by way of soliciting suggestions and remarks on the proposed changes from the colleagues in the profession.

Abbreviations used

(AIN)	= Array Isolate Number(s)
CC	= Colon Classification
DC	= Decimal Classification
LC	= Library of Congress Classification
(MC)	= Main Class(es)
UDC	= Universal Decimal Classification

1 EDITION 7 OF COLON CLASSIFICATION

11 Incorporation of the Latest Theory and Results

Edition 7 of the *Colon classification* is now getting ready for the press. It incorporates all the new ideas in the theory of classification and the design of a scheme for classification developed since 1960, the year of Edition 6. Naturally, it also continues the incorporation of the earlier ideas, built into the earlier editions, in so far as they continue to be helpful.

12 Suggestions Solicited

The object of this paper is to indicate the new features and the changes being incorporated in Edition 7. This is done in the hope that the colleagues in the profession will be able to give suggestions for consideration before the text is printed. Suggestions may kindly be sent so as to reach us before the ensuing December.

2 THREE PLANES OF WORK

21 Emergence of Recognition

In the year 1952, the spread of the work of the classificationist as well as of the classifier over the three planes—the Idea, the Verbal, and the Notational Planes—was recognised [23]. Though this recognition might have been in the sub-conscious level even before 1952, there is no evidence of its having been used purposefully at the conscious level. Even after the recognition of the work of classification lying in all the three planes, it took some years before its help in designing a scheme for classification could be adequately exploited. It may take some time for the full value of this to be widely known and put to use.

22 Testimony of the Canons of Classification

Earlier than the present century, there was hardly any attempt to formulate Canons for the guidance in the design of library classification and its use. During the first half of the present century, the following persons formulated their own Canons of Library Classification in the respective books mentioned against their names:

1 E C Richardson. *Classification, theoretical and practical.* 1901.

2 W C Berwick Sayers. *Canons of classification.* 1915.

3 H E Bliss. *Organization of knowledge in libraries.* 1933.

4 S R Ranganathan. *Prolegomena to library classification.* 1937.

A review of the chief sets of Canons of Classification formulated during the present century will bear testimony to the fact of all the Three Planes of Work not having been consciously recognised, named, and put to use.

23 Richardson

Richardson uses the term 'Criteria' instead of 'Canons'. In essence, these are only three in number [37]. The third of these is consciously turned on the Notational Plane. The first merely prescribes that a classification "should follow as nearly as possible the order of things". The second prescribes that "it should be carried out in minute detail". These two simple 'Criteria' obviously relate to 'Work in the Idea Plane'. But there is no mention of 'Work in the Idea Plane' as such.

24 Sayers

Sayers uses the term 'Canons'. He groups them under the captions:

1 As to Division;
2 As to Terms; and
3 As to Notation [36].

The second and the third groups of Canons are consciously turned on 'Work in the Verbal and the Notational Planes' respectively. The Canons in the first group relate to 'Work in the Idea Plane'. But there is no mention of 'Work in the Idea Plane' as such. Even in the latest edition of the *Manual of classification* (1955), Sayers had not explicitly mentioned 'Work in the Idea Plane'.

25 Bliss

Bliss uses the term 'Principles' instead of 'Canons'. They are 32 in number [1]. The fourth Principle and the discussion under 'Terminology' [3] are consciously turned on 'Work in the Verbal Plane'. The twenty-seventh Principle and the whole set of Principles of Notation, enumerated separately [2], are consciously turned on 'Work in the Notational Plane'. Except for a few others, the rest of the Principles relate to 'Work in the

Idea Plane'. But there is no mention of 'Work in the Idea Plane' as such either in Edition 1 of 1933 or in Edition 2 of 1939.

26 Ranganathan (1937)

Ranganathan uses the term 'Canons'. They are 28 in number. He groups them under two heads and subheads as follows:

1 General Theory of Classification;

- 1 Characteristics;
- 2 Arrays;
- 3 Chains;
- 4 Terminology; and
- 5 Notation; and

2 Theory of Knowledge Classification [26].

The four Canons under 'Terminology' are consciously turned on 'Work in the Verbal Plane'. There is only one Canon on Notation pertaining to the General Theory of classification. The three Canons pertaining to the Theory of Knowledge Classification are also on Notation. And yet, this is not explicitly mentioned. The Canons under the first three subgroups under General Theory of Classification relate to 'Work in the Idea Plane'. But there is no mention of 'Work in the Idea Plane' as such.

27 Ranganathan (1957)

In Edition 2 (1957) of the *Prolegomena*, Ranganathan states as follows:

> "Six additional Canons must be observed in the construction of the notation of a scheme of classification for the Universe of Knowledge.
>
> "This is because the universe consists of an infinity of entities some of which are now unknown and may become known in the future. The additional Canons are:—
>
> 1 The Canon of Hospitality in Array;
>
> 2 The Canon of Hospitality in Chain;

3 The General Canon of Mnemonics;

4 The Canon of Verbal Mnemonics;

5 The Canon of Scheduled Mnemonics; and

6 The Canon of Seminal Mnemonics.

"All these six Canons concern the notation of the scheme." [29]

And yet, in the table of Canons of Classification, given in page 21 of the same book, it is not explicitly stated that these six Canons pertain to 'Work in the Notational Plane'. We cannot have a better example than this for the lethargy of any new concept in coming into usage.

Here again is another set of statements in regard to the Canons pertaining to the Idea Plane:

1 "··· What characteristics of the main class are represented in the subject considered? Here all the characteristics are to satisfy all the Canons prescribed in Chap 13—Canons for Characteristics. What are the characteristics likely to go with the main class of the subject? These questions have to be examined entirely in the idea plane. In what sequence should the characteristics be used? The answer to this question also is to be found entirely in the idea plane' [31].

2 "··· Into what homogeneous groups do the characteristics fall? What are the characteristics going into each such group? This is determined by their mutual congruity, which has to be determined in the idea plane. Each group of homogeneous characteristics corresponds to a different dimension or facet" [32].

3 "··· Work in regard to enumeration of main classes can be done in the idea plane on the merits of the relation between subjects. Selection of subjects to the status of main class depends entirely on the degree of their mutual independence. Their sequence depends entirely on their filiatory relation on the basis of co-ordinate status" [30].

4 "Ultimately, modulation appears to depend on (*a*) the relevant characteristics allowed in a train of characteristics, and (*b*) the sequence of application of those characteristics" [28].

The first and the second quotations refer to the Canons for Characteristics. The third quotation refers to the Canons for Array and Filiatory Sequence. The fourth quotation refers to the Canons for Chain. Work related to each of these has been categorically described as belonging to the Idea Plane. And yet, in the table of Canons of Classification, given in page 21 of the same book, it is not explicitly stated that these Canons pertain to 'Work in the Idea Plane'. This is further evidence of the lethargy of a new concept in coming into usage.

28 Benefit of Separation of Work in the Three Planes

The possibility and the value of recognising the Three Planes of Work in Library Classification, of developing each plane on its own merits, and of consciously utilising their mutual influence, are being increasingly recognised since 1957. This adds to clarity of thinking and prevents the work in any one plane being inhibited or diverted along wrong lines by the limitations of the work in any other plane. It further enables work in any plane being advanced to a greater degree of helpfulness by work in every other plane. This has been very well clinched by Dr Phyllis Richmond in the following words: "The Colon Classification Principles have best been described by its creator, S R Ranganathan, in several works, two of which cover recent advances [14, 27]. During the past decade, several difficult points have been cleared up. The most notable has been the clear differentiation of the idea, verbal, and notational planes—a most significant advance because, with it one may now end some of the talking at cross-purposes which has characterized discussions of classification systems" [35].

3 RELATIVE POTENCY OF THE THREE PLANES

A schedule for knowledge classification has two columns. The first column gives the Class Number or the Isolate Number,

as the case may be. It belongs to the Notational Plane. The second column gives the Class Term or the Isolate Term, as the case may be. It belongs to the Verbal Plane. These are visible. But the Idea Plane is invisible. And yet it is the most potent. In the language of the theists, God is invisible; and yet, He is omnipotent and omnipresent. So it is with the Class Idea or the Isolate Idea, as the case may be. It is omnipresent; for, it is behind the number in the first column representing it and equally behind the term in the second column denoting it. Further, the numbers and words are all controlled by it.

31 Idea Plane

The very purpose of library classification is to arrange ideas in a helpful sequence. Therefore, the Idea Plane is the most vital plane. It is the controlling plane. Analysis in the Idea Plane can be carried out to any degree of fineness; for, there can be no limit to the degree of analysis possible for the human mind. In other words, classes or isolates, as the case may be, of any order, can be formed. Their helpful sequence also can be determined. As and when the Universe of Knowledge throws forth new Main Classes, Basic Classes, Subjects, and Isolates, the Idea Plane can recognise them as new and determine the most helpful position in which each of them should be placed among those already existing. Till about 30 years ago, one depended on flair both in arranging the known classes and isolates in a helpful sequence and in determining the helpful position for the new arrivals. From 1957 onwards, flair is being continually replaced by principles capable of being objectively applied by any trained person. The degree to which flair has to be exercised has already been reduced considerably [7].

32 Potency of the Verbal Plane

The words used to denote classes or isolates, as the case may be, are generally impotent in securing a helpful arrangement of the classes or of the isolates. No doubt, there are a few isolates, whose arrangement by their names may be as helpful

as any other arrangement. In these exceptional cases, no doubt, the Verbal Plane has some potency.

321 Multiplicity of Languages

Again, the multiplicity of natural languages further restricts the chance for the use of alphabetical arrangement. For, classes and isolates have different names in different languages. Therefore, even when alphabetical arrangement by words can be helpful we can have resort to it only if there is an agreed international nomenclature. Arrangement by names may be helpful when words are proper names.

322 Homonyms and Synonyms

There is another handicap to the Verbal Plane being helpful. Even in one and the same language, homonyms, and synonyms make alphabetical arrangement unhelpful.

323 Semasiological Change

A still another handicap of the Verbal Plane is that, even in one and the same language the word used to denote a class or an isolate may change from time to time.

324 Net Result

For all such reasons, the potency of the Verbal Plane is negligibly small, though communication is impossible except with the aid of the Verbal Plane.

33 Potency of the Notational Plane

Since the words in a natural language denoting classes or isolates, as the case may be, are virtually impotent in arranging them in the sequence preferred by the Idea Plane, there is need for inventing an artificial language capable of arranging them in the preferred sequence, without the necessity to look back and ask for the help of the Idea Plane at every turn. Since the essence is arrangement, the artificial language should be an ordinal language — that is, a language of ordinal numbers. In

this language, each of the Main Classes, Basic Classes, Subjects, or Isolates, as the case may be, is represented by an ordinal number of its own. Work in the Notational Plane consists in constructing the correct ordinal number in each case. The totality of these ordinal numbers constitutes the ordinal language called the Classificatory Language. The class numbers should be totally free from all the faults of the words in a natural language. They should be free from homonyms, synonyms, and changes. The versatility of the Notational Plane should make it capable of implementing the ever-continuing increasingly subtler demand of the Idea Plane. In a sense, part of the history of Library Classification is the history of the growth of the versatility of the Notational Plane. We began with a notational system of very little versatility and we are still far from adequate versatility.

34 Handicap to the Idea Plane

Till now, work in the Idea Plane has been often inhibited by rigidity in the Notational Plane. The wings of the Idea Plane have been clipped, as it were, by the incompetence of the Notational Plane. But as and when the versatility of the Notational Plane increases, the Idea Plane is able to spread its wings increasingly fuller and have its flight in a greater measure of capacity.

35 Demands of the Idea Plane

351 Finite Universe with All Entities Known

If the universe of entities to be classified is finite and all the entities are already known, the Idea Plane can complete the work of arranging them and all possible groups of them in a helpful filiatory sequence once for all. Then the 'Work in the Notational Plane' will be very simple. For, we shall have merely to give them the serial numbers, 1, 2, 3, etc.

352 Finite Universe with All Entities not Known

If we know that the universe of entities is finite though all the entities are not known already, still the known entities can be arranged by the Idea Plane and we can give them discontinuous serial numbers leaving gaps between any two numbers in the

measure of the number of entities expected to appear between entities represented by them. This is called Gap Notation. The LC Notation is of this kind. But the new entities have an uncanny way of leaving some gaps vacant and of exceeding the capacity of some other gaps. Therefore, the Gap Notation does not generally have the capacity to meet the demands of the Idea Plane, even if the universe to be classified is finite. However, if there is reasonable ground to be certain that the number of newly emerging entities will be very small, the help of Gap Notation may be taken.

353 Universe of Knowledge

The Universe of Knowledge, on the other hand, is infinite. Virtually its entities are all classes or subjects. The number of subjects is itself infinite. At present, we do not know them all. At no time can we know them all. At any time we can know only a finite number of them. Suppose, the Idea Plane arranges all the subjects known at this moment in a helpful filiatory sequence; suppose further, that the Notational Plane gives serial numbers to them with a liberal use of Gap Notation. As time goes on, newly emerging subjects will soon exceed each of the gaps-in-notation to which they respectively belong. In other words, the versatility of Gap Notation is far too meagre. Therefore, numbering classes by serial numbers should not be thought of at all in Knowledge Classification.

354 Four Variations of Placing

To design a notational system with adequate versatility, we should know the varieties of the placing of new classes or isolates, as the case may be, which the Idea Plane would demand. Four varieties of placings are possible:—

1 Interpolation in Array;

2 Extrapolation at the end of an Array;

3 Extrapolation at the beginning of an Array; and

4 Extrapolation in Chain.

4 ARRAY OF (MC)

40 Classes in the Array

We shall first consider the demands of the Idea Plane on the Notational Plane, in respect of the array of (MC). By the very definition of (MC), this is the Array of Order 1 of the Universe of Knowledge. It is found convenient to include in this array, a few comprehensive classes. The (MC) are of a higher order than the comprehensive classes. And yet, in view of the smallness of the literary warrant in the Comprehensive Classes securing short Class Numbers, the difference in order is ignored and the (MC) and the Comprehensive Classes are put in one and the same array — the Array of the (MC). We shall deal successively with the two kinds of classes thus included in the Array of (MC).

41 Table of (MC)

We shall begin with the following table of (MC) in several editions of CC and in UDC and DC respectively.

Note.—The following symbols are used for sectors.

(S—0) Any number beginning with 0 in UDC or DC
(S—1) 1 2 ··· 7 8 in CC.
1 2 ··· 8 9 in UDC and DC
(S—9*a*) 9*a* 9*b* ··· 9*x* 9*y* in CC
(S—9A) 9A 9B ··· 9X 9Y in CC
(S—A) A B ··· Y Z in CC

Traditional and New (MC)	Edition Number of CC				UDC Ed 3	DC Ed 17
	7 1968	6 1960	5 1957	1 1933	1962	1965
Sector	(S — 1)				(S — 0)	(S — 0)
Universe of knowledge (Development and Structure)	1	1	1			
Library science	2	2	2	2	02	02
Book science	3	3	3			

Traditional and New (MC)	Edition Number of CC				UDC Ed 3	DC Ed 17
	7 1967	6 1960	5 1959	1 1933	1962	1965
Sector		(S – 9A)				
Reading method	3V					
Notes-taking	3X					
Journalism	4	4	4			
Exhibition technique	5					
Museology	6					
Management science	8	(X)				
Sector		(S – 9*a*)				
Career	9*b*					
Standardisation	9*d*					
Observation technique	9*f*					
Experiment technique	9*f*T					
Laboratory technique	9*f*V					
Evaluation technique	9*g*	(*g*)				
Conference technique	9*p*	(*p*)				
Survey technique	9*u*					
Calligraphy	9P1					
Shorthand	9P3					
Typewriting	9P6					
Cipher language	9P7					
Sector		(S – A)			(S – 1)	(S – 1)
Mathematics	B	B	B	B	51	51
Physics	C	C	C	C	53	53
Engineering	D	D	D	D	62	62
Chemistry	E	E	E	E	54	54
Technology	F	F	F	F	66	66
Microbiology	GX					
Geology	H	H	H	H	55	55
Mining	HX	HZ	η			
Botany	I	I	I	I	58	58
Agriculture	J	J	J	J	63	63
Forestry	JX					
Zoology	K	K	K	K	59	59
Animal husbandry	KX	KZ	λ			
Medicine	L	L	L	L	61	61
Public health	LT					
Pharmacognosy	LX	LZ				

Traditional and New (MC).	Edition Number of CC				UDC Ed 3	DC Ed 17
	7 1967	6 1960	5 1957	1 1933	1962	1965
Useful arts	M	M	M	M		
Spiritual experience and Mysticism	△	△	△			
Fine arts	N	N	N	N	7	7
Literature	O	O	O	O	8	8
Linguistics	P	P	P	P	4	4
Communication theory	PX	(P)				
Religion	Q	Q	Q	Q	2	2
Philosophy	R	R	R	R	1	1
Psychology	S	S	S	S	159·9	150
Education	T	T	T	T	37	37
Geography	U	U	U	U	91	91
History	V	V	V	V	93/99	93–99
Political science	W	W	W	W	32	32
Economics	X	X	X	X	33	33
Sociology	Y	Y	Y	Y	30	301
Social work	YX	YZ				
Law	Z	Z	Z	Z	34	34

411 Main Class in CC

It is difficult to give a definition of the term (MC). It is for this reason that CC adopts the escapist method of stating that the (MC) are those, postulated and scheduled in the scheme to be (MC). This method is adopted to go forward with the corpus of the work on classification, instead of spending all the time in precisely defining an ineffable term and spending away all the thought at the very threshold of the work. So also, each scheme can adopt such an escapist method. But, for comparative study, there must be some agreement among the schemes regarding the definition of (MC). Perhaps, the following definition may be adopted. A (MC) — listed as such in the Array of (MC) — cannot be a subclass of any other of the (MC); nor

can it comprehend two or more of them. We shall take even this only as a provisional definition and move forward.

412 Main Class in UDC

UDC gives an "Outline of the Main Divisions". The term Main Divisions' closely approximates to the term 'Main Classes' as used in CC. Perhaps, the use of the term 'Main Divisions' instead of the term 'Main Classes' by UDC was not deliberate. For, the specialised and distinct uses of the terms 'Division' and 'Class' in the theory of classification was made for the first time only in 1937 in the Ed 1 of the *Prolegomena to library classification.*

There we read:

> "Division will be used to denote a group of sub-aggregates formed by the division of the entities of a universe.
>
> "A class is a ranked group."

Here, the term 'ranked' implies that the group has been assigned a definite rank among the co-ordinate groups.

413 Main Class in DC

DC does not use any term equivalent to (MC). This is in spite of DC mentioning (MC) in its Introduction. The "Second Summary: The hundred divisions" of DC is virtually the same as the "Outline of Main Divisions" of UDC. On account of the near-equivalence of the (MC) of CC and the Main Divisions of UDC, we shall use the (MC) of CC (Ed 7) as the basis for discussion.

414 Emergence of the Concept of (MC)

Sec 413, 412, and 411 show the slow emergence of the concept of (MC), constituting the Array of Order 1 in the classification of the Universe of Knowledge. Even in CC, its Ed 1 (1933) did not develop this concept. It merely spoke of 'Subject Digit'. Its Rules read as follows:

> "10 The first digit of a Class Number is the symbol representing the Main Division of Knowledge into which the book falls. It may be termed the SUBJECT DIGIT.

"101 The twenty-seven divisions into one and only one of which each book has to fall may be termed the Subject Divisions or Main Divisions and the digits representing these divisions are given in Schedule 1 of Part II."

However, in its Edition 2 (1939) CC unconsciously introduced the term (MC). Its Rules read as follows:

"10 The first digit of a Class Number is the symbol representing the Main Class of Knowledge into which the book falls. It may be termed the MAIN CLASS DIGIT.

"101 The twenty-eight classes into one and only one of which each book has to fall may be termed the Main Classes and the digits representing them are given in Schedule 1 of Part II."

Why this change was made from 'Main Subject' to 'Main Class' has not been explained anywhere in the book.

415 Postulate Idea

From 1957 onwards, a few British friends in the profession working in collaboration with Ranganathan, often heckled him with the question, "What do you mean by (MC)?" He used to reply, "Those that I have put in the schedule of (MC)." Later on, he went a step further and used the term "Postulate" as shown in Sec 411.

42 Colon Classification: Sector (S—A)

The Sector (S—A) has twenty-six digits. In Edition 1, all the twenty-four digits, except "A" and "G", were utilised to represent certain (MC) as they were widely recognised to be so in the beginning of the present century.

43 Hidden (MC)

Each of the (MC) listed in Edition 1 had a considerable literary warrant. But there were also other classes which the Idea Plane would like to include in the Array of (MC). However, the Notational Plane could not find digits for them in the Sector

(S—A). The Idea Plane had, therefore, to capitulate to the Notational Plane. It had to agree to the Notational Plane hiding the Should-Be-(MC) with poor literary warrant inside some other (MC) with greater literary warrant. For example,

1 "Forestry" was made a subclass of 'J Agriculture' and given the class number 'JA'.

2 "Animal Husbandry" was hidden in 'M Useful Arts' and Class Numbers for its own subclasses were begun with 'MK'. The presence of the digit 'K' shows that the Idea Plane had in mind the filiation of 'Animal Husbandry' with 'K Zoology'. This mnemonic help was the best that the Idea Plane could get at that time from the Notational Plane.

3 Following the DC tradition, 'Public Health' and 'Pharmacognosy' were made subclasses of 'L Medicine' and given the Class Numbers 'L5' and 'L6' respectively.

4 Again, following the same tradition, 'Mining' was made a subclass of 'D Engineering' and given the Class Number 'D3'.

5 'Social Work' was made a subclass of high order of 'Y1 Sociology' and given the Class Number 'Y1:4:6'.

44 A New (MC)

By 1939, the year of Edition 2, experience was gained with a number of books dealing with Spiritual Experience and Mysticism. After World War I, books of that nature came to be published even in the West. Many of such books of India also came to be printed. It was felt that this class should also be recognised as a (MC) [33]. It was further seen that its helpful place was between the 'Natural Sciences' on the one side and the 'Humanities and 'Social Sciences' on the other — that is, between 'M Useful Arts' and 'N Fine Arts'. The CC thus found itself caught up in a corner at that time, as there was no vacant digit between 'M' and 'N'. L Thompson—a young mystic Englishman living with Ranganathan—suggested that $\triangle$ was the international symbol for 'Mysticism'. This suggestion was grasped immediately. The ordinal value of $\triangle$ was defined to be such that it comes between 'M' and 'N'. This was incorporated

in Edition 2 (1939) of CC. Thus the number of (MC) increased to twenty-five. By this device, the Sector (S—A) was incidentally enriched by one additional digit, in its use in the Array of (MC).

45 Old Squatter (MC)

451 IRONY

It was an irony that a newly conceived (MC) could be secured a place in the Array of (MC), while (MC) of some standing could not be accommodated in that Array. The notational device of enriching the Sector (S—A) by a Greek letter used in the former case could not be extended to the latter. How else can the Notational Plane meet the situation—that was the problem. This was driven down to the sub-conscious level.

452 DESPERATE SOLUTION

After two decades—by 1960—it was decided to accept a suggestion of the Notational Plane. The Notational Plane said to the Idea Plane,

"1 You want 'Mining' to come between 'H Geology' and 'I Botany'. I shall secure this position for it by giving it the number 'HZ'.

"2 You want 'Animal Husbandry' to come between 'K Zoology' and 'L Medicine'. I shall secure this position for it by giving it the number 'KZ'.

"3 You want 'Pharmacognosy' to come between 'L Medicine' and 'M Useful Arts'. I shall secure this position for it by giving it the number 'LZ'.

"4 You want 'Social Work' to come between 'Y Sociology' and 'Z Law'. I shall secure this position for it by giving it the number 'YZ'.

The Class Number 'HZ' for 'Mining' implied that it was a subclass of 'H Geology'. So also with the three other cases. Thus strictly speaking 'Mining', 'Animal Husbandry' and the other two subjects did not gain a place in the Array of (MC). And yet this desperate solution, suggested by the Notational

Plane, was accepted. All the same, the Idea Plane continued to be ill-at-ease.

453 Emptying Digit

The problem was again sent down to the sub-conscious level. It was brought up to the conscious level while teaching at DRTC in 1962. Then came a flash. We can get over the difficulty mentioned in Sec 452 by postulating for the Notational Plane that the digit 'Z' has Emptying Power — that is, it will empty out the semantic content of the preceding digit, but allow it to retain only its ordinal value. As a result of this postulate, in the number 'HZ', the digit 'H' does not represent 'Geology'. It is only the number 'HZ' taken as a whole that means 'Mining'. This admitted 'HZ Mining' as a Class in the Array of (MC) without making it a subdivision of 'H Geology' and in spite of its being represented by a digit-pair instead of a single digit. In other words, though 'HZ appeared to be of Order 2 when viewed from the Notational Plane, the term represented by it is only of Order 1 when viewed from the Idea Plane.

454 Interpolation in any Array

This concept opened up a flood gate enabling the Notational Plane to interpolate a Class Number or Isolate Number, as the case may be, between consecutive class numbers or isolate numbers in an Array. It was next postulated that all the digits from T to Z shall be treated as Emptying Digits [20]. For reasons which will become obvious in Note 3 to Sec 464 it was decided to replace 'Z' by 'X' in the four (MC) numbers given in Sec 452. Thus the following scheme of Class Numbers was adopted:

HX Mining
KX Animal Husbandry
LX Pharmacognosy
YX Social Work.

This was indicated in the 1963 reprint of Edition 6 of 1960 by replacing the page giving the Schedule of (MC) by a newly printed one.

455 INCORPORATION IN EDITION 7

In Edition 7 to be brought out in 1968, in addition to the above four, the following (MC) also have been interpolated in the respective filiatory positions demanded by the Idea Plane for them in the Array of (MC). This too has been done with the help of the Postulate of Emptying Digit.

GX Microbiology

JX Forestry

LT Public Health

PX Communication Theory

The Notational Plane has now become fit to interpolate in the Sector (S—A) of the Array of (MC) any number of newly emerging (MC), at the places determined by the Idea Plane. 'GX Microbiology' is said to have gained the status of (MC) in the 1920's. It has now been helpfully placed. So also 'PX Communication Theory'. This is gaining the status of (MC) only after World War II.

456 DANGER OF HOMONYM

Homonym, due to the Emptying Digit used for interpolation being a Roman Capital and the first digit when the Alphabetical Device is used also being a Roman Capital, will not arise in respect of the array of (MC) and in any array of Time or Space or Energy Facets. But it may occur occasionally in the arrays of Matter and Personality Facets. Therefore, a new digit '$\wedge$' (Inverted 'V') is being thought of for use as Interpolation Digit in cases where Homonyms are likely to occur. Its ordinal value will be higher than that of Starter Bracket.

46 Comprehensive Classes

460 TWO KINDS

A class, comprehending two or more (MC), is possible. And yet, it will not acquire the status of a (MC). We shall call it a

Comprehensive Class. Experience shows that a book going into a Comprehensive Class gives only a disjunctive or diffuse treatment of the (MC) comprehended by it. Or, in the alternative, it may go into a class got by attaching a Common Isolate—mostly Anteriorising Common Isolate—to the Comprehensive Class. These are usually periodicals in the Comprehensive Classes. The following two kinds of Comprehensive Classes are distinguishable :

1 *Comprehensive Class of Kind* 1.—A Comprehensive Class comprehending two or more (MC) occurring consecutively in the Array of (MC); and

2 *Comprehensive Class of Kind* 2.—A Comprehensive Class comprehending two or more (MC) or their subclasses—the (MC) not occurring consecutively in the Array of (MC).

Example of kind 1.—The term 'Physical Sciences' is taken to comprehend Physics, Engineering, Chemistry, and Technology. These occur consecutively in the Array of (MC) of CC. In DC 'Physical Sciences' can comprehend only Physics and Chemistry since Engineering and Technology do not occur consecutively with them.

Example of kind 2.—The term 'Ocean Sciences' is taken to comprehend the Geological Formation of the Bed of the Ocean, Bio-contents of the Ocean, the Static, Dynamic, Physical, and Chemical properties of sea-water, and the extent and depth of the ocean. These are non-consecutive in the Array of (MC) of all the schemes of classification.

461 Comprehensive Classes of Kind 1

The following table gives a list of the Comprehensive Classes of Kind 1 provided for in the forthcoming Edition 7 (1968) of CC.

It was only the Comprehensive Class NZ Literature and Language' that was represented in this way in Edition 6 of 1960.

Class Term	CC Ed 7 (1968)		UDC Ed 3 (1962)
	Comprehends Class Numbers	Class Number	
Generalia	I to Z	z	0
Natural Sciences	B to M	A	5/6
Mathematical sciences	B to F	AZ	51/54+62+66
Physical sciences	C to F	BZ	53/54+62+66
Chemical sciences	E & F	DZ	54+66
Biosciences	GX to LX	G	55/61+63
Plant sciences	I to JX	HZ	58+63
Animal sciences	K to KX	JZ	59+636/639
Medical sciences	L to LX	KZ	61
Humanities and Social sciences	N to Z	MZ	009+3+9
Humanities	N to S	MZZ	009
Literature and Linguistics	O & P	NZ	4+8
Religion and Philosophy	Q & R	PZ	1/2
Psychology and Education	S & T	RZ	159·9+37
Social sciences	T to Z	SZ	3+9
Geography and History	U & V	TZ	9
History and Political science	V & W	UZ	32 +93/99

462 CALL OF ECONOMY

Before specialisation became intensive about two centuries ago, most of the books were on Comprehensive Classes of Kind 1. In fact, in those days, they would have appeared as the (MC) occupying Array of Order 1. If we still continue to treat their array as Array of Order 1, the current (MC) would be pushed into the Array of Order 2. This will mean every (MC) Number of today having a minimum of two digits. For economy, we would like to avoid it. In other words, we would like to represent most of the (MC) by a single digit and call their array the Array of Order 1. For, the literary warrant in them is far greater than

in the Comprehensive Classes. We would like to have resort to two digits only in the case of the few residual (MC).

463 TELESCOPING INTO ARRAY OF (MC)

Then the Order of the Array of the Comprehensive Classes will become less than one, because that Array will come earlier than the Array of the present (MC). The provision of such an Array will be inconvenient, if not impracticable. Therefore, the Array of Comprehensive Classes is telescoped into the Array of (MC).

464 TELESCOPED ARRAY OF (MC)

The following is the table of the Telescoped Array of (MC) in the Sector (S—A):

Class Term	Edition Number of CC		
	7 (1968)	4 (1952)	1 (1933)
Sector		(S—A)	
Natural sciences	A	A	A
Mathematical sciences	AZ	β	
Mathematics	B	B	B
Physical sciences	BZ	Γ	
Physics	C	C	C
Engineering	D	D	D
Chemical sciences	DZ		
Chemistry	E	E	E
Technology	F	F	F
Biosciences	G	G	G
Microbiology	GX		
Geology	H	H	H
Mining	HX		
Plant sciences	HZ		
Botany	I	I	I
Agriculture	J	J	J
Forestry	JX		
Animal sciences	JZ		
Zoology	K	K	K
Animal husbandry	KX	λ	
Medical sciences	KZ		

Class Term	Edition Number of CC		
	7 (1968)	4 (1952)	1 (1933)
Medicine	L	L	L
Public health	LT		
Pharmacognosy	LX		
Useful arts	M	M	M
Humanities and Social sciences	MZ	μ	
Humanities	MZZ	ν	
Spiritual experience and Mysticism	Δ	Δ	
Fine arts	N	N	N
Literature and Linguistics	NZ		
Literature	O	O	O
Linguistics	P	P	P
Communication theory	PX		
Religion and Philosophy	PZ		
Religion	Q	Q	Q
Philosophy	R	R	R
Psychology and Education	RZ		
Psychology	S	S	S
Social sciences	SZ	Σ	
Education	T	T	T
Geography and History	TZ		
Geography	U	U	U
History and Political science	UZ		
History	V	V	V
Political science	W	W	W
Economics	X	X	X
Sociology	Y	Y	Y
Social work	YX		
Law	Z	Z	Z

Note 1.—The Comprehensive Classes 'A Natural Sciences' and 'G Biosciences' had been given places in the Array of (MC) even in Edition 1 as there were many periodicals in each of them. Therefore, the Class Number of each of them is only a single digit.

Note 2.—In the Class Number of each of the other Comprehensive Classes, the digit 'Z' is an Emptying Digit.

Note 3.—In the context of the Telescoped Array of (MC), the digit 'Z' is also postulated to have the power of comprehending some of the succeeding (MC). This postulate disqualifies the digit 'Z' to be the second digit of a (MC) Number. Only digits T to Y are qualified to be second digits of (MC) Numbers.

465 TEMPORARY SOLUTION IN 1952

The structure of the UDC Numbers for Comprehensive Classes is rather awkward and cumbersome. (*See* the last column in the table in Sec 461). Therefore, UDC was not imitated by CC. The only Comprehensive Classes used till Edition 4 (1952) were '*z* Generalia', 'A Natural Sciences' and 'G Biosciences' though this did not satisfy all the demands of the Idea Plane. Class Numbers forcedly given to many of the Comprehensive Classes were not co-extensive with them.

Example.—From V 1 (1665) to V 177 (1886), the *Philosophical transactions* of the Royal Society (London) covered all the Natural Sciences. It was, therefore, given the Class Number A*m*56,K. In 1887 it was split into the following two parts:—

Series A, covering the Mathematical Sciences only—that is, B Mathematics to F Technology; and

Series B, covering the Biosciences only.

Series B was given the Class Number G*m*56,K. This was co-extensive with its subject. But the Series A was forcedly made to carry the Class Number A*m*56,K though this Class Number was far more extensive than its subject. This has been irritating the mind all along, as the Canon of Co-extensiveness was not satisfied. This problem in the Notational Plane had been simmering in the mind for nearly 20 years. In 1951, a flash came. It was decided to use Greek letters to represent Comprehensive Classes of Kind 1. Then it was further decided that the Greek letter to be used to represent a Comprehensive Class should be determined by the helpful position in the Telescoped Array of (MC), chosen by the Idea Plane for the Comprehensive Class. The Greek letter should be phonetically equivalent to the one or the other of the Roman letters between which it has to be interpolated. The

result of this decision was incorporated in Edition 4 of CC in 1952. This is shown in the table in Sec 464. It will be noticed that, incidentally, 'Animal husbandry' was retrieved from its subordinated position and restored to its rightful status in the Array of (MC). Some of the British colleagues of Ranganathan used to tell him, "Our typewriting machines do not have keys for Greek letters. Many of our printing presses may not have these Greek types. You are making the Notation of CC scare away even persons appreciating the helpfulness of CC and keen to adopt it." Ranganathan's reply used to be, "This solution by the use of Greek letters is only a temporary expediency. We cannot stop all other more important work until we get a neat solution to this problem. When a compositor does not find the needed type, to prevent slowing down of work and loss of time, he fills its place with a blank and hurries onwards. At a later time, he replaces the blanks by the correct type. There is wisdom in it. If I do not use the 'irritating' Greek letters, we may altogether forget the problem." Indeed, it has taken nearly 15 years to find a neat solution. The satisfaction is that not only we have found at long last a neat solution, but also incidentally made the Notational Plane versatile enough to make any number of interpolations between any two consecutive focal numbers in any Array—and not merely in the Array of (MC).

466 Comprehensive Classes of Kind 2

The following is a table of Comprehensive Classes of Kind 2, included in the forthcoming Edition 7 (1968) of CC.

Class Term	CC Ed 7 1968	UDC Ed 3 1962	DC Ed 17 1965
Pure sciences	A1	5	5
Applied sciences	A2	6	6
Earth sciences	AA	55	55
Ocean sciences	AB		
Atmosphere sciences	AC		
Space sciences	AD		
Soil sciences	AE	631·4	
Cybernetics	AG	007	001·53
Defence sciences	AM		

Note 1.—Comprehensive Classes of Kind 2 are arising of late. This is due to a new trend in the universe of books. During the last century or so, the tendency has been to analyse and to reduce the extension of a subject to be covered by a book to the smallest possible one. In this trend there was generally a resistance to bring into one and the same book subjects belonging to two or more (MC), except in the case of phase relation or the use of Subject Device to form or sharpen an isolate. There is at present a slight trend to provide books disjunctively or diffusely comprehending subjects belonging to several (MC). It arises as follows:—

1 Investigation of such subjects has some kind of interrelation other than what has been mentioned above; and

2 When such subject-areas are developed, there are organisational and other advantages, to be gained by expert-groups specialising in the different subject-complexes comprehended, working as a team and having concurrent mutual consultation and check-up even in the course of investigation. Further, it is found helpful to release a preliminary publication containing a short account of the provisional results obtained in each subject-complex. This is useful for frequent reference by all the expert-groups even later on when they work out the details—each in its own laboratory. This is now happening largely in the field of Natural Sciences.

Note 2.—The first two Comprehensive Classes in the table at the beginning of this Section are traditional ones. The remaining seven Comprehensive Classes represent the recent trend. By way of illustration, we shall indicate the scope of some of them.

Note 3.—*Ocean Sciences*: The term 'Ocean Sciences' comprehends the two following subject-complexes:

1 Depth, extent, static, dynamic, physical, and chemical properties of sea-water and the geology of the ocean bed; and

2 The bio-content of sea-water.

When the bio-content is studied statistically, in recent years its correlation to the properties of sea-water comes to be studied

also. When the expert-groups in the different subject-complexes are commissioned to study a particular ocean, they are sent together as a team. They live together in a vessel specially designed for the purpose. Each expert-group makes the survey in its own field of study. The expert-group in each subject-complex keeps in close touch with the expert-group in every other subject-complex. They also study together the correlation between the different subject-complexes.

Note 31.—*Inclusion of Meteorology in Ocean Sciences*: An expedition in Ocean Sciences very much needs the help of meteorologists both in their day-to-day life on the high seas and in establishing correlation between the physical and bioproperties of ocean on the one hand, and the meteorological conditions on the other. When used for this purpose, it may be called 'Oceanographic Meteorology'. Therefore, the class 'Ocean Sciences', comprehends also the subject-complex Oceanographic Meteorology. The recent Indian Ocean Expedition had all these three classes of experts working together as a team. They had much to discuss with one another from day to day, for their mutual benefit.

Note 32.—*Adoption of the Term 'Ocean Sciences'*: About half a century ago, it was realised that 'Oceanography' should not be the substantive word in the term denoting 'Bio-Oceanography'. For, the subject was essentially biological, though restricted to oceanic environment. The realisation of the wrong emphasis on 'Oceanography' in the Verbal Plane, led to the coining of the new term 'Marine Biology'. The Comprehensive Class may be termed 'Ocean Sciences' and the term 'Oceanography' may be taken to denote only the subject-complex mentioned in Category 1 of Note 3—that is, spatial, mechanical, physical, and chemical properties of the water in the ocean.

Note 4.—*Space Sciences*: The term 'Space Sciences' comprehends several disciplines, such as Metallurgy, Nuclear Engineering, Electronic Engineering, Ballistics, Physiology, and Psychology — all under conditions abnormally outside the range studied till now. The expert-groups in the several subject-complexes have to work together as a team. And yet, each expert-group is

specialist only in its own subject-complex. The subject-complexes involved are all different. The professional training has to be different for the expert-groups in the different subject-complexes. Therefore, a book or a periodical giving the details on any one of these subject-complexes will have to go with the other books and periodicals on it. We cannot put them all together in the one Comprehensive Class 'Space Sciences'. At the same time, we are bound to have multi-focal books giving disjunctive or diffuse accounts of two or more of the subject-complexes comprehended by the term 'Space Sciences'; or, we may have a book on the Comprehensive Class dealing with the details of the organisation and the interrelation of the work carried out in mutual consultation by several expert-groups working as a team. It is only such books that will go into the Comprehensive Class 'AD Space Sciences'.

Note 5.—*Soil Sciences*: Soil can be studied from the angle of the bearing capacity and other physical and engineering properties of soil. Soil can also be studied from the angle of agricultural properties of soil in which the agriculturists are interested. Again, the geologists have their own approach to soil. The biologists too will study soil from their own distinctive angle. All these approaches can also be correlated. A book or a periodical may comprehend disjunctive or diffuse accounts of two or more such studies of soil. To accommodate it the Idea Plane demands the opening of a new Comprehensive Class called 'Soil Sciences'.

Note 6.—*Burden on the Notational Plane*: These newly emerging Comprehensive Classes throw a burden on the Notational Plane. In CC, the notational device proposed is to represent this kind of Comprehensive Classes as subdivisions of 'A Natural Sciences', as shown in the schedule at the beginning of the Sec 466. The (MC) comprehended by this kind of newly emerging Comprehensive Classes are not consecutive in the Array of (MC). Moreover, what is comprehended is often not a (MC) as a whole, but only a sub-class of it. As an experimental measure, Edition 7 of CC proposes notational accommodation of this kind to Comprehensive Classes of Kind 2. Something similar can be done also in respect of newly emerging Comprehensive

Classes of Kind 2 in the area of 'SZ Social Sciences'. They may be numbered SZA, SZB, SZC, etc as and when such Comprehensive Classes emerge. This device endows the Notational Plane with infinite hospitality to receive any number of Comprehensive Classes of Kind 2.

47 Non-Conventional (MC)

471 COLON CLASSIFICATION: Sector (S—1)

Sector (S – 0) of DC and UDC correspond to Sector (S – 1) of CC. The following table gives the utilisation of these sectors by Edition 1 of CC, and by UDC and DC.

Class Term	CC Ed 1 1933	UDC	DC
Sector	(S – 1)	(S – 0)	(S – 0)
Bibliography	1	01	01
Library science	2	02	02
Encyclopaedia	3	03	03
Society	4	061·2	06
Periodical	5	05	05
Congress	61	061·3	06
Commission	62	06·045	
Exhibition	63	061·4	
Museum	64	069	069
Biography	7	92	92
Year-book	8	058	
Miscellaneous	9		
Theses, abstracts, and collections	98	043	08

The Class Numbers 2 of CC and 02 of UDC and DC were used to represent the (MC) 'Library Science'. Each of the other Class Numbers was used to represent both Generalia Approach Materials and the science and art of preparing such materials. This meant incidence of homonyms among Class Numbers — a fatal fault in a Classificatory Language. In Edition 1 (1933), CC had

merely imitated DC without thinking. This was continued even in Edition 3 (1950) of CC. The presence of these homonyms had been, however, irritating all along. The problem was seriously investigated only in 1952, in connection with the preparation of a paper on 'Preliminaries' for a symposium on Depth Classification, subsequently presented to the Tenth All-India Library Conference 1953 [25]. It was indeed a wonder how the possibility of representing the 'Generalia Approach Materials' by numbers, such as, *za*, *zk*, *zm*, etc was completely overlooked by the pressure of the DC tradition. Since *za*, *zk*, *zm*, etc will all come before *z* and bare *a*, *k*, *m* also will do so, the suggestion of the Law of Parsimony was accepted and the first digit *z* was omitted from the first of the above sets of numbers and merely taken as understood before each of the digits in the second set. Since then, *a*, *k*, *m*, etc are being used only as the first digits of the Class Numbers representing the respective Approach Materials themselves. This released the numbers in the Sector (S – 1) from the burden of representing the Approach Materials also; since then, they have to represent only the art and science of preparing the Approach Materials and certain other (MC).

472 Colon Classification: Sectors (S – 1) to (S – 9A)

The following table shows the development of the struggle of CC in providing Class Numbers for the Non-Conventional (MC) — from its Edition 4 (1952) to Edition 7 (1967).

Class Term	Edition Number of CC			
	7 1968	6 1960	5 1957	4 1952
Sector		(S – 1)		
Universe of knowledge (Development and Structure)	1	1	1	1
Library science	2	2	2	2
Book science	3	3	3	3
Reading method	3V			

Class Term	Edition Number of CC			
	7 1968	6 1960	5 1957	4 1952
Notes-taking	3X			
Journalism	4	4	4	45
Exhibition technique	5			855
Museology	6			86
Management science	8	(X)		
Sector		(S — 9*a*)		
Career	9*b*			
Standardisation	9*d*			95
Observation technique	9*f*			
Experiment technique	9*f*T			
Laboratory technique	9*f*V			83
Evaluation technique	9*g*	(*g*)		
Conference technique	9*p*	(*p*)		
Survey technique	9*u*			
Sector		(S — 9A)		
Calligraphy	9P1			
Shorthand	9P3			
Typewriting	9P6			
Cipher language	9P7			

473 OBSERVATIONS

The use of Emptying Digit for interpolation can be seen in the numbers 3V and 3X in Edition 7 for 'Reading Method' and 'Notes-taking' respectively. The digits other than '9' in the Sector (S — 9*a*) follow the Canon of Scheduled Mnemonics. They are taken from the schedules for Common Personality and Common Energy Isolates. The Sector (S — 91) has not yet been brought into use.

474 FULL SCHEDULE IN EDITION 4 (1952)

1	Universe of knowledge	4	Periodical-publi-cationism
2	Library science	41	Serialism
3	Book science	42	Periodicalism

45	Journalism	855	Exhibitionology
5	Encyclopaediology	86	Museology
6	Bibliographiology	93	Communicationism
7	Biographology	95	Standardisation
8	Institutionology	96	Report-writing
81	Learned body	97	Editing
83	Laboratory	972	Indexing
85	Display body		

The above schedule demonstrates the ecstatic — or is it rabid — state of mind when a method was discovered to accommodate such Non-Conventional (MC) in Sectors (S — 1) and (S — 91). The classes 4, 41, 42, 6, 7, 97, and 972 go with the (MC) '3 Book Science' in Edition 7.

475 Choice of Sector (S — 1)

The Idea Plane does not demand a place for any of the new (MC), listed in column 1 of the table in Sec 472, amidst the Conventional (MC) accommodated in the Sector (S — A). Thus, the use of interpolation with the aid of Emptying Digit does not arise. The first Non-Conventional (MC) to be given a Class Number of its own is 'Library Science'. It was accommodated in its own Sector (S — 0) even in Edition 1 of DC. It was given the Class Number 02. This gave the suggestion to CC that all the newly emerging Non-Conventional (MC) also may be accommodated in its own Sector (S — 1).

476 One Genesis of Non-Conventional (MC)

Most of the Non-Conventional (MC), listed in the table in Sec 472, give us an insight into one possible genesis of theirs. They are methodologies. They have evolved in course of time—most of them only in recent years—from the systematisation of the method of preparing the respective Approach Materials. They have been distilled out, so to speak, from long-continued rule-of-thumb methods, as distinct disciplines. These disciplines were first embodied in a sparse way in articles only, and therefore, figured only as micro-thought. Till very recently, classification schemes did not attempt to classify micro-thought to the point

of individualising them. Therefore, the need for finding places for the science and art forming the discipline was not felt. But some of these disciplines have now been cultivated with sufficient elaboration and have even approached the status of macro-thought embodied in books. Further, none of these can be expressed in terms of the existing (MC). Therefore, they have to be treated as (MC). Class Numbers, with mnemonic affinity to the Isolate Numbers of the corresponding Approach Materials, have been chosen to represent them.

477 A Second Genesis of Non-Conventional (MC)

The new (MC) '8 Management' demonstrates another possible genesis for a Non-Conventional (MC). 'Management-in-action' has been in existence ever since man came into existence. For example, the *Srauta-sutra* (book of Vedic Rituals) reveals meticulous details in regard to location, lay-out, flow of work, personnel, and organisation as a whole. When the magnitude of an enterprise increased, the situation was met by the method of trial and error. With the advent of industrial revolution, Management assumed enormous dimensions. Even then, during the last century, the expansive exploiting economy of the few wakeful countries, made possible by vast colonial regions in the resting phase of their culture, allowed wasteful trial and error techniques in the management-in-action. However, the archives of the manufacturing and commercial houses of the nineteenth century show how, though guided by sheer instinct, management-in-action was moving along more or less helpful lines. This could not be for long. By the beginning of the Twentieth century, it became necessary to study and develop 'Management' as an independent discipline. By common consent the first classic on the subject is taken to be F W Taylor's *Principles and methods of scientific management* (1911). Then came H Fayol's *Industrial and general administration—forecasting, planning, organisation, command, control* (French Ed 1925 and Eng Ed 1929). The ever-lasting play of the cycle of scientific method on 'Management' was emphasised by Mary P Follet in a series of papers presented between 1924 and 1933 and later brought out by H C Metcalf and L Urwick as *Dynamic administration* in 1945.

These classics touched off a precipitation of literary warrant on the discipline of Management. This now challenges a place in the (MC). There are already a few hundred volumes. Books on special branches of Management have also begun to appear. Colleges of Management Science are being established all the world over, from the Management of Government through the management of industrial enterprises, schools, hospitals, and down to the management of household. Management is now found to be capable of achieving greater productivity by the application of the Principles of the Science of Management. Therefore, research in the pure Theory of Management and production of periodicals as well as books on it have become sufficiently great to justify regarding Management as a new (MC). Even before determining the Class Number for the "Theory of Management" as a (MC), a schedule for classification of subjects going with it was worked out in 1956. At that time the Class Number '(X)' was provisionally used to represent it in the Array of (MC) [11]. Now it is given the Class Number 8 in the Sector (S – 1). The digit '8' is mnemonic with the digit '8' used to represent the isolate idea 'Management' occurring in subjects going with several Conventional (MC). Even Personnel Management has to figure as part of the Theory of Management. In the past, trade unions and strikes were normally associated with the manual labourers in factories. But now they obtain also among the clean collared workers—members of the legal profession, civil service, teaching profession, and so on. Therefore, Personnel Management can no longer be taken as peculiar to the (MC) Economics. A general theory is being developed. It can only go with '8 Theory of Management'.

48 Extrapolation

Extrapolation at the end of the Array of (MC) can be made with the help of Emptying Digits. The Class Numbers ZT, ZU, ZV, ZW, ZX, ZY, and ZZ are available for any entry to be directed by the Idea Plane, to be inserted after 'Z Law' in the Array of (MC). It may be remembered that this provides for infinite extrapolation. Naturally, no need should arise to extrapolate anything at the beginning of the Array of (MC)—that is, before

the Comprehensive class z 'Generalia'. However, the Notational Plane is prepared even for this. For, it can use the numbers zz1, zz2, ... zz8 etc .... zzY for extrapolation at the beginning. In these numbers the second z is an Emptying Digit. Further, z followed by z1, z2, etc will naturally come anterior to z itself, as second z has anteriorising value.

5 BASE OF THE NOTATIONAL SYSTEM

51 Emptying Digit: Stand-by Only

The use of Emptying Digits for interpolation and extrapolation either in the Array of (MC) or in any other Array of any Basic Facet or Isolate Facet, can only be a stand-by. Whatever capacity the Notational System may have for interpolation and extrapolation, it will be awkward to use that capacity from the very start. Its use will add an extra digit to the (MC) Number, or the Array Isolate Number as the case may be. Therefore, the use of the Emptying Digit should be deferred as much as possible. In other words, the Notational System should have a sufficient number of single digits for the use in an Array. The Base of the Notational System should be as long as possible. Its length was first studied in 1951 [24]. Further, with the help of Empty Digits we can add to the Array, numbers of two or more digits to accommodate classes or isolates of the first order as viewed from the Idea Plane. No doubt, as viewed from the Notational Plane, these extra numbers may appear to belong to Orders 2, 3, 4 etc. This does not matter. These extra numbers will be brought into use only when the capacity of one-digited numbers is over-reached. In DC and UDC, the Base of the Notational System admits only of ten digits. As it has no Empty Digit, the Base cannot be extended even with two-digited numbers. On the other hand, CC has not only an intrinsically longer Base of single digits; but it also admits of the Base being extended with numbers of two or more digits with the aid of its Empty Digits.

52 Table of the Capacity of the Base of CC Notational System

Here is a summary table of the capacity of the Base of the Notational System of the CC. In Column 3 it gives the number

of numbers available for use in Array of Order 1 with 1, 2, and 3 digits respectively. The number of (MC) Numbers is the same as the number for the Array of Order 1 of the Basic Facet. In Column 4, it gives the number of numbers available for use in any Array of Order 2 onwards.

Facet	Boundary Condition	Array of Order 1	Array of Order 2 onwards
Basic Facet Number	1 Digit	34	24
	2 Digits	87	128
	3 Digits	299	684
Isolate Facet Number	1 Digit	53	24
	2 Digits	212	128
	3 Digits	901	684

521 Versatility of the CC Notational System

The capacity of the Base of the Notational System of CC given in the table in Sec 52 shows the extent to which its versatility has been brought out at present. Its versatility is made even greater by the Emptying Digits, and the Connecting Digits shown in Sec 62. But this versatility was not realised when the Notational System was first conceived in 1924. In fact, we have gone through five stages of investigation till now. In 1924 when the design of CC was started, a Mixed Notation of Roman Smalls, Indo-Arabic Numerals, and Roman Capitals was chosen almost casually without any knowledge of its advantages. Its versatility was not realised for a long time. This was because the books classified did not demand it.

53 Stage 1 of Investigation

In 1947, Donker Duyvis, the Secretary-General of the FID invited Ranganathan to contribute a paper on Classification for Documentation [10]. He was also invited to the FID Conference in The Hague in 1948. This established contact between India and the FID. This contact is still continuing. In 1950, the FID

established its Committee FID/CA (Committee on General Theory of Classification) and entrusted its work to Ranganathan. He continued to have charge of it. About ten years later, it was replaced by the FID/CR (Committee on Classification Research). India's contact with it is still continued through Ranganathan being its Honorary Chairman. This continuing contact with FID has resulted in stimulating research in India in Classification problems—particularly, in the Depth Classification needed for the Documentation of Micro-thought. The exploration of the possibilities of a Mixed Notation has been one of the areas of continuing research. Since the CC is the only scheme which has a full-fledged Mixed Notation, its Notational System has been used all along as a guinea pig. The first findings were incorporated in 1952 in the second report to the FID/CA [22]. This contained a preliminary examination of the versatility of the Mixed Notation of CC.

54 Stage 2 of Investigation

Subsequently, the concepts of Zones in arrays, Versatility Table, and Efficiency Table were developed. The results of the investigations were published in Report 5 to FID/CA in 1955 [34] and in Report 6 to FID/CA in 1956 [17]. The Fifth Report investigates the way in which the four Zones in an Array can be utilised. The Sixth Report applies the Efficiency Table to detect the unused Sectors in Zones and works out possible uses for them. This investigation discloses also that the Zones and Sectors in an array in the Notational Plane have correlates in the Idea Plane itself. This proved to be a great help.

55 Stage 3 of Investigation

In 1962, the teaching of the subject in the DRTC led to a third investigation of the versatility of the CC Notation. The results of this were published in 1963 [19]. This investigation showed the possible number of Array Isolate Numbers to be 645.

56 Stage 4 of Investigation

In 1963, the Research Cell in DRTC began the study of the methodology for the Designing of Depth Classification. This

led to a re-examination of the capacity of the Base of the Notational System of CC. The results of this were published in 1964 [16]. This investigation showed the possible number of Array Isolate Numbers to be 1,378.

57 Stage 5 of Investigation

During 1964 and 1965, the Research Cell in the DRTC applied the methodology for the Design of Depth Classification to the subjects going with about 90 Basic Classes. This work brought to light some further capacity of the Mixed Notation of CC. In particular, it disclosed the possibility of creating the Sector (S – 0). This increased the number of Array Isolate Numbers [8]. But, as a result of setting apart the digits T to Z as Emptying Digits, some Array Isolate Numbers were lost. As a result, the number of Array Isolate Numbers in an Array of Order 2 onwards became 684. Further, it was found that the number of Array Isolate Numbers in an Array of Order 1 is 901. The number of (MC) Numbers available is 299.

58 Book Level

At Book Level, there will not be need, for many years, to bring into use all the (MC) Numbers and Array Isolate Numbers included in the Summary Table in Sec 52. But some of them will have to be gradually brought into use. For, as time goes on, it often happens that what was micro-thought and got embodied only in articles in the past, gets embodied in books and thereby, becomes macro-thought for purposes of classification even in generalist libraries. In Edition 7 of CC several (MC) Numbers belonging to Sectors (S – 9*a*) and (S – 9A) are included (*see* Table in Sec 41). Because, there are already books on the subjects represented by them. It is for this reason, that a full Census has now been taken of the (MC) Numbers and the Array Isolate Numbers known to be possible at this stage.

6 HOSPITALITY IN CHAIN

61 Decimal Fraction Notation

The Decimal Fraction Notation introduced by DC is fully adopted by CC. This gives Hospitality in Chain. But this

Hospitality is now found to be insufficient. On the other hand, it freezes all the earlier Facet Numbers. Consider the following Class Numbers in DC :

373	Secondary schools
373·11	Teaching personnel in secondary schools
373·112	Professional qualifications
373·222	Non-public
373·224	Public

There is no means of providing a number to represent professional qualifications of teachers in public schools. We have to omit either the facet Public School or the facet Professional Qualifications. Generally, even otherwise, if one of the facets is kept free, the other has to be kept frozen. This is a restriction of Hospitality in Chain. In Edition 17 (1965), some attempt has been made to retrieve DC partially at least from this handicap, at least to the extent of the needs of a Public Library.

62 Faceted Notation

It is now generally recognised that to secure strictly helpful and filiatory sequence among subjects, it is necessary to use Faceted Notation. In this notation, the Chain of a Class Number can be lengthened not only at the end of the last facet, but also at the end of any one of the earlier facets. This richness of proliferation is found to be absolutely necessary. The UDC Notation carries out this idea to some extent. The CC now carries it out to a much larger extent. To use a Faceted Notation, what is wanted is a system of Connecting Digits to connect one faceted number to another within the Class Number.

63 Development of Connecting Digits in CC

The following table gives the development of the Connecting Digits in CC from Edition 1 to Edition 7. It also gives in the last column the Connecting Digits in UDC.

Connecting Digits for	Edition Number of CC					UDC
	Ed 7 1968	Annexure Ed 6 1963	Ed 4 1952	Ed 2 1939	Ed 1 1933	
Phase	0	0	0	0	0	:
Time	'	'	.	:	:	" "
Space	.	.	.	:	:	( )
Energy	:	:	:	:	:	— *or* ·0 *or* :
Matter	;	,	;	:	:	— *or* ·0 *or* :
Personality	,	,	,	:	:	— *or* ·0 *or* :
Super-imposition	—	—	—	—		
Multinomial in alpha-betical device	=					

As the table shows, it has taken more than three decades to develop the Connecting Digits to the present stage. The five stages mentioned below may be recognised in its development.

64 Stage 1 (1933)

The Digit ':' was the only Connecting Digit used when the Colon Classification was designed in 1924. Generally speaking, it preceded every Facet Number. It did not distinguish the quality of one facet from that of another as Time Facet, Space Facet, Energy Facet, Matter Facet, or Personality Facet. This differentiation of facets has not been conceived in 1924. All that was seen was the presence of two or more facets in a subject and the need to make the Class Number show forth the facets in its own structure. Further, '0' was used as the Connecting Symbol for a phase. It preceded the second phase in a Phased Class Number. These two Connecting Digits were included in Edition 1 (1933).

65 Stage 2 (1939)

Between 1933 and 1939 occasion arose to combine the Isolates in one and the same schedule and form a Compound Isolate.

Example: L74–136 Nerves in the thigh.

For this purpose, '–' was used as the Connecting Digit. This is now called Super-imposition Digit. The device is called Super-imposition Device. This third Connecting Digit was included in Edition 2 (1939)

66 Stage 3 (1952)

In the interval between 1939 and 1952 books appeared calling for several facets. Among the subjects going with the same Basic Class, some subjects had, say, 5 facets; some had only the first and the last of these; some others had only the first and the third of these; and so on. This created a problem. Investigations made from 1947 onwards led to the recognition of Five Kinds of Facets, regarded as Manifestations of the Five Fundamental Categories, Time, Space, Energy, Matter, and Personality, respectively. These facets were called respectively Time Facet, Matter Facet, etc. This led to the use of different Connecting Digits to precede the different kinds of Facet Numbers [21]. The punctuation marks were selected for this purpose. Four additional Connecting Digits were included in Edition 4 (1952). But there were only four punctuation marks, as against five Fundamental Categories. Therefore, as shown in Column 3 of the Table in Sec 63, the Connecting Digit "Full Stop" was used both for Time and Space Facets. To provide for such a sharing of the same Connecting Symbol by the two Kinds of Facets, the Time Isolates were confined to the Sector (S – A) and the Space Isolates to the Sector (S – 1). This worked satisfactorily so long as books alone came to be classified.

67 Stage 4 (1963)

Between 1953 and 1963, detailed schedules were worked out for Time and Space Facets for use in Depth Classification. Here it was found that levels of Time, and Space had to be provided for. For Time Facet, we recognised the Level of Featured Time in addition to Public Time. For Space Facet, we had to recognise the Level of Featured Space and the Level of Population Clusters in addition to the usual political and other geographical divisions.

To accommodate them, the first order array of the Schedule for Time Facet as well as the Schedule for Space Facet had to be given the freedom to occupy all the zones and sectors. But the use of the same Connecting Digit for both Kinds of Facets prevented this from being done. Several make-shift arrangements were tried out. They were not satisfactory. At long last, light came in 1960. In that year, Shri P B Roy came and worked with Ranganathan at Bangalore for a few months. The problem of finding a new Connecting Symbol for Time Facet was discussed with him. He made the brilliant suggestion that the 'inverted commas' used to begin a quotation, might be used as a Connecting Digit for the Time Facet. After some experiments, it was finally decided to use a single 'inverted comma' [15]. This is giving satisfactory results. Therefore, it was incorporated in the Annexures to the 1963 reprint of the Edition 6 of CC.

68 Stage 5 (1965)

All along, the Works of a poet, a dramatist, etc got Isolate Numbers by enumeration. For this purpose, the Works were all arranged chronologically, if practicable, or in any other way and then numbered either 1, 2, 3, or with the use of group notation of 2 digits or 3 digits, depending upon the total number of Works to be accommodated in the array [13]. The same practice was also followed in giving Isolate Numbers to the individual Works of Classical Authors, as shown in Part 3 of CC. This was involving much work on the part of the Classificationist and the Classifier, without a corresponding increase in help to the users. This problem was investigated in 1963. It was finally decided to use the Alphabetical Device to construct the Isolate Numbers of Works. It turned out that in some cases, Binomial Alphabetical Numbers were necessary in the Classification of Virus and Bacteria, and of Cultivars in Agriculture. At first, '-' (hyphen) was used as the Connecting Digit to connect together the two members of a Binomial [9]. The Research Cell of the DRTC applied this device elaborately not only in the case of the Works, Cultivars, Bacteria, Virus, but also in the case of different brands of machinery. It was discovered that homonyms were created in the Notational Language — that is, in the Notational

Plane — by the use of the same Connecting Digit '—' both in the case of Super-imposed Isolate Numbers and Binomial Isolate Numbers got by Alphabetical Device. Then came the brilliant suggestion of S Seetharama that the '=' — looking like 'equal-to' sign — might be used as the Connecting Digit in the case of Binomial Isolate Numbers got by Alphabetical Device [6]. This means adding one more digit to the Notational System of CC. The general policy is not to introduce new digits in a light-hearted way. After a good deal of thought, the newcomer has been provisionally admitted. It will be incorporated in the forth-coming Edition 7 of CC.

7 FUNDAMENTAL CATEGORY ENERGY

71 Edition 1 of CC

In Edition 1 of CC, there was hardly any schedule for Matter Facet. In fact, this is so even in Edition 6. At the heads of schedules for Personality Facets descriptive names, such as Organ Facet and Educand Facet, were used. There was no difficulty in recognising or naming the Time and Space Facets. But at the heads of all the schedules for Energy Facets, the term 'Problem' alone was used uniformly.

72 Wrong Lead

In Edition 4 (1952), which incorporated the idea of the Five Fundamental Categories, all the schedules for 'Problem' Divisions were blindly taken to be schedules for Energy Facet. For example, in 'G Biology', 'I Botany', 'K Zoology', and 'L Medicine' the isolates Morphology, Physiology, and Disease were included in the schedule for Energy Facet. In 'S Psychology' the isolates Cognition, Emotion, and Personality were included in the schedule for Energy Facet. In 'Y Sociology', the isolates Anthropometry, Social Practices, and Social Pathology were all included in the schedule for Energy Facet. In an unthinking way, this has been continued all along. We had even gone one step further. In describing the Fundamental Category Energy, this practice was forcedly confirmed as follows:

"A perusal of the problem schedules of different basic classes in the fourth edition throws some light on the nature of Energy Manifestation. They include categories of the following:

"(1) Action by human agent (such as, exploration, designing, construction, repair, generalisation, abstraction, enumeration, verification, criticism, grading, etc);

"(2) Reciprocal action and/or relation (other than phase relation) among:

"(i) Concrete entities (such as physical and biological); and

"(ii) Quasi-concrete entities (such as natural groups in biological sciences) and social groups in social sciences;

"(3) Method used in action or involved in reciprocal action; and

"(4) An array of categories such as structure, normal functioning, abnormal functioning, evolution from one form to another, and development of one and the same form."

73 Re-Thinking

In 1958, the idea of Common Property Isolates was started. Of what Fundamental Category is 'Property' a manifestation? This was the first problem to be solved. With the help of the practice in Thesaurus, it was decided to treat 'Property', as if, it were a manifestation of the Fundamental Category 'Matter'. This has led to some re-thinking about the practice of deeming Morphology, Physiology, Disease, Emotion, Personality, etc as manifestations of Energy. It is now felt that these should be taken to be 'Properties'. And, therefore, these should be deemed to be manifestations of 'Matter'. The result of this is that the Connecting Digit preceding the numbers for them should be ';' (Semicolon). The first instalment of this change-over is made in the forthcoming Edition 7 in a few near-certain cases, such as those mentioned above. No doubt, this results in the Array of Order 1 of Matter Facet, being shared by Property Isolates and Material Isolates, as we deem both of these to be manifestations

of the Fundamental Category 'Matter'. For convenience, we may distinguish them as Attribute Matter Isolates and Material Matter Isolates. The present proposal is to reserve Zone (Z — *a*) and Sector (S — 1) for Attribute Matter Isolates and the other Sectors of Zone (Z — 1), Zone (Z — A) and Zone (Z — ( )) for Material Matter Isolates. Whether this will create any problem, can be disclosed only by future experience.

8 CHANGES IN CLASS NUMBERS

81 Change Inevitable

811 New (MC) and Basic Classes

The Universe of Knowledge is ever changing. In certain epochs, this change becomes turbulent. It has been severely so since the World War II. New (MC) and Basic Classes are being thrown forth. These have to be accommodated among the old ones in their respective filiatory positions. The classificationist and the classifier are not responsible for this call for change. They have merely to accept the call and carry it out.

812 Change in Filiation

A newly emerging subject sometimes calls for a re-examination of the filiations currently recognised among the existing classes. These may call for change in Class Numbers. That is why hundreds of relocations have been made without hesitation in Editions 16 and 17 of DC. Generally speaking, as and when the Theory of Library Classification is refined, the incidence of Change in Filiation will decrease. However, it can never disappear. For, the happenings in the Universe of Knowledge are not fully predictable to enable the Theory of Library Classification to anticipate all of them and for the classificationist to so make the lay-out of library classification, as to avoid any change in Class Number in future.

813 New Proliferations

There is endless proliferation of the chains in the subjects going with a Basic Class. A proliferation can start off from any

link in any chain having the Basic Class as the first link. Till a few decades ago, a subject with surprise proliferations of this kind — the micro-subject as we call it — was embodied only in articles in periodicals; and these were not classified. But, of late, many such subjects are getting embodied in books also. Further, articles also are now being classified. There is need, therefore, for the Notational Plane of a scheme for classification to be made to take the load of all such proliferations. The Theory of Library Classification formulating Postulates and Principles for the Facet Analysis of subjects and the construction of schedules for the several kinds of facets, now provides one method of enabling the Notational Plane to take that load. Bringing of an old enumerative scheme in conformity to those Postulates and Principles — or to any other equivalent ones — would virtually amount to burning the boat and starting again. Naturally, there is resistance to this. The escapist attitude induced by this is to differentiate between the so-called General Classification and the innumerable Special Classifications. While taking this attitude, the eyes are inevitably closed to the chaos which will be bequeathed thereby to the future generation. The development of the Theory of Library Classification referred to above has not yet been completed. It is still in the stage of development. In particular, no objective foolproof criterion has yet been formulated to determine the Fundamental Category of which a particular facet of a particular subject should be deemed to be a manifestation. Even to reach the present state in Notational Plane, it has taken nearly two generations. Therefore, we should expect some changes to be necessary in respect of the Fundamental Category manifested in the Facet and the Connecting Digit to be used for it. This change due to the development in the Theory of Library Classification is inevitable. For, as time goes on, the happenings in the Universe of Knowledge will outwit any Theory of Library Classification.

82 Change in DC Notation

821 New (MC) and Basic Classes

All the 1,000 Class Numbers available on the basis of the Group-Notation of Three Digits had been fully used up in DC.

Therefore, it has not been possible for DC to accommodate a new (MC) or Basic Class in the filiatory position demanded by the Idea Plane. But from Edition 16 onwards, extrapolation has been made at the beginning of the Array by having Group Notation with zeros as the first two digits. Therefore, the old class numbers, if any, given to them should be changed. But there may not be many cases calling for this change.

822 Change in Filiation

But in respect of accommodation of Change in Filiation, the position has been different. According to the Introduction to Edition 17 (1965) of DC "The general tables of this edition contain 746 relocations of topics from the places provided for them in Edition 16 (1958). 378 are total ... 368 are partial... This compares with 1603 relocations in Edition 16 (1958) from provisions of Edition 14 (1942) and Edition 15 (1952); of these 832 were total and 771 were partial" [5].

823 Proliferations

The foundation of DC Notational System were not designed to take the endless proliferations referred to in Sec 813. And yet, Edition 17 makes some desperate attempt to give some token satisfaction, as it were, in the matter of proliferations.

83 Change in CC Notation

831 New (MC) and Basic Classes

The Notational System of CC admits of endless extrapolations and interpolations in any Array as has been shown in the earlier sections of this paper. Therefore, much need has not arisen so far to change any of the existing Class Numbers to accommodate the new (MC) and Basic Classes. In the trial-and-error method used during the last ten years, before the present firm principles were established, it led to a few changes in Class Numbers, such as those for Theory of Conference and Theory of Management. But such subjects are few. The books on each of them are also few. In all probability, the number of such books, acquired by libraries up to the present time, will be fewer

still. Therefore, the correction work will not be appreciable. Except in these few cases, there will be no need for shifting whole sets of books and catalogue cards from one place to another.

832 Change in Filiation

The CC has had all the advantages of having been designed half a century after the DC. During this period, a much better knowledge of filiations among subjects and the probable lines of development of some of the subjects had been obtained. Therefore, the number of changes in the Class Numbers of CC, demanded by Change in Filiation among subjects, is much smaller than in DC. Further, the concepts of Partial Comprehension of classes takes away a good deal from the edge of the demands of Change in Filiation. However, the users of CC should be prepared for changes in some Class Numbers, though not in as many as the users of DC may have to be.

833 Proliferations

The capacity of the Notational System of CC to meet the ever-increasing number of proliferations from each of the links, not merely from the last of the different Chains of Classes, is being steadily increased during the last 40 years. This has led to the Change of the Connecting Digit in some Class Numbers. Another change made was the replacement of the digit '9' by the digit '*g*' to represent 'Evaluation'. But the changes are not, generally speaking, wholesale changes of Class Numbers. These changes either in the Connecting Digits or in the digit for 'Evaluation' will not disturb the relative position of the books in the Shelves or that of the Main Cards in the Catalogue. The numbers with the old Connecting Digits and those with the new ones can be filed together without much difficulty. For example, the change-over from the Connecting Digit 'Colon' into 'Semicolon' as prescribed in the forthcoming Edition 7, in some of the old books and their entries in the Catalogue will not cause any immediate disturbance. The old and the new can be filed together without much difficulty in insertion or retrieval. The actual correction of the Connecting

Digit can be done at leisure, as pick-up work. Fourth Class Employees can be trained to do this correction. This had proved practicable in the Madras University Library, when several corrections had to be made in Class Numbers during the first ten formative years — 1925 to 1935. In any case, all these corrections may be done according to the Principle of Osmosis [12]. In other words, the correction can be made as and when books are returned by users after use — day after day. This will stagger the correction work into such small bits that it can be done as pick-up work.

84 Inertia

The library profession should guard itself against the havoc of Inertia. It should not hold on to an outmoded early edition of a scheme for classification and ignore the more up-to-date editions. Some members of the profession still hold on to the Edition 3 (1950) of CC and Edition 11 (1922) of DC and refuse to bring their classification up-to-date. Unfortunately, even some of the departments of library science continue to teach only earlier editions. The excuse usually given is, "Too many changes!" Mind is not applied to study the changes carefully, to find out that they often require only adding or changing an end digit here or there or a Connecting Digit—and not wholesale change of Class Numbers except in a few classes and a negligibly small percentage of books; and even there, only new subjects not having much literary warrant. Not even a small pilot project of correction is carried out before pronouncing an opinion. Serious notice is not taken of the suggestions contained in Sec 833 for carrying out the corrections either as pick-up work or through Fourth Class Employees, or by the Method of Osmosis. Till 1958, it was often pleaded that there would have been no need for change of class numbers if DC had been adopted. But that excuse has been taken away by the DC itself through the enormous number of changes in class numbers in its Edition 16 of 1958, and still further number of changes in Edition 17 of 1965. The old Inertia having lost that excuse asks the Stay-Put members of the profession to refuse to change from the earlier editions of DC. This, the profession does in spite of enterprising promoters of

DC making a free supply of several copies of the costly new Edition 17 of DC to the libraries of the country.

85 DC Shows the Way

The library profession cannot play King Canute. It cannot order the continuing waves of development in the Universe of Knowledge to stop. Nor can it pass Stay-Order against the continuous refinement of the Theory of Library Classification. Can the profession, then, play the ostrich? Can it close its eyes to what is happening in the Universe of Knowledge and in the refinement of the Theory of Library Classification? The old DC by which Inertia made the Stay-Puts in the profession refuse to change, has now given up the old theory of 'Integrity of Class Numbers'. It now argues [4].

> "In the making and editing of any enumerative classification, two basic principles are constantly in conflict. One is the DC traditional policy of integrity of numbers, which enables its users to depend on each new edition to include few or no relocations of topics ··· thereby achieving continuity and avoiding the cost of reclassification. The other principle is the philosophy of keeping pace with knowledge, which holds that any classification scheme, to retain its usefulness must, from time to time, restate or redefine and regroup or rearrange subjects according to the changed concepts of a new generation. The first principle, strongly urged by Melvil Dewey, governed largely the editorial policy of the first 14 editions (tho there were more changes than most librarians realize); the second principle governed largely the editorial policy of Edition 15 ···
>
> "Numerous factors now led the editors and the members of the Decimal Classification Editorial Policy Committee to the conclusion that a reasonable amount of continuing change thru relocation is not only desirable but inevitable.
>
> "··· In a world where knowledge is growing and changing at a rate increasing by geometric progression, whereas a result demands on libraries and information services become

increasingly pressing and exacting, it is easy enough to see that a static and inflexible, "leave-well-enough-alone", system for the subject organization of book collections will in a short time lose most and eventually virtually all its utility, except perhaps as a vestigial system of addresses or "slots", in which case arrangement of books by author or size would commend itself as equally if not more satisfactory.

"··· Classifiers following a system that lacks the subject integrity and consistency of which relocation is an unavoidable concomitant cannot properly class titles on new or old subjects not specifically named in the tables or index ···"

This is the right way in which the library profession should discharge its social responsibilities to the users of library and to the future generation of librarians.

86 Inexorable Geographical Schedule

Even the most inert in the library profession cannot escape changing the isolate numbers for geographical isolates. The boundary lines of Sovereign Countries are changed from time to time. The boundary lines of the Constituent States of a large country change more frequently. The boundary lines of the administrative divisions of a country or a constituent state — called counties, districts, taluks, and so on — change even more frequently. Sometimes they increase in number; sometimes they decrease. Can we afford to keep, for ever unchanged, the same old geographical numbers. The Edition 7 of CC, perhaps, minimises the occurrence of non-filiatory sequence in geographical schedules, with the aid of its now postulated Emptying Digits. All these inexorable problems going with the geographical schedule are discussed in the next paper — Paper K — by M A Gopinath and Vijay Kumari Malhotra.

87 Appeal

To a large extent the changes introduced in the forthcoming Edition 7 (1967) of CC concern the Idea Plane. A new presentation of old ideas runs behind many of the changes. In

some cases, they imply also changes in the Verbal Plane, resulting in and leading to precision and refinement in the Idea Plane. These changes will not affect the Class Numbers already given. In regard to the few changes in the Notational Plane, summarised in Sec 833, an appeal goes to the library profession to take to heart the quotation from Edition 17 (1965) of DC given in Sec 85 and follow the procedure for Correction Work suggested in outline in Sec 833. The routine for the several jobs involved in the work of correcting Class Numbers has been fully worked out elsewhere [18]. As we began, so we end. We shall be thankful for comments and suggestions on the changes proposed to be made in the forthcoming Edition 7 and outlined in this paper in a historical setting.

9 BIBLIOGRAPHICAL REFERENCES

Note.—1 The following is the list of documents used.

2 Column 1 of this bibliography gives the serial number of the documents included in it.

3 Column 2 of this bibliography gives the number of the section in the text, where the reference to the document is made.

1 Sec 25 BLISS (H E). Organisation of knowledge in libraries. Ed 2. 1939. Chap 2, Sec 7.

2 Sec 25 *Ibid.* Chap 3, Sec 10.

3 Sec 25 *Ibid.* Chap 4, Sec 6.

4 Sec 85 DEWEY (M). Decimal classification. Ed 17. V 1: P 46-7.

5 Sec 822 *Ibid.* P 48.

6 Sec 68 GOPINATH (M A) etc. Connecting symbol for alphabetical device for multinomials (Her lib sc. 4; 1965; Paper ZZA).

7 Sec 31 NEELAMEGHAN (A) and GOPINATH (M A). Productive methods in the design of a scheme for depth classification: Case study. (DRTC Seminar (3) (1965). Sec C12).

8 Sec 57 NEELAMEGHAN (A) AND GOPINATH (M A) Zero increases hospitality. (DRTC Seminar(3) (1965). Paper D).

9 Sec 68 RANGANATHAN (S R). Alphabetical device and multinomials. (An lib sc. 10; 1963; Paper H).

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13 Sec 68 ——. Colon classification. Ed 6 (Reprint). 1963. Part 1, Sec Q4.

14 Sec 28 ——. Colon classification. (Rutgers seminar on systems of intellectual organisation of information. 4). 1965.

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16 Sec 56 ——. Design of depth classification: Methodology. (Lib sc. 1; 1964; Sec A45).

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23 Sec 21 ——. *Ibid.* Sec 5720.

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27 Sec 28 ——. Ed 2. 1957.

28 Sec 27 *Ibid.* Sec 152.

29 Sec 27 *Ibid.* Sec 218.

30 Sec 27 *Ibid.* Sec 3311.

31 Sec 27 *Ibid.* Sec 3312.

32 Sec 27 *Ibid.* Sec 3313.

33 Sec 44 ——. Spiritual experience and mysticism. (Memoirs. Madras Library Association. 1940. P 121–46.)

34 Sec 54 ——. Zones in arrays. (An lib sc. 2; 1955; 33–9)

35 Sec 28 RICHMOND (P A). Aspects of recent research in the art and science of classification. 1965. P 13.

36 Sec 24 SAYERS (W C B). Manual of classification. Ed 3. 1955. Sec 119, 120, 122.

37 Sec 23 ——. *Ibid.* Sec 125.