DECIMAL CLASSIFICATION AND
COLON CLASSIFICATION IN PERSPECTIVE

Ranganathan Series in Library Science

DECIMAL CLASSIFICATION AND COLON CLASSIFICATION IN PERSPECTIVE
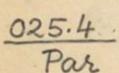
by

R S PARKHI

With a Foreword by

Dr S R Ranganathan
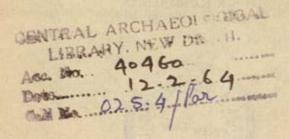M A, D LITT, L T, F L A

ASIA PUBLISHING HOUSE
BOMBAY · CALCUTTA · NEW DELHI · MADRAS
LUCKNOW · LONDON · NEW YORK

Raghunath Shatanand **Parkhi** (1901)

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To

PADMASHRI DR S R RANGANATHAN

M A, D LITT, L T, F L A

with deep sense of gratitude and high regards
with his kind permission

iii   FOREWORD

had trained teachers to take charge of to many schools at
at once. In this context, the value of Parkhi's book is greatly
enhanced.

FOREWORD

Shri R S Parkhi's book, *Decimal Classification and Colon
Classification in perspective* is a notable addition to India's
library literature. The movement of ideas in the book is vigo-
rous and helpful. The exposition is lucid and appetising. The
examples are plentiful. These light up every point made in the
theory.

The book shows a sound grasp of all the classificatory techniques,
of all the basic principles of the discipline of classification, and of
even the ones just being developed in this country and elsewhere.
This is a measure of the promptness and the thoroughness with
which Parkhi keeps pace with the growth of the subject as disclosed
not only in the latest books but also in the latest articles in the
learned periodicals current today.

There is ample evidence that this book is based upon years of
experience in teaching library classification. Indeed the author has
taught library classification for nearly a decade—first in the
University of Bombay and then in the University of Poona. The
author has shown great insight into the difficulties of the learner.
He has learnt where the teacher should go slow, where he should
build on concrete experiences, and where he should take the
students in theoretical flight.

Fortunate are the students privileged to be taught library
classification by Parkhi. It is thoughtful of him to have com-
mitted to writing the development of the subject in the context
of an able devoted teacher and willing interested students, found
by him in the Universities of Bombay and Poona respectively.
To give the benefit of this stimulating exposition of library
classification to the future students in all the universities giving
courses in library science, this book is being published by the
Asia Publishing House, who are pioneer publishers in renascent
India.

This book is also a teacher's book. Library schools exist in
India in more than a dozen universities at the post-graduate
degree level for professionals and in several centres at the certifi-
cate level for semi-professionals. They are being added to every
year. This expansion has been sudden. It is not easy to

find trained teachers to take charge of so many schools all
at once. In this context, the value of Parkhi's book is greatly
enhanced.

S R RANGANATHAN

Hon Professor
Documentation Research
and Training Centre,
Bangalore-3.
October, 1963

PREFACE

This book is the outcome of the lectures delivered by the author to the students of the Diploma in Librarianship of the University of Poona during the year 1958-59 to 1962-63.

1 Main Object

In preparing this book, the main object of the author is to place before the reader, the salient features and the latest developments of the two well known schemes of classification, viz the Decimal Classification of Dr Melvil Dewey and the Colon Classification of Dr S R Ranganathan, along with a comparative study of both these Schemes, based on the Canons, Postulates and Principles, enunciated by Dr Ranganathan in his *Prolegomena to library classification* and also in his other works on the subject.

2 Simple Elucidation of New Concepts

In this modest effort, the author has tried his best to give simple elucidation of most of the new concepts developed by Dr Ranganathan in the theory of classification with suitable illustrations. The elucidation and the illustrations are based on his day-to-day discussion on the subject in the class-room with the object of seeing how the students understand its technicalities and the new developments that have been taking place from time to time in its theory.

3 Curiosity about CC

Many friends in the library profession in India and abroad have often shown their curiosity to know in an easily understandable form, the novelties of the Colon Classification. They have also expressed their keen desire to have brought together, in a single volume, and in a fairly comprehensive form most of the ideas of Dr Ranganathan on classification with simple elucidation and examples, just to enable them to understand in their proper perspective the salient features of the epoch-making Colon Classification and the theory built by its author for a self-perpetuating

scheme of library classification. It is up to the reader to judge
how far the author of this book is successful in this modest effort.

4 Attempts Previously Made

Attempts in this direction have previously been made by Bernard
I Palmer and A J Wells in their *Fundamentals of library classifica-
tion* (London, 1951) and also by J Mills in his *Modern outline of
library classification* (first published in England in 1960; first
Indian edition 1962). In both these valuable works, the theory
of Dr Ranganathan has been lucidly explained. There is also
another book viz, *State of the library art series*, edited by Ralph
R Shaw (The Graduate School of Library Service, Rutgers—The
State University, New Brunswick, New Jersey, U S A), V1, P3, Ch
9, pp 287-343 by Maurice F Tauber and Edith Wise, 1961, which
contains observations of the various classification experts on the
Colon Classification. In addition, the following books contain
short summaries of the Colon Classification :

1 Bliss (Henry Evelyn).   *Organisation of knowledge in libraries,*
                            ed 2, 1939
2 Sayers (W C Berwick)   *Introduction to library classification,*
                            ed 9, 1955
3   „   „   *Manual of classification*, ed 3, 1955
4 Phillips (W Howard).   *Primer of book classification*, 1933
5 *Encyclopaedia of librarianship* (U S A, 1958)

5 Works Used

The author has made free use of most of the valuable contribu-
tions of Dr Ranganathan on the subject and in addition, he has
also used many other valuable works, such as those mentioned
above and those mentioned in the Bibliography in Annexure 1.
The author takes this opportunity to express his profound gratitude
to all the authors whose works he has either freely used or consul-
ted in the preparation of this book.

6 How to Understand CC?

Some readers of Dr Ranganathan's works on classification, say
that they find it difficult to understand the theories developed and
the new concepts introduced by him in the science of library classi-

fication. This is mostly due to their unfamiliarity, in a fairly comprehensive manner, with various of his writings on the subject and also due to the lack of actual experience in classifying documents of different levels of thought—macro as well as micro—according to the latest developments of the Colon Classification. It is the sincere and honest opinion of the author of this book that to understand this Scheme, in its proper perspective, and the theory built up by Dr Ranganathan, it is quite necessary to develop sufficient familiarity with most of his writings, so far published, on the subject, and also side by side to have the necessary practice of classifying documents of different levels of thought, according to the Scheme. Without systematic practice, the theory of classification is difficult to understand; and hence it is necessary to actually classify documents, according to the Colon Scheme, of a considerably large and varied collection, before one hastens to pass any adverse remarks on the Scheme.

7 Responsibility of Indian Librarians

The fraternity of Indian librarians have a great responsibility to study the Scheme very carefully and to continue research on it for its further development, as the author has been constantly doing almost single-handed since its first publication, and declare it as the *National Scheme of Classification for India* by practising it in all types of libraries in the country. Unless this is done, the outstanding qualities of the Scheme with which it is equipped by the author, cannot be properly understood and evaluated. In this connection, the remarks of Maurice F Tauber and Edith Wise, the learned authors of chapter 9 on the Colon Classification in V 1, P 3 of the *State of library art*, deserve to be seriously considered by the library profession in India. The authors observe as below.

8 Tauber and Wise on CC

"Since it is difficult to evaluate this as a working classification, it would seem desirable that at some time in the future a study be made of this application to library collection in India. How practical is this system, devised in a country with special needs and not tied to the shackles of a Western system? Just what problems, if any,

have been observed in its application?"

91 What Can We Do?

It is strongly hoped that the university libraries and the libraries of the research institutions in India will at once take hint from the observations of these two learned authors and let know the world at large their personal experiences of the application of the Scheme to the resources of their libraries. Any person in the profession, either a librarian holding a high position or a person of any lower position, passing any adverse remarks on the Scheme, without actually studying it and practising it in his own library, will be a serious cause for doing harm to the profession itself.

92 Author's Own Experience

During the period of about 38 years' active service in the profession, the author of this book had the valuable opportunity of working both the Decimal Classification and the Colon Classification in different libraries. The different types of libraries in which he classified the collection himself and guided others to do so are the following:

Type of Library	Scheme used
Three school libraries	CC and DC
Three college libraries	CC and DC
A university library	CC
A research library	CC
A government college of military engineering library	CC
A government navy library	CC
A journalistic library	CC
A bank library	CC
A Marathi library	CC
Two private libraries	CC and DC
A government regional library	CC
A government central library	DC

So, the personal experience of the author of working both these schemes in the libraries of various types tells him that the Colon Classification is quite suitable for adoption in any library in India without exception and is also easy to understand, if one has a genuine desire to learn and practise it and shows sincere devotion for the same. That, the so called controversy in respect of the

application of the Scheme to library collections in India is only superficial, can be easily seen by any impartial person from the observation of the author of this book which is based on long study and experience.

93 Intensive Teaching and Study Circles

Another point worth noting is that intensive teaching of both the Decimal Classification and the Colon Classification with the background of the Canons, Postulates and Principles of Classification must be done in all the training courses conducted by the various universities and library associations in India. Study circles for the special study of the Colon Scheme require to be organised at different centres in the country.

94 Ed 7 of CC

In the whole of this book, the reader will find numerous references to ed 7 of CC which is due to be published in 1964. In this connection, the author desires to state that while Dr Ranganathan was examining the typescript of this book, he advised the author to incorporate certain new features of ed 7 of CC and hence they have been incorporated in it. It is on account of this reason that the author has consistently mentioned ed 7 throughout this book.

95 Acknowledgments

Dr Ranganathan has critically examined, has given his valuable guidance to the author in the completion of the manuscript of this book for the press, and has kindly written his "Foreword" for the book. The development of the whole career of the author in this profession is entirely due to the great inspiration and fatherly affection and guidance that he has been receiving from Dr Ranganathan since he first sat at his feet in 1930. So, he cannot express in words how grateful he is to Dr Ranganathan.

The author takes this opportunity to express his gratitude to the authorities of the University of Poona and, in particular, to Shri K S Hingwe, the librarian of the Jayakar Library of the University, for kindly giving him the unique opportunity of teaching the

students of the Diploma Class in Librarianship of the University, during the period of the last five years.

The author was fortunate to have exchange of ideas with his friends while preparing the manuscript of this book for the press. In particular, he got immense help from his friend Shri K G Bhagwat, the retired Asstt Curator of Libraries, Maharashtra State. Shri Bhagwat not only gave the author the benefit of discussing with him but he also helped him during the process of the printing of the book, in the difficult task of proof correcting, preparing index and looking at the proper presentation of the matter in the book. Sincere thanks of the author are, therefore, due to Shri Bhagwat and also to his other friends for kindly helping and giving him all encouragement in the preparation of this book.

Whatever good points the reader may find in this book the credit for them goes to the great pioneering authors whose valuable works have been freely used or consulted by its author.

R S Parkhi

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CONTRACTIONS USED IN THE BOOK

(ACI)   Anteriorising Common Isolate
(AD)   Alphabetical Device
(BC)   Basic Class
(BCN)   Basic Class Number
(BF)   Basic Facet
(CD)   Chronological Device
(CI)   Common Isolate
(CID)   Common Isolate Device
(CIN)   Common Isolate Number
(CxC)   Complex Class
(CdC)   Compound Class
(CdCN) Compound Class Number
(CdF)   Compound Focus
(CLD)   Classic Device
(CS)   Connecting Symbol
(FC)   Fundamental Categories
(GD)   Geographical Device
(I)   Isolate
(IAR)   Intra-Array Relation
(IFR)   Intra-Facet Relation
(II)   Isolate Idea
(IN)   Isolate Number
(IT)   Isolate Term
(LED)   Last Effective Decade
(MC)   Main Class
(MD)   Mnemonic Device
(PCI)   Personality Common Isolate
(PCI)   Posteriorising Common Isolate
(PR)   Phase Relation
(SD)   Subject Device
(SDN)   Subject Device Number
(SmF)   System Facet
(SpF)   Specials Facet
(SID)   Superimposition Device
(SII)   Superimposed Isolate

·   ·   ·

[E]   Energy Facet
[2E]   Second Round Energy Facet
[M]   Matter Facet
[2M]   Second Round Matter Facet
[P]   Personality Facet
[P2]   Second Level Personality Facet
[P3]   Third Level Personality Facet
[2P]   Second Round Personality Facet
[2P2]   Second Round Second Level Personality Facet
[S]   Space Facet
[S2]   Second Level Space Facet
[T]   Time Facet
[T2]   Second level Time Facet
        And other similar contractions

PARTS A/D

Decimal Classification

PART A

DC: INTRODUCTION

DR MELVIL DEWEY

1 Early Years

Melvil Dewey, the author of the Decimal Classification and the Father of the Library Movement in the USA, was born in Adams Centre, Jefferson County, New York, on 10 December 1851. Son of a small store-keeper cum shoe-maker, he came to librarianship through undaunted self-education. While yet a boy, Melvil learned enough from the shoemakers to make a pair of shoes and boots for himself, doing all by himself every bit of work, from crimping to the final finish. All kinds of jobs fell to his share—tidying the store, making shoes, cleaning the yard, picking up stones, ploughing the garden, cleaning the cellar and woodshed, spreading ashes on the meadows . . . and cleaning the sewing machine. These odd jobs were punctuated with reading and chess. Always an enthusiastic reformer and a hater of waste of time, it probably did not seem to him unusual that at twenty he should try to bring order out of chaos to the resources of the various libraries in the world, a problem which had evidently been of little concern to his predecessors. Ultimately in solving this at the Amherst College, where he devised his Decimal Scheme, he achieved a high degree of order for a vast number of libraries the world over. With his accumulation of a little over ten dollars, gradually saved, by running errands, shovelling coal and shoemaking, he walked from Adams Centre to Watertown—a distance of eleven miles, while still under fifteen to buy a book on which his heart had been set for several years and for which he had done many long hours of work: *Webster's unabridged dictionary.*

2 Notation of Library Classification

At seventeen, he became a teacher on 1.50 dollars a day. His first commitment to Indo-Arabic numerals belongs to these pre-Amherst days. This means that even at the age of 17—before joining the

Amherst College—he decided on the use of Indo-Arabic numerals for a scheme of library classification. On 13 April 1870, he attacked the Roman notation in the following words: "The system itself is awkward in construction and almost *incapable of being used* in rapid computations. On the other hand, we have, in the Arabic or Indian notation, a method of writing numbers, accurate, simple, and probably as nearly perfect as man can invent. *That*, awkward and ambiguous, used only enough to compel everyone to be familiar with it. *This*, simple and accurate, in almost universal requisition. Why shall we not use it, then, exclusively?"

3 Decimal Classification Plan

Shortly after this, he joined Amherst College. His strong subject was Mathematics. From 1872, he began to work in the library as a part-time assistant. His DC plan was formally presented to the faculty members of his college in May 1873 while he was still a student.

4 Career

After his graduation on 9 July 1874, he became Assistant College Librarian. Leaving Amherst on 10 April 1876, he settled down in Boston and during the next seven years loaded himself with too much responsible but unremunerative work. The Spelling Reform Association, the Metric Bureau, the American Library Association and the *Library journal* were founded in 1876. He also took a leading part in the foundation of the (British) Library Association (1877), the Readers and Writers Company (1879) and the Library Bureau (1882). These multifarious activities brought him into limelight. In 1883, he was called to Columbia College where he stayed till 1888 as Librarian and Professor of Library Economy, trying out all his theories. Here, in 1887, he founded and directed the first school of Library Economy. In January 1889, Dewey took up the duties of the Secretary of the Board of Regents of the University of the State of New York and also those of State Librarian at Albany, a city in the New York State. In the same year, the Library School was removed from Columbia College to Albany and it was named New York State Library School. The whole Albany period was characterised by a prolonged struggle with the authori-

ties culminating in his premature resignation in September 1905. He then retired to Lake Placid Club in Florida, where he stayed until his death on 26 December 1931. In 1902, Alfred and Syracuse Universities conferred on him Honorary Degrees. An organiser, writer, pamphleteer, and speaker—in the advocacy of the craft of librarianship—he was the most energetic and fertilizing personality of his days.

Chapter A2

DC: PRELIMINARIES

1 Revolution in Book Classification

The first scheme to revolutionise the classification of books in libraries is the Decimal Classification of Dr Melvil Dewey.

11 DECIMAL ARRANGEMENT BEFORE DEWEY

But decimal arrangement as applied to book-shelves did not begin with Dewey, nor does he claim such priority.

12 SCHEMES OF dU MAINE AND SHURTLEFF

There are two schemes always referred to, which had an element of decimal arrangement. The names of these schemes are:

1 the Decimal System of La Croise du Maine, devised in 1583; and

2 the Decimal System for the arrangement and administration of libraries, described in a small manual of Library Economy by Nathaniel B Shurtleff of Boston, USA in 1856.

13 SYSTEM OF dU MAINE

La Croise du Maine was a French scholar. He devised his System for Henry III of France in 1583. This System presupposed a library of 10,000 volumes accommodated in 100 book-cases of 100 volumes each. The distribution of subjects in this Library was to be made thus:

1 book-cases numbered 1 to 17 to contain books on Religion;

2 book-cases numbered 18 to 41 to contain books on Arts and Sciences; and so on.

It will be seen that this was a Decimal System applied not to subjects, but to book-cases and shelves.

14 SYSTEM OF SHURTLEFF

The system of Shurtleff was used in the Mitchel Library of

Glasgow in about 1790 and is known as Glasgow System. It resembles closely that of du Maine. Alcoves with ten bays, each with ten shelves, were to be used and the bays and the shelves were numbered from 1 to 10.

15 ORIGIN OF DECIMAL CLASSIFICATION

Thus we see that the Schemes of La Croise du Maine and Shurtleff were not decimal schemes in the real sense of the term. It was, therefore, Melvil Dewey who must be considered as the originator of the Decimal Classification in its essence.

16 RELATIVE ARRANGEMENT

By devising this epoch-making Scheme, Dewey introduced the relative and adjustable subject arrangement of books in shelves. Till then, the arrangement of books in libraries was of a fixed nature. Numbers were given to individual books instead of to the subjects treated in them. And hence the new method introduced by Dewey was a great revolution in the technique of the classification of books.

17 OUTSTANDING FEATURES

The outstanding features of this System are:

1 Its notation—consisting of the simplest known symbols, the Indo-Arabic numerals, used as decimals—to number the classes of all human knowledge in print;

2 the numbering of books according to their subject matter and thus effecting permanently a relative location of books according to the filiation of their subjects in spite of the continued growth of the collection of the library. This is known as the flexibility, expansibility, and hospitality of a notation;

3 the use of mnemonics for Common Subdivisions, Languages, Geographical divisions, Literary and language forms and subjects themselves;

4 a large amount of scientific detail obtained from specialists or experts;

5 the constant attention paid to its revision; and

6 the very elaborate and systematic relative index annexed to the schedule.

9

171   RELATIVE INDEX

It was the first example of this type of index appended to a book classification. Regarding this relative index Dewey observes thus: "My claims for the Amherst plan were not based on the way it is filled out, but upon the central idea of a complete index referring in the simplest possible form to a scheme of classification and the most essential complement of an index is the tables of classification."[1] The index comprises the terms in the schedules together with every likely synonym arranged in the alphabetical sequence. It gives under each entry all the places in which the subject indicated appears in the schedules, as its object is to suggest to the user possible alternative places for every subject. It thus indicates the relative position of a subject among different branches of knowledge, and hence it is called relative index.

172   ILLUSTRATION

Let us illustrate how the subject 'Steel' appears in the relative index.

Steel			
alloy fabrication	672	engraving arts	765
arch bridges engineering		manufactures	
and construction	624.67	economics	338.47672
art metalwork	739.4	technology	672
building construction		metallurgy	669.1
material	691.7	tubes manufacture	672.83
		wire manufacture	672.84

The index does not include the names of all countries, towns, animals, and plants, and in many other cases too all the sub-divisions are not included. Topics that are further subdivided in the main tables are entered in black face.

2   Origin and Development of the Scheme

The System was devised by the author in the year 1873 when he was merely a youth of 22 years and a student at the Amherst College.

21   CONDITIONS OF LIBRARIES IN USA

The point of special interest is that, at that time, the condition of

the libraries in the USA was somewhat similar to the present-day condition of a large number of the libraries in our country. Some of the libraries were arranged by sizes of books, so that no relation of subjects was possible; some by the titles of books alphabetically arranged; some even by colour of bindings; and few on any scientific basis adaptable to more than one library.

22 WHEN, WHY AND HOW OF DC

In the *Library journal* of 15 Feb 1920, Dewey contributed a definite statement as to the when, the why and the how of his discovery in Amherst in the '70's. He observes thus: "In visiting over 50 libraries, I was astounded to find the lack of efficiency and waste of time and money in constant recataloguing made necessary by the almost universally used fixed system where a book was numbered according to the particular room, tier and shelf where it chanced to stand on that day, instead of by the class to which it belonged yesterday, to-day and forever. Then, there was the extravagant duplication of work in examining a new book for classification and cataloguing by each of thousand libraries instead of doing this once for all at some central point. For months, I dreamed night and day that there must be somewhere a satisfactory solution. In the future, were thousands of libraries, most of them in charge of those with little skill or training. The first essential point of the solution must be the greatest possible simplicity. The proverb said 'simple as a,b,c', but still simpler than that was 1,2,3. After months of study, one Sunday during a long sermon by President Stearns, while I looked steadfastly at him without hearing a word, my mind absorbed in the vital problem, the solution flashed over me, so that I jumped in my seat and came very near shouting 'Eureka'. It was to get absolute simplicity by using the simplest known symbols, the Arabic numerals as decimals with the ordinary significance of nought, to number a classification of all human knowledge in print."[2]

23 WORLD-WIDE POPULARITY

For three years, Dewey worked hard to improve upon the Scheme with the valuable assistance of his friend Mr W S Bisco and some of the professors of the Amherst College. The Scheme was finally published in 1876 as a mere pamphlet of 42 pages. It has been

frequently revised and enlarged. The most recent edition is the 16th (1958) which runs to nearly 2,400 pages. Since 1900 it has become very popular and has been widely adopted not only in England and the USA, but throughout the world.

24 TRANSLATIONS INTO OTHER LANGUAGES

It has also been translated either wholly or in part into almost all the European languages and some Asian languages such as the Chinese and the Japanese.

25 BROWN ON DC

Writing of it in 1898, J D Brown said "No system of classification has been so widely adopted or so generally appreciated, and no other system has done so much valuable missionary work in the cause of systematic classification."[3]

26 INVERSION OF BACONIAN SCHEME

In the introduction to ed 16, some of the observations made by the editor deserve attention. He observes thus: "After study of the classification of knowledge as conceived by Aristotle, Bacon, Locke and other philosophers, and the recently published library classification of Schwartz and Harris, Dewey decided to use a scheme of arranging books by subject based upon Harris's inversion of the Baconian order of History, Poesy and Philosophy. This decision to use a subject arrangement was a radical departure from the almost universal practice of arranging books alphabetically by their authors' names, or by size, or accession or even colour."[4]

27 BACON, HARRIS AND DEWEY

The similarity in the arrangement of the main divisions of the schemes of Harris and Dewey and the evolution from the outline of Bacon's Chart of Learning to that of Dewey's Classification may be illustrated as below:

Bacon	Harris	Dewey
	Science	General works
History	Philosophy	Philosophy
(Memory)	Religion	Religion
	Social and Political	Social Sciences
	Sciences	Linguistics
	Natural Sciences	Science
	Useful Arts	Useful Arts
Poesy	Art	
(Imagination)	Fine Arts	Fine Arts
	Pure Fiction	
	Literary	Literature
	Miscellany	
Philosophy	History	History
(Reason)	Geography and	Geography and
	Travel	Travel
	Biography	Biography

3 Notation

The problem of devising a simple scheme of notation was possibly more difficult than deciding upon the plan of arrangement of the (MC). None of the philosophical classifications had a notation. The Schwartz Scheme was complicated by the addition of symbols for size and the Harris notation provided only for some classes. Dewey's visits to libraries in New York and New England revealed how much need there was for an efficient system. The two existing schemes for decimal arrangement of books—that of du Maine (1583) and the Glasgow System described by Shurtleff in 1856— evidently did not impress Dewey as these systems were based upon numbering the shelves rather than the subjects in books.

31 SOLUTION CAME

In a moment of inspiration, born of intensive study and thought, came the solution which now seems so simple—The use of Indo-Arabic numerals as decimal fractions to build a notation for books arranged by subject.

32 LANDMARK IN LIBRARY CLASSIFICATION

This is said to be the first landmark in library classification. The Amherst Library Committee must have been somewhat startled to receive from a student assistant three papers proposing not only a revolutionary classification scheme for the library but also a carefully considered account of its merits and how it was especially adapted to the needs of the Amherst Library. They approved the proposal and with the advice and help of others the following three years were devoted to improving and extending the original plan and in reorganising and classifying the library. In 1876, the *Classification and subject index for cataloguing and arranging the books and pamphlets in a library, an improved and amplified version of the original plan*, was published anonymously.

4 Other Activities of Dewey

In the years that followed, Dewey was instrumental in establishing a number of library organisations which, in turn, contributed to the success of the new classification. Almost simultaneously with the publication of the Classification, the American Library Association and an organisation later known as the Library Bureau were founded. The *Library journal* issued its first number in the same year. Eleven years later, the first Library School was opened at Columbia. Thus, for the first time, the library profession was given a multiplicity of outlets for the expression and propagation of its increasingly liberal concept of the function of libraries and the resultant necessity for efficient library operation.

5 Popularity of the Scheme

In its radical departure from old order, DC was wonderfully fitted to the progressive spirit of this period of transition. It never lacked adherents and they never lacked channels for spreading their

enthusiasm. How widespread its use and popularity in the USA had become is well illustrated by the creation in 1930, because of popular demand, of a section in the Library of Congress, for assigning Decimal Numbers to books. According to a recent estimate, about 96 per cent of the public libraries in the USA, 89 per cent of the college and university libraries and 64 per cent of the special libraries use this Scheme.

51 ADOPTION IN INDIA

The first library classified according to this Scheme in undivided India is perhaps the Punjab University Library. It was introduced in that library in the year 1914 by the late A D Dickinson, an American, then the librarian of that library. The late Borden, the first librarian of the Central Library, Baroda, and a former teacher in the first school of librarianship ever established—the one founded by Dr Melvil Dewey—introduced decimal fraction notation in his own Scheme of Classification.

52 UNWIELDINESS AND INCONSISTENCIES

The popularity of the Scheme went on increasing for over 80 years. But the unwieldiness that it has now reached and the inconsistencies in the expansions of its schedules have made it problematic for the libraries that have adopted it to bring about a convenient arrangement of books agreeable to the Laws of Library Science—i e helpful to readers and staff.

53 REASON FOR POPULARITY

The Scheme was not at all designed for international and universal use. It was intended mainly for use at the Amherst College Library. But the immense popularity of the decimal fraction notation, its capacity to meet the difficulties arising out of the constant growth of knowledge, and the lifelong efforts of Dr Dewey in keeping it up-to-date and bringing out edition after edition, attracted the attention of the outside world and thus gave it the prominence that it has received so far.

6 Place in Librarianship

Regarding Dr Dewey's place in librarianship, Dr Herbert Putnam

the well-known librarian of the Library of Congress of the USA observes thus: "Mr Dewey eats, drinks, sleeps, and talks library and library work throughout the twenty-four hours, the week, the month and the year. His physical whereabouts at any one time is immaterial. He carries his business with him to his home; he brings it back with him in the evening and in the morning to his office. He is, in effect, so much engaged with it at Lake Placid as he is at Albany; it is as much his play as it is his work. He is the clearest example in our profession of a man who cannot shake off his business . . . . There is no man living today to whom more than him is due the prodigious activity of the past quarter of a century in the promotion of libraries and in the diffusion of interest in them. There is no one who has done more to stir with enthusiasm for practical library service competent people who are needed in it. His name is more widely known abroad than that of any other living American librarian for his contributions to library technique and to the general acceptance of public libraries as a motive force in popular education."[5]

CHAPTER A3

DC : GENERAL LAYOUT

1 Knowledge as Unity

DC regards knowledge as unity which is to be divided into nine classes ; and works too general for inclusion in any of these, form a tenth class.

11 MAIN CLASSES

To bring out the Decimal Fraction quality of the notation the schedules of (MC) should be as shown below :

DC	Main class	DC	Main class
0.0	General works	0.5	Pure science
0.1	Philosophy	0.6	Technology. Applied science
0.2	Religion	0.7	The Arts (Arts and Recreation)
0.3	Social Sciences	0.8	Literature
0.4	Language	0.9	History
	Linguistics		

12 PRACTICE OF WRITING (MC) NUMBERS

In practice, however, the initial 0 and point are taken as understood and the schedule is written merely as :

DC	Main class	DC	Main class
0	General works	2	Religion
1	Philosophy		

13 Salient Features

An extract from Dewey's introductory explanation to an abridged version of DC will give the salient features of the Scheme. He states: " The classification divides the field of knowledge into 9 main classes, numbered 1 to 9. Cyclopaedias, periodicals, etc., so general as to belong to no one of these classes, are marked 0 (nought) and form a tenth class."

14 Class Numbers in Three Digits

In general practice, the class numbers are written in three digits as shown below :

DC	Main class	DC	Main class
000	General works	500	Pure science
100	Philosophy	600	Applied science
200	Religion	700	Arts and Recreation
300	Social sciences	800	Literature
400	Linguistics	900	History

15 Numbers Read as Decimal Fractions

It is evident that these numbers are *to be read as decimal fractions and not as integers*. Those who are not aware of this fact read these numbers as one hundred, two hundred, three hundred, etc, wrongly mistaking them to be integers. The right way of reading them is treble zero, one zero zero, two zero zero, three zero zero, and so on.

16 The Author's Description

In his earliest preface to the Scheme, Dewey describes the Classification as follows :

161 classes

" The library is first divided into nine special libraries which are called classes. The classes are Philosophy, Theology, etc, and are

numbered with nine digits : 1 to 9. Thus Class 9 is the Library of History, Class 2, the Library of Theology.

162 DIVISIONS

" These special libraries or classes are then considered independently and each one is separated again into nine special divisions of the main subject. These divisions are again numbered from 1 to 9 as were classes. Thus 59 is the 9th division (which is assigned to Zoology) of the 5th class (which is assigned to Pure Science). The divisions are shown as below :

DC	Divisions	DC	Divisions
500	Pure science	550	Geology
510	Mathematics	560	Palaeontology
520	Astronomy	570	Biology
530	Physics	580	Botany
540	Chemistry	590	Zoology

163 SECTIONS

" A final division is then made by separating each of these divisions into nine sections which are numbered the same way with the nine digits."[6] Thus, 513 is the third section (Geometry) of the first division (Mathematics) of the fifth class (Pure science). The sections are written as shown below :

DC	Sections	DC	Sections
510	Mathematics	515	Descriptive geometry
511	Arithmetic	516	Euclidean analytical geometry
512	Algebra	517	Calculus
513	Geometry	518	Special functions
514	Trigonometry	519	Probability

164 MINUTE SUBDIVISIONS

In ed 14, we find minute subdivisions of many classes ; e g, the class number 611 is minutely subdivided as shown below :

DC	Minute subdivisions	DC	Minute subdivisions
611	Anatomy	611.123	Right heart
611.1	Circulatory system	611.124	Ventricles
611.12	Heart	611.1242	Right ventricles
611.122	Left heart	611.1245	Left ventricles

This illustrates the step by step development of classes from general to the more specific subject.

17 ED 16: TABLES

In ed 16, we find after the introduction,
1 a first summary table giving the (MC) ;
2 a second summary table giving divisions ; and
3 a third summary table giving subdivisions.

After this, form divisions are given and ultimately we find detailed tables with explanatory notes under the class numbers of various subjects.

171 ED 16 : INDEX

The tables are followed by an alphabetically arranged index in which reference by class number is made to the exact location of the subject in the tables. As subjects are seldom thought of in exactly identical terminology, the entries are in terms of current usage or those which belong to the terminology of the subject.
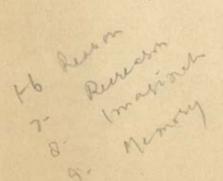
2 Logical Background

21 INVERTED BACON

The (MC) of this Scheme have got a sort of logical background. We know that they are based on the inverted form of Francis Bacon's Classification, itself based on the three faculties of human

20

mind, viz, memory, imagination and reason. The first six classes
of DC — 1 Philosophy, 2 Religion, 3 Social sciences, 4 Linguistics,
5 Pure science and 6 Applied science — represent reason. The two
classes — 7 Fine arts or Arts and Recreation and 8 Literature —
represent imagination ; and the last class — 9 History — represents
memory.

22 LOGICAL SEQUENCE

In the words of Sayers — " The Dewey classification must be
regarded from the inside and the characteristic of development is
that of mental perception. Thus let " Generalia " be chaos from
which all things were drawn by man ; and the prime thing drawn
by man from that chaos — the characteristic which made him man
was " Reason " or " Mind ". We wrote down " Mind " as our first
class i. e. 1 Philosophy. As soon as man can reason, as we see in
the earliest questions of the child, he asks who made him and de-
duces a Divine Power over all things which he worships. Hence we
wrote down his second achievement as 2 Religion. These things
man has achieved in solitude, it may be presumed ; but man
multiplied and formed the family, the tribe and much later the
State. Hence the third achievement was what we write as 3 Socio-
logy. For intercourse with other men his first requisite was language
— merely a spoken one at first — hence what we name 4 Philology
or Linguistics. One can see how a knowledge of his environment
followed as a necessity which brings out 5 Science ; how he adapted
what he learned first to the sustaining of life is the emergence of
6 Useful Arts or Applied Science ; and then to its beautifying came
out what we know 7 Fine Arts or Arts and Recreation ; and finally,
how he made all his records through language by means of
8 Literature and 9 History."[6A]

PART B

DC: COMMON SUBDIVISIONS AND GENERAL WORKS

DC : FORM DIVISION

1 Form of Presentation

Although the classification is generally by subject, sub-arrangement for the form of presentation of a subject is often desirable. We know that books are published in different forms and from different points of view. Some books deal with the theory of a subject, some give a general outline, others are of an encyclopaedic nature ; and hence special provision is made in this Scheme to amplify the class numbers of specific subjects by certain numbers representing such form divisions.

2 Table of Form Divisions

The table of form divisions reads as below :

01   Philosophy, Theory, Methodology
02   Compends, Handbooks, Outlines (includes Digests, Syllabuses, Manuals)
03   Encyclopaedias, Dictionaries, Lexicons, Glossaries
04   Essays, Addresses, Lectures
05   Periodicals (includes Almanacs)
058   Annuals, Directories
06   Associations, Societies (includes Transactions, Reports, Charters, Regulations, Lists of Members)
061   Government Organisations
062   Nongovernment Organisations
063   Congresses, Conferences, Temporary Organisations
065   Commercial Establishments
069   Occupations, Professional Ethics
07   Study and Teaching
072   Research and Experiment (includes Laboratories, Experiment Stations)
074   Museums, Exhibits
078   Instruments, Apparatus
079   Awards, Prizes
08   Collections
081   Collected writings of single authors
082   Collected writings of several authors
083   Formulas, Tables, Statistics, Blank Forms
084   Graphic Representations (including Atlases, Illustrations, Charts, Plates)
09   History and general local treatment (may be divided like 930—999)

21 COMMON SUBDIVISIONS

These are also called common subdivisions, because they are applicable to any subject. For example :

DC	Subject
503	Dictionary or Cyclopaedia of Science
510.7	Study and teaching of Mathematics
851.09	History of Italian poetry

22 INSTRUCTIONS REGARDING THE USE OF THE FORM DIVISIONS

In the introduction to ed 16, specific instructions are given by the editor regarding the use of these form divisions.

221 FIRST INSTRUCTION

The first of these instructions reads thus : " Altho the form divisions may be used with any subject, they should not be used indiscriminately. It is, for example, wise not to divide by them when the number to be divided is more than four or five digits in length except where the possibility is explicitly shown in the schedules, lest their use may tend to block the library's taking advantage of expansions which may be introduced into future editions. This is particularly true when the subject which the classifier proposes to divide has a broader meaning than the subject of the book being classified."[7] This amounts to saying that a form division should not be applied after a class number which does not individualise the subject of the book.

Suppose we have to classify a book, entitled " Lectures on Field Psychology ". In the schedule, there is no class number for " Field Psychology ". We have, therefore, to use the broader class number 150.19 which represents " Systems of Psychology ". Hence, this class number should not be further subdivided by the form division number 04 meaning ' lectures ', in classifying the book under consideration. If the form division number is added to it, it would mean " Lectures on Systems of Psychology ", and not " Lectures on Field Psychology ".

The second of these instructions reads thus :

" A form division should not be used when the specific aspect is otherwise provided for by the schedules,"[8] e g, the class number 655.1 is specifically assigned to " History of Printing " and the class number 704.9 is specifically assigned to " Collected writings on Art ". In such cases, there is no necessity for adding the relevant form division numbers, as they will prove to be redundant.

3 Sayers on Common Subdivisions

Regarding common subdivisions, Sayers observes thus :

" These are applied anywhere to show the point of view from which the book is written or the form it takes. These common subdivisions are always preceded by the zero shown, but in main classes and divisions, the zero usually forms part of Dewey's three-figure basis, and is already written and must not be repeated."[9] Sayers gives a rule regarding the use and meaning carried by the zero in the numbers assigned to common subdivisions. The rule reads thus : " The zero indicates that the book is a general one on the subject indicated by the figures in front of it, and that the figures after it mean the " form or point of view."[10] Thus, 500 is General Science and 501 is Theory of General Science. In this class number, the zero indicates that the book is a general one on the subject ' Science ' which is indicated by the figure ' 5 ' written behind it and that the figure ' 1 ' written after it means ' Theory ' which is the form or point of view from which the book is written by the author. Similarly, 51 is Mathematics (General), 510 is Mathematics (General) written with 3-figure base. For example :

512	Algebra
512.01	Theory of Algebra
512.2	Numeric equations
512.201	Theory of Numeric equations
512.21	Equations of 1st to 4th degrees
512.2101	Theory of equations of 1st to 4th degrees

Unless this rule is observed there is possible confusion in the use of the common subdivision numbers. This rule regarding the use of the zero in the numbers of the common subdivisions is mentioned

in other words in the introduction to ed 15 thus : " If the number to which these form divisions are to be added ends in zero (0), one zero should be dropped before the form number is added."[11] For example, a Zoological magazine will get 590.5 as its class number and not 590.05, because the number 590 ends in zero. If the number resulting from the addition of the form division number has been assigned another meaning in the tables, an extra zero (0) is added. For example, a periodical on English history gets 942.005 as its class number and not 942.05, which the tables give as the number for England in the time of the Tudors, i e, Tudor period of the history of England (1485—1603). The period divisions of English History are given in the schedule as shown below :

942.01	Early history to 1066
942.02	England under Normans, 1066-1154
942.03	House of Plantagenet, 1154-1399
942.04	Houses of Lancaster and York, 1399-1485
942.05	Tudor period, 1485-1603

and so on.

Let us interpret the class number 942.05. In this class number

9	=	History
94	=	History of Europe
942	=	History of England
942.05	=	History of Tudor period

In the case of the class number 352 standing for Administration of Local Governments, we have to use three zeros (000) to indicate form division ; because under that class number, the divisions with two zeros (00) are assigned to general questions of Local administration and the divisions with one zero (0) are assigned to Administration of Local Governments by place. The divisions assigned to general questions of Local administration read as below :

352.001	Growth and importance of cities
352.002	Local governments and state control
352.003	City as juristic person i e as legal person, as corporation
352.004	Local elections

and so on.

The divisions assigned to Local Governments by place are as given below :

352.04	Local Government in Europe
352.05	Local Government in Asia
352.054	Local Government in India

The digits after zero (0) in these class numbers are mnemonically used from the schedule in the (MC) History. So, to distinguish form divisions in this class, three zeros (000) are required to be used as shown below :

352.0004	Essays on Local Government
352.004	Local elections
352.04	Local Government in Europe

The use of these form division numbers in the case of a specific subject may be illustrated as below :

312	Demography
312.01	Theory of Demography
312.02	Treatise on Demography
312.03	Dictionary or cyclopaedia of Demography
312.04	Essays on Demography

4 Mnemonics

We have thus seen how the form division numbers or common subdivision numbers are used mnemonically throughout the Scheme. This principle of using certain digits to represent certain recurring divisions as mnemonics or as aids to memory has been followed by the Scheme in many places. By the term ' Mnemonics ' we mean to say that certain subjects are represented by the same notation wherever they appear in the schedules and this practice aids to our memory. A mnemonic in its elementary definition means ' Aid to memory '.

CHAPTER B2

DC : GENERAL WORKS AND BIBLIOGRAPHIES

0 Subjects in the Generalia Class

The Generalia Class accommodates works of so composite a nature that none of them can find a place in any of the subsequent nine classes represented by the digits 100 to 900. The subjects included in this class are :

000	General works	050	General periodicals
010	Bibliographical science and technique	060	General societies; Museums
020	Library science	070	Journalism
030	General encyclopaedias	080	Collected works
040	General collected essays	090	Book rarities

01 SUBJECTS OF A GENERAL NATURE

Out of these subjects, 010 Bibliographical science and the subjects indicated by the numbers 030 to 070 are all headings which are quite of a general nature. In fact, divisions 030 to 060 are some of the common subdivisions which are common to all classes and all divisions. The inclusion of Library science (020) in Generalia is an anomaly. Perhaps, there is no other more suitable place for it. So also, is the position given to Journalism (070) and Book Rarities (090).

1 General Works (000)

11 KNOWLEDGE, LEARNING, SCHOLARSHIP

The first division of 000 is 001 Knowledge, Learning, Scholarship. This includes concept of knowledge and technical cooperation. For example :

001   Stamp (Josian). *Mobilization of knowledge.* 1938
001   Bliss (H E). *Organisation of knowledge and the system of the sciences.*
001   Russell (Bertrand). *Human knowledge, its scope and limits.*

30

12 BOOK

The second division of 000 is 002 The Book. Works on the value and influence of the book on the advancement of knowledge will have this class number. Comprehensive works on the book in general, history and making of books and book arts, will also have this class number. For example :

002   Powell (Lawrence Clerk). *Passion for books.* 1959
002   Ranganathan (S R). *Social education literature for authors, artists, publishers, teachers, librarians and governments.* 1952

121 PRINTING, PUBLISHING, BOOK BINDING

It must be stated here that books on the technique of printing, publishing and book-selling will get the class number 655 representing Printing, Publishing and Book binding. This class number is a subdivision of 650 representing Business methods in the (MC) Applied science. For example :

655   Peddie. *Printing: a short history of the art.*

13 DIVISIONS 006 AND 007

The third and the fourth divisions under this class are :

006   Information and communication theories, including cybernetics
007   Research in general

Examples :

006   Wiener (N). *Cybernetics or control and communication in the animal and the machine.* 1961
007   Whitney (F L). *Elements of research.* 1947

2 Bibliographic Science and Technique

The divisions of this class are :

010   Bibliographic science and technique
011   Universal and general bibliographies
012   Bibliographies of individuals
013   Bibliographies of special classes of writers
014   Bibliographies of anonymous and pseudonymous works
015   National bibliographies
016   Subject bibliographies
017   Classified catalogues

018   Author catalogues
019   Dictionary catalogues

20 BIBLIOGRAPHIC SCIENCE AND TECHNIQUE

Works on bibliography, book collecting, and bibliomania will get the general class number 010.

010   Esdaile (A). *Students' manual of bibliography.*
010   McKerrow (R B). *Introduction to bibliography.*
010   Burton's *Book hunter.*
010   Arnold (W H). *Ventures in book collecting.* 1923
010   De Ricci (S). *Book collector's guide.* 1921

21 UNIVERSAL AND GENERAL BIBLIOGRAPHIES

Such bibliographies are not limited to any particular subject, time or area. The class number assigned to such bibliographies is 011. For example :

International Institute of Intellectual Cooperation, Paris. *Notable books published in various countries*—A bibliography.
Ebert (F A). *General bibliographical dictionary.* 1837
Peddie (R A). *Subject index of books published before* 1880
Brunet's *Manuel du Libraire et de L'Amateur de Livres* (Manual of booksellers and devotees of books or book-collectors).

Brunet's *Manuel* was considered as the most influential of general bibliographies at the time of its publication in 1809. Brunet was a great French bibliographer.

22 BIBLIOGRAPHIES OF INDIVIDUALS

There are bibliographies of works by and on an individual author. Use of the class number 012 is limited to works of individuals whose works are too general to fit any specific subject. For example :

012   Lister (Raymond). *Comp.* Bibliographical check-list of works of Philip Gosse. 1952

3 Bibliographies of Special Classes of Writers

The class number 013 holds bibliographies of works whose chief value lies in authors having some common characteristic, e g Alumni of a college or a university, members of a religious organisation. If there is a bibliography of the works of the alumni of

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the Poona University or any of the local educational institutions in Poona, that bibliography will get this class number.

4 Bibliographies of Anonymous and Pseudonymous Works

Anonymous works are works, the authors of which are not known.

Pseudonymous works are works, the authors of which are known by their false names or assumed names.

These bibliographies are to be divided according to the language divisions as used in the Literature class. For example :

014.1   Bibliography of anonymous and pseudonymous works of American authors.

Under the Literature Class, American literature gets 810 as its class number. The digit 1 in this class number is specially assigned to American Literature by the Scheme and hence we have put that digit after a point in the class number standing for the bibliographies of anonymous and pseudonymous works of American authors.

41 ILLUSTRATIVE BOOKS

014.1   Cushing (W). *Initials and pseudonyms—A dictionary of revealed disguises.* New York.

014.1   Cushing (W). *Anonyms: a dictionary of revealed authorship.* Cambridge, Mass.

These two publications are American publications and they deal with American anonyms and pseudonyms. Hence we give to them the class number 014.1.

5 National Bibliography

Under this class number, bibliographies of works published in the same place, whether country, city or publishing house are included. Lists and indexes of government publications are also classed under this class number. These bibliographies are to be divided according to their geographical area and for that purpose the geographical divisions given in the History Class from 940 to 999 are to be used. Thus, a bibliography of books published in England will get 015.42 as its class number. In this class number the digits 42 stand for England. For example :

015.42   British national bibliography
015.54   Indian national bibliography

6 Subject Bibliography

The class number 016 is assigned to Subject Bibliographies. Bibliographies of works devoted to a single subject are arranged by subject under this class number. This class number is, therefore, required to be subdivided like the whole classification. This means that the whole classification is to be used for the subdivision of this class number. Let us illustrate :

016	Bibliography of a special subject or subject bibliography
016.22	Bibliography of the Bible
016.34	Bibliography of Law
016.575	Bibliography of Evolution
016.9421	Bibliography of London

61 SUBJECT BIBLIOGRAPHIES CLASSED UNDER RESPECTIVE SUBJECTS

Such subject bibliographies are sometimes classed under the respective subjects to which they belong. In that case, there is a practice of writing the class number 016 assigned to subject bibliographies after the class number of the subject of the bibliography concerned. This is shown by Sayers in his *Manual* on page 266. For bibliography of Botany, he has given the class number 580.016. This example we can follow in the case of other subjects also. By writing the class number 016 after the class number of a subject which ends in zero, the numbers of common subdivisions can be used without any clash with this number of bibliography. This can be illustrated as below :

580	Botany
580.016	Bibliography of Botany
580.1	Theory of Botany

62 BIBLIOGRAPHIES OF SUBJECTS WHOSE CLASS NUMBERS END IN A NUMERAL

We know that if the class number to which a common subdivision number is to be added ends in zero (0), the zero (0) in the class number is to be dropped before the addition of the common subdivision number. According to this convention, we can drop the zero (0) in the class number and add any common subdivision number to the class number, like 580 without creating any clash

with the bibliography number 016. In the case of a class number
which ends in a numeral and to which common subdivision
numbers are likely to be added, an extra zero (0) should be added
for showing the bibliography number as shown below :

575	Evolution
575.0016	Bibliography of Evolution
575.01	Theory of Evolution
575.03	Dictionary of Evolution

63 BIBLIOGRAPHY NUMBER ADDED TO THE CLASS NUMBERS IN THE LITERATURE CLASS

This convention of adding bibliography number to the class
number of a specific subject, can also be followed in the Literature
Class for the bibliographies of individual literary authors. But
in that case, the class number requires to be specifically assigned
to that particular author in the schedule, e g, in ed 14, Chaucer
gets 821.17 as his class number. So, to shown ' Bibliography of
Chaucer ' we can add 016 to the class number 821.17 as shown
below. In the following examples, class numbers for bibliographies
of other literary authors are also given :

821.17016	Bibliography of Chaucer
821.31016	Bibliography of Spenser
822.33016	Bibliography of Shakespeare

64 BIBLIOGRAPHIES OF BIBLIOGRAPHIES

There are bibliographies of bibliographies. The names of such
books and their class numbers are :

| 016.01 | Besterman (T). *World bibliography of bibliographies.* ed 3, 1955, 4 v |
| 016.01 | Josephson (A G S). *Bibliographies of bibliographies.* 1913 |

65 BIBLIOGRAPHIES OF INDIVIDUALS WHOSE MAJOR IMPORTANCE LIES IN SPECIFIC FIELDS

Bibliographies of individuals whose major importance lies in
specific fields will be classed under the respective subjects. For
example :

| 016.02 | Shivaraman (K M). *Bibliography of the writings by and on S R Ranganathan* |

016.191   Thomas (Milton Hulsey). *John Dewey, 1882-1939.*
016.82   Bartholomew (A T). *Bibliography of Sir Adolphus William Ward* (1837-1924) etc, 1926

66 BIBLIOGRAPHIES OF LITERARY AUTHORS

Bibliographies of literary authors will be classed along with their works in the literature class. For example :

821.1   Hammond (Eleanor P). *Chaucer, a bibliographical manual.* 1908.

The works of Chaucer will get 821.1 as their class number according to ed 16. This class number is assigned to Early English Poetry which covers the period 1066 to 1400. Chaucer lived during the period 1340 to 1400 and hence this is the class number that can be given to his works. The same class number will have to be given to his bibliography. There is no special class number assigned to the works of Chaucer. Therefore, the same class number will have to be given to all his works and his bibliographies. By adding a book number to this class number, we can anyhow individualise Chaucer as shown below :

Class number	Book number
821.1	CHA

If all English poetical works are arranged alphabetically according to the names of their authors under the class number 821, then all biographies, critical works and bibliographies of Chaucer will be classed under the class number 821 with book number as shown above.

7 Library and Sales Catalogues

The class numbers 017 to 019 are assigned to Library and Sales catalogues, i e, Catalogues of Book-sellers.

71 CLASSIFIED CATALOGUE

The class number 017 is assigned to classified catalogues which include author and subject catalogues bound together. This class number is subdivided as shown below :

017.1   Catalogues of General Libraries
017.2   Catalogues of Private and Family Libraries

017.3   Auction catalogues
017.4   Book-sellers' catalogues

The term 'General Libraries' includes all kinds of libraries excepting special libraries and private libraries. So the class number 017.1 will have to be given to the catalogues of a national library, any public general library, a school, college, university library, government agency libraries, children's library, and so on. Examples :

  1 The catalogue of the Poona University Library
  2 The catalogue of the Maharashtra Granthalaya
  3 The catalogue of the Fergusson College Library

72 AUTHOR CATALOGUE

The class number 018 is assigned to Author catalogues. This class number is to be divided like the class number 017 as shown below :

018.1   Author catalogues of General libraries
018.2   Author catalogues of Private and Family libraries
018.3   Auction catalogues arranged according to names of authors
018.4   Book-sellers' catalogues arranged according to names of authors

73 DICTIONARY CATALOGUE

The class number 019 is assigned to Dictionary catalogues. This class number is also to be subdivided according to the class number 017 as shown below :

019.1   Dictionary catalogues of General libraries
019.2   Dictionary catalogues of Private and Family libraries
019.3   Auction catalogues arranged in the dictionary form
019.4   Book-sellers' catalogues arranged in the dictionary form

74 CATALOGUES OF SPECIAL LIBRARIES

The catalogues of special libraries are to be classed under the class number 016 which stands for subject bibliographies. This class number can be further expanded according to the specific fields of studies of the special libraries concerned. Thus the class number 016.54 can be given to the catalogue of the Library of the National Chemical Laboratory. The digits 54 in the class number stand for Chemistry. The same class number is also used for the

Bibliography of Chemistry. So this class number becomes a homonym as it represents two different categories of bibliographies, such as

1 a general bibliography of the subject concerned, and

2 a library catalogue of the library specialising in the subject. So to distinguish library catalogues of special libraries from the general bibliographies of the subject concerned, we should add the common subdivision number 06 standing for an institution to the class number concerned, thus 016.5406. This class number stands for the catalogue of an institution specialising in Chemistry. Further expansion of this class number can be made thus: 016.5406154. The digits 06154 in the class number stand for a government institution in India. The National Chemical Laboratory is a government institution and hence this class number may be given to the catalogue of the Library of the National Chemical Laboratory.

DC : LIBRARY SCIENCE

1 Divisions

The divisions of this class are :

020	Library science
021	Library establishment and purpose
022	Library buildings
023	Library government and personnel
024	Regulations for use of libraries
025	Library management and operation
026	Special libraries
027	General libraries
028	Reading and reading guidance
029	Library methods and labour savers
029.1	Improved method of learning
029.2	Library labour saving tools and devices
029.3	Clippings, scrapbooks, files
029.4	Abstracting and note taking
029.5	Indexing
029.6	Authorship technique

2 Form Numbers

The form divisions or the common subdivisions are required to be applied to this science. The class numbers formed by the application of the form division numbers are illustrated as below :

020.1	Theory and method of Library science		paedia of Library science
		020.4	Essays on Library science
020.2	Outlines of Library science		
		020.5	Periodicals on
020.3	Dictionary or Encyclo-		Library science

21 VARIATION IN THE FORM NUMBER (06)

In the form division number 06, there is some variation made under this class. The variations are :

020.6   Societies, clubs, conferences

020.622   National Associations
020.623   State and Regional Associations
020.624   Local clubs
020.63   Conferences

22 General Books

Here are some examples of books that can get the bare class number 020 :

Ranganathan (S R). *Five laws of library science*
Ranganathan (S R). *Preface to library science*
Doubleday (W E). *Primer of librarianship*

23 Dictionaries and Encyclopaedias

Here are some examples of dictionaries and encyclopaedias of Library science :

Landau (Thomas). Ed. *Encyclopaedia of librarianship.* (A L A 1958)
Harrod (L M). *Librarian's glossary*

24 Periodicals

Here are some examples of periodicals in Library science :

020.51   *A L A Bulletin*
020.52   *Library Association record*
020.52   *Journal of the Indian Library Association*
020.52   *Annals of library science*

25 National Associations

Examples :

020.62242	Library Associa- tion (London)	Association
	020.62273	American Library Association
020.62254	Indian Library	

26 Congresses and Conferences

Examples :

020.6342	*Proceedings*, Library Conference (England)	Library Conference
	020.6373	*Proceedings*, Library Conference (USA)
020.6354	*Proceedings*, All India	

27 History of Library Movement and Libraries

Examples :

40

020.9   Hessel (A). *History of libraries*. 1955
020.902   Thomson (J W). *Medieval libraries*

271 PERIODS OF HISTORY

There is a practice of indicating ancient, medieval and modern periods of history of any subject by adding to the common subdivision number 09 specific numbers assigned to these periods. The numbers assigned to the different periods are :

01   Ancient period
02   Medieval period
03   Modern period

272 LIBRARY MOVEMENT

History of library movement in India will get 020.954 as its class number. Example :

Chandrashekharan. Ed. *Library science in India*. 1953

3 Library Establishment and Purpose (021)

Examples :

021.6	Library extension
021.60942	McColvin (L A). *Public library extension*. 1950
021.8	Library and the State
021.80954	Ranganathan (S R). *Library development plan for India*
021.82	Library commissions
021.8254	Library Advisory Committee (India). *Report*. 1959
021.825479	Library development committee (Bombay). *Report* 1939-40
021.89	Library legislation
021.894 to .899	Legislation in specific countries
021.89548	Ranganathan (S R). *Library legislation*. Handbook to Madras Library Act. 1953

4 Library Administration (025)

Examples :

025	Library administration
	Brown (J D). *Manual of library economy*
	Doubleday (W E). *Manual of library routine*
	Ranganathan (S R). *Library administration*, ed 2,1959
025.21	Book selection
	Drury (F K M). *Book selection*
	McColvin (L R). *Theory of book selection*

Ranganathan (S R). *Library book selection.* 1952
025.3   Cataloguing
Akers (S). *Simple library cataloguing*
Mann (M). *Introduction to cataloguing and classification*
Ranganathan (S R). *Theory of library catalogue*
Sharp (H A). *Cataloguing*
025.32   Cataloguing rules
A L A Cataloguing rules for author and title. 1949
Ranganathan (S R). *Classified catalogue code,* ed 4, 1959
025.4   Classification
Dewey (M). *Decimal classification,* ed 16, 1959
Ranganathan (S R). *Colon classification,* ed 6, 1960

5 Special Libraries (026)

Comprehensive and miscellaneous works, including administration of specific libraries ; special collections in general libraries ; histories, reports, statistics, bulletins, handbooks, circulars — by and about specific libraries.

51 FORM DIVISIONS

Numbers 001 to 009 are to be used for form divisions as shown below :

026.001   Theory of special libraries   026.003   Cyclopaedias of special
026.002   Outlines on special libraries   libraries

52 HISTORY AND LOCAL TREATMENT

Numbers 03 to 09 are to be used for history and local treatment as shown below :

026.04   Special libraries in Europe   026.054 Special libraries in India
026.05   Special libraries in Asia

53 SPECIAL LIBRARIES IN A SPECIFIC FIELD OF KNOWLEDGE

The divisions 000 to 999 of the whole classification are to be used to divide the class number 026 to indicate special libraries in a specific field of knowledge as shown below :

026.3   Social sciences libraries   026.61   Medical libraries
026.32   Political science libraries   026.62   Engineering libraries

6 General Libraries (027)

Comprehensive and miscellaneous works on libraries not limited

to a specific field, including administration of specific libraries, histories, reports, statistics, bulletins, handbooks, circulars by and about specific libraries.

61 FORM DIVISIONS

Numbers 001 to 009 are to be used for form divisions as shown below :

027.001	Theory of general libraries
027.002	Outlines or general treatises on general libraries
027.003	Cyclopaedias giving information about general libraries

62 HISTORY AND LOCAL TREATMENT

Numbers 03 to 09 are to be used for history and local treatment as shown below :

027.04	General libraries in Europe	027.054	General libraries in India
027.05	General libraries in Asia		

63 SPECIAL DIVISIONS

The special divisions of 027 are as given below :

027.1	Private and family libraries
027.2	Proprietary, society, club, athenaeum libraries
027.3	Subscription and rental libraries
027.4	Public libraries
027.43—.49	Public libraries in specific countries to be divided like 930-999
027.442	Public libraries in England
027.454	Public libraries in India

7 Authorship Techniques (029.6)

Examples :

Billett (Roy O). *Preparing theses and other typed manuscripts*
Skillin (Marjorie E). *Words in type: a guide for writers, editors, professors and everyone who deals with the written word.* 1948
Turabian (Kate L). *Manual for writers of term papers, theses and dissertations.* 1955

DC : OTHER GENERAL WORKS

1 Common Subdivisions of a Particular Subject

An encyclopaedia of a subject goes with that subject, essays of a particular subject with that subject, but not essays of primarily literary value. Periodicals with some specific subject interest are classed with that subject, as are transactions and proceedings of societies with a definite subject interest. Examples :

104	Essays of Philosophy
503	Encyclopaedia of Science
520.6	Transactions of the Royal Astronomical Society
824	Lamb's essays
827.05	Punch (English humour-periodical)

2 Encyclopaedias, etc of General Interest

On the other hand, encyclopaedias, essays, periodicals, and transactions and proceedings of societies having a general interest and purpose, cannot be placed under any particular subject. They should be placed in the divisions 030 to 060. Newspapers which are completely general in their subject matter are provided for at 070. Examples :

040	*Essays on* 1001 *subjects*
050	*Spectator*
060	*Year-book of scientific and learned societies*
070	*Times* (London)

3 Encyclopaedias : Division by Language

Under the class number 030, the encyclopaedias are divided according to the language divisions as used in the Literature class.

31 COMPARATIVE TABLE OF GENERAL ENCYCLOPAEDIAS AND LANGUAGE DIVISIONS

A comparative table of the class numbers of the general en-

cyclopaedias and those of the various major divisions of the Literature class will make this point clear.

030		General encyclopaedias	800		Literature
031		General American encyclopaedias	810		American literature
032	,,	English ,,	820		English ,,
033	,,	German ,,	830		German ,,
034	,,	French ,,	840		French ,,
035	,,	Italian ,,	850		Italian ,,
036	,,	Spanish ,,	860		Spanish ,,
037	,,	Russian ,,	891.7		Russian ,,
038	,,	Scandinavian ,,	839.5		Scandinavian ,,
039	,,	Encyclopaedias in other languages	890		Literature in other languages
039.146	"	Encyclopaedias in Marathi language	891.46		Marathi literature

From this comparative table we see that the first six divisions of the General Encyclopaedias are similar to those in the Literature class. In the Literature class, American literature gets the first place ; similarly, under General encyclopaedias in the Generalia class, General American encyclopaedias get the first place.

32 MNEMONICS

321 RUSSIA (7)

For General Russian encyclopaedias, the class number assigned is 037. The digit 7 in this class number is mnemonic for Russia. Here are other places where it occurs:

197	Russian philosophy
891.7	Russian literature
947	History of Russia

33 ENCYCLOPAEDIAS OF INDIVIDUAL SUBJECTS

The mode of the classification of encyclopaedias in individual subjects is the same as that under the Generalia class. Examples :

020.3	Landau (Thomas). Ed. *Encyclopaedia of librarianship*
031	*Encyclopaedia Americana*
032	*Encyclopaedia Britannica*
033	*Brockhaus' konversationslexikon*
034	*Grande encyclopaedie* (The most important French encyclopaedia)
035	*Encyclopaedia italiana*

039.146	*Maharashtriya jnankosh* (Marathi encyclopaedia)
103	Baldwin's *Dictionary of philosophy and psychology*
203	Hasting's *Encyclopaedia of religion and ethics*
303	Seligman. Ed. *Encyclopaedia of social sciences*
503	Van Nostrand's *Scientific encyclopaedia*
540.3	Kingzett's *Chemical encyclopaedia*
621.38403	Drake's *Cyclopaedia of radio*
630.3	*Standard cyclopaedia of horticulture*

34 BOOKS DEALING WITH THE OUTLINE OF KNOWLEDGE

As the class number 001 is specifically assigned to the Concept of Knowledge and the technical and scientific processes of study and research, we cannot give this class number to books dealing with the outline of knowledge in which various branches of knowledge are described or treated historically. Though the nature of such books is more or less encyclopaedic, yet their form of treatment is like that of other ordinary books. Sayers recommends that such books may be classed along with general encyclopaedias at 030 to 039. In this connection he observes thus: " 000 is a number that is rarely used, because it is difficult to envisage a book " on everything " which is not an encyclopaedia or dictionary and so classed at 030 to 039."[12]

Examples :

032	Pryce-Jones. *Ed. New outline of modern knowledge*. 1956
032	Rose (W). *Ed. Outline of modern knowledge*. 1931

4 General Collected Essays (040)

Includes only collections too general to go in a specific subject ; collections of non-literary essays or articles. May be divided according to the language divisions as used in the Literature class.

Examples :

042	General collected English essays	043	General collected German essays
042	*Essays on 1001 subjects*	044	General collected French essays

Regarding the division 040, Sayers observes thus: "The heading " General collected essays "... takes essays of so miscellaneous a nature that they will not go without strain at any subject or at the form " essays " in 814, 824, 834, etc."[13] Bound pamphlets,

essays, addresses, scrapbooks, etc, are required to be classed under this class number. A volume entitled general pamphlets in French would be marked 044.

5 General Periodicals (050)

May be divided according to the language divisions as used in the Literature class as shown below :

051   American General periodicals
052   English   ,,   ,,
053   German   ,,   ,,
054   French   ,,   ,,
Examples :
052   *Calcutta review*
052   *Modern review*
052   *Spectator*

51 GENERAL YEARBOOKS IN ENGLISH LANGUAGE (052.058)

Examples :

Fleet Street annual
International yearbook and Statesman's who's who
Statesman's yearbook
Whitaker's almanac
World almanac

52 GENERAL YEARBOOKS IN ENGLISH ABOUT INDIA (052.05854)

Examples :

Hindustan yearbook
Indian yearbook
Karnatak handbook (Bangalore)
Nalanda yearbook

53 SUBJECT YEARBOOKS

Examples :

020.58   *Libraries, Museums and Art Galleries year book*
328.42058 — ?   *Dod's Parliamentary companion* (Great Britain) — 328.04205
352.042058   *Municipal yearbook and public utilities directory*
620.58   *Kemp's Engineers' yearbook of formulae, rules, tables and memoranda*
796.358058   *Wisden's cricketers' almanac* (London)
905.8   *Annual register*

| 920.042058 | 1 *Who's who* | 2 *Who was who* |

| 929.72058 | Burke's *genealogical and heraldic history of the Peerage, Baronetage and Knightage, Privy Councillors and Order of Precedence* |

| 929.72058 | Debrett's *Peerage, Baronetage, Knightage and Companionage* |
| 929.72058 | Kelly's *Handbook of the titled, landed and official classes* |

54 BIBLIOGRAPHY OF LEARNED PERIODICALS

016.05 or 050.016   Ranganathan (S R). *Union catalogue of learned periodical publications in South Asia*, v 1—*Physical and biological sciences* (Indian Library Association, 1953)

55 DIRECTORIES

Examples :

052.05854	*Times of India directory including Who's who*
052.05854	*Ahmedabad directory*
380.5854	*Commercial directory of Madras*
605.854	*Directory of Indian manufacturers* (All India Manufacturers Organisation)

6 General Societies (060)

Learned societies, academies, foundations, international associations, conferences and congresses whose activity is not limited to specific subjects, e g, UNESCO are classed under the class number 060. This class number is subdivided using third figure as shown below:

1	for American	4	for French	7	for Slavic
2	,, English	5	,, Italian	8	,, Others
3	,, German	6	,, Spanish		

Examples :

061	American Learned Societies	
062	English	,,	,,
063	German	,,	,,
064	French	,,	,,
065	Italian	,,	,,
066	Spanish	,,	,,
067	Slavic	,,	,,
068	Other	,,	,,

(The class number 068 is subdivided like 930-999)

068.4	Learned Societies in Europe
068.5	Learned Societies in Asia
068.54	„ „ „ India
068.54	Asiatic Society of Bombay
068.54	„ „ „ Bengal
068.54	Bhandarkar Oriental Research Institute

61 YEARBOOKS OF LEARNED SOCIETIES (060.58)

Examples :

Yearbook of scientific and learned societies
World of learning, yearbook of learned societies (Europa publishers)

7 Museums (069)

General literature on museums is classed under this class number. By adding common subdivision numbers to the class number 069, we get general divisions of this class as shown below :

069.01	Theory of the science of museums	069.09	History of museums
069.02	Outline of the science of museums	069.0942	History of the museums in England
069.03	Dictionaries and cyclopaedias of museums	069.0954	History of the museums in India

71 SPECIAL DIVISIONS

The schedule of the special divisions of this class is :

069.1	Educational function of museums
069.3	Museum equipment
069.4	Collecting and preparation of museum materials for exhibits
069.5	Museum collections and exhibits
069.6	Museum administration

Examples :

069.06142	*Royal Commission on National Museums and Galleries. Final report.* 1929
069.4	Marshall (Sir J). Conversation manual: *a handbook for the use of archaeological officers and others entrusted with the care of ancient monuments*

72 ART MUSEUMS AND SCIENCE MUSEUMS

Material on Science Museums will get 507.4 as their class number.

Material on Art Museums will be classed under the class number 708.

8 Journalism (070)

This class comprises business of managing, editing and writing for journals and newspapers. It includes press associations, syndicates.

Special divisions of this class are :

81 SPECIAL DIVISIONS

070.1	The press. Includes theory, ethics, standards, influence, scope and importance
070.13	Relation of the State. Includes laws governing the press, censorship and libel
070.3	Business. Management of newspapers and magazines
070.4	Editorial management
070.5	Periodicals in journalism
070.6	Societies of journalism
070.7	Study and teaching of journalism
070.8	Collected writing on journalism
070.9	History of journalism

82 NEWSPAPERS

Newspapers of different countries are numbered as below :

071	Newspapers in America	076	Newspapers in Spain
072	,, ,, England	077	,, ,, Russia
073	,, ,, Germany	078	,, ,, Scandinavia
074	,, ,, France	079	,, in other countries
075	,, ,, Italy		(divided according to the geographical divisions)

Examples :

070	Gibbs (Sir P H). *Adventures in journalism*
070	Cranford (N A). *Ethics of journalism*
071	*New York Times*
072	*Times* (London)
079.51	Newspapers in China
079.52	Newspapers in Japan
079.54	Newspapers in India
079.54	*Times of India*

83 YEARBOOKS, DIRECTORIES, ETC

Examples :

070.13	Press law (Class liberty of the press in 323.445)
070.4	Editorial management
070.42	Reporting
070.4205	Periodicals on reporting
070.4205	*Reporter* (Dewsbury, York, England)
070.58	*Guide to the Press of the world* (London)
070.58	*Newspaper Press Directory and Advertisers' Guide* (London)
070.58	*Willing's Press Guide* (London)
323.44509415	Inglis (Brian). *Freedom of the press in Ireland*, 1784-1841

91 COLLECTED WORKS (080)

This division holds collections of several articles on different subjects brought together in a single book. This class number is also provided as a place for collections of books, which, it is desired to keep together rather than split them up and arrange them individually by subjects. Such collections would be special donations, bequests and so on. This would amount to making this class number play the part of collection number.

Subdivisions of this class are :

081   Collected works of individual authors. Complete or collected works of an author too broad to be classified in one subject

082   Collected works of various authors on different subjects

Example :

082   *Spectrum* (A Spectator Miscellany) (This collection contains an admirably wide range of contributions to the Spectator). 1956

92 BOOK RARITIES (090)

Book rarities are books in which the subject interest is subordinated to other considerations, such as type, paper, illustrations, binding, or all of these which have to be specially considered in the case of books which have become very rare and were printed very long ago. This division holds works on bibliographical or literary history or critical account of books possessing some characteristics such as script, bindings, illustrations which make them rare or valuable.

Example :

090   Aungerville (R), known as Richard de Bury, Bishop of Durham (1287-
       1345): *Love of books*, the philobiblom of Richard de Bury, tr. by
       E C Thomas. (A prose eulogy of books and learning written in 1300
       by Richard de Bury)

93 MANUSCRIPTS (091)

Example :

Wanderings and homes of manuscripts (Helps for students of history). 1919
       (A noted English antiquarian tells where manuscripts were made and
       in what centres they have been collected. He suggests some helps for
       tracing their history)

94 BLOCK BOOKS (092)

Books produced by printing from wood-cut blocks. This is an
early form of books.

95 INCUNABULA (093)

Works about books printed before 1500.

96 RARE PRINTING (094)

Works about books of great rarity but printed after 1500.

Examples :

Elzevirs (This term is applied to editions of the classics, etc published by the
       Elzevir family at Amsterdam and Leyden from about 1595 to 1680; it is also
       applied to a variety of types consisting of tall thin letters)
Privately printed books, small editions
Unique, limited and first editions
Private presses (The private press, its achievement and influence), by Gilbert
       Turner. (Association of Assistant Librarians, London)

97 RARE BINDING OR RARE AND ARTISTIC BOOK-BINDING (095)

Examples :

Pollard. *Early illustrated books*
Wickstead (J). *William Blake's "Jerusalem"*. 11 plates
Wormald (F). *Miniatures in "The Gospels of St Augustine"*. 19 plates
Auerbach (Erna). *Tudor Artists—Ornamental and Decorative Paintings*

98 BOOK PLATES. EXHIBITS (097)

Book plates are ornamental labels pasted on the inside of a bookcover to indicate the owner's name.

Examples :

097.058   *Book plate annual* for 1921 to date, ed by H A Fowler. Illus.

991 OTHER KINDS OF RARITIES

098   Other kinds of rarities based on intrinsic characteristics
099   Other kinds of rarities based on extrinsic characteristics

Examples :

098   Banned books or books prohibited by religious or civil authorities.
        (Lostbooks known only by allusions; or known from quotations in the
        writings of contemporary authors)
098   Hoaxes
098   *Romans e chef* (Key to literary characters drawn from life)

PART C

DC: LINGUISTICS AND LITERATURE

Linguistics and literature are two major social classes that are not always treated apart as component classes since a language is considered as the raw material of literature and thus gains itself is to the written product of language.

11 Linguistic Interpretation

The class divides in other branches, such as translation, and interpretation, like that of a document, and the terms of DRP, DRS, but the specimens return to the domain.

12 Linguistic Formulas

Reference in these topics are made to DC's linguistic formulas, and other associated material. The analogous class is the domain of so classified subjects of these classes such as Linguistics, still a Comparative Linguistics, and in Literature, still in Semantic, and so on.

13 Languages or Literatures

The languages can be grouped as shown below:

10. Classical Linguistics
11. Social Science
12. Indo-European languages, one as Germanic, Greek, Italian, Slavic
13. Latin, Greek and New Latin
14. Other languages

The division follows the modern English and other major foreign languages. The languages and literatures of these countries are not treated of these own Syntax, also are grouped under sub-minor languages.

DC : LANGUAGES

1 Closely Related Classes

Linguistics and literature are two closely related classes and have an almost identical first characteristic of division, i e, language. Language is considered as the raw material of literature and literature is said to be the finished product of language.

11 ANNOYING INTERPOLATION

The interpolation of other subjects, such as 500 Science, 600 Useful arts and 700 Fine arts between these two classes, is annoying and is a glaring defect in the Scheme.

12 LINGUISTIC NUMBERS

The divisions in these classes give rise to DC's linguistic numbers and other mnemonic features. The only exception to the mnemonic or identical division of these classes is that in Linguistics, 410 is Comparative Linguistics and in Literature, 810 is American literature.

13 GROUPING OF LANGUAGES

The Linguistics class is grouped as shown below :

410   Comparative linguistics
420   English language
430 ⎫
to ⎬   Major European languages, such as German, French, Italian, Spanish,
480 ⎭   Latin, Greek and their dialects
490   Minor languages

This grouping has a bias towards English and other major European languages. The languages and literatures of other nationalities are treated as if they were 'Minor' and are grouped under 490 Other languages.

14 DISADVANTAGE

This has created a great disadvantage for the libraries of these nationalities, especially for the Indian libraries. Regarding this point Sayers observes thus.—" The Philology class is unsatisfactory in some ways. It was, of course, designed primarily for use in a library in which books in English far outweighed those in every other language and in which non-European languages were sparsely represented. Such non-European languages ... were called ' Minor '. This is not of consequence in a public library here (in England), but in a library in India or China it would be a great disadvantage." [14]

2 Germanic Languages and Literature

It will be observed that the divisions 420 to 490 correspond with the divisions 820 to 890. Each of these divisions is divided to provide other dialects and similar languages. It is particularly so in 439 Germanic languages and 839 Other German literature. The subdivisions of these two divisions provide for a host of minor languages not included in the preceding divisions. The subdivisions of these two divisions may be shown as below :

Germanic languages		*Other German literature*	
439	Germanic languages	839	Other German literature
439.3	Netherlandish and Low German dialects	839.3	Netherlandish and Low German literature
439.4	Plattdeutsch (Modern Low German languages)	839.4	Plattdeutsch (Modern Low German literature)
439.5	Scandinavian languages	839.5	Scandinavian literature
439.6	Old Norse language (Ancient language of Scandinavia)	839.6	Old Norse literature
439.8	Danish and Norwegian languages	839.8	Danish and Norwegian literature
439.81	Danish language	839.81	Danish literature
439.82	Norwegian language	839.82	Norwegian literature

We find that 490 Other Languages and 890 Other Literature are divided as shown below :

3 Other Languages and Literature

	Language		Literature
490	Other languages	890	Other literature
491	Indo-European languages	891	Indo-European literature
492	Semitic languages	892	Semitic literature
493	Hamitic languages	893	Hamitic literature
494	Scythian, Ural, Altaic, Turanian languages	894	Scythian, etc literature
495	Asiatic languages	895	Asiatic literature
496	African languages	896	African literature
497	North American languages	897	North American literature
498	South ,, ,,	898	South ,, ,,
499	Malay, Polynesian and other languages	899	Malay, Polynesian and other literature

Each of the above divisions is in turn further subdivided into individual languages and so we have, for example :

31 INDIVIDUAL MINOR LANGUAGES

	Language		Literature
491.2	Sanskrit language	891.2	Sanskrit literature
491.41	Sindhi language	891.41	Sindhi literature
491.42	Punjabi language	891.42	Punjabi literature
491.43	Hindustani language	891.43	Hindustani literature
491.44	Bengali language	891.44	Bengali literature
491.45	Oriya language	891.45	Oriya literature
491.46	Marathi language	891.46	Marathi literature
491.47	Gujarati language	891.47	Gujarati literature
491.48	Singhalese language	891.48	Singhalese literature
491.7	Russian language	891.7	Russian literature
494.811	Tamil language	894.811	Tamil literature
494.814	Kannada language	894.814	Kannada literature
495.1	Chinese language	895.1	Chinese literature

4 Linguistic Numbers

These illustrations indicate to us that the notation used after the original class number 4 in the language class, represents the same language in the Literature class. The numbers that represent individual languages in both these classes are called ' Linguistic numbers ' and are applied at a number of places indicated in the classification, with the same meaning.

Example 1 :

The mnemonic application of the number 3981 meaning Danish is illustrated below :

572.83981   Ethnology of Danish race
In this class number
5   = Pure science
57   = Biological sciences
572   = Anthropology and Ethnology
572.8   = Linguistic Anthropology

This class number is divided like linguistic divisions 420 to 499 and hence the above class number means Ethnology of Danish races.

Example 2 :

The class number of ' Modern versions of Bible ' is 220.5. This class number is divided like linguistic divisions 420 to 499 as shown below :

220.52   Bible in English
220.53   Bible in German

Example 3 :

The class number assigned to ' Other Non-Christian Religions ' is 299. This class number is divided like linguistic divisions given under 490 assigned to other languages. We have thus :

299.31   Egyptian religion
299.51   Religions of Chinese Origin

The last two digits in each of these numbers — 31 and 51 — represent people speaking Egyptian and Chinese languages respectively. The original class number for Egyptian language is 493.1 (493 Hamitic languages — African languages) and the class number for Chinese language is 495.1.

5 Mnemonic Notation

It is important to remember in defining ' Mnemonic Notation' that while a particular language or topic is always represented by one and the same digit, it is not correct to say that the digit has always the same meaning. For example, English language is always represented by 2. But the digit 2 frequently has other meanings. Let us illustrate :

312   Demography
512   Algebra
620   Engineering

These examples indicate to us that the notation ' 2 ' has different meanings in these three class numbers. In the class number 312, it means Demography ; in the class number 512, it means Algebra ; and in the class number 620, it means Engineering.

6 Mnemonics between Language and Country

It should be noted that the specific numbers assigned to certain major European languages and to some non-European languages in the Linguistic class, are also mnemonically assigned to the continents and countries of their origin in the History class. This feature may be illustrated by a comparative table of the relevant class numbers in both these classes :

Language numbers			*History numbers*		
420	English language		942	History of England	
430	German	,,	943	,,	,, Germany
440	French	,,	944	,,	,, France
450	Italian	,,	945	,,	,, Italy
460	Spanish	,,	946	,,	,, Spain
491.7	Russian	,,	947	,,	,, Russia
495	Asiatic languages		950	,,	,, Asia
496	African	,,	960	,,	,, Africa
497	North American languages		970	,,	,, North America
498	South	,,	,,	980	,,	,, South America

7 Language Mnemonics

These illustrations indicate to us how linguistic numbers assigned to the individual languages are mnemonically used wherever necessary in other classes and divisions in the Scheme. These are called Language Mnemonics of DC. We have already seen the Common subdivision mnemonics of DC.

8 Second Order Divisions

The second order divisions of Linguistics are the following :

1	Orthography	5	Grammar
2	Etymology, Derivation	6	Prosody
3	Dictionary	7	Dialects, Slang,
4	Synonyms, Homonyms,		Patois
	Antonyms	8	Texts

81 PROSODY

Ed 15 puts ' Prosody ' in Literature in 808.1, Art and Versification of Poetry, ed 16, however, puts it, in linguistics. Thus we have :

9 Linguistic Form Mnemonics

426	English Prosody
436	German Prosody
491.466	Marathi Prosody

The subdivisions 1 to 8 representing Orthography, Etymology, etc, form another set of mnemonic numbers for use in dividing the linguistics of any language whatever.

425	English grammar	491.463	Marathi dictionary
445	French grammar	491.464	Marathi synonyms, etc
491.25	Sanskrit grammar		
491.75	Russian grammar	491.465	Marathi grammar
491.46	Marathi language	491.466	Marathi prosody
491.461	Orthography of Marathi language	491.467	Marathi dialects, etc
491.462	Derivation of Marathi words	491.468	Texts for learning Marathi language

DC : COMMON SUBDIVISIONS UNDER 400

1 Philosophy and Theory of Language

The first common subdivision number is 01 Philosophy and theory. By applying this number to 400, we get :

401 Philosophy and theory of language

The rules prescribe that when a common subdivision number is added to a number with a zero or two zeros as its last digits, the zeros are omitted before applying the common subdivision number. Thus we get the class number 401 instead of 400.01 for Philosophy and theory of language. This number may be given to books on the origin of language and sociology of language.

12 SUBJECT BIBLIOGRAPHIES

In this Scheme, the class number 016 in the (MC) Generalia is assigned to Subject Bibliographies. This class number is to be divided like the whole classification, i e, the class numbers from 000 to 999 assigned to the relevant subjects in the Scheme are to be added after this class number to indicate the bibliography of that subject. Thus we shall have 016.4 as DC number for Bibliography of Linguistics.

121 ALTERNATIVE NUMBER

While the common subdivision number 016 normally represents miscellaneous theories, a note under this number states that it may be used for bibliographies and indexes by those libraries preferring to class bibliographies with their respective subjects rather than together subdivided by subject. This provision for using one and the same number to represent one of two different common subdivisions is undesirable. Therefore, Sayers recommends on p 266 of his *Manual* the use of two zeros (00) for a bibliography of a subject. According to this recommendation, bibliography of Linguistics will be represented by 400.16 instead of 401.6.

This class number gives precedence to bibliographies of a subject over all the topics represented by the common subdivision numbers. This may be illustrated as below :

| 400.16 | Bibliographies of Linguistics | 401.6 | Miscellaneous theories of Linguistics |
| 401 | Philosophy and theory of Linguistics | 402 | Outlines of Linguistics |

122 SUBSTANCE OF THE RULE OF SAYERS

The substance of the rule of Sayers is that when 16 represents bibliography, it must be preceded by two zeros. This implies that (1) two zeros should be added before 16, if the host class does not end with a zero ; (2) one zero should be added before 16, if the host class ends with one zero; (3) no zero should be added, if the host class ends with two zeros.

Examples :

| 400.16 | Bibliography of linguistics | 425.0016 | Bibliography of English grammar |
| 420.016 | Bibliography of English linguistics | | |

2 Comparative Linguistics (410)

The divisions of 410 are similar to the Linguistic Form Divisions with some exceptions, though the terms used are different.

21 WRITING LANGUAGE

The number 411 has the term 'Writing language' against it, though the last digit 1 stands for orthography. This class number holds works on the comparative study of the alphabets of the different languages.

22 ETYMOLOGY

The class number 412 holds works on the comparative study of the origin and derivation of words in different languages. The class number 412 holds also the newly developed subject 'Semantics'. The term 'Semantics' means 'Science of word meaning and a system of speech analysis' intended to promote more exact expression and assure better understanding.

23 LEXICOGRAPHY

The class number 413 is used to represent both Lexicography or the 'Science of compiling dictionaries' and a dictionary of many languages, which is called Polyglot.

Example :

413   Ubakyu (Maung). *Hku knit bhashasaga*. A dictionary containing Hindi, Urdu, English, Tamil and Chinese words transliterated into Burmese characters with Burmese translation. 1902

24 PHONOLOGY

The class number 414 stands for Phonology. Phonology is the science of the elementary sounds of the human voice. This subject is also termed as ' Phonetics '.
Example :

414   Sweet (Henry). *Primer of phonetics*. 1906

25 GRAMMAR

Grammar is the science which deals with the principles of reading and writing a language. General books on grammar irrespective of any particular language are to be given the number 415.
Example :

415   Jesperson (Otto). *Philosophy of grammar*

26 PROSODY

General books on Prosody irrespective of any particular language are to be given the number 416.

27 INSCRIPTIONS

Inscriptions are documents engraved on stone, metal or other hard substance. Miscellaneous inscriptions in diverse languages and of linguistic or literary interest are to be given the class number 417.

Inscriptions of linguistic or literary interest in a specific language are to be classed under that language and be given the linguistic form division number 17. Thus, a book containing Inscriptions

65

in Sanskrit language will get 491.217 as its class number. In this class number :

491.2   = Sanskrit language
491.21   = Sanskrit orthography
491.217   = Sanskrit inscriptions

28 TEXTS

The class number 418 holds texts in various languages printed together from the linguistic point of view.

29 NONVERBAL COMMUNICATION

The class number 419 stands for Nonverbal Communication (Language communicated otherwise than by words or letters of an alphabet). This includes — Gestures (actions or postures intended to express ideas or feelings) ; Facial expressions ; Smoke signals ; Drumbeats ; Whistles ; Flags ; and use of coloured and positional lights.

DC : DICTIONARIES OF TWO LANGUAGES

1 Rule of DC Ed 16

The instructions regarding the construction of appropriate class numbers for bilingual dictionaries as given in ed 16 read thus : " Class bilingual dictionaries with the language likely to be less known to users of an individual library adding from 420 to 499, the number for the better known language." [15]

For example : Suppose French language is less known to users of an individual library and English is the better known language to them, then a French-English dictionary will get the class number 443.2.

Again suppose Russian language is less known to the users of an individual library and French is the better known language to them, then a French-Russian dictionary will get class number 491.734. In this class number :

491.7	= Russian language
491.73	= Russian dictionary
491.734	= French-Russian dictionary

2 Rules of Sayers

Regarding the class numbers to be assigned to dictionaries of two languages, Sayers has given two rules. Merrill supports these rules.

21 RULE 1

" Dictionaries of English-Other languages go under the foreign one; thus, Latin-English and English-Latin go under Latin." [16] Example :

473.2   Latin-English and English-Latin dictionary

22 RULE 2

" Dictionaries in two foreign languages, class under the probably less familiar language."[17]

Sayers suggests that a French-Swedish dictionary should be classed under Swedish language which is less familiar to the readers in British libraries. Its class number in a British library should be 439.734.

3 Modern Indian Languages and English Language

On the basis of these rules, all dictionaries in any of the modern Indian languages and English language will be classed under English language, as English is the less known language to us. Example :

423.9146   Ranade (N B). *Twentieth century English-Marathi dictionary*

4 English-Sanskrit Dictionary

But English-Sanskrit dictionary will be classed under Sanskrit language as Sanskrit is an ancient language. Example :

491.232   Apte (V S). *Student's English-Sanskrit dictionary*

5 Two Modern Indian Languages

Regarding the dictionaries in two modern Indian languages, the practice will vary from one linguistic State to another. In Maharashtra, Marathi-Hindi dictionary will be classed under Hindi language as Hindi is less known language to Maharashtra. Example :

491.4339146   Marathi-Hindi or Marathi-Hindustani dictionary

6 Marathi-Sanskrit Dictionary

A Marathi-Sanskrit dictionary will be classed under Sanskrit as Sanskrit is an ancient language.

7 Major Dravidian Languages

494.8	Dravidian	494.812	Malayalam
	languages	494.813	Telugu
494.811	Tamil	494.814	Kannada

The class number 494 stands for Finno-Ugric, Turkic and other linguistic groups. In this group of languages, the class number 494.8 is assigned to Dravidian languages.

71 MARATHI-KANNADA DICTIONARY

A Marathi-Kannada dictionary will get 494.81439146 as its class number.

DC : LITERATURE CLASS : SECONDARY ARRANGEMENT

1 Literary Form

The divisions of second order of 800 Literature class are got by Literary form. Therefore, the (MC) Literature is called a " Form class ".

11 SCHEDULE OF FORM NUMBERS

The schedule of these form numbers is :

1	Poetry	5	Oratory
2	Drama	6	Letters
3	Fiction	7	Satire and Humour
4	Essays	8	Miscellany

Thus in English literature, we get the following class numbers :

820	English literature	825	English orations
821	English poetry	826	English letters
822	English drama	827	English satire and humour
823	English fiction	828	English miscellany
824	English essays		

Other examples:—

811	American poetry	867	Spanish humour
834	German essays	891.72	Russian drama
856	Italian letters		

2 Variations in Latin and Greek

In Latin and Greek literature, we have a slight deviation in the form schedule as shown below :

873	Latin epic	883	Greek epic
874	Latin lyric	884	Greek lyric

This deviation is due to the special features of these two classical literatures.

21 TECHNIQUE OF LITERARY FORMS

These form division numbers are also used after the class number 808 Literary composition to represent works on their techniques, i e, the theory and art of these forms. The detailed schedule for the techniques of literary forms as given in ed 16 is given below :

808.1	Theory and art of poetry
808.12	Theory of dramatic poetry
808.13	Theory of romantic and epic poetry
808.14	Theory of lyric poetry
808.15	Theory of didactic (i e instructive) poetry
808.16	Theory of descriptive poetry
808.17	Theory of satirical and humorous poetry
808.2	Theory of drama
808.22	Theory of radio and television playwriting
808.23	Theory of motion-picture playwriting
808.24	Theory of one-act playwriting
808.25	Theory of writing other special kinds of drama, including masks, miracle plays, passion plays, etc
808.3	Theory of fiction writing
808.31	Theory of short-story writing
808.4	Theory of writing essay
808.5	Theory of oratory. Theory of speech and public speaking. Art of conversation. Techniques of delivering public addresses. Radio speeches, etc
808.6	Theory of writing letters
808.7	Theory of satire and humour

3 Chronological Divisions

The use of the chronological divisions is very limited in DC. In the Literature class, chronological divisions are added after form divisions. Examples :

821.1	Early English poetry	(1066-1400)
822.1	Early English drama	(,,)
823.1	Early English fiction	(,,)

A chronological digit represents the same period whatever be the form division to which it is added, provided the language division is the same. This is seen above.

31 VARIATION WITH THE LANGUAGE

But a chronological digit does not represent the same period in the literatures of different languages. Examples :

811.1   American poetry of the Colonial period (1607-1770)
821.1   Early English poetry (1066-1400)
831.1   Early medieval German poetry to 1150

32 SAMPLE SCHEDULE

822.1   Early English drama (1066-1400)
822.2   Pre-Elizabethan drama (1400-1558)
822.3   Elizabethan drama (1558-1625)
822.4   Post-Elizabethan drama (1625-1702)
822.5   Drama during the period of Queen Anne (1702-1745)
822.6   Drama during the period of later 18th century (1745-1808)
822.7   Early 19th century drama (1800-1837)
822.8   Drama during the Victorian period (1837-1900)
822.91 20th century drama (1901-   )

4 Authors

In the editions previous to ed 15, further divisions have been made to individualise particular authors under English and some of the European literatures. Examples :

821.17   Chaucer (1340-1400)
821.31   Spenser (1552-1599)
821.43   Herrick (1591-1674)

5 Arrangement of Literature Class

From all this discussion about the (MC) Literature, we see that the arrangement of this class is first by Language, then by Form and thereafter by Period.

6 Form Class

61 IN LITERATURE, FORM IS PARAMOUNT

In a classification of books, provision has to be made for books which naturally divide themselves by the form in which they are presented irrespective of the subject matter. Most of such books are contained in the Literature class, where we have works of poetry,

drama, fiction, essays, and so on. The theme of the poems, plays, novels and essays is unimportant from the point of view of classification. For, the readers are obviously going to look for poems, plays and essays by a specific writer ; that a poem is about the *Rape of the Lock* is irrelevant. It is, therefore, said that in Literature, form is paramount.

7 Form Divisions

The Form Divisions or as they are sometimes called common subdivisions, must not be confused with a Form Class. In the latter — i e, in the Form Class or Literature class — the form of literature — i e, poetry, drama, etc — is of primary importance and hence it is by form that the books are arranged in the Literature class. But form divisions — i e, the divisions which indicate the form of exposition, such as dictionaries, essays, etc, and which are also called common subdivisions — form the basis of a secondary arrangement made only after a book has, in the first instance, been arranged by its subject.

DC : LITERATURE CLASS : 801 to 809

1 Literary Criticism

The division 801 is assigned to philosophy and theory of Literature. Books on Literary criticism are classed under the class number 801.9. Here are a few such books :

801.9   Bollingworth. *Primer of literary criticism*
801.9   Scott-James. *Making of literature*
801.9   Pritchard. *Training in literary appreciation*

These books are specifically on the theory and technique of Literary criticism.

11 CRITICISM OF SPECIFIC LITERATURE

Under the class number 801.9, there is a note reading : " For criticism of a specific literature, see the literature ". For example :

810.9   Criticism of American literature
811.09   Criticism of American poetry

12 CRITICISM AND HISTORY OF LITERATURE

But the number 09 is generally used to denote the history of a subject. So the class number 810.9 will mean both criticism and history of American literature ; so also the class number 811.09 will mean both criticism and history of American poetry. The use of the number 09 in the case of the other literature and their literary forms is illustrated below :

820.9	Criticism and history of English literature	891.4609	Criticism and history of Marathi literature
821.09	Criticism and history of English poetry	891.46109	Criticism and history of Marathi poetry

2 Bibliography of Literature

General bibliographies of literature will get 800.16 or 016.8 as their class numbers. Example :

800.16 ⎱ Sears (Minnie Earl). *Standard catalogue for public libraries—Literature*
or
016.8 ⎰ *and Philology section*. 1931

A bibliographical periodical in literature will get 800.1605 or 016.805 as its class number.

3 Dictionaries and Encyclopaedias of Literature

The class number 803 is assigned to dictionaries and encyclopaedias of Literature in many languages. Examples :

Crowell. *Handbook for readers and writers*
Brewer (E C). *Reader's handbook of famous names in fiction, allusions, references, proverbs, plots, stories and poems*
Harvey (Sir Paul). *Oxford companion to classical literature*
Magnus (Laurie). *Dictionary of European literature*

4 Essays and Lectures

The class number 804 is assigned to critical essays on literature in general. Examples :

Arnold (Mathew). *Essays: literary and critical*
Pound (Ezra). *Literary essays*

41 CRITICAL ESSAYS ON SPECIFIC LITERATURES

The number 04 is also used for critical essays on specific literatures. Examples :

810.4   Critical essays on American literature
820.4   Critical essays on English literature
891.4604   Critical essays on Marathi literature

5 General Literary Periodicals

The class number 805 is assigned to general literary periodicals. The periodical published by the organisation named P E N may be given this class number. The full name of the organisation is "Poets, Playwrites and Novelists". This is an international organisation and one of its branches is in India. It publishes a periodical entitled *Indian P E N*. The mode of the classification of periodicals under individual subjects is the same as that under the Generalia class. In that class, general periodicals are divided according to the language divisions as used in the literature class with a few exceptions. The exceptions are given below:

51 EXCEPTIONS

For general Russian periodicals, the class number assigned is 057 and for general Scandinavian periodicals the class number assigned is 058. While in the literature class, the class, number 870 is assigned to Latin literature and the class number 880 is assigned to Greek literature. These are the only exceptions made in assigning class numbers to general periodicals in different languages.

52 IN A SPECIFIC LANGUAGE

Examples :

805	General literary periodicals			
805.1	,,	,,	,,	in American
805.2	,,	,,	,,	,, English
805.3	,,	,,	,,	,, German

53 FURTHER SUBDIVISIONS

Further subdivisions of these periodicals are made by adding to their class numbers, the numbers of the countries in which they are published. Examples :

805.242   General literary periodicals in English, published in England
805.254   General literary periodicals in English, published in India

54 PERIODICALS OF P E N

On the basis of this practice, the primary class number 805 may be assigned to the periodical published by the central office of the P E N Organisation and the periodicals published by its branches may be distinguished by the numbers representing the language and the countries of their publication. Thus, 805.254 Indian P E N.

6 Literary Organisations

The class number 806 is assigned to Literary Organisations and Societies. The form division number 06 standing for Organisations and Societies is subdivided as shown below :

61 GOVERNMENT ORGANISATIONS

061   Government organisations

0611   International Government organisations
0613 ⎫
to   ⎬   Government organisations of specific places
0619 ⎭

Divided like 930 to 999

0615   Government organisation in Asia
06154   Government organisation in India

62 NON-GOVERNMENT ORGANISATIONS

The number 062 is assigned to Non-Government organisations. This number is divided like the number 061.

63 P E N Organisation

The P E N Organisation is a Non-Government organisation and hence it will get 806.2 as its class number. It is also an international organisation and hence it requires to be given 806.21 as its class number.

631 BRANCHES OF P E N

Its branches in the various countries will be individualised by the numbers of the respective countries as shown below :

806.25   Branches of P E N in Asia
806.254   Branches of P E N in India

According to the practice in DC, transactions, annual reports and even periodicals published by P E N and its branches, will get the same class numbers as are assigned to the respective organisations.

7 Study and Teaching of Literature (807)

Examples :

Trent (William Peterfield). *Greatness in literature and other essays* (Nine popular essays on study and teaching of literature)
Moulton (Richard Green). *Modern study of literature:* an introduction to literary theory and interpretation

8 Literary Composition (Rhetoric)

The class number 808 is assigned to Literary composition

(Rhetoric). General books on literary composition will be classed under this class number. Examples :

Brander (Laurence). *Pleasures of prose and poetry*: a primer of rhetoric and prosody. 1954

Morgan (Charles). *On learning to write*: Presidential address to the English Association. 1954

81 RULE REGARDING THE USE OF 808

Regarding the use of this class number, Sayers has given a rule in his *Introduction to library classification* which reads thus : " Use 808 for works on the arts of recitation, oratory, etc, with selections of pieces chosen for performances, but not for mere collections of poems, dramatic pieces and oratory which go under these forms in 811, 821,831, etc, and 822, 832, 833, and so on."[18]

Example :

811.08	Collections of American poems
821.08	,, ,, English ,,
822.08	,, ,, ,, drama or English dramatic pieces
832.08	,, ,, German drama or German dramatic pieces
833.08	,, ,, ,, fiction
845.08	,, ,, French oratory
856.08	,, ,, Italian letters

82 COLLECTIONS OF SEVERAL LITERATURES

The class number 808.8 will hold collections from several literatures. This class number may be divided by the relevant literary form numbers as shown below :

808.81	Collections of poems from several literatures
808.82	,, ,, dramas ,, ,, ,,
808.83	,, ,, novels ,, ,, ,,

83 GENERAL ANTHOLOGIES (808.88)

The class number 808.88 is to be used for general anthologies and books of quotations from several languages.

Examples :

808.88	Douglas. *Forty thousand quotations*
808.88	Benham. *Book of quotations*
808.88	Lee and Moorhead. *Dictionary of quotations and proverbs*

84 Literatures of Artificial Languages

The class number 808.9 is assigned to literatures of artificial languages. This class number is divided like 408.9. Examples :

808.92   Esperanto literature (Under Linguistics 408.92 is Esperanto language)

85 History and Criticism

The class number 809 is assigned to 'History and Criticism of Literatures'. This class number is to be divided like 808.1 to 808.7 as shown below :

809.1   History and criticism of world poetry
809 2   ,,   ,,   ,,   ,,   ,, drama

85 History and Criticism of Literature of Countries using more than one Language

The class numbers 809.94 to 809.99 are assigned to 'History and criticism of literature of countries using more than one language'. They are to be divided like 940 to 999. Example :

809.954   History and criticism of the literature of India

PART D

DC : HISTORY

DC : HISTORY : INTRODUCTION

0 Separation of History and Social Sciences

The (MC) History gets 900 as its class number. It is closely related to Social sciences which gets 300 as its class number. Thus these two closely related classes have been widely separated from each other by other intervening classes, viz Linguistics, Pure Sciences, Useful Arts, Fine Arts and Literature. However, from the point of view of Baconian arrangement this appears to be satisfactory.

01 BLISS ON DC

In spite of the various mnemonic features of the Scheme, it has been very often severely criticised by certain specialists in classification, the prominent among whom is Henry Evelyn Bliss. He says: " But Brunet did not separate Language from Literature, nor did any other influential system, except that of Harris. Why Dewey did, we wonder. Can any good reason be found for it? . . . Hardly less wry is the separation of Sociology in Class 3 from History in Class 9, whatever may be the point of view ; . . . In view of the modern studies, it is wholly perverse." Bliss concludes with the rather severe stricture that " these three major separations are enough to disqualify any system as an organisation of knowledge, whatever the point of view may be. They are consistent with none of the comprehensive modern views."[19]

02 GROUPINGS OF THE CLASS

This class is divided as shown below :

900 to 909	General history
910 to 919	Geography and Travel
920 to 928	Biography
929	Genealogy and Heraldry
930 to 939	Ancient history
940 to 999	Modern history

03 TOPOGRAPHICAL DIVISIONS

The topographical divisions of Modern history under 940 to 999 are recommended for application under 914 to 919 for similar divisions of Geography and Travel.

04 UNSATISFACTORY TREATMENT

Even internally the treatment of this class is unsatisfactory. It separates General history which is accommodated under the class numbers 900-909 from Ancient history under 930-939 and Modern history under 940-999 by the intervening divisions of Geography and Travel under 910 to 919 and Biography under 920-929.

05 PERIOD DIVISIONS

In addition to the topographical divisions, this class provides for period divisions with a notation usually given to common form divisions in other classes. The period divisions are as follows :

900	History	943.02	Holy Roman Empire during
940	Europe		843-1519
943	Germany	943.03	Reformation period,
943.01	Early period and Empire of		1519-1618
	Charlemagne to 843	and so on	

These period divisions are not used mnemonically. The digits 1, 2, 3, etc, indicate different periods under different countries.

06 BIBLIOGRAPHIES

Examples :

016.9 or 900.16	Allison (William Henry), etc. *Guide to historical literature.* Macmillan, 1937
016.905 or 900 1605	*International bibliography of historical sciences* (International Committee of historical sciences)
016 0169 or 900.16016	Edith (M). *Historical bibliographies, a systematic and annotated guide.* 1935

07 SUBDIVISIONS OF 900

The subdivisions of 900 are as given below :

901   Philosophy and theories of History

909   Medieval and modern world history
909.82   Twentieth century world history

071 CIVILIZATION

The class number 901.9 is assigned to civilization. Under this class number, there is a note which reads thus: " Including history of civilization, cultural history ". This means that ' History of civilization and cultural history in general ' are to be classed under this class number. So according to this note the book, viz, *Kalki or the future of civilization* by Dr. Radhakrishnan will get 901.9 as its class number and the class number 901 will hold books on the theory and philosophy of history.

The class number 901.9 is to be subdivided as shown below :

901.91   History of ancient and primitive civilization to about 500 AD
901.92   History of medieval civilization from 50C A D to 1500 A D
901.93   History of modern civilization from 1500 to the end of the 19th century
901.94   History of civilization in the 20th century

These four chronological divisions are given under the form division number 09 History and Local Treatment in the schedule of Form divisions in ed 16. The divisions as mentioned there, read as below :

09   History and local treatment
0901   Ancient and primitive history to about 500 A D
0902   Medieval history, 500 to 1500
0903   Modern history, 1500 to 1899
0904   20th century

We may use these chronological divisions mnemonically under any class number, if found necessary.

08 SOCIAL CULTURE AND CIVILIZATION

Regarding the classification of works on Social culture and Civilization, Merrill has given some rules.

081 RULE 1

According to rule 1, works on civilization in general dealing with its theory, values, elements, group phenomena, social institutions are to be classed in Sociology.[20] According to this rule, books on

the Theory and philosophy of civilization will have to be classed under Sociology. In ed 15 and 16, there is a class number under Social sciences, viz, 301.2 Culture. Under this class number, works on the Principles of civilization may be classed. Examples of books which may get this class number are given as below :

Kidd (Benjamin). *Principles of Western civilization* (New York, 1902)
Marshall (Leon C). Ed. *Readings in the story of human progress* (New York, 1926)

082 RULE 2

According to rule 2, works on the history of civilization, treated chronologically are to be classed under History.[21] Works of this type will get 901.9 as their class number.

901.91	Trevel (Albert A). *History of Ancient civilization* (New York, 1930)
901.91	Everett (Millard S). *Civilization in the making*
901.93	Beard (Charles A). *Whither mankind, a panorama of modern civilization*
901.94	Toynbee (Arnold). *Study of history.* 10 v
901.94	Durant (Will). *Story of civilization.* 6 v

Study of History by Toynbee is a classical work. A perusal at its 10 v reveals to us that it contains a comparative study of the civilization of the world, and the study is brought upto 1950's in the latest ed 2.

083 RULE 3

According to rule 3, works on the civilization of individual countries are to be classed in the history of the country. [22]

944	Curtius (Ernst Robert). *Civilization of France,* tr by Olive Wyon (New York, 1932)
970/980	Raynolds (James J). *Old world origins of American civilization* (New York, 1934)

We have to write two class numbers joined together by a slant stroke for a book which deals with the whole continent of America as there is no single class number assigned to this continent. In this Scheme two special class numbers are assigned to North America and South America respectively as shown below :

970	History of North America
980	,, ,, South ,,

0831 History of Civilization' of a Specific Region or country

Now if we turn our attention to the instructions regarding the classification of books dealing with the history of the civilization of a specific region or country as given in ed 16, we are asked to classify these books under the class numbers 914 to 919 assigned to Regional Geography, Description and Travel. Examples :

914.4	Civilization of France	915.4	Civilization of India
915	Oriental civilization	917/918	,, ,, Americas

0832 History of Civilization

According to Merrill, *History of western civilization* by Harry Elmer Barnes will get 901.9 ; but according to the instructions in ed 16, it will get 914 as its class number.

084 RULE 4

The rule 4 is regarding the books dealing with civilizations of several countries. Merrill asks us to classify such books under a large inclusive heading, such as Europe, Orient, Roman Empire, British Empire in history. [23] Examples :

As per rule of Merrill		As per instructions in ed 16
901.9	Friedell (E). *Cultural history of the modern age.* 3v	901.9
	This book deals with the cultural history of the whole world and does not deal with any particular region.	
937.06	Civilization of Roman Empire	913.706
	For Roman Empire, the class number given in the schedule is 937.06	
940.2	Ashley (R L). *Modern European civilization*	914
942	Civilization of British Empire	914.2
	For British Empire, there is no separate class number in the schedule. The class number 942 is assigned to the History of England and also to British Empire	
950	Grouset (Rene). *Civilization of the east,* tr by C A Phillips. 4v	915

1 Handbooks and Outlines of History

The class number 902 is assigned to Handbooks and Outlines of History. Example :

Earl. *Outline of history*

11 CHRONOLOGIES

In ed 16, there is a note under 902. It reads thus: " Including chronologies ". This means that chronologies are also to be classed under this class number.

Regarding the chronologies to be classed under 902, Sayers has given a rule which reads thus: " Chronologies which go at 902 are charts or dictionaries of dates, such as Haydn's; not the scientific calculations by which calendars are constructed or criticised, which go in Astronomy." [23a] Examples:

902.03   Keller (H R). *Dictionary of dates.* 1934
         Morrison (N). *Time-table of modern history.* 400-1870. 1908
         Platt (C). *Foulsham's dictionary of dates and general information.* 1929
         Smith (E F). *Dictionary of dates.* 1924

2 Dictionaries and Cyclopaedias of History

The class number 903 is assigned to dictionaries and cyclopaedias of history. Examples :

Bowle (J). *Concise encyclopaedia of world history.* 1958
Brewer (E C). *Historical note-book, with an appendix of battles.* (An alphabetical dictionary of historical information including events, expressions, societies, customs, etc)
Langer (W L). *Encyclopaedia of world history.* 1948

3 Essays and Lectures on History

The class number 904 is assigned to essays and lectures on history in general. Example :

Laski (Harold J). *Dilemma of our times*: Historical essays. 1952

4 Periodicals in History

The class number 905 is assigned to periodicals in History. Example :

905.273   *Current history.* This is a monthly periodical published by the New York Times

5 Organisations and Societies

The class number 906 is assigned to organizations and societies established for study and research of history. Example :

906.242   Institute of Historical Research, University of London

6 Study and Teaching of History

The class number 907 is assigned to study and teaching of history. Example :

Findlay. *History and its place in education*

61 HISTORIOGRAPHY

Under 907, the class number 907.2 is assigned to Historiography which means the art of writing history. Examples :

907.2   Boyed-Carpenter (W B). *Some thoughts on recent methods of historical research.* 1924
Chatterji (M M). *History as a science.* 1927
Garrangham (G J). *Guide to historical method.* 1946
Gooch (G P). *History and historians in the 19th century*
(A scholarly critical survey of nineteenth century historians and historical method)
Nevins (Allan). *Masters' essays in history, a manual in instructions*

7 Collected Writings

The class number 908 is assigned to collected writings on history.

8 Medieval and Modern History

The class number 909 is assigned to Medieval and modern history. Comprehensive works on ancient, medieval and modern history are to be classed under this class number. Sayers has given a rule regarding the use of this class number which reads thus: " 909 is for works of so universal a character that they transcend the bounds even of a continent." [24] Examples :

Davies (H A). *Outline history of the world.* 1947
Historian's history of the world

Nehru (Jawaharlal). *Glimpses of world history.* 1949
Wells (H G). *Outline of history*

9 Special Period Divisions

For arranging universal world histories chronologically accord-

ing to periods, special period divisions are provided in ed 16. These divisions read as below :

909.1	476-1199	909.6	1600-1699
909.2	1200-1299	909.7	1700-1799
909.3	1300-1399	909.8	1800-
909.4	1400-1499	909.81	1800-1899
909.5	1500-1599	909.82	1900-

CHAPTER D2

DC: GEOGRAPHY, TRAVEL

1 Special Generalia Divisions

If we want to add form division numbers to the class number 910, we cannot omit the zero (0) in it, as we do in the case of other class numbers ending in one zero before adding the form division numbers, as under this class number special generalia subdivisions are given. Let us, therefore, develop our familiarity with these divisions one by one.

11 TRAVEL GUIDES

The class number 910.2 is assigned to ' Travel guides '. Comprehensive works, such as practical handbooks, tourist guides, vacation guides, travel regulations, are classed under this class number. Examples :

Baedekar series or the Blue guides which contain a wealth of detailed information about the countries and places contained therein
Herford (Charles Forbes). *Hints on outfit for travellers in tropical countries*
Gatty (Harold). *Nature is your guide*: *How to find your way on land and sea.* 1958
Menzies (Mrs Stephen). *Traveller's guide*
Royal Geographical Society. *Hints to Travellers.* 2v. 1944

12 DICTIONARIES AND GAZETTEERS

The class number 910.3 is assigned to dictionaries and gazetteers. Comprehensive works comprising the whole world are to be classed under this class number.

A gazetteer is a finding list, an alphabetical arrangement of towns, villages, rivers, mountains, etc, with the indication of their location and other brief particulars.

We have already seen that periodicals in specific subjects are subdivided as per periodicals in the Generalia class, which we know, are divided according to language divisions as used in the Literature class. Subdivisions of encyclopaedias and dictionaries

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in specific subjects are also made in a similar way. We also know that periodicals are further subdivided by adding the numbers of the countries of their publication to their class numbers. So also dictionaries and encyclopaedias are further subdivided by adding the numbers of the countries of their publication to their class numbers.

As per these rules, we illustrate some examples of class numbers given to gazetteers and geographical dictionaries of comprehensive nature. Examples :

910.3242	*Cassell's world pictorial gazetteer*. Published in England
910.3242	*Chamber's concise gazetteer of the world*. Published in England
910.3242	*Longman's Gazetteer of the world*. Published in England
910.3242	*Nelson's world gazetteer and geographical dictionary*. Published in England
910.3273	*Columbia Lippincot gazetteer of the world*. Published in the USA. 1952
910.3273	*Webster's geographical dictionary*: a dictionary of the names and places with geographical and historical information

13 TRAVEL AND ADVENTURE

The class number 910.4 is assigned to Travel and Adventure. Comprehensive works including accounts of voyages, travels, journeys, trips, tours in several parts of the world are to be classed under this class number. Example :

Amery (L S). *In the rain and the sun: Sequel to days of fresh air.* 1946
Cook (Captain) and Slocum (Captain Joshua). *Sailing alone around the world*
Dunbar (Janet). *Travelling abroad.* 1957
Dunn (Robert). *World alive* (Illustrated). 1958
Toynbee (Arnold J). *East to west: Journey round the world*

14 COLLECTED TRAVELS AND EXPLORATIONS

The class number 910.8 is assigned to collected travels and explorations. Collections of original accounts by explorers and travellers not limited to any one place are to be classed under this class number.

15 HISTORY OF GEOGRAPHY

The class number 910.9 is assigned to History of geography. Comprehensive works, including history of geographical knowledge,

of discovery and exploration, are to be classed under this class number. This class number is to be divided like the history divisions 930 to 999 by the country responsible for the travel or explorations. Examples :

910.9469   Explorations by Portuguese

In this class number, the digits 469 stand for Portugal under history divisions. The original class number for the History of Portugal is 946.9. Similarly, " Explorations by Indians " will get 910.954 as its class number.

16 GEOGRAPHY OF ZONES AND PHYSICAL REGIONS

The class number 910.91 is assigned to Geography of zones and physical regions. This class number is to be divided like the form division number 091 assigned to zones and physical regions.

161 DIVISIONS OF ZONES AND PHYSICAL REGIONS

The divisions of zones and physical regions as given under the form division number 091 in the table of form divisions, are as shown below :

091	Zones and physical regions
0912	Temperate zone
0913	Torrid zone (Tropics)
0914	Mountainous regions
0915	Desert regions

162 SUBDIVISIONS OF 910.91

On the basis of these divisions of zones and physical regions, the class number 910.91 is to be subdivided. These subdivisions may be shown as below :

910.912	Geography of Temperate zone
910.913	,, ,, Torrid zone (Tropics)
910.914	,, ,, Mountainous regions
910.915	,, ,, Desert regions

17 GEOGRAPHY OF FRIGID ZONES

The geography of Frigid zones, i e, the two zones comprehended

between the poles and polar circles, gets 919.8 as its class number. In this class number :

$$91 \qquad = \text{Geography}$$
$$9.8 \qquad = \text{Polar regions}$$

The digits 9.8 are taken from the class number 998 standing for history of polar regions. Examples :

919.8   Arnesen. *Polar adventure*

We have, so far, seen the special generalia subdivisions as given under the class number 910 standing for Geography and Travel.

2 Form Division Numbers

Due to these divisions, we have to retain the zero in the class number 910 and then add form division numbers as shown below :

910.01   Philosophy and theory of geography
910.02   Outlines of geography

Example :

910.02   Fry (G C). *Textbook of geography*

21 DICTIONARY OR ENCYCLOPAEDIA OF GEOGRAPHY

The form division number 03 meaning dictionary or encyclopaedia, is not required to be used as it is already represented by the class number 910.3 assigned to dictionaries and gazetteers in the schedule of the special generalia divisions of geography.

22 ESSAYS AND LECTURES ON GEOGRAPHY

The class number 910.04 may be used for Essays and lectures on geography.

23 FORM DIVISION NUMBERS 5 TO 7

There are no special generalia subdivisions assigned to numbers 5 to 7 under the class number 910. So we can safely use them for form divisions as shown below :

910.5   Periodicals in geography
910.6   Organisations and societies established for the study and research of
            geography

910.7   Study and teaching of geography

231 RESEARCH AND EXPERIMENT IN GEOGRAPHY

The form division number 07 assigned to study and teaching, has got a subdivision 072 assigned to research and experiment. Under this form division number, books on laboratories, experiment stations and laboratory manuals are to be classed. Example :

910.72   Spary (V C). *Modern geography room*

This book deals with the technical aspect of a geography room, i e, the aspect of equipping a geography room which will serve as a laboratory for research and experiment in the study of geography.

24 COLLECTED WRITINGS ON GEOGRAPHY

The class number 910.08 may be used for collected writings on geography.

25 HISTORY OF GEOGRAPHY

The form division number 910.09 meaning History of geography is not required to be used as it is already represented by the class number 910.9 in the schedule of the special generalia divisions of geography.

3 Bibliography of Geography

If we want to construct a class number for a Bibliography of geography, we have to add one zero to the class number 910 as after this class number, form divisions are classed without omitting the zero in it. The class number for a Bibliography of geography will be written as shown below :

910.0016 or 016.91   Bibliography of geography

Examples of bibliographies of geography which will get either of these class numbers may be given as below :

Mill (Hugh Robert). *Guide to geographical books and appliances*
Royal Geographical Society. *Review of the British geographical work during the hundred years.* 1789-1889
Wright (John Kirtland). *Aids to geographical research, bibliographies and periodicals*

31 Bibliographical Periodical in Geography

A bibliographical periodical in geography will get 016.9105 or 910.001605 as its class number. Example :

Bibliographie geographique internationale (Published at Paris, started in 1894)

4 Branches of Geography

The different branches or kinds of geography as represented in ed 16, may be shown along with their class numbers as below :

330.9	Economic geography	572.9	Anthropogeography
355.47	Military geography	572.9	Human geography
526	Mathematical geography	574.9	Biogeography
551.4	Physical geography	911	Political geography

The above table indicates to us how the closely related different branches of geography are indiscriminately separated from each other and distributed under different main classes.

41 Mathematical Geography

Mathematical geography considers the earth as a globe with its motions and their effects and teaches the methods of representing the whole or portions of the earth surface on globes or maps. Geodesy and cartography are two main branches of mathematical geography. Geodesy deals with the mathematical and trigonometrical study of the size and shape or figure of the earth ; and Cartography deals with the related mathematical and geometrical study of making and reading maps and charts. The class numbers assigned to these two branches may be shown as below :

526.1   Geodesy
526.8   Cartography

Example :

526.8   Crone (G R). *Maps and their makers*: Introduction to the history of cartography
526.8   Raisz (Erwin). *General cartography*. 1948

42 Physical Geography

Physical geography is also named as Physiography. It deals with earth's surface features. Example :

551.4   Pickles (Herbert). *Surface of the earth*: elementary physical and economic geography

551.4   Wooldridge (S W), etc. *Physical basis of geography*: an outline of geomorphology

43 BIOGEOGRAPHY

Biogeography deals with geographic distribution of living organisms. Examples :

574.9   Biogeography of the World
574.94   ,,   ,, Europe
574.95   ,,   ,, Asia

44 ANTHROPOGEOGRAPHY AND HUMAN GEOGRAPHY

Anthropogeography means geographic distribution of races and human geography means relationship of man to his environment. Both these subjects get a single class number, viz, 572.9. This class number is to be divided like 930 to 999. Examples :

572.94   Anthropogeography of Europe
572.942   ,,   ,, England
572.95   ,,   ,, Asia
572.954   ,,   ,, India

45 POLITICAL GEOGRAPHY AND HISTORICAL GEOGRAPHY

Political geography comprehends the effect of geographic factors upon structure, growth and relationship of states. Historical geography deals with the influence of geographic environment during successive periods of history. The subdivisions of this class are given as below :

911.3   Geography of ancient world, divided like 930
911.4 to 911.9   Historical geography of modern places, divided like 940-999

Examples :

911.32   Historical geography of ancient Egypt
911.4   Fawcett (C B). *Political geography of Europe*
911.42   Roberts (P E). *Historical geography of British Dominions*
911.51   Shabad (Theodore). *China's changing map*
911.54   Spate (O H K). *India and Pakistan*. 1957

46 MILITARY GEOGRAPHY

Examples :

355.47	Fairgrieve (James). *Geography and world powers.* 1948
355.47	May (E S). *Geography in relation to war.* 1907
355.470942	Cole (D H). *Imperial military geography*: General characteristics of Empire in relation to defence. 1931
355.470942	Cole (D H). *Imperial military geography*: Geographical background of defence problems of British Commonwealth. 1953

47 ECONOMIC GEOGRAPHY

Economic geography deals with adjustment of man to his environment by means of economic activities. Examples :

330.9	Das Gupta (A). *Economic and commercial geography*
330.9	Macfarlane (Jone). *Economic geography*
330.9	Thatcher (W S). *Economic geography*
330.942	Rutter (W P). *Commercial geography of the British Isles*
330.95	Stamp (L Dudley). *Asia: Regional and economic geography*

CHAPTER D3

DC : ATLASES, MAPS, etc

1 Atlases and Maps

The class number 912 is assigned to Atlases and Maps. This class number ·includes globes, charts, plans and relief models. It is to be divided like 930-999. Examples :

912.44   Atlas of France   912.54   Atlas of India
912.5   Atlas of Asia

11 ATLASES OF HEMISPHERES

Atlases of Eastern Hemisphere and Western Hemisphere will get class numbers as shown below :

912.1   Atlas of Eastern hemisphere
912.2   Atlas of Western hemisphere

12 WORLD ATLASES

Examples :

912   *Bartholomew's atlas of modern*
        geography. 1950
912   *Bartholomew's citizen's atlas of*
        the world. Ed 10. 1952
912   *Encyclopaedia Britannica World*
        atlas. 1951

912   *International map of the world*
912   *Atlas international Larousse*
        politique et economique 1950
912   *Oxford atlas.* 1951
912   *Phillip's International atlas.*
        1940

13 ATLASES AND MAPS OF GREAT BRITAIN

Examples :

912.41   *Bartholomew's survey atlas of Scotland*
912.42   *Bacon's atlas of Great Britain and Ireland*
912.42   *Ordnance survey atlas of England and Wales.* 1922
912.421   *Bacon's large scale atlas of London and suburbs*
912.421   *Geographia Greater London atlas*
912.421   *Geographia's authentic map directory of London and suburbs*

14 FORM DIVISION NUMBER FOR ATLASES

There is a form division number for atlases for being used in

the case of books containing exposition of specific subjects by means of atlases. The number is 084. This number is assigned to graphic representations which include atlases, illustrations, charts, plates, etc. This number is subdivided as shown below :

0843	Slides	0846	Motion-picture films
0845	Filmstrips	0847	Phonorecords

Examples :

309.547083084	Statistical atlas of Bombay State
330.90084	Bartholomew (J C). *Oxford economic atlas*
551.4084	*Oxford physical atlas*
551.5909540084	*Climatological atlas of India*
911.540084	Joppen (Charles). *Historical atlas of India*
912.5414	Chatterji (S P). *Bengal in maps*

141 BIBLIOGRAPHY OF MAPS

Example :

016.91254 or 912.540016	*Survey of India catalogue of maps*

2 Antiquities and Archaeology

The class number 913 is specially assigned to antiquities and archaeology of historic times. A note under this class number reads thus : " Including comprehensive works on prehistoric and historic archaeology ; methods and results of excavations." It is recommended that this number should be divided like 930 to 999. "If preferred, class antiquities of a specific country in 930-999." So we may class antiquities of countries either under 913 or under the history number of these countries.

The class number 571 is specially assigned to Prehistoric archaeology. This class number is a subdivision of 570 which represents Anthropological and Biological sciences. Examples :

913.42	Archaeology and antiquity of England
913.44	,, ,, ,, ,, France
913.51	,, ,, ,, ,, China
913.54	,, ,, ,, ,, India
913.54	Cunningham (Sir A). *Archaeological survey of Indi*
913.54	Figgott (Stuart). *Prehistoric India*
913.54	Zenner (F E). *Prehistory of India*

3 Sayers on the use of 911 and 913

Regarding the class numbers 911 and 913, Sayers observes thus :
" In the headings 911-913, note : 911 and 913 appear to be super-
fluous headings except in very few instances. The political changes
in countries are part of the *history* of those countries, and are
better classed with them. The antiquities of a country are even
more definitely history. It is best to ignore both headings in the
ordinary library."[25]

4 Geography of Modern World

The class numbers 914 to 919 are used for Geography of modern
world. These numbers are divided like 940 to 999. Some of
these divisions and subdivisions along with their corresponding
class numbers, arranged for the geography and history of these
parts, may be shown as below :

	Geography		*History*
914	Europe	940	Europe
914.2	England	942	England
914.3	Germany and Central Europe	943	Germany and Central Europe
915	Asia	950	Asia
915.4	India	954	India
916	Africa	960	Africa
917	North America	970	North America
917.3	USA	973	USA
919	Pacific Ocean Islands	990	Pacific Ocean Islands

5 Use of Special Generalia Subdivisions of 910

The special generalia subdivisions as given under 910 may also
be used under the specific geography numbers of countries and
other geographic areas. Examples :

915 402	Guide books of India
915 403	Dictionaries and gazetteers of India
915 403	Dey (Nundo Lal). *Geographical dictionary of ancient and medieval India with an appendix on modern names of ancient geography*
915 403	*Imperial gazetteer of India*
915 47903	*Gazetteer of the Bombay State*
915 4203	" " " *Madras* "
915 01	" " " *Kerala* "
915 701	" " " *Mysore* "

CHAPTER D4

DC : BIOGRAPHY

1 Two Main Groups

Biography is divided under two main groups, viz,
1 General and collective by locality, and
2 Individual and collective by subject.

2 First Group

The first of these groups is for collections of lives which will not go under any other heading. The divisions under this group may be shown as below :

920.01	Universal biography
920.02	Partial collections (selective works not limited to any specific country or subject)
920.03 to .09	Collective biography by place. Divide like 930-999

Examples :

920.042	Collective biography of Englishmen
920.054	„ „ „ Indians

3 Second Group

The main divisions under this group are as follows :

920.1 to 920.6	Bibliographers, librarians, etc
920.7	Women
920.8	Eccentrics, strange persons, whimsical persons, anomalous persons (including insane)
920.9	Other special classes not included in 921-928. Divided like 000-999
921	Philosophers
922	Religious leaders
923	Persons in Social sciences
924	Philologists. Including grammarians, lexicographers
925	Scientists

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926	Persons in technology (Useful arts)
927	„ „ Arts and Recreation
928	„ „ Literature

31 BIBLIOGRAPHERS, LIBRARIANS, ETC

The class numbers 920.1 to 920.6 are assigned to biographies of bibliographers, librarians, etc. These numbers are divided like Generalia divisions 010 to 060 excepting the division 040. The following comparative table will make this point clear :

Biographies			*Generalia divisions*
920.1	Bibliographers	010	Bibliography
920.2	Librarians	020	Library science
920.3	Encyclopaedists	030	Encyclopaedias
920.4	Publishers		
920.5	Journalists	050	Periodicals
920.6	Academicians	060	General societies

Example :

920.2 Dawe (Grosvenor). *Melvil Dewey—Seer: Inspirer: Doer.* 1851-1931. (1932)

920.2 Ujlambkar (K M) *Padmashri S R Ranganathan: Personality and Contributions.* (in Marathi). 1962

32 DIVISION 920.9

Examples :

920.91335 Astrologers (133.5 Astrology)

33 PHILOSOPHERS

The class number 921 is assigned to biographies of philosophers. The specific numbers assigned to the biographies of European philosophers grouped under the class numbers 921.1 to 921.7 are mnemonically used from the class numbers of the respective literatures in the Literature class as shown below :

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	Philosophers		Literature
921.1	American and Canadian philosophers	810	American literature
921.2	British philosophers	820	English ,,
921.3	German and Austrian philosophers	830	German ,,
921.4	French philosophers	840	French ,,
921.5	Italian philosophers	850	Italian ,,
921.6	Spanish and Portuguese philosophers	860	Spanish ,,
921.7	Russian philosophers	891.7	Russian ,,
921.8	Other modern philosophers		
	(Divided like 940-999 except for those provided for in 921.1 to 921.7)		
921.9	Ancient, medieval, oriental philosophers (Divide like 180)		

Examples :

921.854	Biography of the late Prof R D Ranade, the great Maharashtrian modern philosopher
921.9111	Biographies of Chinese ancient and medieval philosophers (181.11 Chinese philosophy)
921.914	Biographies of Indian ancient and medieval philosophers (The biographies of Shankaracharya, Ramanujacharya, and other Indian ancient and medieval philosophers will be classed under this class number)

34 Religious Leaders

The class number 922 is assigned to biographies of religious leaders. This number is divided into the following groups :

922.1 to 922.8	Christian biography
922.92 to .98	Biography of other religions. Divided like 292 to 298
922.99	Biography of religions not provided for previously. Divided like 299 which itself is divided like 490 assigned to other languages

Examples :

922.94	Biographies of Hindu leaders (294 Hindu religion)
922.97	Biographies of Muslim religious leaders (297 Muslim religion)
922.9951	Biographies of Chinese religious leaders (299.51 Chinese religion)

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35 Persons of Social Sciences

The class number 923 is assigned to biographies of persons of Social sciences. This class number is divided as shown below :

923.1   Rulers. Including kings, queens, presidents. Divide like 930-999
923.2   Persons in political science. Including legislators, governors, politi-
        cians, statesmen, diplomats. Divide like 930-999
923.3   Persons in economics. Including bankers, economists. Divide like
        930-999
923.4   Persons in Law. Leading lawyers, judges. Divide like 930-999
923.5   Public administrators. Including military persons. Divide like 930-999
923.6   Biographies of philanthrophists, humanitarians, social reformers.
        Divide like 930-999
923.7   Educators. Divide like 930-999
923.8   Persons in commerce, communication, transportation. Divide like
        930-999
923.9   Explorers and geographers. Divide like 930-999

The digits 2 to 8 assigned to biographies of persons in Social sciences are the same as are assigned to the relevant subjects in the (MC) Social sciences. A comparative table of these divisions will make this point clear.

	Biography			Social sciences
923.2	Biographies of politicians		320	Political science
923.3	„	„ economists	330	Economics
923.4	„	„ lawyers	340	Law
923.5	„	„ administrators	350	Administration
923.6	„	„ social reformers	360	Social welfare
923.7	„	„ educationists	370	Education
923.8	„	„ merchants	380	Commerce

Examples :

923.154   Presidents of the Indian Republic. Biographies of Dr Rajendra
          Prasad and Dr S Radhakrishnan will get this class number
923.173   Presidents of the USA
923.254   Biographies of Indian politicians. Biographies of Lokmanya Tilak,
          Namdar Gopal Krishna Gokhale, Mahatma Gandhi, Pandit
          Jawaharlal Nehru will be classed under this class number
923.354   Biographies of Indian economists
923.31   Biographies of labour leaders. Divide like 930-999

923.3173   Biographies of labour union leaders in USA
923.41   Criminals. Divide like 930-999
923.4154   Criminals in India
923.454   The biography of Justice Mahadev Govind Ranade will get this class number
923.554   Biographies of public administrators in India
923.654   Biographies of Social reformers. Gopal Ganesh Agarkar, Maharshi Annasaheb Karve, Mahatma Jotirao Phule will be classed under this class number
923.754   Educators in India
923.854   Biographies of merchants in India

36 PHILOLOGISTS

The class number 924 is assigned to biographies of philologists, grammarians, and lexicographers. This number is to be divided like 400. Examples :

924.2   Biographies of English philologists (420 English language)
924.3   Biographies of German philologists (430 German language)
924.6   Biographies of Hispanic, i e, Spanish philologists (460 Spanish language)
924.9146   Biographies of Marathi philologists (491.46 Marathi language)

37 SCIENTISTS

The class number 925 is assigned to biographies of scientists. This class number is to be divided like 500. Examples :

925.1   Biographies of mathematicians. The biography of Ramanujan, the great Indian mathematician will get this class number
925.3   Biographies of physicists. The biography of Sir C V Raman, the great Indian physicist will get this class number
925.4   Biographies of chemists. The biography of Sir P C Ray, the great Indian chemist will get this class number
925.8   Biographies of botanists. The biography of Sir J C Bose, the great Indian botanist will get this class number

38 PERSONS IN TECHNOLOGY (USEFUL ARTS)

The class number 926 is assigned to biographies of persons in Technology (Useful arts). This class number is to be divided like 600. Example :

926.2   Biographies of engineers. The biography of the late Sir Vishveshwaray-ya, the great Indian engineer will get this class number

391 PERSONS IN ARTS AND RECREATION

The class number 927 is assigned to biographies of persons in Arts and Recreation. This class number is to be divided like 700. Example :

927.92   Biographies of actors (792 Theater. Stage presentations)

392 PERSONS IN LITERATURE

The class number 928 is assigned to biographies of persons in literature. This class number is to be divided like 810-899. Example :

928.1	Biographies of American writers
928.2	,,	,, English	,,
928.3	,,	,, German	,,
928.911	,,	,, Indian	,,
928.9146	,,	,, Marathi	,,
928.917	,,	,, Russian	,,
928.95	,,	,, Asiatic	,,
928.951	,,	,, Chinese	,,

3921 Poets, Dramatist, Novelists, etc

The relevant form division number should be added after the number representing the literature of a particular language for assigning class numbers to authors better known as poets, dramatists, etc. Examples :

928.21	Lives of English poets
928.22	,,	,,	,,	dramatists
928.23	,,	,,	,,	novelists

3922 Collective Biographies of Literary Men

The class numbers 928.081 to 928.087 are assigned to collective biographies of literary men. These class numbers are divided like 808.1 to 808.7. Examples :

928.081	Lives of poets
928.082	,,	,, dramatists
928.083	,,	,, novelists

393 HISTORIANS AND BIOGRAPHERS

Biographies of historians and biographers are to be classed under 928 which is assigned to persons in literature. They will get class

numbers assigned to miscellaneous authors whose works are classed under the form division number 8 standing for 'Miscellany' in the Literature class. They will be grouped under the class numbers assigned to the biographies of literary authors of the language or nationality to which they belong. Thus, English historians and biographers will be classed under the class number 928.28. Example :

928.28   Life of Gibbon (Gibbon was a great English historian)

3931 Collected Biographies of Historians and Biographers

Collected biographies of historians and biographers of different nationalities will get 928.088 as their class number.

394 PROFESSORS

Professors known as specialists go with the subject taught than with teachers. Example :

925.5   Biographies of professors of Geology

3941 Professors Prominent as Educators

Professors who are more prominent as educators than as specialists of the subject they teach, should be classed in 923.7.

4 Plans for Classifying Biography

There is a note under 920 in ed 14 which gives three plans for classifying biography, and hence it deserves our attention. It reads as below :

920   Biography. "Includes autobiographies, diaries, personal narrations, eulogies, biographic dictionaries, etc

"All biography is here grouped together under the main classes, and subdivided in the same way with the variations indicated for Philosophy, Theology and Sociology, i e, the biography of Science is divided like Science itself"

Examples :

925.4   Lives of chemists (540 Chemistry)
925.8   „   „ botanists (580 Botany)
926.56   „   „ sailors (656 Transportation. Land, water, air)
926.78   Life of the inventor of hard rubber (678 Rubber, etc and similar products)
927.92   Lives of actors (792 Theatres, stage, dramatic art)

41 Plan 1

" The rule is to give each life the number of the subject it illus-
trates most, or to the student of which it will be most useful. Lives
which will not go under any head without ' forcing ' are best put
in a single alphabet under the 3 figures 920 for men and 920.7 for
women.

42 Plan 2

" Another plan is to scatter biography with the other books,
using 920 to 928 only for general works, cross references, etc. This
simply omits the first 2 figures 92, and the life of a botanist is 580
instead of 925.8, and goes with the botanic books. This plan may
be carried out more specifically where 9 has been used for the
history of a subject, by adding for biography the figure 2, making
the life of a botanist 580.92.

43 Plan 3

" A 3rd plan, specially adapted to public libraries, is to arrange
all individual biographies in a single alphabet under 92 (better
than B, which is often used but which has no logical position in a
numeric arrangement). Group 92 may be shelved before 920,
under which all collective biographies may be arranged in single
alphabet, but it is generally better to distribute these under more
specific numbers 921 to 928 printed in the schedules.

" When it is impossible to assign a special interest to the bio-
graphee or biographees, the book is to go at the general heading
920 without sub-division, except that .7 is added for women. The
rest of 920-928 is divided by the classification upto a point.

44 Specialities of Divisions 921 to 928

" The subdivisions of 921 to 923 are, however, a special con-
venient arrangement, which does not correspond to the sub-
divisions of the classes 100, 200 and 300 in the main classifica-
tion. From 924 to 928 the numbers are divided like main
classification; but the note against them tells us that it is seldom
wise to go beyond four figures except for a large special collections,
thus we get :

927.3   Symonds. *Life of Michael Angelo*
         (Michelangeo, Buonarroti), Italian sculptor, painter and architect,
         1475-1565,
927.5   Vasari. *Lives of painters*
927.8   Spitta. *Life of Bach* (Bach, Johann Sebastian, 1685-1750. German
              musical composer)
and so on

" The large library will, as a rule, want to carry division further
than this.

    " There are special notes at various headings to be noted, i e,
    1   the further subdivision by nationality suggested at 923.1-
        923.8 ;
    2   the fact that a teacher of a special subject goes with the subject
        and not with teachers unless he is more prominent as an
        educator ;
    3   the important note to 928 Biography of literature, where we
        are told to "class historians as miscellaneous authors, and all
        other writers take the appropriate form number from 810 to
        899, in addition, of course, to 828 " ; thus :

928.21   Biography of an English poet
928.32   ,,   ,, a German dramatist
and so on

45 WHERE TO CLASS "LETTERS"?

The following are the observations of Sayers regarding the classi-
fication of Biography:

"The note under 920 asks us to classify under it ' autobiography,
diaries, personal narrative, eulogies, biographic dictionaries, etc.
But by one of the curious anomalies of DC " Letters " are not
included. As ' the man's life in the letters of the man ' is much
more important than a mere formal account of his life, this makes
Dewey's biography class defective. Letters, as we have seen, are
placed at 816, 826, 836, etc under Literature merely by language,
and are thus separated from the man and his work. This has led
to the rules which read as below :

451 RULE 1

" Place literary letters in Literature ; i e, those of Horace
Walpole, Lady Mary Mortley Montague, etc as shown below :

826.61   Letters of Horace Walpole (1717-97)
         (826.6 Later 18th century, 1745-1800)
826.51   Letters of Lady Mary Mortley Montague (1690-1762)
         (826.5 Queen Anne, 1702-45)

452 RULE 2

" Place personal letters of a general character with the biography
of their writer. When the letters of two correspondents are collected
in one volume, place under the more important, or, if both are of
equal importance, under the first-named on the title page.

453 RULE 3

" Place letters on a special subject under the subject. Example :

919.8   Dufferin. *Letters from high latitudes*

(This book requires to be placed in travel under Spitzbergen, as
it contains an account of a voyage to Spitsbergen which is an island
in the Arctic ocean—Polar region.) The above class number may
be interpreted as below :

91   = Geography. Travel
919   = Geography and Travel in Oceania and Polar region
919.8   =   „   „   „   „ Polar region

46 MATERIALS OF WHICH BIOGRAPHY IS MADE

"The materials of which biography is made, should go with the
life of the individual concerned. An account of the personal relics
of Sir Walter Scott, for example, his clothes, walking-stick, and so
on, goes with his life. The class number for Sir Walter Scott will
be either 823.73 or 821.74.

47 MEMBER OF A FAMILY

"When a family is dealt with, of which the fame of one member
constitutes the importance of the family, class under the member ;
e g, Rawnsley's *Memories of the Tennysons*, is to be placed under
Alfred Lord Tennyson, who gets 821.81 as his class number.

48 ADJUSTMENT OF BIOGRAPHY

"An adjustment of biography made in many libraries is to use 920
and its divisions for *Collective Biography* only, to put individual

biographies in a class noted B, and to arrange them within it in alphabetical order of the names of the persons biographed.

Another plan, permitted by Dewey (but not altogether satisfactory in a general library) is to number the biography with the subject it illustrates, ignoring 920-928 altogether, and thus to scatter biography throughout the classes. All biography should be cross-referred in the catalogue from the subject with which the biographee is identified."[25A]

5 Genealogy and Heraldry

51 AUXILIARIES OF HISTORY AND BIOGRAPHY

"The class Genealogy and Heraldry (929) deserves careful study, as it accommodates certain auxiliaries of History and Biography that puzzle classifiers at times.[25B]

52 SCHEDULE UNDER 929

The schedule given under 929 reads as below :

929.1　　Genealogy (History of descent of persons or families from their ancestors. Includes pedigree (lineage) tracing how to write family histories, genealogical forms and blanks)

929.2　　Family histories (Genealogy of specific families)

929.3　　Genealogical sources (Source material from registers, wills, tax-lists. Parish registers are classed here)

929.4　　Personal names. Includes Christian names, surnames, nicknames. It is recommended that geographical and place names be classed in 910.3

929.6　　Heraldry. Includes whole group of duties of heralds, e g, regulation of public ceremonies

929.7　　Peerage. Royalty. Includes titles of honour, rank, precedence

929.71　Knighthood. Includes orders, e g, Knights of Malta, Order of the Garter; decorations

929.8　　Armorial bearings. Includes coats of arms, crests

929.9　　Flags. Includes banners, standards

6 Surnames, Place Names

Examples :

910.3　　Erkwall. *English river names*

910.3　　Watson. *History of the Celtic place names of Scotland*

929.4　　Bradsley. English surnames

7 County Directories and Directories of Trade Names

"Town or county directories are sometimes put at 929.4 standing for personal names, with geographical subdivision ; but these are better under the place in 914-919. Directories of trade names go under the trade."[25C]

DC : CONTINENTS AND COUNTRIES

1 Two groups

History is distributed in this scheme into two groups as shown below :

930 to 939   Ancient history
940 to 999   Modern   ,,

11 SAME DIGITS USED FOR LANGUAGES AND COUNTRIES

The point which requires to be stressed specially is that the digits assigned to certain languages, such as :

2	English	5	Italian
3	German	6	Spanish
4	French		

under Linguistics and Literature classes are also assigned to the countries represented by them in the geographical schedule in the History class.

2 Continents

Modern history of the world is first divided according to continents and then by countries.

21 HISTORY OF CONTINENTS

For the history of any of these continents, we prefix 9 to the numbers of the respective continents as shown below :

94 History of Europe	97 History of North America
95 ,, ,, Asia	98 ,, ,, South ,,
96 ,, ,, Africa	99 ,, ,, Oceania and Polar regions

3 Subdivisions under Continents

We shall now develop our familiarity with the subdivisions under the different continents.

31 COUNTRIES IN EUROPE

940	Europe	945	Italy
941	Scotland	946	Spain
942	England	947	USSR (Russia)
943	Germany	948	Scandinavia
944	France	949	Other European countries

32 COUNTRIES IN ASIA

950	Asia	955	Iran
951	China	956	Near East (Middle East)
952	Japan	957	Siberia
953	Arabia	958	Central Asia
954	India	959	Southeast Asia

33 AFRICA, AMERICAS AND OCEANIA

960	Africa	990	Pacific ocean islands
970	North America	997	Atlantic ocean islands
971	Canada	998	Arctic regions
973	United States	999	Antarctic regions
980	South America		

Example :

914	Geography and travel of modern Europe	940	History of modern Europe
914.2	Geography and travel of England	942	History of England

4 Subdivisions of Countries into Provinces or Counties

Within each country in the History class, will be found further subdivisions, splitting the countries into provinces or counties as shown below :

942	England	942.5	North and South Midland
942.1	London county (Middlesex)	942.6	Eastern
942.2	South-Eastern	942.7	North-Western and Yorkshire
942.3	South-Western	942.8	Northern
942.4	West Midland	942.9	Wales

There are further divisions as shown below :

942.61   Norfolk
942.64   Suffolk
942.67   Essex

41 Mnemonic notation

Thus the mnemonic notation for Norfolk is **42.61**, for Suffolk **42.64**, and for Essex **42.67**. Examples :

912.4261	Atlas of Norfolk		914.261	Geography of Norfolk	
912.4264	,,	,, Suffolk	914.264	,,	,, Suffolk
912.4267	,,	,, Essex	914.267	,,	,, Essex

5 Period Divisions

Some of the countries also have period divisions provided for the chronological arrangement of histories of these countries by periods.

Examples :

Under England we find:

942.01   Anglo-Saxon, B C 55—A D 1066
942.02   Norman, 1066-1154
942.03   Plantagenet, 1154-1399
942.04   Lancaster and York, 1400-1485
942.05   Tudor, 1485-1603
942.06   Stuart, 1603-1714
942.07   Hanover, 1714-1837
942.08   Victorian, 1837-1901

These period numbers are further subdivided into the reigns of individual monarchs as shown below :

942.021	William I	1066-87
942.022	William II	1087-1100
942.023	Henry I	1100-35
942.024	Stephen	1135-54

6 Indian History

61 Period Divisions

The following period divisions of Indian history are given in ed 16 :

954   India
954.01   Early history to Moslem conquest, ca 650
954.02   Moslem period, ca 650-1774
954.03   British rule, 1774-1947
954.04   Republic of India, 1947-

62 GEOGRAPHIC DIVISIONS

The following geographic divisions of Indian history are given in ed 16 :

954.1	North eastern region	954.6	Jammu and Kashmi
954.19	Bhutan	954.7	Pakistan
954.2	Northern region	954.79	Bombay
954.26	Nepal	954.799	Goa
954.27	Sikkim	954.8	Southern India
954.3	Central region	954.89	Ceylon
954.4	West central region	954.9	Andhra
954.5	Punjab (East)		

DC : ANCIENT HISTORY

1 Division by Country

The class numbers 930 to 939 are assigned to Ancient history. It is divided by country in a similar manner to the Modern history, 940 to 999 ; but the mnemonic numbers have a different meaning. The notation has a similar mnemonic value and can be used to divide certain topics in the schedules by the numbers of the ancient countries.

2 Divisions of Ancient Countries

The schedule of the divisions of the ancient countries reads as below :

930	Ancient world history from the beginning of historic period to A D 476, i e, to the fall of the Roman Empire
931	Ancient Chinese history
932	Ancient Egypt
933	Ancient Hebrew civilization
934	Ancient Indian history
935	Ancient Near East or Medo Persia
936	Ancient European tribes
936.2	Saxons and Angles
936.3	Germanic tribes
936.4	Celts (Franks)
937	Ancient Rome
938	Ancient Greece
939	Other ancient civilizations

3 Medieval and Modern World History

The class number 909 is assigned to medieval and modern world history. The period divisions under this class number read as below :

909.1	476-1199	909.8	1800-
909.2	1200-1299	909.81	1800-1899
909.3	1300-1399	909.82	1900-

4 Byzantine Empire

Byzantine Empire and Modern Greece are classed under the class number 949.5. In the schedule under 940 Modern Europe, we find class number 949.5 assigned to Greece and under this class number there is a note which states that this class number includes Byzantine Empire which flourished between 323 and 1455 A D.

5 Use of Numbers of Ancient Countries in Other Topics

In the former editions of Dewey, it was recommended to use the numbers assigned to these ancient countries in certain other topics. Examples :

51 ARCHAEOLOGY OF ANCIENT AND MODERN COUNTRIES.

Under the class number 913 Antiquities, Archaeology, it was recommended to divide Archaeology of ancient countries according to the numbers 930-939 assigned to ancient countries and the Archaeology of modern countries according to the numbers 940-999 assigned to modern countries. This may be illustrated as below:

913.31	Archaeology of China
913.34	Archaeology of India
913.4	Archaeology of Europe
913.42	Archaeology of England

6 Archaeology Classed in the History of Countries

In ed 15, it is recommended that Archaeology of specific countries be classified in the history of the countries concerned.

61 ARCHAEOLOGY OF ANCIENT COUNTRIES

So, according to this recommendation, the class numbers for the Archaeology of the different ancient countries will be the same as those assigned to their histories, as shown below :

931	Archaeology of China	934	Archaeology of India
932	Archaeology of Egypt		

62 ARCHAEOLOGY OF MODERN COUNTRIES

In the case of modern countries, to show the Archaeology or

Antiquities of a specific country, we shall have to show the ancient period of that country in the class number. In the schedule, we find that period divisions are given under the class numbers of some countries. In the case of other countries, we should show the ancient period by putting the number 01 after the class number of that country as shown below :

| 942.01 | Archaeology of England | 947.01 | Archaeology of Russia |
| 944.01 | Archaeology of France | and so on. | |

7 Examples of Books on the History of Ancient Countries

71 ANCIENT HISTORY

930   Breadsted (J H). *Ancient Times*. 1916
930   Bury (J B) and others. *Cambridge ancient history*
930   Webster (H). *Ancient history*

72 EGYPT

932   Breadsted (J H). *Ancient records of Egypt*

73 ANCIENT HEBREW CIVILIZATION. JUDEA. JEWISH-PALESTINE

933   Grant (E). *Orient in Bible times*—A history of the Bible country and the surrounding region which touched Hebrew life
933   Josephus (Flavius). *Works*, tr. from the original Greek by William Whiston

74 MEDO-PERSIA. ANCIENT NEAR EAST

935   Delaporte (Louis Joseph). *Mesopotamia*, tr. by C Child

75 ROME

937   Gibbon (Edward). *History of the decline and fall of the Roman Empire*
937   Kennedy (C G) and White (G W). *History and social life of ancient Rome*
937   Starr (C G). *Emergence of Rome as ruler of the Western world*
937   Marsh (T B). *History of the Roman world from 146 to 30 B C*

76 GREECE

938   Quennell (Marjorie) and Quennell (C H B). *Everyday things in ancient Greece*. 1954

PARTS E/H

Colon Classification

PART E

CC: PRELIMINARIES

PADMASHRI DR S R RANGANATHAN

1 Early Years

Padmashri Dr S R Ranganathan, the Father of the Library Movement in India, a world renowned authority on modern library classification and cataloguing, has dedicated his life for the advancement of library science and library profession in India. He was born on 9 August 1892 at Shiyali, a town in the Tanjore district of the Madras State. After completing his school career at the Hindu High School, Shiyali, between the years 1898 and 1908, he came to Madras and joined the Madras Christian College in 1909. He passed his M A in Mathematics in the year 1916. Thereafter, he studied in the Teacher's College and took his degree in teaching in the year 1917. His strong subjects during his college career were Mathematics, Sanskrit and English. Since 1917, he was Assistant Professor of Mathematics for seven years upto the end of 1923.

2 Training in England

He took charge of the Madras University Library as its first librarian on 4 January 1924. In September, he proceeded to England and spent there one academic year (1924-25) to acquaint himself with modern library methods, as required by the University of Madras. After reading up the splendid literature on library science collected in the School of Librarianship of the University College, London, and doing intenisve apprentice work in the Croydon Public Libraries, he made an extensive tour of Great Britain, visiting all kinds of libraries and making a comparative study of their practices. This was of considerable educative value and suggested the formation of an eclectic system of library economy.

3 Outcome of the Training

As the foundation of the system, he formulated the Five Laws

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of Library Science as the normative principles to guide the development of every kind of library technique and library service. Since then, he has put himself heart and soul into the profession, so much so that through his great genius he could devise many new methods for the proper working of the modern techniques of library science. His inventing and enquiring mind did not allow him to adopt blindly, whatever methods were traditionally in vogue; and the valuable literature on library science that he has brought out so far, is the direct result of his special trait.

4 Library Science

That there is a Science of Libraries was unimaginable to our people before 1931. Even in the leading Western countries, the term ' Library Science ' does not appear to have been used before that year. It was the term ' Librarianship ' that was generally taken to mean all about the technique of library management. In these circumstances, it was indeed a flash light on the world of library profession, when, in 1931, Dr Ranganathan brought out his most powerful, stimulating, and instructive *Five laws of library science*. Ranganathan's enunciation of the Five Laws is truly epoch-making. It is he who established the claim of the subject to be a science. We find that subsequently the term ' Library Science ' has been accepted by many in and out of our field. Many of the training institutions in the USA have included the term ' Library Science ' in their calendars. Thus the Western Reserve University of Cleveland has its Graduate School of Library Science. Now, of course, everybody agrees that there is a Library Science. India is proud of its lead in this subject.

5 Unique Career

The Five Laws of Dr Ranganathan form the root and foundation of his varied and illuminating contributions and therefore, he has been rightly acknowledged as our revered leader and the Father of Library Movement in this great Bharat. He is responsible, to a large extent, in making India Library-conscious. His works cover every field of library science and his reputation as the foremost expert and authority on the subject extends far beyond the borders of our country, and his opinion and advice are valued in all lands

where books and libraries are held in honour. The monumental works he has written on all branches of library science and the various devices in classification evolved by him in developing his Colon Classification have secured for him a unique place in the history of library science. What great importance the leading experts in library science give to the revolutionising contributions of Dr Ranganathan can be seen by the eulogistic remarks of the late W C Berwick Sayers from whom he learnt his first lessons on classification.

51 Sayers on Ranganathan

About Dr Ranganathan, Sayers observes in his *Manual of Classification*, " Each country seems to produce a distinctive librarian who is the prototype of his profession. Edward Edwards and James Duff Brown in Great Britain, Dewey in America, de Lisle in France, Paul Otlet in Belgium are examples which come to mind without any thought of slighting their compatriot librarians. India would probably choose Shiyali Ramamrita Ranganathan."[25D]

52 In Madras

During his exceptionally brilliant career of over 38 years since 1924 upto now, he has made Bharat known to the outside world as a land in which library science is astonishingly well cultivated on account of his outstanding contributions. Throughout his career, he has been constantly engaged in some problem or other of Library science and has been carrying out research on a variety of problems and bringing out valuable contributions. He experimented all his devices and methods and brought them to considerable perfection in the Madras University Library during the course of 21 years in that Library.

53 In Benares

During the years 1945 and 1946, he reorganised the Benares Hindu University Library and reclassified according to his Colon Scheme more than 100,000 volumes in that Library within a period of about 18 months at the invitation of Dr Sir Radhakrishnan, the then Vice-Chancellor of that University and Pandit Madan Mohan Malaviya, its Founder. He stayed there for 20 months as Librarian

and Professor of Library Science of the Benares Hindu University.

54 IN DELHI

In 1947, the late Sir Maurice Gwyer, Vice-Chancellor of the Delhi University, who was eager to develop a Department of Library Science, made him Honorary Professor of Library Science of the Delhi University. Many of the ideas formulated by him at Madras were given a definite shape at Delhi. Delhi became the venue of active work in the library field. Besides being responsible for the starting of the Master's Degree Course and Doctorate in Library Science, he organised Seminars and Research study circles. The work he did for the propagation of library science made him known as one of the pioneers in the field. In recognition of his valuable service, the University of Delhi honoured him in 1948 by conferring on him the Honorary Degree of Doctor of Letters as the Father of Indian Librarianship.

55 PROLIFIC WRITER

The teacher in him was accompanied by an enthusiastic urge to write of his experiences, experiments and speculations ; so much so that he set out apparently to rewrite the whole of librarianship in terms of Indian necessities, to instil library ideas into his countrymen not well aware of them, and gradually to promulgate his theories on a world basis. He became the world's most prolific writer on these subjects. The zeal and earnestness in him saw the birth of about 52 books and hundreds of articles which cover various aspects of the subject.

56 ABGILA AND ANNALS

As the President of the Indian Library Association, he founded and edited the *Abgila*, as the organ of the Indian Library Association. The name of the organ is the short form of the full name " Annals, Bulletin, and Granthalaya of the Indian Library Association ". The Annals part of it covers research articles, mostly on classification. He was responsible for starting in 1954 a new periodical entitled the *Annals of library science* which is specially devoted to classification, cataloguing and other technical aspects of library science and documentation. This is virtually a continuation

of the Annals part of the *Abgila* which was discontinued by the new office bearers of the Association.

57 DOCUMENTATION

The term ' Documentation ' means systematic organisation of bibliographic and reference service pertaining to micro-units of thought—i e, subjects of great intension—found scattered in various books, periodicals, conference proceedings, pamphlets, newspaper cuttings, microfilms, photoprints and microcards. Classification plays an important role in documentation. It helps to make reference service exact, exhaustive and expeditious by the arrangement of entries in the catalogue.

58 TEACHER IN LIBRARY SCIENCE

As a teacher, he evoked keen interest among the students in the study of library science. He laid emphasis on the tutorial system and stressed the discussional method of learning for which India has a glorious past.

591 CONTRIBUTIONS ON LIBRARY CLASSIFICATION

In addition to his important Scheme of Classification, Dr Ranganathan has produced such indispensable works as are given below :

1 *Prolegomena to library classification.* Ed 2, 1957
2 *Library classification: Fundamentals and procedure.* 1944
3 *Elements of library classification.* Ed 3, 1962
4 *Classification and international documentation.* 1948
5 *Classification, coding and machinery for search.* 1950
6 *Philosophy of library classification.* 1951
7 *Classification and communication.* 1951
8 *Depth classification.* 1953

He has also produced a large number of research articles on classification.

592 MASTER MIND

Now he has reached such a stage that he is considered to be a Master Mind of the science of classification and documentation problems. His articles in the *Annals of library science* on this

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subject stand testimony to his unique contribution to the subject. These articles have helped a good deal to solve many difficult problems in depth classification.

593 LIBRARY LEGISLATION

His keen desire to introduce library legislation in India is evident from his incessant efforts since the year 1930. He drafted the Library Bill for Madras in 1948. He has also prepared Library Development Plans for Madras State, the former Bombay State, Kerala, the former Hyderabad, Madhya Pradesh, Uttar Pradesh and Allahabad University. His work, *Library development plan for India — a thirty year plan*, published in 1950, shows his faith in bringing library legislation into force in India.

594 PLACE IN LIBRARIANSHIP

In his preface to ed 2 of the *Prolegomena to library classification,* Sayers observes about Dr Ranganathan's place in librarianship thus: " I have watched his career with increasing interest and something akin to wonder. There were librarians in India before Ranganathan, but this new one brought new qualities. Our courses were too elementary for him and he wisely directed himself to the mastery of our librarianship literature, to a stay in a public library and visits to schools and cultural institutions, and so became convinced that in libraries was a field of immense importance to the new India coming to independence ... All through the years, in spite of his occupation in India and in both hemispheres with other general and special problems of librarianship, his work on classification has continued, so that now there is hardly a classifier who has not felt his influence."[26]

6 Tour

61 TOUR IN EUROPE AND USA

In 1948, he was invited by the British Council as their guest. He then had the opportunity of addressing the International Federation for Documentation at the Hague. He visited France, Denmark, Norway and Sweden. He also went to USA to work in the International Committee of Library Experts of the United

Nations. He was also a member of the Unesco's School on Public Library work conducted in England in September.

In 1950, he visited the USA at the invitation of Rockfeller Foundation.

In these countries, he was asked to deliver talks on his Classification Scheme and other techniques of librarianship, he had devised and developed.

62 TOUR ROUND THE WORLD

In 1958 and 1959, Dr Ranganathan had a tour in the continents of Asia, Europe, and the USA for delivering lectures and attending meetings of some international organisations, such as the International Federation of Library Association, International Federation for Documentation and two International Conferences on Scientific Information.

63 RESULT OF THE TOUR

The extensive tour round the world by Ranganathan enabled him to get an insight into the working of the leading libraries of the Western countries. His own library pattern for India was a result of his first-hand knowledge of the library problems of different advanced countries.

7 National and International Bodies

Ranganathan has served on many international bodies such as UNO, UNESCO, International Federation of Library Associations International Federation for Documentation, and International Standards Organisation. In India, he was for many years the President of the Indian Library Association. He was also associated with many other social institutions.

71 ENDOWMENT IN THE UNIVERSITY OF MADRAS

After retirement from active service, Ranganathan has been engaged in research in library science. His single-minded devotion to the profession is typified by his magnificent donation of one lakh of rupees to the University of Madras to establish a chair in library science. It is named after his wife as Sarada Ranganathan Chair in Library Science.

72 Honours in India and Outside

It is a matter of pride for the library profession in India that in the year 1957, he was honoured with the award of Padmashri by the President of the Indian Republic for his selfless service to the cause of librarianship at the national and internanational levels. In 1958, he was elected Vice-President for life by the British Library Association and Honorary member by the International Federation for Documentation for the unique services rendered by him and for all his most valuable efforts for the noble cause of the library movement in India and throughout the world.

73 Chairman of the Library Committee of UGC

On the invitation of the University Grants Commission in India, Dr Ranganathan guided the deliberations of its Library Committee as its Chairman during the years 1957 to 1960. It is due to his great personality, influence and proper guidance that a large number of our University and College libraries and the libraries of the various research institutions have so far received munificent grants from the Central Government for the construction of well-planned library buildings and the purchase of necessary equipment, books and periodicals. The Committee has submitted its report to the Commission and made many valuable recommendations indicating the ways and means for the proper working and improvement of these libraries.

8 Present Activities

Since January 1962, Dr Ranganathan is busy in organising the Documentation Research and Training Centre in Bangalore, under the auspices of the Indian Statistical Institute. Side by side, he is also doing research in classification, revising some of his works for bringing out new editions and writing new works. Since 1961, he conducts a summer course of about 6 weeks duration on the Teaching of Library Science. Between three and five of the full-time Lecturers in Library Science in the country join this course each year. He is also the Honorary Professor in the Certificate School of Library Science for semi-professionals being conducted by the Government of Mysore. This School is used for demonstration in the course on Teaching of Library Science.

CC : BACKGROUND AND SPECIAL FEATURES

1 Original and Scholarly Contribution

The Colon Classification has been acclaimed throughout the world as an original and scholarly contribution to library science and as such it deserves close study by the students of library science in general and by those in India in particular.

11 STORY OF THE SCHEME

The story of how the Scheme was devised by the author will be found interesting and hence let us probe into it a little. During the years 1924-25 while in England for prosecuting his studies in library science, Dr Ranganathan had the opportunity to study closely the four important schemes of library classification :

1 Melvil Dewey's Decimal Classification, first published in 1876
2 C A Cutter's Expansive Classification, first published in 1891
3 The Library of Congress Classification, first published in 1904, and
4 James Duff Brown's Subject Classification, first published in 1906

This he did under the guidance of the late W C Berwick Sayers, one of the leading authorities on the subject.

12 GENESIS OF CC

His study revealed to him that none of these schemes was of any practical use for classifying the newly evolving subjects, apart from their unsuitability to books on Indology. He, then, conceived the idea of devising a scheme of his own. He realised how difficult was the task before him. He had also entered into correspondence with the author of DC— the late Dr Melvil Dewey, who advised him not to waste his time and energy in either improving upon a tried scheme of classification such as his own or devising a new one. He

suggested that DC in use more widely than all others combined, might be adopted without modifying it here and there.

2 Inadequacy of DC

In spite of this remark of Dewey, Ranganathan found that almost every library was trying to improve upon DC. According to him, it was sufficient justification for one to believe that the wholesale application of DC to libraries, particularly in India, was insufficient and practically useless and that some change or other, preferably in the basic principles on which schemes of classification are founded, was necessary. In the first place, he found that the base of DC was too short for the enormous expansion and development that had taken place in the field of knowledge since the year 1876 when DC was first published. The (MC) of DC are 10 including Generalia Class, while those of CC are 62 as given in ed 7 of the Scheme published in 1962. This has helped the Scheme to have a briefer notation than those of DC. The briefest class number of DC consists of 3 digits ; while that of CC consists of only one digit. DC has used Indo-Arabic numerals as decimal fractions and in practice every class number of it consists uniformly of at least three digits, e g, Science (General) gets 500 as its class number and not mere 5. Mathematics is indicated by the three digits 510 instead of by the two specific digits though the last digit does not carry any special meaning. The notation of DC is purely of Indo-Arabic numerals and hence it could not have more than 10 (MC). Dr Ranganathan, after giving due thought to the great advancement of human knowledge since the year 1876, decided to have a sufficiently large base for the (MC) of his Scheme.

3 Mixed Notation for CC

He, therefore, adopted a mixed notation for CC. It consists of the different types of digits or symbols as shown below :

Type	Symbol	Number
1	Small letters of the Roman alphabet (excluding i,l, and o)	23
2	Indo-Arabic numerals	10
3	Capital letters of the Roman alphabet	26

Type	Symbol	Number
4	A Greek letter (△)	1
5	A starter ("(")	1
6	An arrester (")")	1
7	A forward arrow (—→)	1
8	A backward arrow (←—)	1
9	An inverted comma (')	1
10	A dot (.)	1
11	A colon (:)	1
12	A semi-colon (;)	1
13	A comma (,)	1
14	A hyphen (-)	1
	Total	**70**

The various symbols used in the notation of this Scheme are divided into two groups, viz,

1 the substantive digits, and

2 the connecting symbols (CS)

Each one of the symbols used in constructing a class number including the (CS) is called a digit. The numerals 1 to 9 and the letters of the alphabet are called substantives because they are used to translate the name of a specific subject from the natural language to the artificial language of the Colon Scheme. The

←—	—→	'	.	:
(CS) (backward arrow)	(forward arrow)	(inverted comma)	(dot)	(colon)

;	,	-
(semi-colon)	(comma) and	(hyphen)

occur in class numbers.

4 Classificatory Language

Schemes of classification are regarded by Dr Ranganathan as classificatory languages. Thus the DC is called the Decimal language and the CC is called the Colon language.

41 ORDINAL NUMBERS AND CARDINAL NUMBERS.

All the digits used in constructing class numbers are ordinal numbers. Ordinal numbers are different from cardinal numbers. Cardinal numbers are numbers with quantitative value. Ordinal numbers do not have quantitative value. They have only precedence

value. That is, when two ordinal numbers are considered, we can say which comes earlier and which later. In addition to Indo-Arabic digits, other symbols such as small and capital letters of the Roman alphabet, Greek letters, and letters of other alphabets also can be used as ordinal numbers.

42 INTEGERS AND DECIMAL FRACTIONS

Let us illustrate one important deiffrence between integers and decimal fractions. The insertion of a digit at the right end, changes the place values of the already existing digits in the case of an integer. Thus if we take the number 346 as an integer, the place value of 3 is 300, that of 4 is 40 and that of 6 is 6. If we insert 5 at the right end of the above integer, we get the number 3465 and the place values of the individual digits in the number are changed. In this new number, the place value of 3 is 3000, that of 4 is 400 and that of 6 is 60 ; while that of the new comer 5 is only 5. On the contrary, let us imagine a decimal point to be understood to the left of the digit 3 in 346. Then, the place value of 3 is 3/10, the place value of 4 is 4/100 and that of 6 is 6/1000. Let us now insert 5 at the right end. In spite of this insertion, the place value of 3 continues to be only 3/10 ; so also the place value of 4 continues to be 4/100 and that of 6 to be 6/1000. The place value of the new comer 5 is 5/10,000. Thus the insertion of a digit at the right end does not change the place values of the already existing digits in the case of the numbers read as decimal fractions. Most schemes of classification — and CC and DC in particular — use only ordinal numbers in their notational system.

5 Connecting Symbols (CS)

The zero (0) and the punctuation marks, such as the inverted comma ('), the dot (.), the colon (:), the semi-colon (;), the comma (,), the hyphen (-) and the arrows ($\longrightarrow \longleftarrow$) occur in class numbers, only as connectives or conjunctions in the Colon Language. They are, therefore, called connecting symbols.

The circular brackets serve the special purpose of distinctly marking out a (SDN) in a class number. Examples :

$\triangle$:(R)   Philosophy of mysticism
X8(J)   Agricultural economics

The first circular bracket " (" is called starter and the second circular bracket ")" is called arrester.

Each of these symbols is given a fixed ordinal value by the author.

51 ABSOLUTE VALUE

When digits are used in constructing class numbers, the ascending sequence of their absolute value as fixed by the author is as follows :

0) ' . : ; , - a b c ... x y z 1 2 3 ... 9 A B ... Z (

6 Wide Scope for Expansion

Thus we see that the author has used 70 digits in all for the notation of CC. This gives a very wide scope for its divisions and expansions. The necessity for keeping constantly a filiatory sequence — i e, helpful sequence of books and other reading materials in the shelves — in spite of the ever increasing complications in the branches of knowledge, has compelled the author to adopt this mixed notation with various useful devices. The author has tried his utmost to make the notation as brief as possible without affecting the principle of co-extensiveness, i e, the necessity for obtaining a symbolic representation of the subject treated in the document concerned, in all its relevant details or facets. The individualisation of a specific subject by assigning to it a specific class number, so that the books on different. though allied, specific subjects may not be mixed up indiscriminately, has been achieved in a remarkable manner in CC.

61 IMPORTANT LANDMARK

It has been universally acknowledged that CC is an important landmark in the development of classificatory thought. It has introduced many new features. Within the short period of about 30 years, CC has developed considerably and attracted a substantial amount of literature. More than this, the techniques forged by CC have received international attention. Some of its features are slowly permeating through the fabric of other schemes. Ed 7 of this unique Scheme contains many new features added to it from time to time.

62 Difference between CC and Other Schemes

In its very approach, CC differs fundamentally from the other existing schemes of classification. It introduces an element of notational flexibility that is lacking in the enumerative schemes, such as DC and LC.

63 Enumerative Schemes

A scheme of classification which enumerates — i e, mentions in its schedules all possible subjects — is called Enumerative Classification. Generally speaking enumerative schemes give only ready-made class numbers. This adds to the bulkiness of their schedules and at the same time makes it difficult to accommodate new topics not enumerated in them. Again, for some of the topics they fail to provide co-extensive class numbers.

64 Colon Classification

On the other hand, CC gives only the schedules for different facets likely to go with each (BC).

65 Facet

A facet is the totality of the sub-classes of a (BC) derived by the use of a single train of characteristics.

66 Single Train of Characteristics

A single train of characteristics is a set of closely related characteristics used to derive a chain of sub-classes or a hierarchy of subclasses of decreasing extension and increasing intension obtained by successive divisions.

67 Class Numbers

CC provides a set of rules for constructing class numbers by combining the numbers given in the schedules of the facets going with each (BC) and using a set of (CS). This is put by the author thus.—" A class number consists of an intelligible concatenation " i e linking together of one or more of the symbols, viz (1) the ten Indo-Arabic numerals, (2) the twenty-six capital letters of the Roman Alphabet, (3) the twentythree small letters of the Roman alphabet got

by omitting *i*, *l* and *o*, (4) a Greek letter, (5) the punctuation marks, (6) the circular brackets, and (7) horizontal arrows. Intelligible concatenation means the linking together of the symbols, which is intelligible in the light of and in accordance with the schedules and the rules framed for the purpose and given in the book.

68 BASIC CONNECTING SYMBOLS

The basic connecting symbols are the punctuation marks used in class numbers, viz (1) an inverted comma ('), (2) a dot (.), (3) a colon (:), (4) a semicolon (;), (5) a comma (,). The symbols may also be called facet separators.

691 CO-EXTENSIVE CLASS NUMBERS

This method reduces the enumeration of schedules to a minimum. To use an analogy, CC enumerates only individual words and provides a set of rules for combining them into sentences, whereas DC and LC enumerate whole sentences. Thus, class numbers for topics are not ready-made in CC. They have to be constructed from the enumerated schedules. CC also provides for a variety of combinations. Due to this exceptional flexibility, it is able to give co-extensive class numbers and to accommodate new topics.

7 Importance of CC

The importance of CC as a new approach in the development of classificatory thought was realised from the very beginning by the leading thinkers in the field. Sayers describes CC in his *Introduction to library classification* (1935) as 'universally interesting as a study of an original kind in classification method',[27] and remarks in his *Manual of classification,* thus: "Both (Bliss and Ranganathan) have done work which makes the workers previously in the field seem as amateurs."[28] Bliss also praises the scheme in his *Organisation of knowledge in libraries* (1939). He observes thus : " The main principle is that of complex or composite classification. This principle is more than fundamental in this System, it is pervasive. Ranganathan has developed it with admirable ingenuity and consistency."[29] In 1937 CC was translated into Chinese language by Hu Yen-Chin. It has also been partially translated by the author of this book into the Marathi language.

CC : METHODOLOGY FOLLOWED

1 Pattern

An interesting methodology is followed in the progress of CC. " Problems on hand are analysed. Tentative solutions are attempted. The results are tried by actual application. Possible sources of errors are examined. The results obtained are consolidated at every stage. The entire subject is re-examined on the basis of the new results. New problems are isolated for further study. Again the problems on hand are analysed. Thus the cycle goes on. Research in classification is a continuing process. There can be no finality about the results obtained. Fresh evidences will come to make the earlier results obsolete. This is the way, work on the Colon Classification has been progressing."[30]

2 Scientific Method

This methodology is that of scientific method which is illustrated and described by Dr Ranganathan in his *Prolegomena* with the aid of a spiral.

22 Illustration

A spiral is a winding line like the threads of a screw which moves in a cylindrical form and at the same time advances forward. The schematic spiral is as in the diagram on p. 139.

221 FOUR PHASES OF DEVELOPMENT

This spiral indicates four phases of development in scientific method. These four phases correspond to the four quadrants of the circle.

2211 First Phase (first quadrant) Empirical Phase (the phase of ascension) Induction

The first phase is called the Empirical phase. It is the ascending

stage of the formation of the scheme. It is indicated in the spiral by the term 'Induction' which means the method of reasoning from particulars to generals or the deriving of a general principle or conclusion from particular facts. At this stage, the author takes into consideration individual experiences in the formation of the scheme. These experiences are far too many to be retained in memory. Therefore, in the progression through this phase, Empirical Devices and Postulates are distilled as it were. This means that tentative rules for classification on the basis of individual experiences are framed.

ZENITH
NORMATIVE
PRINCIPLES

Note: From *Prolegomena to library classification* by S R Ranganathanm, ed 2, 1957, Sec 822, p434, with acknowledgments and apologies to the Library Association, Chaucer House, Malet Place, London.

SCHEMES OF
CLASSIFICATION

NADIR

Spiral of Scientific Method in Classification

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2212 Second Phase (second quadrant) Hypothesizing
Phase (the phase of abstraction)

The second phase is called the hypothesizing phase. It is indicated in the spiral by the term 'Abstraction'. In this phase normative principles to guide the development of the scheme of classification are formulated. In course of time the empirical laws formulated in the first phase — i e, at the Empirical phase — themselves become far too many for retention in memory. There is, therefore, a jump in the second phase from the burdensome number of laws to just a few fundamental principles. These principles are called 'hypotheses' in the field of Natural Sciences and 'normative principles' in the field of Social Sciences. Normative Principles serve as norms or standards by which practices can be judged and the best methods selected.

2213 Third Phase (third quadrant) Deductive Phase
(the phase of descension)

The third phase is called the Deductive phase. It is indicated in the spiral by the term 'Derivation'. This is the descending stage of the scheme of classification. All the known empirical laws can be derived out of the normative principles by the deductive processes. Further, more laws than the already known empirical laws are usually derivable by deduction. The normative principles, therefore, hold in a latent form many laws not hitherto arrived at in the progression through the Empirical phase. These latent or invisible laws are 'deduced laws' — i e, laws derived by inference.

2214 Fourth Phase (fourth quadrant) Verification Phase

The fourth phase is called the verification phase. It is shown in the spiral by the term 'Observation of Literary Warrant'. This means that further development in the scientific method of the scheme depends on the results of the observation of the total quantity of published documents on the various new fields emerging in the growing universe of knowledge. Literary Warrant means the total quantity of published documents in the new fields of knowledge requiring special attention with a view to providing new appropriate places in the scheme.

The new deduced laws point to facts and experiences left unnoticed till we reach the fourth phase. The work in the fourth phase consists of varifying them by observation in the phenomenal universe in which new branches of knowledge have emerged. It may happen that more powerful devices will have to be invented to help in the observation. If the observations confirm the indication of the deduced laws, the normative principles are continued as valid. Otherwise, more facts of the nature of the contradicting ones — i e, the facts which defy the current normative principles — are collected and the existing normative principles are invalidated or considered as out of use. In due course, work is re-started in the first phase and another cycle in the scientific method is also started. New fundamental principles are formulated and the cycle thus goes on repeating the same processes and experiments as before.

3 Effect of the Scientific Method

The effect of the scientific method applied to CC is described by the author in his *Prolegomena* thus : " The work on the foundation of classification and on the improvement of the Colon Scheme went hand in hand. They were inseparable. Step by step, CC was equipped with all the features of a full-blown analytico-synthetic scheme of classification." [31]

31 ANALYTICO-SYNTHETIC CLASSIFICATION

A classification, which analyses a subject into its fundamental constituent elements, and synthesizes its class number out of the numbers for these elements linked by appropriate connecting symbols, is called an Analytico-synthetic classification. Example :

Let us take the subject ' Hamlet' . First we analyse this specific subject into its fundamental constituent elements as shown below :

1 Literature [Language] [Form] [Author] [Work]

2 Literature   English   Drama   Author   Work

and on the basis of this analysis, we synthesize a class number for *Hamlet* as shown below :

$$O111, 2J64, 51$$

In this class number,

O	=	Literature
111	=	English language
,	=	(CS) for [P2] or Form of literature facet
2	=	Drama
J64	=	Author born in 1564 and as Shakespeare was born in this year, it stands for Shakespeare. This is [P3] or Author facet
,	=	(CS) for [P4] or Work facet
51	=	Number for the first drama in the fifth group of the dramas of Shakespeare, which is *Hamlet*. The number 51 is arrived at on the basis of Group Notation.

32 GROUP NOTATION

Isolate numbers	Number of the group	Serial numbers of the co-ordinate classes represented by the numbers in the groups
11 to 18	1	1 to 8
21 to 28	2	9 to 16
31 to 38	3	17 to 24
41 to 48	4	25 to 32
51 to 58	5	33 to 40

The first digit in the numbers in the groups indicates the group number and the second digit, the serial number of the work within the group.

On the basis of this method of Group Notation, the 33rd drama or the first drama in the 5th group of dramas gets 51 as its individualising number.

This group notation is useful to show the coordinate nature of classes in an array which consists of more than 8 coordinate classes. This is done with a view to shorten the length of the (IN) representing the various coordinate classes.

33 SECTOR NOTATION

There is another method of showing coordinate classes. It is called Sector Notation. It consists of groups of eight coordinate classes represented by the digits 1 to 8. The first sector is indicated by the bare digits 1 to 8. The second sector is indicated by the digits 91 to 98. In this sector, the digit 9 is the sectorising digit — i e, the digit which starts a new sector. In this way, we may have any number of sectors.

If we individualise *Hamlet* by the use of the method of sector notation, the isolate number will be 99991. It is arrived at on the basis of the sectors which may be shown as below :

Numbers in the sectors	Number of the sector	Serial numbers of the co-ordinate classes represented by the numbers in the sectors
1 to 8	1	1 to 8
91 to 98	2	9 to 16
991 to 998	3	17 to 24
9991 to 9998	4	25 to 32
99991 to 99998	5	33 to 40

All these nines in these sectors are sectorising digits. These nines do not carry any semantic value. They are used simply as the indicators of the respective sectors. Hence the digit 9 when used as a sectorising digit is an Empty Digit.

34 Group Notation vs Sector Notation

Thus on the basis of this Sector Notation the (IN) 99991 which is the 1st in the 5th sector represents, let us say, the 33rd drama of Shakespeare. This number consists of 5 digits while the (IN) 51 which represents *Hamlet* on the basis of the Group Notation consists of only 2 digits. This is the special advantage of Group Notation over Sector Notation. This is economy in notation. This economy in notation satisfies the Law of Parsimony.

4 Personality Facet

Dr Ranganathan has recognised five distinct kinds of facets as possible in a subject. These he calls Personality, Matter, Energy, Space and Time. Of these facets, [P] is the most important one. In (MC) Literature, Language, Form, Author and Work are personality characteristics. They represent the personality of Literature, as it were, in different levels ; and hence the different facets of the Literature Class are termed as [P] of different Levels.

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CC : NEW FEATURES

1 Five Types of Facets

The application of the scientific method to the development of CC resulted in the introduction of some new features in it. One of these features is the recognition of five kinds of facets based on the Five Fundamental Categories. But this recognition of the different kinds of facets did not demand any serious alteration in the various schedules.

11 NEW CONNECTING SYMBOLS ADOPTED

The only serious change needed was the adoption of the new (CS) for the different kinds of facets representing the five (FC) as shown below :

Connecting symbol	Type of facet
,	Personality
;	Matter
:	Energy
.	Space
'	Time

Formerly colon (:) was the only (CS) used for all the different facets in a class number.

12 NO DIFFICULTY CAUSED BY NEW (CS)

But the introduction of the new (CS) does not cause any serious difficulty in a large number of libraries. It has been experienced that in the collection of a library, there are very few books on microthought — i e, on specialised topics of great intension. Therefore, there is little need to change colons into commas or semicolons, except in the (MC) Literature. The only drudgery work needed in a library is the changing of colons into a dot and an

inverted comma in the case of [S] and [T] respectively, which can be done at leisure, and even spread over several years. For the position of the books is not affected by this change.

13 CC FIT FOR DOCUMENTATION WORK

By this multiplication of (CS) and the recognition of (FC), CC has become eminently fit for documentation work, i e, the work of minute classification and indexing of articles in periodical publications and producing a periodical list of them for use in reference service and for circulation to research workers and others interested. CC has thereby acquired great versatility to do any degree of depth classification, i e, minute classification of specialised topics, no matter how great its intension.

2 Future Work

Regarding the future development of CC, the author observes thus : "But the CC has become eminently fit for documentation work .... This does not mean that the CC has stopped growing; far from it. Stopping of growth always means preparation for death. Moreover, no scheme can stop growing so long as the universe of knowledge keeps growing, as it will, so long as humanity continues to exist. The immediate lines of growth of the CC have been mentioned in the various sections of the preceding chapters of this book. In my last class with the M Lib Sc students, we were led to estimate the number of subjects in classification on which Ph D students may do research and write their theses. We were able to enumerate some eighty of them offhand. Apart from this routine kind of research on schedules, a new vista for research of a deeper kind is opened up in the next part of this book. Each result achieved in this kind of work will call for a re-examination of schedules in general and of those of the CC in particular. It may be that some of this re-examination will call for trivial changes, or even drastic changes, to gain in versatility. If the results of research into Abstract Classification, distilled out of the experience with the CC and the UDC, ultimately call for burning our boats and starting all over again, that would be the final fulfilment of the CC, even as the final fulfilment of the flower lies in its fading out in the process of giving birth to the fruit."[32]

21 FACET ANALYSIS AND DEPTH CLASSIFICATION OF AGRICULTURE

Dr D B Krishna Rao, the Sarada Ranganathan Professor of Library Science of the University of Madras and one of the students of Dr Ranganathan, was awarded in 1956 the degree of Ph D for his thesis entitled " Facet Analysis and Depth Classification of Agriculture ", submitted to the University of Delhi. This thesis contains detailed schedules and rules for the depth classification of Agriculture according to CC.

3 New Features

During the course of the last twenty-nine years, CC has grown from strength to strength. It has developed in various directions. It has progressed from book level to documentation depth. During this progress it has sharpened many of its techniques. New features have been added from time to time. They are Facet, Focus, Phase, Fundamental Categories, Use of different (CS), versatility of notation, and Zones, Rounds, Levels.

31 IMPACT IN OTHER SCHEMES

The impact of CC can be seen in other schemes also. The *British National Bibliography* uses its technique as a guide in sharpening the DC numbers. The International Federation for Documentation has officially adopted the Sector Notation of CC. Again CC forms a basis for study of the foundations of a general theory of classification. The Committee of the International Federation for Documentation on General Theory of Classification is a forum for this. The subject is also actually pursued by the Classification Research Group, London. The Association of Special Libraries, London, had convened an International Study Conference in May 1957 at Dorking on Classification and Retrieval, i e, for considering the vital problem of retrieving information concealed in various documents. In this conference, the approach of CC to solve this problem was evaluated. Interest in the technique of CC is spreading to European countries, Australia, USA and Canada. Thus the contributions made by CC to the development of the theory of classification have been generally accepted.

4 Shera on Ranganathan

Dr Jesse S Shera, the wellknown Professor in the Graduate Library School of the University of Western Reserve, Cleveland, remarks about the valuable contribution of Dr Ranganathan thus : " Ranganathan is blazing a trail along which future theorists of library classification must follow. "

5 Outstanding Features

The outstanding features with which this Scheme is equipped by its author may be mentioned in brief as below :

1 The whole structure of CC is developed on the basis of scientific method and the Canons of Classification enunciated by the author in his *Prolegomena*.

2 Its notation has a mixed base.

3 It has a sufficiently wide base of (MC). The total number of (MC) as given in the latest ed 7 is 62. The method of Zone analysis adopted for the development of an array of classes, has made the array of (MC) infinitely hospitable making it possible to add any number of new (MC) without disturbing the sequence of the existing (MC) as and when found necessary.

4 The methods of Facet analysis and Phase analysis are adopted for constructing class numbers for specific subjects. Facet formulas and rules of classification are provided under various (MC) and sub-classes.

5 The mnemonic use of digits is profusely followed, and five types of mnemonics are recognised.

6 To secure helpfulness among isolates—i e, divisions in an array — the Device of Zone Analysis is adopted.

7 To secure helpfulness among enumerated common isolates, the Quasi Class Device is adopted. The Quasi Class Device consists of converting certain categories of publications, such as periodical publications into quasi classes, i e, artificial classes which are given the status of true classes.

8 To secure helpfulness among enumerated special isolates — i e, the isolates mentioned in the facets in the various (MC) — certain principles are adopted. The principles are those of:

(*a*) Increasing Quantity;

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    (*b*) Later-in Time;
    (*c*) Later-in Evolution;
    (*d*) Spatial Contiguity or Geographical Contiguity.
       The term spatial contiguity means a contiguous — i e, near
       to each other — sequence in space;
    (*e*) Increasing Complexity;
    (*f*) Canonical Sequence — i e, traditionally recognised sequence
       of classes;
    (*g*) Literary Warrant. Literary warrant means the total quantity
       of published documents in the new fields of knowledge
       requiring special attention to be paid with a view to providing
       new appropriate places in the Scheme; and
    (*h*) Alphabetical Sequence.

9 To secure helpfulness of sequence among facets, certain
principles are adopted. These principles are:
    (*a*) Basic Facet Principle, i e, the principle of putting the basic
       facet as the first facet;
    (*b*) Commodity-Raw Material-Transformation-Principle, i e, the
       principle of putting the commodity facet, the raw material
       facet and the transformation facet — all of the same subject
       — in the sequence as mentioned in the name of the
       principle;
    (*c*) Cow-calf Principle, i e, the principle relating to inseparable
       facets;
    (*d*) Actand-Action-Actor-Tool Principle, i e, the principle regard-
       ing any four facets standing in mutual relation as Actand,
       Action, Actor and Tool. Actand facet means the facet
       which is subjected to the action represented by the Action
       facet;
    (*e*) Wall-picture Principle, i e, the principle regarding a facet
       depending on the conceding of a prior facet for its own
       concept;
    (*f*) Whole-organ Principle, i e, the principle regarding two facets,
       one of which represents the whole of an entity and the other
       represents its organ.

10 A large amount of scientific detail is obtained from scientists
and experts.

11 Constant attention is paid to its revision.

12 Universal and impartial treatment of all subjects is the keynote of CC.

13 It contains elaborate and extensive treatment of topics in Indology. The third part of the book consists of schedules of classes and sacred works of Indology. It gives ready-made class numbers for a large number of classics in Indology.

14 Its Classic Device helps a good deal to individualise all classics of Indology and the literature on them in a helpful sequence.

15 It has used only fundamental constituent terms to represent the isolates in various facets and this has made its terminology crisp and clear-cut. This terminology has, therefore, become fit for use in chain procedure.

16 CC is quite suitable for classifying the resources of any library whether small or big or general or special.

17 It is specially equipped for documentation work.

PART F

CC: GENERAL LAYOUT

CC: FOUR ZONES

The latest development of the general layout of the (MC) of CC is that they are grouped into four zones or four sectors according to four kinds of notation used in them. The grouping of the (MC) according to different kinds of notation is:

Zone	Kind of the (MC)	Kind of Notation
Zone 1	Generalia (MC) and its anteriorising isolates	Small letters of the Roman alphabet
Zone 2	Recently recognised (MC)	Indo-Arabic numerals
Zone 3	Traditional (MC)	Capital letters of the Roman alphabet
Zone 4	Newly emerging methodologies	Packeted notation

CC: ZONE 1

1 Generalia (MC) and Its Anteriorising Isolates

We know that zone 1 of the (MC) consists of Generalia (MC). By 'Generalia' is meant a class into which should go any publication which deals with several subjects, and cannot go into any other single (MC) enumerated in the schedule of the (MC). The bare digit small z is to hold only ordinary exposition of Generalia.

The classes incorporated in this zone are:

a	Generalia bibliography
k	Generalia encyclopaedia
m	Generalia periodical
n	Generalia serial
w	Generalia biography
x	Generalia miscellaneous collections, works
z	Generalia

(For zones under *z* Generalia, read chapter H1)

The classes from Generalia Bibliography to Generalia miscellaneous collections which are represented by the digits *a* to *x* are anterior classes, i e, the classes which get precedence over the original (MC) of which they are approach material. It is on account of this that they are called Anteriorising Isolates. Further clarification about these isolates is made in chapter H1.

CC: ZONE 2

1 Recently Recognised (MC)

Zone 2 of (MC) holds the recently recognised (MC) which cannot be accommodated in the traditional (MC) and which have to do more or less with the entire range of the traditional (MC), which are grouped in zone 3. The (MC) in this zone are:

1	Universe of knowledge—structure and development	4	Journalism
2	Library science	5	Standardisation
3	Book science which comprehends the Science of Authorship	6	Museology
		7	Exhibitionology

2 Speciality of These (MC)

The speciality of the (MC) in this zone is that they are essential equipments to enable specialists in the different branches of knowledge to produce literature on the traditional (MC).

CC: ZONE 3

1 Schedule of the Traditional (MC)

A	Natural sciences	△	Spiritual Experience and
AZ	Mathematical sciences		Mysticism
B	Mathematics	N	Fine arts
BZ	Physical sciences	NZ	Literature and Language
C	Physics	O	Literature
D	Engineering	P	Linguistics
E	Chemistry	PU1	Calligraphy
F	Technology	PU3	Short-hand
G	Biological sciences	PU6	Type-writing
H	Geology	PX	Communication theory
HX	Mining	PZ	Religion and Philosophy
I	Botany	Q	Religion
J	Agriculture	R	Philosophy
JX	Forestry	S	Psychology
K	Zoology	SZ	Social sciences
KX	Animal husbandry	T	Education
L	Medicine	U	Geography
LX	Pharmacognosy	V	History
M	Useful arts	W	Political science
MZ	Humanities and Social	X	Economics
	sciences	Y	Sociology
MZA	Humanities	YX	Social work
		Z	Law

2 Special Feature

A special feature of these traditional (MC) is that they fall into a few groups of coordinate (MC) and at the beginning of each group, there is a partially comprehensive (MC) of that group. The partially comprehensive (MC) are the following:

A	Natural sciences	MZ	Humanities and
AZ	Mathematical sciences		Social sciences
BZ	Physical sciences	MZA	Humanities
G	Biological sciences	NZ	Literature and
M	Useful arts		Language

PZ   Religion and   SZ   Social sciences
      Philosophy

Special books and particularly periodicals exist on these partially comprehensive (MC) and hence the author has made special provision for them in the schedule; and it is due to the inclusion of these classes that the schedule of the (MC) has become quite adequate and comprehensive.

A partially comprehensive (MC) appears to be coordinate with true (MC) when viewed from the notational plane. But the true (MC) are subordinate to it, when viewed from the idea plane.

3   Interpolation Device

This Device is one of the devices used to increase the efficiency of the notation of CC in the implementation of the Canon of Hospitality in Array.

31   ENUNCIATION

"The Interpolation Device consists in interpolating between two consecutive digits of one species, a two digited number of the same species for accommodating a new partially comprehensive (MC) or an altogether new (MC) and defining it as coordinate with one digited numbers."

It is due to the adoption of this new device that all the partially comprehensive (MC) and some altogether new (MC) could be accommodated in the schedule of the traditional (MC).

32   EMPTYING DIGIT

To effect interpolation between two consecutive letters, Dr Ranganathan has developed the concept of 'emptying digit'. The digits T to Z are designated Emptying Digits. Any digit followed by any of the emptying digits becomes semantically empty though it retains its ordinal value. Thus, in BZ, B retains its ordinal value but loses its semantic value 'Mathematics'. Thus BZ is co-ordinate with B on one side and C on the other side, though it apparently looks as if it were a sub-division of B.

33   EMPTY AND EMPTYING DIGIT

Dr Ranganathan has made U, W, and Y as both empty and

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emptying digits in certain contexts. For example, in PU1, P has been emptied of its semantic value by the emptying digit U. At the same time U itself is semantically empty. In other words, PU has no meaning. Thus the letter pair PU becomes empty. On the other hand, PU1, PU2, PU3, etc have all their own meanings and are all co-ordinate with P on the one side and Q on the other side. Indeed PU1 is Calligraphy; PU3, Shorthand; and PU6, Type-writing.

34 Final Result

In practice, in the array of (MC), CC uses Z as an emptying digit in the representation of partially comprehensive (MC). It uses the earlier emptying digits to represent new (MC) claiming a place between (MC) represented by two consecutive capital letters. A perusal of the schedule, given in section 1 of this chapter in the light of the above remarks, will be of help.

4 Spiritual Experience and Mysticism

The number for the (MC) Spiritual Experience and Mysticism is not got in this way. Its position is determined in the idea plane as lying between the (MC) M and N. To interpolate here, it is represented by the Greek letter $\triangle$ and its ordinal value is defined to be between those of M and N.

41 Special use of Delta ($\triangle$)

Regarding the special use of this letter and its place in the array of the (MC), the author observes thus: "As the (MC) $\triangle$ Spiritual Experience and Mysticism occurs here for the first time in any printed scheme of classification, its connotation may first be indicated. Since the Arabic numerals and the letters of the Roman alphabet had already been exhausted, a new symbol had to be found for this new (MC). The $\triangle$ of age-long mystical significance naturally suggested itself. Its standing outside the formal series of the other symbols fittingly represents the irresoluble nature of all it stands for.

42 Occult or Mystical Point of View

"It is possible for any class of knowledge to be presented from an occult or mystical point of view.

43 INTELLECTION AND TRANS-INTELLECTUAL INSIGHT

"To call such an exposition irrational may violate the Canon of Reticence. The terms 'rational' and 'irrational' refer to the plane of intellection; whereas mystic, occult, and spiritual experiences do not belong to the sphere of intellectual apprehension at all. They are said to involve direct (trans-intellectual) insight (i e, the insight which is beyond the power of normal understanding). Little, no doubt is generally known about the nature or modes of such mystical apprehension; and its validity and even existence are often questioned. But it is not for the classifier to take sides in a controversy. He is simply concerned to separate literature based on sense-experience and intellection from that presuming or using trans-intellectual apprehension.

44 INDIAN TRADITION

"In India, such distinction is traditionally recognised. Exposition based on intellection is called Kartrtantra (experimental, analytical study of things in their phenomenal modes), and Vastutantra (global holistic study of thing-in-itself) an exposition based on illumination)"[33]

45 HOLISTIC STUDY

Holistic study means the study of things as wholes, such as organisms and not their constituent parts. Holism is the Philosophic Doctrine propounded by General Smuts. This doctrine holds that the determining factors in nature and particularly in evolution are wholes, such as organisms and not their constituent parts.

46 EXPOSITION BASED ON ILLUMINATION

The (MC) $\triangle$ is to hold expositions based on illumination. All ordinary (non-mystical) expositions are accommodated in the (MC) z, 1 to 9 and A to Z. A mystical, ocult or spiritual exposition of any subject — say E Chemistry — is placed in the (MC) $\triangle$ — and individualised as $\triangle$ (E) Spiritual exposition of Chemistry. In other words, $\triangle$ should be added to by (SD) to accommodate mystical exposition of particular subjects.

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To illustrate ordinary exposition and mystical exposition of a subject, let us take a few examples.

1   There is a book, entitled *Monograph on the chemistry of gold* by Friend. This book gives an ordinary exposition of gold and hence it will get E118 as its class number.

There is another book, entitled *Gold and the Sun* by Kolisko. This book gives a mystical exposition of gold and hence it will get △ (E118) as its class number.

2   Jone's *Problems of civilization*. This book treats civilization on the ordinary intellectual basis and hence it will get Y:1 as its class number.

Another book, entitled *Seven rays* by Earnest Wood expounds civilization from an occult point of view, and hence it will get △ (Y:1) as its class number.

47 CROSS ROADS BETWEEN TWO MODES

The creation of the (MC) △ thus implies the division of the whole library into two parallel sequences to which, however, N Fine Arts, O Literature, and Q Religion are common. This overlapping on these three subjects corresponds with facts: For Fine Arts, Literature and Religion represent the cross-roads or points of fusion between the two modes of experience and expression. One of these modes is called direct mode or the mode of mystical and spiritual experience unmediated by senses and intellect. The other is called indirect mode or the mode mediated by senses and intellect. It is practically impossible to separate the books of these three classes in the region of overlap into mystical books to be classed with △ and non-mystical books to be classed without △, without violating the Canon of Consistency.

5   Helpful Sequence

There is some kind of helpful sequence among the (MC). To perceive the sequence clearly, we should recall to our mind that some of the (MC) are partially comprehensive. Let us remove them for the time being. Again, some of the (MC) are fundamental sciences while some are applied sciences. Generally speaking, each applied science comes immediately after the fundamental science to which it has got the greatest affiliation. For example:

D   Engineering comes immediately after C Physics
F   Technology comes immediately after E Chemistry
HX   Mining comes immediately after H Geology
J   Agriculture comes immediately after I Botany
KX   Animal Husbandry comes immediately after K Zoology

M Useful Arts is in reality a bundle of applications. In a sense, T may be looked upon as an application of Psychology. Thus, for our purpose we shall treat T also as an applied science. For seeing clearly, the helpfulness of the sequence, let us remove for the time being all these applied sciences.

51   ABSTRACT TO CONCRETE

51B   MATHEMATICS

The first surviving (MC) is B Mathematics. It is well-known that it is the most abstract of the sciences occurring in the schedule of (MC). B Mathematics is considered to be the Queen of Sciences. Indeed that is what was said by the great mathematician Karl Friedrick Gauss. It is the purest of pure sciences and is used as a tool in most of the other subjects. Henry Evelyn Bliss defines Mathematics as a method of treating the relation of sciences abstractly and more especially their numerical and spatial relations. Dr Ranganathan would call Mathematics the servant of all sciences. He observes thus: "It would be a good vacation exercise for certain types of students to explore the extent to which Mathematics has aided other subjects. The reciprocal theme of the extent to which the development of Mathematics has been due to other subjects will be equally interesting."

51C   PHYSICS

When we enter (MC) C Physics, we enter into something more concrete than Mathematics. Physics is a study of matter and energy in general. Indeed Physics is the most general of all the concrete sciences. Though it deals with matter and energy, its main interest is in the methodology of the study of properties of matter and energy *qua* matter and energy.

51E   CHEMISTRY

When we pass from C Physics to E Chemistry, we get into a

subject which is a little more concrete. For, Chemistry is concerned not with matter in general but with particular kinds of matter such as Hydrogen, Oxygen, Mercury, Silver, and Gold. We shall use the term "Substance" to denote such a particular kind of matter. In thus differentiating matter into substances, we have increased the concreteness of the field of study.

51G BIOLOGY

When we pass on from E Chemistry to G Biology, we enter into an even more concrete region. Here even substances get further differentiated. The factor that causes this further differentiation is life. Biology then deals with matter having life. Biology deals only with life in general and not with particular forms of life.

51H GEOLOGY

The (MC) H Geology deals with the remains of living organisms long after they had perished. These remains occur as rocks. These rocks are made out of the remains of the dead bodies by the mechanical, physical and chemical action taking place inside the earth. Thus the study of the inside of the earth really amounts in one sense to the study of the earliest forms of life that ever existed. This is Geology. Certainly Geology is more concrete than Biology.

51I BOTANY

On passing to the (MC) I Botany, we consider a special form of life — the lowest form of life known — plant kingdom. Botany deals with all kinds of plants. Its emphasis is more on the methodology of distinguishing the different groups of plants and in studying the morphology, the physiology, the ecology, etc, of plant life in general.

51K ZOOLOGY

On moving from the (MC) I Botany to the (MC) K, we enter into an even more concrete region. This concreteness is brought about by a new property which animals have as distinct from plants. That property is the beginning of the possession of nervous system with mind as its ultimate apex.

51L MEDICINE

The (MC) L Medicine should not be understood to mean that it deals with what we are made to swallow when we are ill. Medicine, on the other hand, is the science which deals with human organism. To put it more emphatically, it deals with human body. Surely human body is much more specialised than animal body in general. The (MC) L Medicine is thus more concrete than the (MC) K Zoology.

52 CULMINATION OF CONCRETENESS

A perusal of section 4 and its sub-divisions will show that the (MC) △ Mysticism and Spiritual Experience is unmeditated by the intellect which analyses and breaks down everything. On the other hand, in mysticism, everything is comprehended a sa whole, not in bits. Surely the whole is more concrete than bits of it. Thus △ is the high water-mark of concreteness.

53 FROM NATURAL TO ARBITRARY

53△ MYSTICISM

As we have seen above, Mysticism comprehends everything in its native or natural state. In fact, the (MC) △ Mysticism is not only something that corresponds to the most concrete but also, to the most natural.

53N FINE ARTS

A mystic experience cannot be communicated in its entirety to other persons. For, language, which is the medium for communication is a creature of the intellect. It has got all the limitations of the intellect. It cannot express the fulness of mystic experience. Therefore, the first means of communicating experience is symbol. This lands us in Fine Arts. Surely the symbol is not having natural-ness in its entirety. There is something artificial about it. Thus, in going from mysticism to fine arts, we take the first step towards artificiality.

53O LITERATURE

In the (MC) O Literature, the medium of communication is

made much more artificial. It may be shocking for man to hear that his language is artificial. But some reflection will show that it is really artificial when compared with the symbol of Fine Arts. A Chinese and a German can communicate with each other to some extent through symbols and Fine Arts; but they cannot communicate with each other through Chinese and German languages — assuming, of course, that one person does not know the language of the other. This proves that there is something more artificial about language, the medium of literature, than with symbols, the medium of Fine Arts.

53P LINGUISTICS

If we observe the children hearing us or speaking, they are able to communicate their thought through language. They do it more or less effectively. But their medium is much more artificial than the thought they express. In fact, thank God, children do not even worry to recognise that they are using an artificial something called language. They do not take to language easily — as easily as they take to stories, poems, and other forms of literature. Why is it so? This is because language is more artificial than literature.

53Q RELIGION

Let us next move on to the (MC) Q Religion. By religion, we mean not the religious experience of a mystic, which is profoundly concrete and natural. On the other hand, we mean by religion the creeds, rituals, beliefs. etc. Many of these, one can say, are not natural. They are artificially put up by social pressure and tradition. Because they are artificial, we often see the religious feuds among communities almost leading to mutual destruction even — all this in the name of religion. Thus we do enter into a more artificial region when we enter the (MC) Q Religion.

53R PHILOSOPHY

In Religion, we at least start with some definite basis — the revealed book or the sacred book. The thought-content of the revealed book and the sacred book appeals to the human mind as if there is something natural about it. But in Philosophy, even

that quasi natural foundation is taken away. The intellect revels quite unmindful of what is natural. It builds its own premises. It builds its own starting points. It builds its own method of making inferences. Very often starting from the same premises, Philosophy leads to diverse conclusions. For example, witness the almost mutual contradicting schools of Indian philosophy, all tracing their religion to the same texts — *Upanishads* and *Brahmasutras*. It is unnatural to end in contradictions. Surely the (MC) R Philosophy is much more artificial than the (MC) Q Religion.

53S PSYCHOLOGY

The (MC) S Psychology is concerned with studying the way in which human mind works. In the earlier days, it was generally as speculative as the (MC) R Philosophy itself. Nowadays, it is basing itself more and more on observation. However, on account of its earlier affiliation, it is still being pursued very widely in the old way. Therefore, we continue to place (MC) S Psychology after the (MC) R Philosophy as if it had artificiality as much as Philosophy itself.

53U GEOGRAPHY

We are now transitioning from Humanities to Social sciences. Society lives on earth. Therefore as a preliminary to the study of the Social sciences, we must study the geography of the earth. Therefore, though Geography is concerned with what is concrete and natural, we throw it in among a sequence of artificialities on account of the exigency that it is a preliminary subject for the study of Social sciences.

53V HISTORY

One should say that, of all the (MC) of Social sciences, V History comes nearest to what is perhaps natural. That is why we start with the (MC) V History. We cannot, however, say that everything is natural in V History. If everything is natural, there will not be as much conflict and confusion in the history of the world. Therefore, there is no denying that there is an element of artificiality even in this subject which looks like natural and which is surely as natural as possible among the Social sciences.

53W POLITICAL SCIENCE

In W Political Science, we recognise at one extreme, anarchy as the possible form of government and at the other extreme, completely controlled conditions as in communism. We have every variety of artificiality between these two extremes. In fact, though we start with what has occurred in History, in Political science we begin to postulate and play with all kinds of political organisations and relations with abundance of artificiality therein.

53X ECONOMICS

In X Economics, we enter into a higher reach of artificiality. Economics is no longer in the plane of barter, where there is some naturalness. Economics is now completely controlled and complicated by the artificial mechanism called 'money'. Money seems to be a ghost which man has raised out of his ingenuity. But this is a ghost which man is unable to control. Most of the ills of society today are being traced, day in and day out, to the way in which this artificial mechanism of money behaves. There can be nothing more artificial than money. One scrap of paper is worth one rupee; another scrap of paper is worth one thousand rupees! Is there anything natural in this? Is it not the height of artificiality?

53Y SOCIOLOGY

In Y Sociology, we are concerned not only with the artificiality caused by money, but with the artificiality brought in by several other factors — totemism, variety of artifacts, and variety of social grades — all of which are given values far from natural. One social group insists upon hair being grown on the head, and the face being clean shaven. Another social group insists upon hair being grown on the face and the head being clean shaven. One social group insists upon beginning the day with Sun-rise and another social group insists upon beginning the day with Sun-set. Sociology is the study of all these contradicting modes of life and beliefs. One mode of life and belief is as good or as bad as another mode of life and belief, including the opposite ones. There can be no higher proof than this to show that the study of sociology

is to some extent the study of what is artificial and not natural and essential.

53Z LAW

But there is at least a touch of naturalness in (MC) Y Sociology. On stepping into (MC) Z Law, we experience the extreme reach of artificialness. The law-makers have power to do, undo and re-do as they like. They do exercise this power. We have only to compare the laws of the different nations. We can easily find several nations whose municipal laws are contradicting one another. Indeed this contradiction is so rampant that in the discipline of law, we recognise a division called "Conflicts of Laws". Let us take a trivial example of the artificiality of the (MC) Z Law. That example we see in the way in which we artificially manipulate time. We have summer time and winter time. On a day fixed by law, all the clocks in the country should be turned back by one hour. Man has to obey this artificial statute. But the Sun and the Stars do not; and animals do not. What is the result? For a week after summer time is introduced, people are not able to get their milk in time because cows which are closer to nature refuse to give milk one hour earlier. But man wants it one hour earlier according to the legal time.

6 Difficulty of Defining (MC)

Generally speaking, a (MC) cannot be represented either as a subclass of another or as a combination of two or more (MC). New (MC) emerge occasionally. The task of making the (MC), other than the partially comprehensive ones, mutually exclusive is by no means easy. For, the terms used to name these classes are not definite in their denotation. The boundary lines between the different (MC) are never either clear or definite. Subjects usually shade into one another; and the boundary lines get shifted from time to time.

61 Defining Each Term

Hence the only practical way to make the terms definite is to define each term by successive sub-divisions. This is done in the chapters of the schedules. The mutual exclusiveness of the classes

is secured by taking care to see that the sub-divisions are so constructed as to avoid overlapping. Further, once a subdivision gets itself attached to a particular (MC), due care should be taken to see that it is not disturbed from its position. In other words the library should be absolutely consistent in the use of the subdivisions. Again, the same isolate may occur in different host classes. Its significance is not the same in all classes. The correct significance is to be determined by the Canon of Context. For example 'Gold' in the class-context of Chemistry is different from the same in the class-context of Economics.

7 Variation in the Sequence of (MC) from Scheme to Scheme

In his *Modern outline of library classification*, J Mills has expressed his disapproval of the sequence of some of the traditional (MC) of CC. He says : "The problem of order (sequence) of main classes hasn't been given the attention it received from Bliss. Astronomy is subordinated to Mathematics (which is essentially a 'tool' science) and precedes Physics and Chemistry on which it is so largely dependent. Geology, with obvious affinities to Astronomy, and one of the Physical sciences, is placed after Biology. Psychology is separated from Medicine, although they are both dealing with the same problem — Man's physical and mental processes. Sociology, the generalising study of the Social sciences, is placed almost at the end of the individual special social sciences. Law is separated from Political science to which it is so closely related."[34]

The place of a (MC) of a scheme of classification is determined by the classificationist according to the special stress placed by him on one of the possible approaches to the (MC) concerned. It is well known that a (MC) or a field of knowledge can be looked upon from different angles of study or from different approaches. It is due to this fact that we find varying sequences of (MC) in different schemes of classification. For example, Bliss considered Astronomy as a science which is largely dependent on the concepts derived from Physics and Chemistry, say, when spectroscopic methods are used to establish the chemical constitution of an astronomical body. The sequence of the (MC) Physics, Chemistry and Astronomy in the Bibliographic classification of Bliss is as follows:

B Physics   C Chemistry   D-DF Astronomy

Astronomy is considered by Dr Ranganathan as a branch of Applied Mathematics and hence he has assigned to it the number B9.

On the Principle of Gradation by Speciality, Bliss gives a place to Geology (DG-DP) next to Astronomy. He considers Geology as a science which studies simply one particular astronomical body, i e, the planet Earth. Dr Ranganathan has taken quite a different view of Geology. He considers it as a science which deals with the vestiges, i e, remains of old and extinct forms of life and with the earth, the scene of life.

Bliss has classed Psychology between Medicine and Education as shown below:

HM Medicine   I Psychology   J Education

The reason for assigning this place to Psychology in BC is that it is related to Medicine because both these sciences deal with men — including the physical and mental elements. It is also closely related in practice to Education. Dr Ranganathan has placed Psychology between Philosophy and Education because in studying Philosophy which deals with the reality or otherwise of God himself and other creations, we require to make use of the mind, the study of which is Psychology. Psychology is followed by Education because it is applied in the training of the mind of the young which is the province of Education.

The places assigned to Sociology (K; KA), Political Science and Law (S1-9; SA) in BC are on the basis of the Principle of Gradation by Speciality; while those assigned to them in CC are on the Priniciple of Increasing Artificiality. The helpfulness of the sequence of these classes in CC is described in section F35.

According to the Indian school of thought, it is futile to find fault in the sequences of the (MC) of a scheme of classification. Each scheme will have its own explanation of its sequence.

CC : ZONE 4

This zone consists of newly emerging methodologies. The classes accommodated in this zone are evolved from the common isolates and the traditional (MC). On account of this, the class numbers have been mnemonically used to indicate these new classes and with a view to show the group of the notation in this zone separately, the class numbers have been written in circular brackets and hence the notation in this zone is designated as Packeted Notation; and their ordinal value has been fixed as posterior to the Roman capitals. The device of using this type of packeted notation is called Subject Device.

A sample schedule of such methodologies is included by the author in ed 7. The following are the (MC) mentioned in the schedule:

(: g) Evaluation technique   (r)   Administration
(a)   Bibliographology   report technique
(p)   Conference technique   (w)   Biographology

CC: COMMON ISOLATES

1 Schedules

The scheme provides five types of common isolates, viz
1 (ACI) applicable before [S]
2 (ACI) applicable only after [S]
3 (ACI) applicable only after [T]
4 (PCI) Energy (CI)
5 (PCI) Personality (CI)

2 Notation

Small letters of the Roman alphabet (excluding *i*, *l* and o) are used to represent these isolates. Their Schedules are given in part 2 of CC and they are fitted with facet formulas and have to be used as per rules provided for them in part 1 of CC. They are mnemonically used in the whole scheme wherever their use is required. Examples:

> B*a* Bibliography of Mathematics
> C*k* Cyclopaedia of Physics
> R*m* Periodical of Philosophy

T.235*r* Maharashtra State. Education (Ministry of —). *Report*
2.231 'N39*t* Library development committee (Bombay). *Report* 1939
O, 1:*g* Poetic criticism
T4.2, *t*4, N48:1 University of Poona. *Annual report*
LX8; *e*418 Pharmacy of salt of gold

3 Anterior Position

An important feature of these (CI) is that they give anterior position to the books bearing these symbols on account of the rule which says that "Any number followed by a small letter has precedence over the number itself". It is on account of this rule that the classes bearing these symbols get arranged before the treatises on the subject of which they form the approach material. Example:

Xa Bibliographies of Economics
Xk Cyclopaedia of Economics
X   Treatises of Economics

PART G

CC: SPECIAL FEATURES

CC: METHOD OF SUBDIVISION

1 CC Differs from DC and LC

Regarding the method of subdivision followed in CC, the author observes thus: "The Colon Classification differs from the Decimal Classification and the Congress Classification in some fundamental respects. It is their manifest aim to provide ready-made Class Numbers for most subjects. Hence, such manuals consist, for the most part, of the Schedules of Classification. And their Schedules are, by several times, larger than that of the Colon Classification. . . . In the Colon Classification, however, ready-made class numbers are not assigned to subjects. The schedules in the Colon Classification may be said to consist of certain standard unit schedules. These correspond to standard pieces in a meccano apparatus. . . . Even a child knows this. So also, by combining the numbers in the different unit-schedules in assigned permutations and combinations, the class numbers for all possible subjects can be constructed. In this Scheme, the function of the (CS) used, is like that of the nuts and bolts in a meccano set." [35]

2 (CS) Used in CC

The (CS) used for constructing a class number are 8 in all. The additional symbols—viz, the starter digit"(" and the arrester digit")"—are used to indicate (SDN).

CC: STARTER AND ARRESTER

1 Enunciations

"The starter is the first of the circular bracket pair inserted before the first digit of the part of the number derived by (SD)."

"The arrester is the second of the circular bracket pair inserted after the last digit of the part of the number derived by (SD)."

2 Postulate for Omission of the Starter and the Arrester

"The starter and the arrester digits should be omitted if the (SDN) forms a phase". (For Phase and Phase Relation, read section L46).

Example:

U0*b*S   Geography with a bias towards Psychology

3 Use of Starter and Arrester

Example:

T:3(U)   Teaching of Geography

In the above class number

$$(U) = (SDN) \text{ in } [2P]$$

(For [P] and its rounds read chapters, G2 and G4)

4 Ordinal Value of the Starter Digit

The author has fixed the ordinal value of the starter digit "(" to be greater than the greatest of the digits used in the Scheme. The digit that has the greatest ordinal value in the Scheme is the capital letter Z. So, the ordinal value of the starter digit is greater than that of Z. In the second order array coming after z Generalia, the last sector of the third zone is used for individualising persons by (AD). For example zG stands for Gandhiana. In this way, we may use (AD) to represent any other outstanding personality like Mahatma

Gandhi. If there is such a personality having Z as the initial letter of his surname, then the class number will be zZ. This will be the last class number in the last sector of the third zone. The fourth zone is used to represent materials of a Generalia kind centering round particular subjects. The number for the subject is got by (SD). Here are two examples:

z(Q3) Jainology z(Q7) Islamology

Here the second order array has the digit "(" the starter. As its value is greater than that of Z, the above class numbers come after zZ. Thus, we have the sequence:

zZ Works by and on an outstanding personality having Z as the initial letter of his surname
z(Q3) Jainology
z(Q7) Islamology

5 Ordinal Value of the Arrester Digit

The ordinal value of the arrester digit ")" is fixed by the author as less than that of the backward arrow ($\leftarrow$), which has got the least ordinal value among the (CS) used in class numbers. The arrangement of the arrester digit ")" and the (CS) may be shown as below:

)	$\leftarrow$	$\rightarrow$	0
(Arrester digit)	(Backward arrow)	(Forward arrow)	(Zero)
'	.	:	;	,
(Inverted comma)	(Dot)	(Colon)	(semicolon)	(comma)

At present, there is no suitable example to illustrate how the ordinal value of the arrester digit is less than that of the backward arrow. We can only quote one example of two class numbers given by the author in his *Prolegomena* showing the sequence resulting from the ordinal value of the arrester digit being less than that of the dot.

T:3(U).2 Teaching of Geography in India
T:3(U.2).2 Teaching of Geography of India in India

Out of these two class numbers, the first class number has the arrester digit as the sixth digit among the eight digits used in it; and the second class number has the dot as the sixth digit among the ten digits used in it. As the ordinal value of the arrester digit

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is less than that of the backward arrow; and as the ordinal value of the backward arrow is less than that of the dot, it is evident that the ordinal value of the arrester digit is less than that of the dot. Therefore, the class number T:3(U).2 gets precedence over the class number T:3(U.2).2. That this is helpful, can be seen if we consider the subjects represented by these two class numbers. It is easily seen in the idea plane, that the first subject has greater extension than the second. Therefore it should come earlier. The notation implements this finding in the idea plane.

It is also possible for us to show that the ordinal value of the arrester digit ")" is less than that of the zero (0). Let us illustrate:

T:3(S)   Teaching of Psychology
T:3(S0bT)   Teaching of Psychology with a bias towards Education

Out of these two class numbers, the first class number has the arrester digit as the sixth digit out of the six digits used in it; and the second class number has the zero (0) as the sixth digit out of the nine digits used in it. As the ordinal value of the arrester digit s less than that of the backward arrow; and as the ordinal value of the backward arrow is less than that of the zero, it is evident that the ordinal value of the arrester digit is less than that of the zero. Therefore the class number T:3(S) standing for Teaching of Psychology gets precedence over the class numbers T:3(S0bT) standing for Teaching of Educational Psychology. According to the Principle of Decreasing Extension, 'Teaching of Psychology' should come before 'Teaching of Educational Psychology'. This finding in the idea plane is implemented in the notational plane, as a result of the ordinal value of the arrester digit being less than that of zero (0).

CC: ARROWS, ZERO AND HYPHEN

1 Backward Arrow

Books of History deal with different periods. A period has a beginning point of time and an end point of time. To represent a period, the author has introduced the device of writing first the number representing its end point, then a backward arrow ($\leftarrow$) and lastly the number representing its beginning point.

A book on the History of India, covering the period 1858 to 1947, will get the class number V2'N47 $\leftarrow$ M58. In this class number

V	= History
2	= India
'	= (CS) for [T]
N	= 20th century
N47	= 1947. This is the end-point of the period covered by the book.
$\leftarrow$	= (CS) to join end point and beginning point
M	= 19th century
M58	= 1858. This is the beginning point of the period covered by the book.

The whole class number means 'History of India, covering the period 1858 to 1947'.

Another book on the History of India covering the period 1757 to 1947 will get the class number V2'N47 $\leftarrow$ L57.

This method helps us to arrange books having the same end-points but different beginning points for their respective periods. Books on the History of India having 1947 as the end point and different beginning points will be arranged as shown below:

V2'N47$\leftarrow$ J	History of India from 1500 to 1947
V2'N47$\leftarrow$ K	History of India from 1600 to 1947
V2'N47$\leftarrow$ L	History of India from 1700 to 1947
V2'N47$\leftarrow$ M	History of India from 1800 to 1947

The above arrangement follows the Canon of Decreasing Extension.

2 Forward Arrow (⟶)

Books like those of the 'Today and tomorrow series' which take a peep into the future, have their time-focus in the future. The [T] of their class numbers also should have a corresponding focus indicating the future period. This number is got by writing down the number for the present point of time and adding the forward arrow (⟶) thereafter. For example, a book on the 'Future of science' will get the class number A.1'N- ⟶

In this class number:

A	=	Natural sciences
.	=	(CS) for [S]
1	=	World
	=	(CS) for [T]
N	=	20th century
⟶	=	A symbol indicating that the book takes a peep into the future development of science, from the 20th century onwards

3 Zero (0) in Class Numbers

The (CS) zero (0) is used for (PR) as shown below:

U0*b*S   Geography with a bias towards Psychology

This is an instance of Bias Phase Relation. (For Bias (PR), read section L4612)

4 (CS) for Facets

The digits:

Inverted comma (');	Semicolon (;);
Dot (.);	and comma (,)
Colon (:);	

are used as (CS) for [T], [S], [E], [M], and [P] respectively.

5 Hyphen (-)

The (CS) hyphen (-) is used for (SID). Example:

      Y15-31   Rural woman (For (SID), read section R27)

CC: OTHER SPECIALITIES

1 Advantages of Synthesising

The different class numbers that we have illustrated so far, have been constructed on the basis of the principle of synthesising the isolate numbers in the standard schedules and rules for constructing them given in CC. One natural result of this method of giving certain standard schedules rather than ready-made class numbers for topics is the extraordinary mnemonic quality that the Scheme has acquired. It has been felt in the libraries using this Scheme that after a little experience, the need for looking into the schedule becomes increasingly small and this is so even for specialised monographs requiring a long drawn out class number. In the first part of the book the author has given a set of rules for constructing class number with the aid of the unit schedules. The spirit of standardisation has greatly simplified the rules themselves. Another feature of this Scheme is the very great minuteness of classification in most of the subjects. Even extremely specialised monographs get individualised in the Scheme. It is a matter of experience that such a detailed classification is quite necessary if all the resources of a library on every topic, however great its intension, are to be disclosed with the least expenditure of time.

2 Devices Used

In addition, this Scheme is much more hospitable than any other, owing chiefly to the devices invented by the author of this Scheme. They are very often used for the subdivision of many classes. These devices as described in Ed 7 of the Scheme are:

1	Chronological device;	5	Alphabetical device;
2	Geographical device;	6	Super-imposition device; and
3	Subject device;	7	Sector device
4	Mnemonic device;		

3 Kinds of Classes

31 BASIC CLASS

A (MC) or a Canonical class is said to be a Basic class. The classes, A Natural sciences and B Mathematics are basic classes.

32 CANONICAL CLASSES

A traditional sub-class of a (MC) is said to be a Canonical class. Some of the (MC), viz

B	Matematics	M	Useful Arts
C	Physics	N	Fine Arts
H	Geology	R	Philosophy

are divided in the first instance into Canonical classes. For example in the (MC) Mathematics, the following are canonicol classes.

B1	Arithmetic	B4	Other methods	B7	Mechanics
B2	Algebra	B5	Trigonometry	B8	Physico-mathematics
B3	Analysis	B6	Geometry	B9	Astronomy

33 COMPOUND CLASS

A subject made of a (BC) and one or more (I) is said to be a Compound class. The subject Ophthalmology is made of the (BC) Medicine and the (I) Eye, and hence it is said to be a (CdC). Its class number is written thus: L185. In this class number

L　　= Medicine
185　= (IN) in the Organ Facet. It means Eye

34 COMPLEX CLASS

The class formed by a subject of two or more phases is called a complex class. A subject is two-phased if it brings into relation two (BC) or two (CdC) or a (BC) and a (CdC). 'Relation between Political Science and Economics' is a (CxC), because it brings into relation two (BC), viz Political Science and Economics. The class number of this subject is written thus: W0aX.

4 Principle of Increasing Concreteness

The (BC), Canonical classes, (CdC) and (CxC) are arranged on the basis of the Principle of Increasing Concreteness.

41 ENUNCIATION

The Principle of Increasing Concreteness is enunciated thus:

"If two classes are such that one can be said to be more abstract and less concrete than the other, the former should precede the latter." Examples:

Mathematics precedes Physics because it is more abstract and less concrete than Physics. Therefore, the class number for Mathematics—B—is an ordinal number prior to C, the ordinal number for Physics.

Physics precedes Engineering because it is a Pure science and hence more abstract and less concrete than Engineering, which applies Physics. Therefore, D is fixed to represent Engineering.

General Physiology precedes Animal Physiology; Animal Physiology in general precedes Vertebrate Physiology; Vertebrate Physiology in general precedes Bird Physiology. The class numbers representing these respective subjects implement the Principle of Increasing Concreteness as shown below:

G:3	General physiology	K9:3	Vertebrate physiology
K:3	Animal physiology	K96:3	Bird physiology

General Psychology should precede Psychology of child as the latter is more concrete than the former. The class numbers representing these classes implement the Principle of Increasing Concreteness.

S	General psychology
S1	Psychology of child

Education in general is less concrete than a descriptive account of Education in a particular country at a particular time. The class numbers for these classes implement the Principle of Increasing Concreteness.

T	Education in general
T.2	Descriptive account of Education in India
T.2'N6	Descriptive account of Education in India in 1960's

Price theory is less concrete than price of a particular commodity. The class numbers for these subjects implement the Principle of Increasing Concreteness.

X: 76   Price theory
X8(J): 76   Price of agricultural commodities

An implication of this is that any methodology precedes its application, such as 'Price of a particular service' or 'Price of a particular commodity'.

Another implication is that theoretical account of a subject precedes local description of it, thus—Theoretical account of Education precedes its local description.

This Principle is followed by this Scheme more or less consistently both in the sequence of its (MC) and in the sequence of the sub-classes of a (BC).

5 Conclusion

From all this, we see how the author has secured helpful sequence among the basic, compound and complex classes and among the classes accommodated in the schedules of (MC). Further, the notation being completely decimal, its elasticity is quite adequate to gain hospitality in the schedules. The length of notation is proportionate to the intension of the subject represented by it. Thus, the class number of a common text-book will be very short. A text-book of Physics, will get 'C' as its class number.

Topics on Indology have been worked out in far greater detail than in other schemes. Books on Indology are numerous, not only in Indian libraries, but also in many foreign libraries. The Indological schedule will also be of use in classifying oriental manuscript libraries. An important respect in which CC differs from other schemes is its ideal to individualise every topic. This ideal it achieves with a relatively short notation.

CC: FIVE FUNDAMENTAL CATEGORIES

1 Facets in a Class Number

Dr Ranganathan has introduced the idea of Five Fundamental Categories, viz Personality, Matter, Energy, Space and Time, in connection with the facets in a subject as are shown in CC. Regarding these Categories, the author observes thus: "An examination of the facets of different subjects shows that they can all be related to one or other of Five Fundamental Categories: Time, Space, Energy, Matter and Personality. Any analysis ultimately strikes root in them. A student of advanced classification will, therefore, be helped, if he becomes familiar with their existence in the background and gets his ideas clarified in regard to them."[36]

2 Dimensions of a Subject

The facets of a subject are said to be manifestations of these five (FC). In other words, they are said to indicate five kinds of dimensions of a subject. Regarding the dimensions of a subject, the author observes thus: "'Dimension' is an undefined term as applied to the universe of knowledge. We are yet to get a sufficiently objective method of distinguishing one dimension from another. At present we can only illustrate". [37]

Let us illustrate different dimensions of a subject under Zoology.

21 DIMENSION OF NATURAL GROUP OF ANIMALS

The successive subdivisions of Zoology in the dimension of natural group of animals are illustrated below:

K1   Invertebrata (Animals having no backbone)
K8   Arthropoda (The invertebrate animals that have articulated legs)
K86   Insecta
K867   Lepidoptera (The family of insects comprising the butterflies and moths)
K8675   Heterocera (The family of insects having the upper part of the tail longer than the lower)

These are animal kingdoms of increasing intension got by the use of successive additional characteristics. Each characteristic has landed us only on animal kingdom. We call this the dimension of 'Natural group of animals'. The chain described above lies in this dimension.

3 Variety of Subjects

A subject may be wholly in any one dimension of Zoology. It may also lie in any two dimensions; or it may lie also in more than two dimensions. Let us illustrate.

31 SUBJECTS OF ONE DIMENSION

K8	Zoology of Arthropoda
K86	Zoology of Insecta
K867	Zoology of Lepidoptera

32 SUBJECTS OF TWO DIMENSIONS

K8:2	Anatomy of Arthropoda
K8:3	Physiology of Arthropoda
K8:4	Diseases of Arthropoda
K8:5	Ecology of Arthropoda

4 Pressure of Notational System

The notational system should provide class numbers for subjects whose chains lie in one or more dimensions. The class numbers should be capable of throwing subjects, whose chains lie in dimensions of many kinds, in the preferred, helpful, filiatory sequence. But we do not now know all the links likely to appear in each chain. Further, in each dimension, the number of chains is many. For, from each link in each chain any number of new chains may branch off. This number also is not fully known. Thus, the challenge of the multi-dimensional universe of knowledge is immense. The notational system has to bear a tremendous pressure. To do so, it must be endowed with capacity to grow from everywhere. It should be like a tree with an infinity of outgrowths of leaves and flowers scattering over all its branches and stems. It should be like a banyan tree and not like a palmyra tree. A banyan tree is an Indian tree of the fig genus, remarkable for its branches sending down shoots which take root and enlarge into trunks. Palmyra tree is a tropical branchless tree with a single trunk.

41 INFINITELY HOSPITABLE NOTATION

By this comparison of banyan and palmyra trees, we mean to say that the notation should be infinitely hospitable for expansion on all sides, just as the banyan tree is infinitely hospitable in sending down shoots which take root and enlarge into trunks. There should be no rigidity anywhere in its structure. Suitable devices should be provided to remove every possible rigidity at every point in the structure of a class number.

5 Facets and (CS)

The facets formed by the application of different trains of characteristics are given the names of the individual categories to which they belong. With a view to separate out these facets in a class number, the author has assigned different (CS) to them. The names of these facets and the (CS) used to distinguish them in a class number are as indicated below:

51 PERSONALITY FACET

The facet belonging to the Personality Category is named Personality facet. Its (CS) is comma (,).

52 MATTER FACET

The facet belonging to the Matter Category is named Matter Facet. The (CS) assigned to it is semi-colon (;).

53 ENERGY FACET

The facet belonging to the Energy Category is named Energy Facet. The (CS) assigned to it is colon (:).

54 SPACE FACET

The facet belonging to the Space Category is named Space Facet or Geographical Division Facet. The (CS) assigned to it is dot (.)

55 TIME FACET

The facet belonging to the Time Category is named Time Facet. The (CS) assigned to it is inverted comma (').

Regarding these (CS) the author has enunciated a Postulate which reads as below:

56 POSTULATE OF CONNECTING SYMBOLS

"In CC, the connecting symbols to be inserted in front of the various kinds of facets are as given in sections G051 to G055".

57 ASCENDING SEQUENCE OF (CS)

The ascending sequence of the absolute values of these (CS) is fixed as below:

.	.	:	;	,
(Inverted comma)	(Dot)	(Colon)	(Semi-Colon)	(Comma)

This sequence of the (CS) assigned to the (FC) is determined on the basis of the Principle of Inversion. This is enunciated in the next section.

6 Principle of Inversion

"In an analytico-synthetic classification, the implementation of the Principle of Increasing Concreteness requires that facets in the facet formula of a basic class should be in the decreasing sequence of concreteness."

For example, in Library Science, the facet of the 'Type of Libraries' is a facet of more concrete concepts than those of the material facet. Then comes the 'Operation facet', or Problem facet, which is less concrete than the material facet. The space and time facets are last in the sequence of the facets in the facet formula as space and time are the least concrete and most abstract concepts. This is how the Five (FC) feature in any facet formula in the sequence, Personality, Matter, Energy, Space and Time; and this formula is known by its abbreviated form PMEST.

If the scheme has rounds of facets, the facets in each round should be in the decreasing sequence of concreteness.

In this connection, the author has enunciated two Postulates. These are given in sections G0561 and G0S611.

61 Postulate of Concreteness

"The five fundamental categories fall into the following sequence,

when arranged according to their decreasing concreteness: P, M, E, S, T."

611 POSTULATE OF SEQUENCE

"The basic facet of the subject should be put first; and the other facets should be arranged thereafter in the sequence of the decreasing concreteness of the fundamental categories of which they are respectively taken to be manifestations, provided there is not more than one basic facet and not more than one manifestation of any fundamental category."

62 ARRANGEMENT OF SUBJECTS

The Principle of Inversion and these two Postulates make it possible to arrange subjects according to their increasing concreteness. This is mainly due to the assignment of absolute values to the (CS) of the respective facets of the five (FC), in such a way that the least absolute value is given to the inverted comma (') of [T] . . . the greatest absolute value is given to comma (,) of [P].

The fact that, the least concrete facet [T] gets arranged first and the most concrete facet [P] gets arranged last is not easily seen from the layout of the printed schedules. But it is implicit in the ascending sequence of absolute values given to the respective (CS). This feature may be illustrated as below. Examples:

FACETS IN LIBRARY SCIENCE

CC	Subject	Isolate Facet
2'N	Libraries in the 20th century	Time
2.2	Libraries in India	Space
2:55	Cataloguing in libraries	Energy
2;46	Periodicals in libraries	Matter
234	University Libraries	Personality
234;46:55.2'N	Cataloguing of periodicals in the University Libraries in India in the 20th century	All facets

FACETS IN AGRICULTURE

CC	Subject	DC		
J	Agriculture	630		
J.2'N6	Agriculture (BC) in India [S] brought upto the 1960's [T]	630.954		
J:2	Manuring [E] in Agriculture (BC)	631.8		
J:2.2'N6	Manuring [E] in Agriculture (BC) in India [S] brought upto the 1960's [T]	631.80954		
J3	Agriculture (BC) of Food Crops [P]	633		
J3.2'N6	Agriculture (BC) of Food Crops [P] in India [S] brought upto the 1960's [T]	633.0954		
J3:2	Manuring [E] for Food Crops [P] in Agriculture (BC)	[P] 633	[E] 631.8	
J3:2.2'N6	Manuring [E] for Food Crops [P] in Agriculture (BC) in India [S] brought upto the 1960's [T]	[P] 633	[E] 631.8	[S] 0954
J38	Agriculture (BC) of Cereals [P]	[P] 633.1		
J38.2'N6	Agriculture (BC) of Cereals [P] in India [S] brought upto the 1960's [T]	[P] 633.1	[S] 0954	
J38:2	Manuring [E] for Cereals [P] in Agriculture (BC)	[P] 633.1	[E] 631.8	
J38:2.2'N6	Manuring [E] for Cereals [P] in Agriculture (BC)i n India [S] brought upto the 1960's [T]	[P] 633.1	[E] 631.8	[S] 0954
J3£1	Agriculture (BC) of Rice [P]	[P] 633.18		

CC	Subject		DC	
J381.2'N6	Agriculture (BC) of Rice [P] in India [S] brought upto the 1960's [T]	[P] 633.18	[S] 0954	
J381:2	Manuring [E] for Rice [P] in Agriculture (BC)	[P] 633.81	[E] 631.8	
J381:2.2'N6	Manuring [E] for Rice [P] in Agriculture (BC) in India [S] brought upto the 1960's [T]	[P] 633.28	[E] 631.8	[S] 0954
J381:2.252'N6	Manuring [E] for Rice [P] in Agriculture (BC) in Uttar Pradesh [S] brought upto the 1960's	[P] 633.18	[E] 631.8	[S] 095425
J381:2.25213'N6	Manuring [E] for Rice [P] in Agriculture (BC) in Benares District [S] brought upto the 1960's [T]	[P] 633.18	[E] 631.8	[S] 095425

In these class numbers, we see that the (CS) comma (,) which represents [P] is not inserted before the [P] which immediately follows the (BC). The Postulate regarding this convention is given in section G0563 below:

63 POSTULATE FOR OMISSION OF (CS)

"In Colon Classification, the connecting symbol need not be inserted before [P] if it immediately follows (BC)."

64 PALMER AND WELLS ON (CS)

Palmer and Wells have illustrated well the appropriateness of fixing the ascending sequence of absolute value of the (CS) assigned to the Five (FC). They observe in the *Fundamentals* thus: "In order to arrange our subjects in increasing order of concreteness, we must apply characteristics in the reverse order. A moment's thought shows us that this must be so. When we perform the act of applying a characteristic, we really ask the question 'is the facet

related to this characteristic specified in the subject or not?' The answer must obviously be yes or no.

"Let us consider some further examples in 'Aeronautical Engineering' and proceed to ask the question of each specific subject. We shall indicate the characteristics and hence the facets relating to them, by the initial letters P.M.E.S.T. We shall indicate 'yes' with the cross sign (X) and 'no' with the zero sign (0)."

Specific subject	Is facet specified P M E S T
Aeronautical engineering. General (BC)	0 0 0 0 0
Aeronautical engineering. General (BC) 1930-1939 [T]	0 0 0 0 X
Aeronautical engineering (BC) in Britain [S] in 1930-1939 [T]	0 0 0 X X
Aeronautical (BC) Design [E] in Britain [S] in 1950 [T]	0 0 X X X
Design [E] of Aluminium [M] Aircraft (BC) in Britain [S] in 1950 [T]	0 X X X X
Designing [E] Aluminium [M] Tailplane [P] in Britain [S] in 1950 [T]	X X X X X

In these examples Aeronautical engineering is considered as a basic class, though it is an (I) in [P] of Engineering. This is by the way. The CC and the DC class numbers for these specific subjects may be illustrated as below:

CC	Subject	DC
D53	Aeronautical engineering. General	629.13
D53'N4	Aeronautical engineering, 1930-1939	629.13
D53.3'N4	Aeronautical engineering in Great Britain in 1930-1939	629.130942
D53:4.3'N5	Aeronautical design in Britain in 1950	629.1340942
D53;e131:4.3'N5	Design of Aluminium Aircraft in Britain in 1950	629.1340942
D53,T;e131:4.3'N5	Designing aluminium Tailplanes in Britain in 1950	629.1340942

In CC class numbers, the comma (,) really indicates [P2]. The [P] is the Work Facet to which the (IN) 53 standing for Aeronautical

Engineering belongs. The (P2) may be called the facet of the different types of Air Vehicles.

From these illustrations it is clear as stated by Palmer and Wells that though "we have actually applied the characteristics beginning with the most concrete and ending with the least concrete, yet the tabulation shows that the items listed fall into an order which begins with the least and ends with the most concrete. This happens because we arrange a series of digits or entries on the twin principles (i e, principles of identical pairs) of *nothing precedes something* and *the lesser precedes the greater*. Dr Ranganathan refers to this effect of reversal as the principle of inversion".
[38]

7 Palmer and Wells on (FC)

Palmer and Wells observe about the Five (FC) thus: "When we consider each book separately, we are inclined to be overwhelmed by the multitude of qualities which go to make up the individual book. We saw very soon that books can be divided according to colour, size or author, but that these modes of division must be rejected in favour of subject. Subjects, too, offer a choice of qualities which we can use as characteristics for division; but fortunately for the classifier, very few of these qualities need be taken into account because they are not incisive enough and would produce groupings unrelated to the way, workers in the field, approach their subject. Ranganathan has devoted considerable time to the examination of the major universal schemes of classification with the object of discovering the principles, implicit as well as explicit, upon which they have been based. He finds that all characteristics chosen (mostly quite intuitively) as the basis of division are related to those qualities which are the practical manifestations of five fundamental concepts. These are Time, Space, Energy, Matter and Personality. The first four of these are concepts basic to science, while the fifth is that quality which inheres in wholeness. Personality is that quality which underlies the infinite variety of things. Just as there are infinite varieties of colours but only four primaries, so there are infinite varieties of subjects, but only five fundamental concepts. The recognition of this enables a classifier to take the infinitely variable quality (i e, Personality) outside the bracket as it were

and to manipulate the remaining constants with great ease". [39]

8 Method of Residues

For recognising the (FC) Personality, Dr Ranganathan has recommended the employment of the Method of Residues. This method is explained by him in his *Elements* thus: "Perhaps the category Time gives least difficulty, being self-evident. The category Space usually manifests itself as a Geographical Area; and it should not be difficult to spot this facet in any subject presenting it. The category Energy requires a little more circumspection. Generally speaking, it can be recognised if we remember that it connotes action of one kind or another; we also consider that it comprehends structure (morphology), function (physiology), malfunction or disease, environmental action or ecology, phylogeny, ontogeny and some other similar ideas. Generally speaking, the category Matter manifests itself as Material or any equivalent of it; this category should not be difficult to recognise in any subject; moreover, the matter facet does not occur in many of the subjects embodied in general books. The category Personality is, however, a rather difficult concept. It is often only recognisable by elimination. After separating out the manifestations of Time, Space, Energy and Matter in a subject, the residue will often turn out to be Personality. For, the residual facet must be a manifestation of one of the five fundamental categories, and by assumption the manifestation of all the other four fundamental categories have been separated out before reaching the residue. This may be called the Method of Residues". [40]

81 Most Important Categories

Out of these categories, Personality, Matter and Energy are most important. The Space and Time categories occur in class numbers only when a specific subject involves an area and a period of time.

82 First Divisions of a Subject

The first divisions of a subject are derived on the basis of such characteristics as are inherent in them; and hence for the sake of helping memory and getting uniformity in the use of terminology, the author has named such facets as Personality Facets, as these facets

indicate the personality of the subject concerned in an analogical way.

83 FIRST FACET OF A SUBJECT

The first facet of a subject gets the name of the characteristic used to derive its subdivisions. In the case of Library Science, the first facet is derived on the basis of 'Type of Library Characteristic', and hence, it is called 'Library Facet'. So also, different (MC) and subclasses derive their first subdivisions on the basis of different types of relevant characteristics. The facets derived on the basis of these characteristics are called Personality Facets.

84 FACETS IN CLASS NUMBERS

How the different facets which are the manifestations of the five (FC) appear in class numbers is well illustrated by examples.

841 LIBRARY SCIENCE

234;46:6.1'N5 Circulation of periodical publications in the University Libraries in India during 1950's.

In this class number:

2	=	Library Science
34	=	(IN) in [P] or Library Facet. It means University Library
;	=	(CS) for [M]
46	=	(IN) in [M] or Material Facet. It means Periodicals
:	=	(CS) for [E]
6	=	(IN) in [E] or Problem Facet. It means Circulation
.	=	(CS) for [S]
2	=	(IN) in [S] or Space Facet. It means India
'	=	(CS) for [T]
N5	=	(IN) in [T] or Time Facet. It means 1950's

And hence, the whole class number means 'Circulation of Periodical Publications in the University Libraries in India in 1950's.

842 ECONOMICS

Let us take another example for illustration.
X61;2:74.1'N5 Fluctuation of the value of silver currencies in the world brought upto 1950's.

In this class number

X	=	Economics
61	=	(IN) in [P] or Business Facet. It means Money

;   = (CS) for [M]
2   = (IN) in [M] or Material Facet. It means Silver
:   = (CS) for [E]
74 = (IN) in [E] or Problem Facet. It means Business Cycle
.   = (CS) for [S]
1   = (IN) in [S] or Space Facet. It means World
'   = (CS) for [T]
N5 = (IN) in [T] or Time Facet. It means 1950's

Hence, the whole class number means 'Fluctuation of the value of Silver Currencies in the world brought upto 1950's'.

91 POSTULATES FOR FACET ANALYSIS AND FIVE (FC)

Regarding these five (FC), the author has enunciated certain Postulates.

911 WHAT ARE POSTULATES?

Postulates are assumptions used as the basis for the development of any system of thought or the framing and the working of any system of technique. Regarding a Postulate, the author observes thus in his *Elements*, ed 3, 1962: "A postulate is a statement about which we cannot use either of the epithets 'right' or 'wrong'. We can only speak of a set of postulates as 'helpful' or 'unhelpful'. The set of postulates given here have been found to be helpful in classifying documents. I had always felt that classification has been made either a difficult subject or a superficial one, playing hit or miss. But the subject has been made both interesting and easy by the postulational approach. In fact I call practical classification based on postulates as 'classification without tears'".[41]

912 WHY THESE POSTULATES ARE CHOSEN

The author has not taken the postulates from any metaphysical system. They are chosen because

1 They secure a more or less helpful sequence among the known classes of knowledge;

2 They are of use in finding a more or less helpful place for a newly emerging class among the already existing ones with little disturbance to their own established sequence; and

3 They make the scheme more or less self-perpetuating and thus increase its expectation of life.

It would enable us to understand the line of thought or argument of the author, if we develop our familiarity with these postulates and see by means of some suitable illustrations how these categories manifest themselves in classification.

921 POSTULATE OF FUNDAMENTAL CATEGORIES

"There are five and only five fundamental categories, viz, Personality, Matter, Energy, Space and Time."

9211 Postulate of Basic Facet

"Each subject has a basic facet".

9212 Postulate of Isolate Facet

"A subject may have one or more isolate facets, each of which can be deemed to be a manifestation of one and only one of the Five Fundamental Categories."

9213 Consolidated Postulate about Subject

"A subject consists either of a basic class or of a basic class and one or more manifestations of one or more of the Five Fundamental Categories."

We may call a facet, a general manifestation and a focus in it, a particular manifestation of the basic class or of the fundamental categories concerned. For example, in the specific subject "Diseases of the respiratory system", the focus in the basic facet is 'Medicine'. 'Respiratory system' is a focus in the 'Organ' facet of Medicine. The organ facet of Medicine is a general manifestation of the fundamental category 'Personality'. The focus 'Respiratory system' in that facet is a particular manifestation of the (FC) Personality. The Problem facet of Medicine is a general manifestation of the (FC) Energy.

The use of these terms in the context of classificatory discipline has nothing to do with their use in Metaphysics or Physics. Their use here merely enables our employing them together in statements about dimensions, i e, facets—their separation and their sequence. Their connotation will become clear in the context of the schedules of classification and of the statements containing them.

922 POSTULATE REGARDING THE ASSIGNMENT OF A CHARACTERISTIC

"Every characteristic can be assigned to one and only one of these Fundamental Categories".

This is easy in the case of many characteristics. In some, it is difficult, but not too difficult. It is possible to accustom oneself by practice to distinguish them. There are some far too elusive characteristics. These need further study.

923 ELUSIVE CHARACTERISTICS

The community characteristic which is the inherent characteristic of History and Law may be quoted as an example of an elusive characteristic. The elusiveness of this characteristic is seen in the fact that it derives its (I) from the schedule of the geographical divisions which are indicative of the category Space or Area while the term 'Community' is indicative of the category Personality.

The device of using the (IN) of the schedule of the geographical divisions is adopted, because the respective geographical divisions represent the communities of these areas. In this case, Space is said to impersonate as Personality. This means that apparent geographical (IN) are treated as Personality (IN). This is how we have to develop our familiarity with the elusiveness of certain characteristics.

Let us illustrate the use of the Community characteristic in History by means of some class numbers as below:

V1 History of the World	V5 History of Europe
V2 History of India	V6 History of Africa
V4 History of Asia	V7 History of Americas

In these class numbers, the digits 1, 2, 4, 5, 6, 7 indicate the communities of the respective geographical areas and hence they are used to obtain the (IN) in the [P] of the (MC) History.

Similarly, the laws of different geographical areas get their class numbers as shown below:

Z1 International Law	Z5 European Law
Z2 Indian Law	Z6 African Law
Z4 Asian Law	Z7 American Law

Chapter G1

CC: FUNDAMENTAL CATEGORY PERSONALITY

1 Levels of Personality

The author has enunciated a postulate regarding the levels of Personality. It reads as below:

11 POSTULATE OF LEVELS OF [P]

"Whole, Part, Portion, Organ and Constituent are indicative of the Levels of the Category Personality."

These concepts help us to recognise the existence of the (FC) Personality and its levels in various entities which form the subject of classification.

12 ENTITY

An entity is a term used to indicate any existent—concrete or conceptual, i e, a thing or an idea. For example—a boy is an entity, a book is an entity, a school of philosophy is an entity, every individual sitting in a class room is an entity.

2 Whole, Part, Portion, Organ and Constituent

The concepts assumed by this postulate are whole, part, portion, organ and constituent. Some explanation of their meaning is given below:

21 WHOLE

Whole is considered as a typical individual amongst a group of individuals classified. In relation to a group of cycles, each cycle is a whole.

22 PART

Part is considered in relation to a typical individual belonging to a group of individuals classified. It is either a portion or an organ or a constituent of the whole.

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23 PORTION

Portion is a part differing from the whole only in regard to the attribute of quantity. In relation to a certain quantity of milk contained in a vessel, the milk poured from it into a cup is a portion.

24 ORGAN

Organ is a functional part. The different organs of a whole have usually different functions. They have also usually different structures. One organ differs from another in regard to the attributes of structure and function. An organ is distinguishable and in some cases separable from the whole. But its function ceases rapidly after separation from the whole or when considered by itself, i e, independently of the whole. In relation to a typical cycle belonging to a group of cycles the wheel is an organ. For, it is a functional part with its own distinctive structure and function.

25 CONSTITUENT

Constituent is a part with its own individuality and capable of occurring in the whole of many different universes. In relation to the rim, iron and cobalt are constituents as the rim is made of them. In relation to milk, lacto-protein and water are constituents. In these examples, one constituent differs from another only in its chemical make up. A constituent is a substance. It is a manifestation of matter. This applies to concrete entities.

3 Separation of Concrete Solid Entities

The ideas of whole, part, portion, organ and constituent are developed by the author of CC with the object of separating systematically concrete solid entities which form levels of the (FC) Personality. Regarding this category the author observes thus: "The fundamental category personality which has to be used in a very generalised sense is unanalysable. We have to treat it gently and as a whole. It is the most concrete category. It is indescribably holistic something, i e, all comprehensive something of which the four categories, viz Energy, Matter, Space and Time, are attributes. And hence, the term Personality is used to indicate the wholeness in any subject. In these ideas, wholes are distinguishable from

parts, and part itself is distinguishable into portion, organ and constituent. Portion is a whole in little, i e, it differs from the whole from the point of view of its contents or quantity. For classificatory purposes, it is equated with whole. Constituent being capable of occurring as constituent in many entities it is taken to be a manifestation of Matter. Organ is considered as indicative of the personality facet of the level which is next to the personality facet indicating the whole entities. For example, taking the universe of cycles, tube, tire, wheel, gear-mechanism, handle, frame, seat and auxiliaries, such as, brake, bell, light, carrier, and support, are organs in relation to the whole cycles. They constitute a facet different from that of the varieties of whole cycles. The organ facet of the universe of cycles can be considered as a personality facet as it constitutes the parts of the whole cycles. But the facet consisting of steel and rubber cannot be called a personality facet as it constitutes the material forming the structure of the wheels of cycles. The facet formed by such material is, therefore, called a matter facet.

4 Postulate of Whole, Portion, etc

"When a universe is classified on the basis of a characteristic, it may yield classes containing wholes only, portions only, organs only or constituents only." Examples are given below.

421 CLASSES IN BOTANY

The (MC) Botany when classified on the basis of the characteristic, 'Natural group of plants', yields classes containing wholes only, i e, the whole plants only.

422 CLASSES IN EDUCATION AND PSYCHOLOGY

The Educand Facet of Education and the Entity Facet of Psychology represent the whole personality of the Educand and the Entity concerned.

5 Personality Category Figuring Directly

51 HUMAN PERSONALITY

The name "Educand Facet" is suggestive of human personality

Some of the isolates of this facet will make this point clear:

1 Pre-secondary child

2 Child in the elementary stage of education

3 Adult

Similarly, the name "Entity" given to [P] of Psychology denotes human beings and hence it is said that the name of the facet uses a term suggestive of human personality. Some of the isolates of this facet of Psychology will make this point clear:

1 Child

2 Adolescent

3 Post-Adolescent

52 SOCIAL PERSONALITY

The name "Group" given to [P] of Sociology is suggestive of Social Personality. Some of the isolates of this facet will make this point clear:

1	Group by Age and Sex	3	Groups by Residence
11	Children	31	Rural
12	Youths	33	Urban
15	Women	35	City
16	Men	4	Groups by Occupation
2	Family	41	Profession

53 PHYSICAL ASPECT OF PERSONALITY

The name "Organ Facet" of Medicine, is suggestive of the physical aspect of human personality. Some of the isolates of this facet will make this point clear:

1 Basic and Regional Organs

2 Digestive system

3 Circulatory system

4 Respiratory system

The name "Natural Group Facet" of Botany is suggestive of the physical aspect of the personality of plants. Similarly, the names "Natural Group Facet" of Zoology, "Crop Facet" of Agriculture and "Animal Facet" of Animal Husbandry are suggestive of the physical aspect of plants and animals.

54 SUBTLER PERSONALITY

The name "Language Facet" of Linguistics is concerned with the

subtler personality of language. So it is with the Religion Facet of the (MC) Religion.

In all these cases the foci in the facets are enumerated *ad hoc,* i e, with special distinctive names.

6 Personality Category Figuring Through Space

In History, the personality of the national group studied is individualised, not by special or *ad hoc* numbers, but by geographical numbers. It must be remembered, however, that the (FC) Space figures in the facet not to represent itself but to represent one form of the category of personality, i e, the form of a community in a particular geographical area. We may also say that personality figures in this facet indirectly through the category Space. It figures in a similar indirect way in most of the divisions of the community facet of Law.

7 Personality Category Figuring Through Time

The (FC) category Personality figures indirectly through the (FC) Time in

1 the (CI) 'w' standing for Biography, and 'x' standing for Collected Works of an individual author;

2 the posteriorising personality (CI) standing for different types of institutions;

3 the author facet in the Literature Class.

The facet formula for the Biography of a person is $w[P]$; for the Collected Works of a person is $x[P]$. In the Literature Class [P3] is the Author Facet.

In these cases, the year of birth of the person concerned or of the institution concerned is used to represent [P] and thus in such cases the (FC) Personality features indirectly through the (FC) Time.

In the case of the Biography of a person, the year of birth of the biographee concerned is to be represented by the appropriate (IN) from the schedule of the chronological divisions. The class number for the biography of Madam Curie, the well known Physicist is written thus : CwM67.   Madam Curie was born in 1867.

The class number for the collected writings of Madam Curie is written thus: CxM67.

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A literary author is individualised by writing the number representing his year of birth in the author facet of the Literature Class thus: O111,2J64. This class number represents Shakespeare as an English dramatist. In it, the number J64 meaning 1564 represents the year of birth of Shakespeare.

8 Personality Category Figuring Through Both Space and Time

The (FC) Personality needs in some cases the joint services of space and time to get individualised.

81 ANTERIORISING (CI)

In the case of an encyclopaedia, a periodical, a serial, or a conference, the (FC) Personality figures indirectly through the combined (FC) Space and Time.

Let us illustrate this by examples. The facet formula for the Anteriorising (CI) k standing for Encyclopaedia is k [P], [P2].

In this facet formula,

k = Cyclopaedia

[P]   = First level personality facet. The rule prescribes that the isolate in it should be got by Geographical Device. The geographical number to be used is that of the sphere or scope of the encyclopaedia. Generally, the scope of an encyclopaedia has a special bias towards the development of knowledge in the geographical area in which it is published. The information regarding the development of knowledge in other geographical areas is given comparatively less importance; and hence the geographical (IN) of the country in which the encyclopaedia is published is to be used to represent [P]

      = (CS) for [P2]

[P2] = Second level personality facet. The rule prescribes that the isolate in it should be got by Chronological Device. The year of origin of the encyclopaedia should be the epoch determining this isolate.

According to these rules, let us illustrate class numbers for two types of encyclopaedias. Examples:

k56,L68   Encyclopaedia Britannica (first published in Great Britain in 1768)
SZk73,N29   Encyclopaedia of Social Sciences (first published in USA in 1929)

This is how the (FC) Personality figures indirectly through combined (FC) of Space and Time in anteriorising (CI) k, m, and p.

82 STYLE AS PERSONALITY

The subtler form of personality called style in Fine Arts similarly figures indirectly in the combination through the combined (FC) of Space and Time. This may be illustrated by means of examples as below:

821 STYLE IN ARCHITECTURE

The class Architecture is one of the canonical divisions of the (MC) N Fine Arts. The facet formula for a subject in it may be

NA [P], [P2] [P3], [P4]: [E]

In this facet formula the number NA stands for Architecture. The letter A after N represents Architecture on the basis of the Device of Enumeration.

In the facet formula of this class, [P] and [P2] combinedly represent Style Facet. The number in [P], represents the geographical area or the country of the origin of the style. The number in [P2], the century of its origin.

The class number for Indian Architecture is NA44 and the different styles of Indian Architecture are individualised by the century numbers as shown below:

NA44,C   Buddhistic architecture
NA44,D   Chalukyan architecture
NA44,E   Jaina architecture

In these class numbers, the digit

C = the 1st millennium B C, i e, 999 to 1 BC
D = the 1st millennium A D, i e, 1 to 999 A D
E = the 1st century of the 1st millennium A D, i e, 1000 to 1099 A D

These digits represent the specific epochs when the Buddhistic Style, the Chalukyan Style and the Jaina Style of Architecture were developed respectively.

83 AUTHOR AND WORK IN LITERATURE

Lastly, we come to the (MC) Literature. Here the highly evolved, fully differentiated, unique personality of an author figures indirectly

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through the combined categories of personality of another kind in three facets, viz, Language, Form and Time respectively. The even subtler personality of a literary piece needs the services of all these three, and in addition, another facet called Work Facet. We get the furthest reach of concreteness here. The CC has implemented this. The facet formula for a work in (MC) Literature reads as below:

O [P], [P2] [P3], [P4]

In this facet formula

O　　= (MC) Literature
[P]　= The first level personality facet. The isolate in it, is the Language of the work
,　　= (CS) for [P2]
[P2]　= The second level personality facet. The isolate in it, is the Form of the work

No (CS) between [P2] and [P3] is required to be used as all the (IN) in the Form Facet consist of only one digit each and are not likely to be expanded further.

In connection with this feature of consecutive facets, the author has enunciated the following Postulate.

"In CC, of two consecutive facets, if all the isolate numbers n the earlier facet are known to consist of the same number of digits, the (CS) between the two facets may be omitted."

[P3]　= The third level personality facet. The isolate in it, is the author of the work
,　　= (CS) for [P4]
[P4]　= The fourth level personality facet. The isolate in it, is the work itself

Example:

O15,2D40,1 Kālidāsa: *Śākuntala*
In this class number
O　　= (MC) Literature
15　= Sanskrit Language
,　　= (CS) for [P2]
2　　= Drama
D40　= Kālidāsa (who was born in the 1st decade of the 5th century A D)
,　　= (CS) for [P4]
1　　= Śākuntala (which was the first drama of Kālidāsa)

91 CANONICAL CLASSES AND DIVISIONS

There are certain (MC) which are first divided on canonical basis. So, the first divisions of these classes are considered as canonical divisions. The canonical divisions are traditionally recognised divisions. The (MC) which are first divided on canonical basis are Mathematics, Physics, Geology, Useful Arts, Fine Arts and Philosophy.

911 FIRST DIVISIONS OF MATHEMATICS

For example, the canonical divisions of Mathematics are as given below:

B	Mathematics	B5	Trigonometry
B1	Arithmetic	B6	Geometry
B2	Algebra	B7	Mechanics
B3	Analysis	B8	Physico-Mathematics
B4	Other Methods	B9	Astronomy

912 FIRST DIVISIONS OF PHYSICS

The canonical divisions of Physics are as given below:

C	Physics	C5	Light. Radiation
C1	Fundamentals	C6	Electricity
C2	Properties of Matter	C7	Magnetism
C3	Sound	C8	Cosmic Hypothesis
C4	Heat		

Similar canonical divisions of the remaining (MC) are given in CC.

92 PERSONALITY CHARACTERISTIC DIVISIONS

The first divisions of other classes are based on some intrinsic or inherent characteristics which are termed Personality Characteristics. The names of the first characteristics treated as Personality Characteristics for the first divisions of these classes are worth mentioning:

(MC) N	Name of (MC)	Name of the first characteristic
D	Engineering	Work
E	Chemistry	Substance
F	Technology	Substance
G	Biology	Organ
H	Geology	Substance
HX	Mining	Substance
I	Botany	Natural Group
J	Agriculture	Plant
K	Zoology	Natural Group
KX	Animal Husbandry	Animal
L	Medicine	Organ
LX	Pharmacognosy	Substance
Δ	Spiritual Exp. and Myst	Religion
N	Fine Arts	Style
O	Literature	Language
P	Linguistics	Language
Q	Religion	Religion
S	Psychology	Entity
T	Education	Educand
U	Geography	Geography
V	History	Community
W	Political Science	Type of State
X	Economics	Business
Y	Sociology	Group
Z	Law	Community

921 THE TERM 'PERSONALITY' DERIVED FROM THE TERM 'HUMAN PERSONALITY'

The first characteristics of the various (MC) as seen in the above table are analogically called their personality characteristics. The term 'Personality' is derived from the term 'Human Personality'. As the inherent characteristics of man are called his personality characteristics, so analogically some of the inherent characteristics of the various (MC) as shown above are called their personality characteristics.

CC: LEVELS IN [P]

1 First Train of Characteristics

The author has enunciated the first train of characteristics thus : "A set of characteristics yielding successively only isolates, containing whole entities or a portion of the universe concerned form the first train of characteristics."

2 Whole Entities in (MC) Botany and Zoology

In the (MC) Botany and Zoology, the first train of characteristics used is the train of the natural group of plants and animals, respectively. This train is a set of characteristics yielding successively only isolates consisting of whole entities—i e, whole plants and whole animals, respectively.

20 NATURAL GROUP OF PLANTS

The successive characteristics used in the train of the natural group of plants are:

1 Phylum or Group; 3 Order; 5 Genus;
2 Class; 4 Family; 6 Species.

21 FIRST CHARACTERISTIC

The divisions obtained by the use of the first characteristic form the first order array. The first order array based on the Phylum characteristic is:

1 Cryptogamia (Flowerless plants)
2 Phanerogamia (Flowering plants)

By the addition of these (IN) to the (MC) number I which stands for Botany, we get class numbers for the subjects indicated by these (IN) as shown below:

I1 Botany of flowerless plants
I5 Botany of flowering plants

22 SECOND CHARACTERISTIC

The divisions obtained by the use of the second characteristic form the second order array. If we take the first division in the first order array which stands for Flowerless Plants and apply to it the second characteristic, viz, the class characteristic, we obtain the second order array as shown below:

2 Thallophyta

3 Bryophyta

4 Pteridophyta

221 TELESCOPED ARRAY

In the idea plane, Thallophyta, Bryophyta and Pteridophyta are subordinate divisions of the main division Cryptogamia and hence in that plane, they form second order array of the Flowerless Plants. But in the notational plane, they are given places in the first order array itself along with their immediate universe, viz, Flowerless Plants. This is an instance of Telescoped Array. If we add these (IN) to the (MC) number I, we get class numbers for the subjects indicated by them as shown below:

I2 Botany of Thallophyta

I3 Botany of Bryophyta

I4 Botany of Pteridophyta

In this way, we can show further orders of arrays in the (MC) Botany in which whole plants feature as the successive isolates as we go down in the train of Natural Group of Plants characteristic.

3 Whole Entities in (MC) Medicine

In the (MC) Medicine, the first train of characteristics used is the train of the Organ of the human body. This train is a set of characteristics, yielding successively only isolates consisting of a portion or a part of the human body.

30 ORGAN OF THE HUMAN BODY

The successive characteristics used in the train of the organ of the human body are:

1 Systems of organs;

2 Organs in respective systems of organs;

3 Sub-parts of the respective organs.

31 First Characteristic

The divisions obtained by the use of the first characteristic form the first order array. The first order array has the following isolates:

1 Basic and regional system   5 Genito-Urinary system

2 Digestive system   6 Ductless gland

3 Circulatory system   7 Nervous system

4 Respiratory system   8 Other systems

By adding these (IN) to the (MC) number L which stands for Medicine, we get the following class numbers:

L1   Medicinal study of basic and regional systems

L2   Medical study of digestive system

L3   Medical study of circulatory system

32 Second Characteristic

The divisions obtained by the use of the second characteristic form the second order array. If we take the first division in the first order array and apply to it the second characteristic, viz, the 'Part of the Body characteristic', we obtain the following second order array.

13 Lower extremity   16 Upper extremity

14 Abdomen   17 Neck

15 Thorax   18 Head

If we add these (IN) to the (MC) number L, we get the following class numbers:

L13   Medical study of lower extremity

L14   Medical study of abdomen

L15   Medical study of thorax

In this way, we can show further orders of arrays based on relevant characteristics.

4 Facets

The totality of the isolates formed on the basis of a single train of characteristics is a facet, in each of the idea plane, the verbal plane and the notational plane.

5 Three Planes

The author has recognised three planes involved in the work of knowledge classification. They are:
1 Idea Plane; 2 Verbal Plane; and 3 Notational Plane

51 IDEA PLANE

Ideas occur to us. When we concentrate on these, without thinking of their names or class numbers, we are said to work in the Idea Plane.

52 VERBAL PLANE

The next step is to give a name to the idea occurring in our mind. This naming the idea is in the Verbal Plane.

53 NOTATIONAL PLANE

The third step is to fix the place of the idea among other ideas. This act of fixing the place of an idea leads us to denote it by an ordinal number. In doing so, we are said to work in the Notational Plane.

6 Facets of the Class Number

The (IN) representing a facet conceived in the idea plane and named in the verbal plane is a facet of the class number in the notational plane. In the class number, X7292:2.231'N4 standing for 'Exemption from stamp duty in Bombay in 1940's, the (IN) 7292 is the Business Facet or [P] of the whole class number under consideration. Similarly, the (IN) 2 is [E] of the whole class number; the (IN) 231 is [S] of the whole class number; and the (IN) N4 is [T] of the whole class number.

61 FIRST LEVEL FACET

The totality of the (I) formed on the basis of the first train of characteristics is a first level facet. Each (IN) belonging to the first level facet occurs as the first level facet of a class number in the notational plane. In the class number X7292:2.231'N4, the (IN) 7292 indicating stamp duty is the first level facet of the subject "Exemption from stamp duty . . . ". It is also the first level facet of the class number in the notational plane.

62 SECOND TRAIN OF CHARACTERISTICS

In the (MC) I Botany, a characteristic yielding organs of a typical entity or plant as (I), starts the second train of characteristics.

63 SECOND LEVEL FACET

The totality of the (I) formed on the basis of the second train of characteristics is the second level facet. The (IN) belonging to the second level facet occurs as the second level facet of a class number in the notational plane.

64 LEVELS OF FACETS

In classification, a subject may have any number of levels of facets.

To illustrate this, let us take the subject:

I 8311,6:2   Anatomy of flowers of Rosaceae

The facet formula for the sub'ect reads as below :

I [P], [P2]: [E]

In the above subject, we have two levels of [P]. The (IN) 8311 represents "Rosaceae" in the first level of [P] and the (IN) 6 represents "Flowers" in the second level of Personality. This level is denoted by [P2].

7 Schedule of Second Level Personality

1 Basic and regional	14 Stem
11 Cell	15 Leaf
12 Tissue	16 Flower
13 Root	17 Fruit

The (I) under numbers 2 to 8 which are grouped as Functional Systems of Organs in the (MC) Medicine are to be used as similar (I) in this facet as far as applicable.

According to the Postulate of Whole, Portion, etc, the (I) in the first level facet consist either of whole entities or a portion, an organ or a constituent of the universe of classification concerned. In the first level personality facet of Botany, we see that the whole entities are represented by the different natural groups of plants. In such cases, (I) in the second level facet consist of Organs. This

also we see in the second level personality facet of Botany. This feature is generally seen in other classes also. It requires to be examined and recognised analogically.

71 HISTORY: CONSTITUENT ORGAN FACET

In a subject of (MC) History, the first level personality facet is the whole state of a particular area and the second level personality facet is a constituent organ of the State concerned. This feature may be illustrated as below:

The facet formula for a subject in the (MC) History may be as follows:

V[P], [P2]: [E]'[T]

In this facet formula

V = (MC) History
P = [P] or Community facet. It indicates the respective whole States of different geographical areas
   = (CS) for [P2]
P2 = [P2] or Constituent organ facet. This facet indicates the Constituent Organs of the State Facet
: = (CS) for [E]
E = [E] or Problem facet
' = (CS) for [T]
T = [T] or Chronological division facet

The divisions of [P] may be illustrated as below:

V2   History of the State of the Indian Republic
V4   History of the States in Asia
V41 History of the State of China
V5   History of the States in Europe
V56 History of the State of Great Britain

The divisions of [P2] or Constituent Organ Facet are:

1 Head	4 Party
11 Viceroy	5 Public
12 Governor	6 Committee
2 Executive	7 Judiciary
21 First Minister	8 Civil Service

If we add these divisions to [P] or State Facet, we get class numbers which represent the subjects in History, noted against them.

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V2,1	The President of India	V2,5	The Public of India
V2,2	The Executive of India	V2,6	The Committees of India
V2,21	The Prime Minister of India	V2,7	The Judiciary of India
V2,3	The Legislature of India	V2,8	The Indian Civil Service
V2,4	The Indian Political Parties		

8 Postulate of First Round of [P]

"The first round is started by the basic class". This means that the first round of [P] is started by the (BC). All the [P] which start immediately after the (BC) are first round personality facets. Examples:

The Work facet of D Engineering is the first round personality facet of Engineering. The Natural group of plants facet of Botany is the first round personality facet of Botany. The Educand facet of Education is the first round personality facet of Education.

Chapter G3

CC: FUNDAMENTAL CATEGORY MATTER

1 Grades of Concreteness

We meet with comparatively little of abstraction and a good deal of concreteness in the category Matter. We may recognise different grades of concreteness in describing matter by the terms 'Matter, Substance, and Commodity.' All the visible things in our room are made of Matter. The matterness is common to all of them; it distinguishes them from time, space and forms of energy like heat, light and electricity. In regard to matterness, all visible things are alike and undifferentiable.

2 Reading Materials in Library Science

In the (MC) Library Science, matter figures as reading materials. The facet formula for a subject in (MC) Library Science may be :

2 [P]; [M]: [E][2P]

In this facet formula

2	= (MC) Library Science	M	= Matter Facet. The isolate in it, is Reading Material
P	= Personality Facet. The isolate in it, is Kind of Library	:	= (CS) for [E]
;	= (CS) for [M]	E	= Energy Facet. The isolate in it, is the Problem studied

Examples:

2;215   Reading materials in Devanagari script in a library collection
2;44   Newspapers in a library collection
2;55   Government publications in a library collection
2;71   First editions in a library collection
2;811   Children's books in a library collection

3 Fine Arts

3D MEDIUM OF SCULPTURE

In the class ND Sculpture, matter figures as materials

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forming the medium of sculpture. The isolates in [M] are:

1 Wood	5 Bronze	8 Ivory
3 Marble	6 Other metals	9 Other materials
4 Stone	7 Terracotta	

The use of these divisions in class numbers is illustrated below:

ND;1	Wood sculpture	ND;6	Sculpture on other metals
ND;3	Marble sculpture	ND;7	Terracotta sculpture
ND;5	Bronze sculpture	ND;8	Ivory sculpture

3Q MATERIALS USED FOR PAINTING

In the class NQ Painting, matter figures as materials used for Painting. The isolates in [M] are:

1 Wood	4 Stone	7 Canvas
2 Paper	5 Metal	8 Ivory
3 Fresco	6 Glass	9 Other surfaces

The use of these divisions in class numbers are illustrated as below:

NQ;1	Painting on Wood	NQ;6	Painting on Glass
NQ;2	Painting on Paper	NQ;7	Painting on Canvas
NQ;3	Fresco Painting	NQ;8	Painting on Ivory
NQ;4	Painting on Stone	NQ;9	Painting on other surfaces
NQ;5	Painting on Metal		

3R MUSICAL INSTRUMENTS

In the class NR Music, matter figures as Musical instruments. The isolates in [M] are:

2	Wind instrument	31	Vina
21	Pipe	32	Violin
22	Flute	34	Piano
23	Organ	4	Percussion instrument
24	Clarionet	41	Drum
3	Stringed instrument	42	Kettle-drum

Examples:

NR;2	Music played on	Wind instrument
NR;21	,,	Pipe
NR;22	,,	Flute
NR;3	,,	Stringed instrument
NR;31	,,	Vina
NR;32	,,	Violin

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4 Matter Facet for Money

In Economics, there may be a [M] in a subject falling in the class X61 Money. Some possible isolates in this [M] are:

1 Gold   2 Silver   4 Paper   5 Bimetalism

Examples:

X61;1	Gold currency	X61;4	Paper currency
X61;2	Silver currency	X61;5	Bimetalism

5 Medicine

In L Medicine, [M] is required to be used sometimes. Let us illustrate the use of this facet in Medicine by means of an example:

Seasonal variation in Lipin content of the crystalline lenses, etc (a statistical study). This title may be written in the form of facets as shown below:

[Crystalline lenses]: [Variation]; [Lipin content]: '[Seasons]: [Statistical study]

(Crystalline lenses means lens-shaped transparent bodies situated in the anterior parts of the eye. Lipin is a biosubstance which is associated with soreness of the eye).

The class number for this specific subject is written thus:

$$L18522:33;(E96)'n:(B28)$$

In this class number

L	= (MC) Medicine	;	= (CS) for [M]
185	= Eye	(E96)	= Lipin got by (SD)
1852	= Parts of the eye	'	= (CS) for [T]
18522	= Crystalline lens	n	= Seasons according to the
:	= (CS) for [E] or Problem		featured time as given in
	Facet		ed 6 of CC
3	= Physiology	:	= (CS) for [E]
33	= Metabolism which means	(B28)	= Statistical study got by
	chemical change		(SD)

6 Personality *vs* Matter

In ed 3 of *Elements*, the author has given examples of the same material, manifesting itself as Personality or Matter according to subject context.

"'Steel' is only [M] in the context of the Bicycle. On the other hand, in the context of Metallurgy, 'Steel' is [P]. In Metallurgy, it is the distinguishing characters of the different substances and materials that we concentrate upon. Rubber also is, therefore, only [M] in the context of Bicycle Tyre; but it is [P] in the context of Technology of Rubber. Again in the context of the Wall of a Building, a Brick is [M]; but in the context of Brick-laying it is [P]".

CC: FUNDAMENTAL CATEGORY ENERGY

1 Problem Facet

A perusal of the [E] schedules of different [BC] in ed 7 throws some light on the nature of the various manifestations of the (FC) Energy. A facet in which Energy figures directly and to represent itself is generally called a Problem Facet. The classes in which [E] figures as a Problem Facet are illustrated in the following facet formulas:

1 Library Science   2[P]; [M]: [E] [2P]

2 Theory of Equations   B23[P]: [E]

3 Differential and Integral Equations   B33[P], [P2], [P3]:[E] [2P]

Similarly, we find Energy figuring as Problem Facet in other canonical classes of Mathematics and also in the following classes:

1 Physics	6 Botany	11 Psychology
2 Chemistry	7 Zoology	12 Education
3 Technology	8 Medicine	13 History
4 Biology	9 Linguistics	14 Political Science
5 Geology	10 Religion	15 Sociology

In Sociology, the second facet corresponding with [E] is called secondary problem facet.

2 Energy Facet with Other Names

In other classes the [E] is called by other names as shown below :

21 METHOD FACET

Method Facet in Theory of Numbers. The facet formula for the subjects in this class may be:

B13[P], [P2]: [E] [2P]

The schedule of [E] is:

1 Elementary Arithmetical method	3 Analytical method
2 Algebraic method	6 Geometrical method

If these divisions are added to the class number B13, we get class numbers as shown below:

B13:1   Theory of Numbers treated by Elementary Arithmetic Method
B13:2   Theory of Numbers treated by Algebraic Method

22 Different Other Names of [E]

In other classes, [E] gets different names. Here is an illustrative list:

1 Transformation Facet in Higher Algebra
2 Operation Facet as [2E] in Agriculture
3 Handling Facet as [2E] in Medicine
4 Action facet in Pharmacognosy

3 Rounds of [E]

Some subjects in the classes of the [MC] Agriculture, Animal Husbandry, Medicine, and Sociology and others have two or more rounds of [E].

31 Postulate of Rounds of [E]

The Postulate regarding the rounds of [E] as given in the *Prolegomena* is:

"The first manifestation of energy in a basic class gives its First Round Energy Facet. The facet of the First Round Energy Isolates of a basic class is its First Round Energy Facet. The second manifestation of energy in a subject, i e, the one depending on a First Round Energy Isolate gives its Second Round Energy Isolates. The facet of Second Round Energy Isolates of a basic class, i e, the one dependent on the First Round Energy Facet, is its Second Round Energy Facet. And so on. The concept of Round and its hierarchy is the sixth Postulate".

This Postulate is enunciated in other words in the *Elements* thus:

"Energy may manifest itself in one and the same subject more than once—that is, in more than one Round."

32 [2E] for 'Manure' in Agriculture

In J Agriculture, the Energy Isolate 'Manuring' may need to be followed by another [E] consisting of isolates such as

1 Collection   3 Application   6 Composting   8 Storing

33 [2E] FOR 'HARVESTING' IN AGRICULTURE

Again, the Energy Isolate 'Harvesting' may need to be followed
by another [E] consisting of isolates such as

1 Recovery	5 Cleaning	8 Storing
3 Stacking	6 Curing	
4 Threshing	7 Yielding	

34 [2E] FOR 'DISEASE' IN MEDICINE

The Energy Isolate 4 Disease may need to be followed by another
[E] consisting of isolates such as

1 Nursing	4 Pathology	7 Surgery
2 Etiology	5 Preventive Step	8 Diet Regulation
3 Symptom and Diagnosis	6 Treatment	91 After Care

35 [2E] FOR 'CIVILIZATION', ETC IN SOCIOLOGY

In Sociology each of the Energy Isolates
    1 Civilization   3 Activity   7 Personality   8 Equipment
may need to be followed by another [E] consisting of isolates such as
        5 Influence   66 Evolution   7 Improvement
These isolates depend upon the occurrence of the first isolate of
energy. This feature of the dependent [E] is termed 'Wall-Picture
Principle'. This Principle is enunciated as below:

4 Wall-Picture Principle

"A facet depending on another facet for its very existence should
come after that other facet". In other words, "If the prior existence
of one facet is an essential condition for the introduction of another,
then the former should precede the latter". Examples:

41 TREATMENT OF DISEASES

Suppose we have to classify a document whose title reads thus:
"Treatment of Diseases". If we analyse this title into facets, we
get it transformed into facets thus:
    [Treatment] [Disease] [Medicine]. Out of these three facets, the
facet of Medicine is the (BF) as it consists of the (MC) Medicine.

Out of the remaining two facets, the facet of Treatment is depending on the facet of Disease; so, the facet of Treatment should come after the facet of Disease, according to this Principle. Ultimately, the facets get arranged along with the necessary (CS) as shown below:

[Medicine]: [Disease]: [Treatment]

On the basis of this analysis, the class number for the specific subject 'Treatment of Diseases' is written thus: L:4:6. In this class number, we have put the facet of Treatment after the facet of Disease on which it is depending for its very existence; and hence this class number satisfied the Wall-Picture Principle.

5 Dependent Facets in Agriculture

Now let us illustrate the occurrence of dependent facets in the (MC) Agriculture. In this (MC) the Energy focus 'Manuring' needs to be followed by another [E] consisting of foci, such as

2 Collecting	6 Composting
3 Application	8 Storing

This feature may be illustrated as below:

The facet formula for Agriculture reads as below:

J[P]: [E] [2P]: [2E]

In this facet formula

J   = (MC) Agriculture
P   = [P] or Plant facet
:   = (CS) for [E]
E   = [E] or Problem facet
2P   = [2P] of a different variety in the case of each specific division in [E]
:   = (CS) for [2E]

51 [P] OF AGRICULTURE

The [P] which is shown immediately after J consists of two levels of [P]. The first level of [P] is divided into two arrays. The divisions of the first array are based on 'Utility Characteristic'.

52 UTILITY ARRAY

The schedule of the Utility Array reads as below:

1 Decoration	4 Stimulant
2 Feed	5 Oil
3 Food	6 Drug

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7 Fabric	92 Manure producing plants
8 Dye. Tan	93 Vegetable producing plants
91 Adhesive producing plants	94 Sugar producing plants

If we add these divisions to J, we get class numbers as shown below:

J1   Plants used for Decoration. This number is specially assigned to Horticulture which means the Art of Cultivating Gardens

J2   Plants used as food of Animals. The term 'Feed' means Food of Animals

J3   Plants used as Food of Mankind

53 PART ARRAY

The divisions of the second array are based on 'Part of Plants Characteristic'. The schedule of the Part Array reads as below:

1 Sap	4 Stem	7 Fruit
2 Bulb	5 Leaf	8 Seed
3 Root	6 Flower	97 Whole Plant

If these divisions are added to the class numbers got by adding the divisions of the first array, i e, utility array, we get class numbers which may be illustrated as below:

J15   Decorative plants whose leaves are used for decoration; and the general name for such plants is foliage or leafage and the same term is used in the schedule against this number

In this class number

J   = Agriculture
1   = (IN) in the utility array meaning decorative plants
5   = (IN) in the part array meaning leaf

And hence the whole class number J15 means Foliage.

The numbers constructed by the use of the utility array and part array are to be extended further by the use of the (IN) representing the botanical phylum, class, order, family, genus or species to which the plant belongs. The phylum, etc, number is to be taken from [P] of Botany. The first order array of this facet is already illustrated in sections G221 and G222. The application of these division numbers to the numbers of plants in Agriculture arrived at on the basis of utility and part characteristics, may be illustrated as follows:

We know that J15 is the class number for Decorative Plants whose leaves are used for decoration. There are different classes of these plants. One of them is Pteridophyta. So the Pteridophyta plants whose leaves are used for decoration are numbered in Agriculture thus: J154. The last digit 4 in this class number indicates the class Pteridophyta.

54 [P2] OF AGRICULTURE

If again, we want to divide this specific class number on the basis of [P2] which is the same as the one in Botany we can do so. The [P2] in Botany is named as Organ Facet. The divisions of this facet read as below:

1 Basic and Regional	2 Digestive system
11 Cell	3 Circulatory system
12 Tissue	4 Respiratory system
13 Root	5 Genito-Urinary system
14 Stem	6 Ductless gland
15 Leaf	7 Nervous system
16 Flower	8 Other systems
17 Fruit	

Divisions 2 to 8 in this schedule are functional systems of the organ facet. They are similar to those of animals and human beings, and are uniformly and mnemonically used in Botany, Agriculture, Zoology, Animal Husbandry and Medicine, wherever they are applicable.

Now let us illustrate the application of one of these divisions to the class number J154 standing for Cultivation of Pteridophyta. J154.15 Consideration of leaves of Pteridophyta from Horticultural point of view. In this class number the digits 15 represent leaves from the organ facet. This [P2] added to [P] is based on the Whole-Organ Principle, which is one of the Principles enunciated for deciding sequence of facets. This Principle is enunciated as below:

6 Whole-Organ Principle

"Within a round the organ should be at a later level than the whole." In other words, "If one facet represents the whole of an entity and the second represents organ, the former should precede the latter."

In this way, all the numbers of [P] and [P2] of Agriculture are to be constructed.

7 Energy Facet of Agriculture

The schedule of [E] reads as below:

1 Soil	5 Development	92 Morphology
2 Manure	6 Breeding	93 Physiology
3 Propagation	7 Harvesting	95 Ecology
4 Disease	91 Nomenclature, etc	

These divisions are applicable to the (MC) Agriculture in general as well as to any of the specific divisions of plants in [P]. If they are directly added to the (MC) Agriculture, the class numbers will be written as shown below:

J:1	Soil problem in Agriculture	J:3	Propagation problem in Agri-
J:2	Manure problem in Agriculture		culture

71 [2E] FOR MANURE

Out of these different foci in [E], 'Manure' requires another [E] consisting of foci, such as

2 Collecting 3 Application 6 Composting 8 Storing

Such a schedule for 'Manure' is duly provided by the Scheme. If these divisions are added to the class number J:2, we get class numbers as shown below:

J:2:2	Collecting of manure	J:2:8	Storing of manure
J:2:3	Application of manure		

In these class numbers, we see that the facet depending for its very existence on the facet of Manure comes after the facet of Manure. And hence these class numbers satisfy the Postulate regarding Rounds of [E] and the Wall-Picture Principle regarding the dependent facets.

8 Wall-Picture Principle and Whole-Organ Principle

Now let us see how these two Principles are enunciated and illustrated in the *Elements*, ed 3.

81 WALL-PICTURE PRINCIPLE

"If two facets A and B of a subject are such that the concept behind

B will not be operative unless the concept behind A is conceded, even as a mural picture is not possible unless the wall exists to draw upon, then the facet A should precede the facet B." Illustration:

This is best illustrated by examining the sequence between two manifestations of the fundamental category Energy. For example, let the manifestations be "Disease" and "Cure". The concept of "Cure" leans for its very existence on the concept of "Disease". So also let the manifestations be "Disease" and "Prevention". Here also the concept of "Prevention" leans for its very existence on the concept of "Disease". This is true of each of the manifestations enumerated in succession as isolates in the schedule for Handling Facet in relation to "Disease" in the schedules for the (BC) Medicine in CC. Therefore, assuming that "Disease" belongs to the first round, the Wall-Picture Principle fixes the sequence of these two isolates as

Medicine (BC) Disease [E] Cure [2E]

Other examples given in the *Elements*.

811 ENERGY—ENERGY SEQUENCE

The Wall-Picture Principle is usually helpful in determining the sequence of the energy facets in a subject. This sequence should first be determined. Once it is done, the first energy isolate ends the First Round; and therefore, it is itself [E]. The second energy ends the Second Round; and therefore it is itself [2E]. And so on. We can also say that the First Round starts after the (BC); the Second Round starts after [E]; the third round starts after [2E]; and so on.

8111 Personality-Energy Sequence

Example 1: The Wall-Picture Principle will be of use in determining the sequence between a [P] and an [E]. For example "Function" is energy facet. It is capable of being taken with the (BC) History. "President" is [P2] capable of being taken with the same (BC). In History [P] is Community Facet. The concept of "Function" cannot become operative unless the concept of "President" is conceded. Therefore, the Wall-Picture Principle fixes the sequence of these two facets as:

History (BC) Community [P] President [P2] Function [E]

Example 2: Similarly, "Morphology" is energy facet capable of being taken with the (BC) Medicine. "Heart" is personality facet capable of being taken with the same (BC). The concept "Morphology" cannot become operative unless the concept "Heart" is conceded. Therefore, the Wall-Picture Principle fixes the sequence of these two facets as:

Medicine (BC) Heart [P] Morphology [E]

Example 3: So also, "Teaching technique" is an energy capable of being taken with the (BC) Education. "Secondary (educand)" is a personality facet capable of being taken with the same (BC). The concept "Teaching technique" cannot become operative unless the concept "Secondary (educand)" is conceded. Therefore, the Wall-Picture Principle fixes the sequence of these two facets as:

Education (BC) Secondary (Educand) [P] Teaching technique [E]

82 WHOLE-ORGAN PRINCIPLE

"If, in a subject, facet "B" is an organ—that is an organic part—of facet "A", then A should precede B".

This Principle may be looked upon as a particular version of the Wall-Picture Principle.

821 PERSONALITY ISOLATES IN THE SAME ROUND

The Whole-Organ Principle is of use in determining the sequence of two personality isolates falling in the same round. For example, let the subject be "President of India". Here "India" stands for the "State of India"; and it is a [P]. "President" is also a [P]; and he is an organ of the State, according to the Constitution of India. We have already seen in section G48111 that they both lie in the same round. Therefore, the Whole-Organ Principle arranges the sequence of these two isolates as:

History (BC) India [P] President [P2]

In other words "India" is a personality isolate of level 1; and "President" is a personality isolate of level 2.

91 SEPARATION OF ENERGY AND PERSONALITY CATEGORY

During the time of the earlier editions of CC, the separation of

characteristics according to the (FC) manifesting themselves as these characteristics, had not been thought of. In ed 4 such a separation was made. The result is shown by the author by comparing the schedules occurring in ed 3 and 4 of CC. These schedules belong to the (BC) Medicine. The table of comparison reads as shown below:

Edition 3		Editions 4, 5, 6 and 7				Combined CC numbers
Problem Facet		Energy Facet		Personality Facet		
CC N	Isolate	CC N	Isolate	CC N	Isolate	
4	Disease	4	Disease			4
42	Infectious	4	Disease	2	Infection	42
43	Parasite	4	Disease	3	Parasite	43
44	Poison	4	Disease	4	Poison	44
46	Metabolistic	4	Disease	6	Metabolism	46

From this comparative table we see that though [P] is separated from [E] which was formerly called Problem Facet, in ed 4, 5, 6 and 7, the final numbers for the respective diseases are the same. This is due to the prescription for the omission of (CS) between energy (IN) and the succeeding personality (IN).

911 ROUNDS OF PERSONALITY

Though apparently no change is seen in the (IN) in all these editions, there is a fundamental difference in the idea plane. The difference in the idea plane is that 'Personality' may manifest immediately after the first round energy; this is the second round personality. Similarly, a 'Personality' manifestation immediately after the second round energy is the third round personality and so on. The manifestation of personality or matter after the first and succeeding rounds of [E] is put as Postulate 9 in the *Prolegomena*. It reads as below:

9111 Postulate of Rounds of [P]

"Energy can start a new round."

This means that [E] can give rise to new rounds of [P] or [M]. The first round of [E] gives rise to second round of [P] or [M] and the second round of [E] gives rise to third round of [P] or [M]. In other words "It is possible for a manifestation of personality and matter to occur after [1E], again after [2E], again after [3E] and so on".

Examples: The feature of personality having second round and third round immediately after energy is seen in the (MC) Sociology. The facet formula for this (MC) reads as below:

Y[P]: [E] [2P]: [2E] [3P]

In this facet formula

Y = (MC) Sociology
P = [P]. This facet is also called first round first level personality facet as it is the first personality facet of Sociology
:   = (CS) for [E]
E = First round energy facet
2P = Second round personality facet
:   = (CS) for [2E]
2E = Second round energy facet
3P = Third round personality facet

The divisions of the first round, first level personality facet are based on 'Group Characteristic'. The divisions under this facet read as below:

1	By age and sex	5	By birth or status
11	Child	51	Royalty
12	Youth	52	Aristocracy
13	Old person	53	Middle class
15	Woman	6	Abnormal and defective
16	Man	7	Race as a social group
2	Family	71	Prehistoric race
3	By residence	72	Primitive
31	Rural	73	Ethnological divisions
33	Urban	73(P1)	Aryan race
35	City	8	By association
38	Nation	81	Secret society
4	By occupation	9	Others got by (SD)

If we add these divisions to Y we get class numbers as shown below:

Y11	Sociology of child	Y31	Rural sociology
Y15	Sociology of woman	Y33	Urban sociology
Y2	Sociology of family	and so on	

The divisions of the first round energy facet read as below:

1 Civilization. Culture	5 Demography
2 Physical character and feature	7 Personality
3 Activity	8 Equipment
4 Social pathology	

These divisions can be applied to Y Sociology indicating general aspect of the subjects indicated by them as below:

Y:1	Civilization in general	Y:5	Demography
Y:2	Physical character and feature of human beings	Y:7	Social personality
Y:3	Social activities	Y:8	Equipment regarding habitat, utensil, transport, etc
Y:4	Social pathology		

These divisions can again be applied to any of the first round first level personality facet.

Y11:1	Child culture	Y11:3	Social activities of children
Y15:1	Woman culture	Y15:3	Social activities of women
Y2:1	Family culture	Y2:3	Social activities of families

In the schedule of [E], we see further subdivisions of some of the first divisions of this facet as given below:

The division 2 Physical character and feature has subdivisions like

22 Measurement	25 Colour
23 Proportion	27 Functioning
24 Abnormality	

The division 3 Activity has subdivisions like

31 Personal activity	35 "As If" activity
32 Family activity	351 Folklore
33 Social activity	354 Superstition
34 Ceremonial activity	356 Custom

The division 4 Social Pathology has subdivisions like

41 Intemperance	425 Moral degeneration
411 Alcoholism	43 Destitution
42 Degeneration	433 Unemployment

434 Poverty	46 Short life
44 Social evil	48 Disunion
45 Crime	49 Other ills

The division 5 Demography has subdivisions like

51 Under population	52 Over population, etc

All these subdivisions are considered as the manifestations of [2P] emanating from the individual basic divisions of [1E] as per Postulate 7 enunciated in the *Prolegomena*. The Postulate reads as below:

912 POSTULATE OF A SINGLE DIGIT

"An energy isolate number can have only one significant digit." In other words, "An energy facet can have only one array."

Any subdivisions of these digits are to be considered as the divisions of [P]. In the case of [1E] they are the divisions of [2P].

For example, in the class number Y:45 which stands for Sociology of Crime, the digits 45 after colon (:) represent two facets. The digit 4 stands for Social Pathology in [E] and the digit 5 which is the subdivision of 4 stands for Crime in [2P]. Between these two digits, we have not written the (CS) for [2P] which is represented by the digit 5 meaning Crime. This is done on the basis of a Postulate which is enunciated as below:

913 POSTULATE 2 OF OMISSION OF (CS)

"In Colon Classification, the connecting symbol need not be inserted before [2P], [3P], etc, if these follow immediately after [E], [2E], etc."

914 ROUNDS

In superficial classification found sufficient for books embodying macro-thought, only a few (BC) present more than one round. Agriculture, Animal Husbandry, Medicine and Sociology are these subjects. But this is not sufficient for depth classification of micro-thought. According to Postulate 9, a new round is started by an Energy Isolate. This Postulate reads as below:

915 POSTULATE OF A NEW ROUND

"Energy can start a new round".

It is the round of such a type that requires special consideration. The chief problem in the theory of rounds concerns the round to which a [P] or a [M] should be assigned. Whether it should be assigned to the round which is preceding the Energy (I) or it should be assigned to the round which is succeeding the Energy (I) which starts a new round. One set of these facets is subjected to the action represented by the energy (I). We shall call any such facet an Actand. The other set consists of the actor or the instrument used in the action. Experience with the rounds occurring in superficial classification suggests the Postulate which reads as below:

916 POSTULATE OF ACTAND-ACTION-ACTOR FACETS

"An Actand Facet should precede, and an Actor or Instrument Facet should succeed, the Energy or Action Isolate concerned."

For example, when 'Spinning' or 'Weaving' is the energy (I), 'Cotton' is the Actand; it should therefore precede the (I) 'Spinning' or 'Weaving'. But the 'Spindle', i e, the rod of a spinning wheel or the 'Loom', i e, the frame used for weaving cloth is the instrument. Therefore, either of these should come after the energy (I) concerned.

The occurring of the (I) 'Spindle' and 'Loom' as instruments after the (I) 'Spinning' and 'Weaving' in class numbers, may be illustrated as below:

M71:2S   Cotton spinning on spindle

In this class number

M7 = Textile Useful Art
1   = (IN) in [P] or Material Facet. It means cotton. This is the Actand Facet in the class number
:   = (CS) for [E]
2   = (IN) in [E]. It means spinning. This is the Action Facet in the class number
S   = (IN) in [2P]. It means spindle. This is the Actor Facet or Instrument Facet in the class number. It is got by (AD)

Another example in which 'Loom' is occurring as the Actor or the Instrument in a class number may be given as below:

M71:7L   Cotton weaving on looms

In this class number, the digit 7 after the (CS) colon (:) stands as

an (IN) in [E]. It means weaving. This is the Action Facet in the class number. The digit L stands as an (IN) in [2P]. It means Loom. This is the Actor Facet or the Instrument Facet in the class number. It is got by (AD).

The occurrence of repeated rounds of [E] and [P] is termed as Actand-Action-Actor-Tool Principle.

917 ACTAND-ACTION-ACTOR-TOOL PRINCIPLE

It is enunciated thus: "Any four facets standing in mutual relation as actand, i e, an entity acted upon, action, actor and tool (consisting of secondary action and actor) should be arranged in this very sequence."

According to this Principle, an Actand Facet, i e, the facet which is subjected to the action represented by [E] should precede [E] which is also called Action Facet; and the Actor Facet, i e, the facet occurring as the instrument used in the action should succeed [E] or Action Facet. Again the Tool Facet which is occurring as a tool or as a secondary action should succeed the Actor Facet. Examples:

Rounds of [E] and [P] in Medicine

Suppose we have to classify a document whose title reads thus: "Radio Therapy of Tuberculosis of Lungs". If we analyse this title into facets we get it transformed into facets as shown below: [Radiation] [Therapeutics] [Tubercular bacillus] [Disease] [Lungs] [Medicine]

Out of these six facets the facet of Medicine is the (BF) as it consists of the (MC) Medicine. So we have to consider the sequence of the remaining facets. The facet of Lungs is the Actand Facet as it is subjected to the action, i e, Disease represented by the (I) Disease occurring as [E] or Action Facet. So it should precede the Disease Facet. The facet of Tubercular bacillus is the Actor Facet as it is occurring as the instrument used in the action. In other words, it is occurring as the cause of disease named Tuberculosis. So this facet should succeed the Disease Facet. The facet of Radiation which means radiating or transmitting the rays of light is occurring as the Actor Facet or the Instrument Facet as it is used as an instrument in the treatment of the disease concerned. The facet of Therapeutics is occurring as the secondary action facet or treat-

ment facet. So the facet of Radiation should succeed the facet of Therapeutics. The secondary action facet and its actor facet or instrument facet are together considered as Tool Facet. Ultimately the sequence of the six facets as arrived at, may be shown along with the (BF) of Medicine as below:

[Medicine] [Lungs] [Disease] [Tubercular bacillus] [Therapeutics] [Radiation]

In these facets, the facet of Lungs is [P]. The facet of Disease is [1E]. The facet of Tubercular bacillus is [2P]. The facet of Therapeutics is [2E]. And the facet of Radiation is [3P]. Using the appropriate (CS) the facets may be written as shown below : [Medicine] [Lungs]: [Disease] [Tubercular bacillus]: [Therapeutics] [Radiation]

The class number constructed on the basis of this analysis may be written thus: L45:421:625

In this class number

L   = Medicine
45 = (IN) in [P] or Organ Facet. It means Lungs
:   = (CS) for [E]
4   = (IN) in [E]. It means disease
21 = (IN) in [2P]. It means tuberculosis, i e, infection from tubercular bacillus
:   = (CS) for [2E]
6   = (IN) in [3P]. It means therapeutics, i e, the treatment for healing and curing disease
25 = (IN) in [3P]. It means radio therapy, i e, radiation or rays of light used as an instrument in the treatment of the disease
:. The whole class number means 'Radio-therapy of Tuberculosis of Lungs'.

Rounds of [E] and [P] in Sociology

We shall now consider the divisions of [2E] of the (MC) Y Sociology. There are two different [2E] in this class. One of them is applicable to (IN)

1 Civilization   3 Activity   7 Personality   8 Equipment

The schedule of this facet reads as below:

1 Nomenclature, etc   6 Genetic or comparative study
5 Influence. Contact   7 Conservation. Improvement

This [2E] has also [3P] added to it on the analogy of Postulate 7 which stipulates that any subdivisions of the energy facet are to be considered as the divisions of [P]. The whole schedule of this facet inclusive of [3P] reads as below:

1 Nomenclature, etc	5 Influence. Contact
11 Classification	6 Genetic or comparative study
12 Natural history	62 Variation. Natural selection
13 Popular description	65 Hybridisation (cultural)
14 Picture	7 Conservation. Improvement
17 Collecting	75 Ecological method
18 List	76 Phylogenetic method
19 Microscopy	77 Ontogenetic method

Similarly, the divisions 4 Social Pathology and 5 Demography have got another schedule of [2E] which reads as below:

1 Nomenclature, etc	4 Experimentation
2 Etiology	5 Prevention
3 Diagnosis	6 Treatment

This schedule is further expanded by the addition of [3E] on the analogy of Postulate 7.

The use of some of these divisions in class numbers may be illustrated as below:

Y:411:5(Z)	Prohibition by legislation
Y:433:6.44'N5	Treatment of unemployment in India brought upto 1950's
Y:44:2.44'N5	Etiology of social evil in India brought upto 1950's
Y31:7:7	Rural development
Y73(P1):434:68	Charity for the poor among the Aryans

92 ACTAND-ACTION-ACTOR-TOOL PRINCIPLE ILLUSTRATED IN THE ELEMENTS, ED 3

"If in a subject, facet B denotes action on facet A by facet C, with facet D as the tool, then the four facets should be arranged in the sequence A, B, C, D. Illustration:

For example, let the subject be 'Tubercular disease of lungs'. Here "Disease" is the Action. "Lungs" is acted upon; it is, therefore, the Actand. "Tubercular bacillus" acts on the lungs. It is therefore the Actor. Thus the three isolates should be arranged in the sequence Medicine (BC) Lungs [P] Disease [E] Tubercular bacillus [2P]

921 ASSIGNMENT OF ROUNDS

Since an energy isolate ends a Round and what succeeds it, is the next Round, the Actand-Action-Actor-Tool Principle is usually

helpful in assigning a [P] or a [M] to the appropriate Round. In the example in section G492, assuming that "Disease [E]" ends the First Round, and therefore, the second Round comes immediately after it, the [P] "Lungs" has been assigned to the First Round; and the [P] "Tubercular bacillus" has been assigned to the Second Round. Therefore, "Lungs" is marked as [P]; and "Tubercular bacillus" is marked as [2P].

Whenever a Personality-Energy sequence cannot be determined by the Wall-Picture Principle, it should be determined by the Actand-Action Principle.

93 POSTULATE OF LEVELS OF [P]

"In each round, any number of levels of personality may occur in succession closely packed." Example:

In Botany, two levels of personality occur in succession closely packed in the first round. Let us illustrate this by means of a class number. 15, 16   Flowers of flowering plants

In this class number the (IN) 5 representing flowering plants is in the first level personality facet or in the Natural Group of Plants facet in the first round and the (IN) 16 occurring after the (CS) comma (,) and representing flowers is in [P2] or Organ Facet in the same round. These two levels of [P], viz,

1   the natural group of plants facet and
2   organ facet

get arranged on the basis of the Principle which is called Whole-Organ Principle. This Principle is enunciated as below:

94 WHOLE-ORGAN PRINCIPLE

"If one facet represents the whole of an entity and the second represents its organ the former should precede the latter." In other words "Within a round the organ should be at a later level than the whole."

This refers to the successive occurring of two facets within a round of one of the categories, viz, Personality, Matter, Space and Time, out of which one facet represents the whole of an entity and the second represents its organ. Example:

Suppose we have to classify a document whose title reads thus:

"Morphology of Flowers". If we analyse this title into facets we get it transformed into facets as shown below:

[Morphology] [Flowers] [Flowering Plants] [Botany]

Out of these four facets, the facet of Botany is (BF) as it consists of the (MC) Botany. Out of the remaining three facets the flowers and flowering plants belong to the first round of personality and the facet of morphology belongs to energy facet. So we have to determine the sequence of the facets of flowers and flowering plants. Flowering plants represent whole plants and flowers represent an organ of the flowering plants. So on the basis of the Whole-Organ Principle the facet of flowering plants should precede the facet of flowers. So the sequence of the facets for the sake of constructing a class number may be written along with the appropriate (CS) as shown below:

[Botany] [Flowering Plants], [Flowers]: [Morphology]

On the basis of this analysis, we write down the class number of this specific subject thus: I5,16:2

In this class number

I	= Botany	16	= (IN) in the Organ Facet. It
5	= Flowering plants		means Flowers
,	= (CS) for [P2] or Organ Facet	:	= (CS) for [E]
		2	= Morphology

In this class number, we have put the facet of flowering plants first as it represents the whole plants and then we have put the facet of flowers which represents their organs and hence this class number satisfies the Whole-Organ Principle.

Let us take another example:

"Ecological studies in Zoology of the free living Nematodes (thread worms) in the beach of Madras city in Madras State".

The class number for this specific subject is written thus: K631:5.211.e11-M

In this class number

K	= Zoology	211	= Madras State
631	= Nematodes	.	= (CS) for [S2]
:	= (CS) for [E]	e11	= Beach
5	= Ecology	-	= (CS) for (SID)
.	= (CS) for [S]	M	= Madras City by (AD)

In this class number, the [S2] which consists of a physiographical

and population cluster is in the relation of an organ to the whole of an entity in the form of a geographical area in the first level [S]. And hence, the sequence of the two levels of [S] occurring in this class number satisfies the Whole-Organ Principle.

95 Cow-Calf Principle

By this Principle we determine the specific categories of facets, such as [P] [M] [S] and [T] which should be put together in one and the same round in successive levels. [E] is not concerned with this Principle as it ends a round and starts a new round. This Principle is concerned mainly with those facets that occur in each round and it asks us to put together inseparable facets of one category in one and the same round. Example:

Suppose we have to classify a document whose title reads thus: "Design of Electric Lifts". If we analyse this title into facets we get it transformed into facets as shown below:

[Design] [Electrical Engineering] [Engineering] [Lift]

Out of these four facets, the facet of Engineering is the (BF) as it consists of the (MC) Engineering. So this facet will be put as the first facet. The facet of Design belongs to [E]. So it is not concerned with the Cow-Calf Principle. The facets of Electrical engineering and Lift are inseparable facets. The facet of Electrical engineering belongs to the work facet or first round first level [P] and the facet of Lift belongs to the field of application facet or the first round [P2] of Engineering. So we have to put them in the first round of [P] in the first and the second levels respectively on the basis of the Cow-Calf Principle. So the sequence of the facets for the sake of constructing a class number along with the (CS) may be shown as below:

[Engineering] [Electrical engineering], [Lift] : [Design]

And on the basis of this analysis, we write the class number thus: D66,71:4

In this class number

D	= Engineering	71	= Lift
66	= Electrical engineering	:	= (CS) for [E]
,	= (CS) for [P2]	4	= Design

In this class number, we have put together the inseparable facets of Electrical engineering and Lift in the first round of personality

of Engineering and hence this class number satisfies the Cow-Calf Principle.

Regarding this Principle the author observes thus :

"This Principle recalls the folk practice of taking the calf not to be separable from the cow in any transaction such as sale. For example, if a person A purchases a cow from B it implies that the calf is also purchased *ipso facto* (i e, automatically or by that very fact) without any separate negotiation.

The [S] and [S2] should go into the same round according to this Principle.

Example:

"Consumers of Agricultural Commodities in Cities in India". X8(J):1.2.9B

96 POSTULATE OF LELVES OF [M]

"In each round, any number of levels of matter may occur in succession closely packed."

At present we do not have any example in which any number of levels of matter in each round has been occurring. We can only illustrate how matter occurs in different levels in each round.

In the class number 2;46 meaning 'Periodicals in a library', the (IN) 46 standing for periodicals, represents first level [M] in the first round. In the class number, LX8;(E418) meaning 'Preparation of Salt of Gold or Pharmacy of Salt of Gold, the (IN) (E418) standing for Salt of Gold and got by (SD) represents first level [M] in the first round. The class number LX8 stands for Pharmacy.

97 POSTULATE OF LEVELS OF [E]

"There is no level for energy. For, personality and matter facets can occur between two consecutive energy facets. We have only round."

In Agriculture, [2P] occurs between two consecutive [E]. In the class number J:21:8, the (I) digit 1 meaning Green Manure and occurring immediately after the (I) digit 2 standing for Manure in the first round [E] represents as an (IN) in [2P] and it also occurs between two consecutive [E]. The (IN) 8 in the class number meaning Storing stands as an (IN) in [2E].

98 POSTULATE OF SEQUENCE OF [P] [M] [E]

"The fundamental categories occurring in a round stand arranged in the sequence, Personality, Matter, Energy".

In the class number 23;46:1 meaning 'Selection of Periodicals in Academic Libraries', the (FC) occurring in the first round stand arranged in the sequence Personality, Matter, Energy. The class number may be interpreted as below:

2   = Library Science
3   = (IN) in the first round, first level [P]. It means academic library
;   = (CS) for [M]
46 = (IN) in [M]. It means periodicals
:   = (CS) for [E]
1   = (IN) in [E]. It means selection
∴. The whole class number means 'selection of Periodicals in Academic Libraries".

991 POSTULATE OF ROUNDS OF COMMON [P] OR COMMON [M] (I)

"A common personality or a common matter isolate may indicate a new round."

Posteriorising personality (CI) representing different types of institutions have a facet formula which reads as below:

(CI), [P], [P2]: [E]

These (I) are generally added after [S]. Examples:

D.44,t4,R,13:3'N5 Functions of the Vice-Chancellor of the Rurkee Engineering University in the 1950's.

In this class number

D   = Engineering
.   = (CS) for [S]
44 = India
,   = (CS) for [P]
This round of [P] is initiated by the personality (CI), viz t4 which stands for University
.   = (CS) for [P2] in its round after [S]
R   = Rurkee got by (AD)
,   = (CS) for [P2]
13 = Vice-Chancellor
:   = (CS) for [E]
3   = Function
'   = (CS) for [T]
N5 = 1950's

At present there is no example of a common matter (I) indicating a new round.

992 POSTULATE OF COMMON [P] OR COMMON [M] (I) AFTER [S] OR AFTER [T]

"Common personality facet or common matter facet is prescribed to be after-space or after-time."

In the class number D.44,*t*4,R,13:3'N5, the common [P] represented by the digits *t*4 standing for University is [P] occurring after [S]. At present there is no example of a common [P] occurring after [T]. At present there is also no example of a common [M] occurring after [S] or [T].

993 POSTULATE OF ROUND PRECEDING (CI) ROUND

"The round preceding a common isolate round may end with a space facet or with space and time facets, according to the nature of the isolate initiating the common isolate round."

In the class number D.44,*t*4,R,13:3'N5 the round preceding the (CI) round initiated by the (IN) *t*4 ends with a [S]. At present there is no example in which the round preceding a (CI) round ends with [T].

994 POSTULATE OF PRODUCT FACET AND INSTRUMENT FACET

There is also another kind of experience. One set of facets is the result of the action; we shall call any such facet a product. Another set of facets is the instrument with which the product is made. Experience with such cases in superficial classification suggests the following Postulate:

"The product facet should precede and the instrument facet should succeed the energy (action) isolate concerned, when the product is an ultimate commodity."

Let us illustrate this by means of an example: "Baking bread on fire".

In this specific subject 'Bread' occurs as the product. It is an ultimate commodity. So in the class number for this specific subject the facet of Bread should precede the facet of Baking which is the [E] and the facet of Fire which is the instrument facet should succeed the facet of Baking, i e, [E] or action facet. On the basis of this

Postulate the class number, M31B:7;1 for "Baking bread on Fire" is constructed.

In this class number

M31   = (BC) Cooking
B   = (IN) in the [P] or product facet. It means bread. It is got by (AD)
:   = (CS) for [E]
7   = (IN) in [E]. It is got by the Device of Seminal Mnemonics. The action of baking bread indicates the formation of the individual commodity called bread. Analogically it relates to the individuality or personality of bread. The digit 7 is generally used as a seminal mnemonics for personality and hence it is used in this class number for baking
;   = (CS) for [M]
1   = (IN) in [M]. It means fire. This digit is also got by the Device of Seminal Mnemonics. It is also used in the sense of fire in the (IN) 491 standing for disease caused by fire in [E] of Agriculture, Animal Husbandry and Medicine

Example 2:

"Baking bread in an utensil"   M31B:7;2

In this class number the (IN) 2 in [M] stands for utensil. This digit is got by the Device of Seminal Mnemonics. It is used in this sense in [2P] of Sociology as shown below:

Y:82   Utensil as an equipment of a community

In this class number

8 = Equipment
2 = Utensil

CC: FUNDAMENTAL CATEGORY SPACE

1 Surface of the Earth

Space is perhaps more concrete than time; but not as much as the other categories. In its manifestation as the surface of the earth, space is certainly concrete. Examples:

J.2'N5   Agriculture in India brought upto 195-
T.42'N3   Education in Japan brought upto 193-
X.52'N5   Economic conditions in Italy brought upto 195-

11 PORTION OF THE EARTH'S SURFACE

"In a local description of this kind, the surface of the earth is taken to be without any organ or constituent. We can only speak of a portion of the earth's surface. Therefore, space (I) of the kind, representing a portion of the earth, will together form a facet in the schedules.

12 FIRST ORDER ARRAY: CONTINENTS AND OCEANS

"Earth's surface is unbounded finite space of two dimensions. Any portion of it will also be of two dimensions. That is, it will be an area. The choice of the unit of area may be made in several ways. For classificatory purposes, a quantitative unit is seldom found helpful. We have to use a qualitative unit. Many qualities are available for use in the choice of unit. For the first choice, the 'occupant of the earth' is taken as the quality. The occupant may be land or water. The quality relevant for most purposes is the political and administrative group of people occupying them. To make this quality the first choice is not, however, helpful. We, therefore, first divide the surface of the earth by the physical occupant—land or area. We divide each of these total areas into canonical sub-areas. This gives the continents and oceans as the classes in the first order array of the surface of the earth taken as a unit." [41]

2 Canonical Areas

The schedule of the canonical sub-areas is:

4 Asia	6 Africa	8 Australia
5 Europe	7 America	

21 LAND WITHIN OCEAN

91 Islands within Indian ocean
92 Islands within Atlantic ocean
93 Islands within Pacific ocean
943 Islands within Antarctic ocean
947 Islands within Arctic ocean

22 OCEAN *qua* OCEAN

95 Indian ocean	983 Antarctic ocean
96 Atlantic ocean	987 Arctic ocean
97 Pacific ocean	

3 Principle of Spatial Contiguity

All these areas are subdivided according to the Principle of Spatial Contiguity. The term 'Spatial Contiguity' implies being adjacent. The Principle of Spatial Contiguity is one of the Principles available for fixing the sequence of the classes in any array as a helpful sequence. This Principle is enunciated as below:

"If the classes of an array occur contiguously in space, they may be arranged in a parallel spatial sequence."

31 RULE FOR DIVISIONS

As one possible means of making divisions according to this Principle, a rule is laid down by the author which reads as below:

"If any ultimate area mentioned in the schedule requires further subdivision, the subdivision may be effected in accordance with the following plan. Let the area be divided into eight convenient sectors and the sectors be numbered as shown here under:

1 East	4 Southwest	7 North
2 Southeast	5 West	8 Northeast
3 South	6 Northwest	

If only one sub-area falls in a sector, the number of the sector

may be given to the sub-area. If more than one-sub-area falls in a sector it may be further subdivided in a similar manner. The digit 9 may be reserved for indicating the islands in the neighbourhood of the area. A strict adherence to this Principle is not demanded nor is it possible in all cases. All that is intended is that the rule may be used as a rough guiding principle."

32 EXPANSION OF THE SCHEDULE

The characteristic based on the Principle of Spatial Contiguity is to be continued in making divisions of space as far as necessary. In other words, the number of space arrays can be increased as much as necessary. In still other words the intention of the space isolates can be increased as much as necessary. The Canon of Hospitality in Chain can thus be satisfied to the necessary extent.

4 Zones in Space Facet

In superficial classification adequate for macro-thought embodied in books, the conventional division of the world into continents, countries and constituent states is usually sufficient. These divisions occupy zone 2 of their respective arrays in the notational plane. In depth classification, need will often arise for divisions of the world on the basis of other characteristics, such as Orientation, Near-world-state formations, Minerals, Crops, and political, economic and social, and other similar factors. So in this Scheme, zones 3 and 4 are used for the purpose in the array of order 2 having 1 world as its immediate universe. This feature we have illustrated in chapter H4 under zones in the array of space facet.

41 EMPIRE

Empires are numbered by (SID). The rule for constructing a number for empires reads thus: The isolate number of an empire having territories in two or more continents is to be derived from 1 which stands for world by (SID) using the (IN) of the ruling country as the superimposition number, i e, the number of the ruling country is placed immediately after the connecting symbol hyphen (-) which itself is put after another (IN) such as the (IN) 1 which stands for world."

Examples:

1-52 Roman Empire   1-53 French Empire   1-56 British Empire

42 PARTS OF INDIA UNDER A SOVEREIGN POWER

The (IN) of an area falling in different non-contiguous parts of India and coming together under the rule of a sovereign power is to be got by (CD) as shown below:

44   India
44G   India under Muslim power (637-1858 A D)
44J   Portuguese sovereignty (1498-1616 A D)
44J1   Dutch sovereignty (1616-1845 A D)
44K   French sovereignty
44L   India under Mahratta power (1600-1818 A D)
44M   British sovereignty (1469-1947 A D)
44N   Republic of India (1947-)

The chronological division numbers illustrated above are approximately assigned with a view to get helpful sequence in the shelf arrangement of the documents on the ruling powers in India in the History Class and also in other classes wherever these (IN) are required to be used.

5 Second Level Space Facet and Postulate

All the divisions of the first level [S] can be used to show political and administrative divisions of space. But there is a necessity of representing the physiographical features, of the surface of the earth by (IN). To represent these features, we require to use second level space (I) and consequently we require a [S2] for the purpose. The author has, therefore, provided a special schedule to represent physiograpical features of the earth along with the population clusters and individual localities. This schedule is illustrated in chapter H4 under zones in [S].

CC : FUNDAMENTAL CATEGORY TIME

1 Occurrence

The (FC) Time occurs in every subject forming a local description or local history of any subject. Examples:

2*v*2'N6 Development of library science in India brought upto 196-
T.2'N6 Education in India brought upto 196-
W*v*2'N Development of political thought in India in the 20th century

11 CHARACTERISTIC OF DIVISION

Regarding the (FC) Time the author observes thus: "Time flows uniformly, it is said. It is taken to flow along one direction only. We can speak only of 'portion' of time. We really call it 'duration'. All time isolates formed by the duration measured from a specified epoch will together form a facet. It is Time Facet. To form arrays in such a facet, the only characteristic available for dividing time is 'duration'. This gives the measure of time. To measure duration, we need a starting point and a unit of duration. With the first choice of 'unit of duration' an infinite array of the first order is formed."[41B]

12 LAST SECTOR USED TO REPRESENT TIME

The last sector of zone 3 is used to represent time measured either backwards or forwards from the date of birth of Christ as the origin.

2 Unit of Duration

The unit used—i e, the (I) in the first order array—does not represent the same duration for all periods of time.

21 SECOND MILLENNIUM A D

CC uses 'century' in the period beginning with the second millennium after Christ as shown below:

E = 1000—1099 A D   F = 1100—1199 A D, and so on.

22 MILLENNIUM AS A UNIT

A millennium is used as the unit for the period 1000 B C to 1000 A D as shown below:

C = 999 to 1 B C   D = 1 to 999 A D

23 STRETCH OF 9000 YEARS AS A UNIT

A stretch of 9000 years is used as the unit for the period 10000 B C to 1000 B C as shown below:

B = 9999—1000 B C

24 GEOLOGICAL AGE AS A UNIT

For the still earlier period the unit is in terms of geological age. This is in accordance with 'memory perspective'.

3 Instances where the (FC) Time Figures

Regarding this, the author observes thus : "The chronological facets in the (MC) Geography, History, Economics and Sociology and the only facet of stratigraphy in Geology are instances in which the (FC) Time figures directly and to represent itself." We have already seen how (FC) Time represents personality in the chronological facet of the (CI), viz

1 'w'   standing for Biography
2 'x'   standing for a classical writer
3 'x'   standing for collected works of an individual author
4 any of the posteriorising (CI) standing for institution.

We also know that this category figures jointly with space to represent the category personality in the Style Facet of Fine Arts. Again, it also figures in Literature to represent the personality of a literary author.

4 Instructions Regarding the Use of These Divisions

The instructions regarding the use of these divisions as given by the author read as follows:

"In the case of each isolate from E onwards a letter stands for a century. The decade is to be indicated, whenever necessary, by adding the digit of the decade—0, 1,. . . or 9, as the case may be

—after the century digit. The year is to be indicated, whenever necessary, by adding the digit of the year—0, 1,... or 9, as the case may be—after the decade digit. Thus:

E	=	1st century of the 2nd millennium A D, i e, from 1000 to 1099 A D
E0	=	1st decade of the 1st century, i e, from 1000 to 1009 A D
E00	=	1st year of the 1st decade which ends in the year 1009 A D
E01	=	2nd year of the 1st decade, i e, the year 1001 A D
E09	=	10th year of the 1st decade, i e, the year 1009
E1	=	Second decade, i e, 1010 to 1019
E2	=	third decade, i e, 1020 to 1029
E3	=	1030—1039
E31	=	1031 A D
E32	=	1032 A D
M	=	1800
N	=	1900
N6	=	1960's, i e, the 7th decade of the 20th century
N62	=	1962

5 Effective Decade

The digits for an effective decade are 1, 3, 5, 7, and 9. Whenever the focus in a [T] is prescribed to be the effective decade, the decade number is to end with 1, when the natural decade number ends with 0 or 1; with 3 when the natural decade number ends with 2 or 3; with 5 when the natural decade number ends with 4 or 5; with 7 when the natural decade number ends with 6 or 7; and with 9 when the natural decade number ends with 8 or 9. Illustrations:

To illustrate how these effective decade numbers are to be written, let us take the first seven decades of the 20th century. The natural decade number ends with 0 in the case of the 1st decade, ie, the years 1900 to 1909. The natural decade number ends with 1 in the case of the 2nd decade, i e, the years 1910 to 1919. So, in the case of these years, i e, the years 1900 to 1919 the effective decade number to be written is 'N1'. Similarly, the natural decade number ends with 2 in the case of the 3rd decade, i e, the years 1920 to 1929 and the natural decade number ends with 3 in the case of the 4th decade, i e, the years 1930 to 1939. So, in the case of these years, i e, the years 1920 to 1939 the effective decade number to be written is 'N3'. In the same way, in the case of the years 1940 to 1959 the effective decade number to be written is 'N5' and in the case

of the years from 1960 to 1979 the effective decade number to be written is 'N7'. Examples of class numbers with effective decade numbers in them.

X.2'N1	Economic growth of India brought upto the 1st decade of the 20th century
X.2'N1	Economic growth of India brought upto the 2nd decade of the 20th century
X.2'N7	Economic growth of India brought upto the 7th decade of the 20th century
X.2'N7	Economic growth of India brought upto the 8th decade of the 20th century

Regarding the instructions about the effective decade digits, the author observes thus: "Grouping by intervals of about one generation is helpful and also sufficient in the arrangement of subjects. For, a generation is a natural and sufficient unit in the progress of human affairs and thought. A decade is only arbitrary and arithmetical. Effective decade also makes the work of the classifier less arduous than a decade or a year." [42]

To know why the author has fixed the period of 20 years as the period of an effective decade, some explanation is necessary. It may be given thus:

Generation is a period of time consisting approximately of thirty years, which as a general rule, marks off each stage in the line of descent. The reason for using the period of 20 years to represent a generation as an effective decade is that the period of 30 years as an effective decade does not give all the effective decades of a century in the same century. The last effective decade has its first ten years in one century and the next twenty years in the succeeding century. Let us illustrate this feature :

Effective Decade	Thirty years period
1st effective decade in the 20th century	1900 to 1929
2nd effective decade in the 20th century	1930 to 1959
3rd effective decade in the 20th century	1960 to 1989
4th effective decade in the 20th century	1990 to 2019

So to resolve this difficulty, the author has taken the period of 20 years as the period of a generation to be used as an effective decade in class numbers.

6 Division of the First Millennium A D

In the case of the division D which represents the first millenuinm A D, the century is indicated, if necessary by adding the digit of the century after D. The decade is indicated if necessary by adding the digit of the decade. The year is indicated by adding the digit of the year as shown below:

D5   = 6th century, i e, 500 to 599 A D
D54   = 5th decade of the 6th century A D
D541   = 541 A D
D542   = 542 A D
D543   = 543 A D

7 Divisions of First Millennium B C

In the case of the B C years, the century digit to be added is the difference between 9 and the number standing for the B C century; the decade digit to be added is the difference between 9 and the number standing for the B C decade, and so on. Let us illustrate this by means of examples:

C = First millennium B C, i e, 000 B C to 999 B C

The centuries in this millennium may be shown as below:

000 to 099 = 1st century B C
100 to 199 = 2nd century B C
200 to 299 = 3rd century B C
    :   :
900 to 999 = 10th century B C

71 First Century B C

The whole century number for the 1st century B C is 000. In this number the first 0 is called century number. So, according to the instructions, if we want a number of the 1st century B C, we have to take the difference between 0 and 9 for arriving at the number for the 1st century B C. The difference between 0 and 9 is 9. Hence C9 stands for the 1st century B C.

72 Centuries of B C

The years of the 2nd century B C begin from 100. The century digit in this number is 1. We have, therefore, to take the difference between 1 and 9 for arriving at the number for the 2nd century

B C. The difference between 1 and 9 is 8. Hence C8 stands for the 2nd century B C. The numbers for the centuries of the first millennium B C may be written as shown below:

C9 = 1st century B C
C8 = 2nd century B C
    :   :
C2 = 8th century B C
C1 = 9th century B C
C0 = 10th century B C

These numbers if arranged according to their numerical sequence will give us a forward movement of the B C years, i e, the 10th century B C will stand first and the 1st century B C will stand last and will be given a place near to the 1st century A D. This feature may be shown as below:

C0 = 10th century B C   C9 = 1st century B C
C1 = 9th century B C   D0 = 1st century A D
C2 = 8th century B C   D1 = 2nd century A D
                               and so on

This sequence is helpful to us in the shelf arrangement because, immediately after the 1st century B C we are able to arrange material from the 1st century A D.

73 METHOD OF COMPLEMENT

This method of determining the digits of the B C period is called the Method of Complement, i e, the method of filling up what is wanting or the method of completion. This method is employed to convert the backward movement of the B C years into a forward one to suit arrangement of books on the shelves and of entries in the catalogue or bibliographies.

The schedule of chronological divisions which we have illustrated above is useful to represent duration of time in the case of many subjects. This is the general schedule of chronological divisions. It is also termed as the schedule to represent public time divisions.

8 Featured Time Divisions

There is another schedule entitled the schedule of featured time divisions which is required to be used in the case of some subjects.

This schedule is described in detail in section H51 under zones in the array of time facet.

81 POSTULATE OF (FC) SPACE AND TIME

"The fundamental categories space and time can occur only in the last round."

In the class number Y:433:6.73'N5 meaning 'Treatment of unemployment in USA brought upto 1950's', the (FC) space and time occur only in the last round. They are preceded by two rounds of [E].

82 POSTULATE REGARDING THE SEQUENCE OF THE (FC) SPACE AND TIME

"The fundamental categories space and time stand arranged in the sequence space, time." This feature is easily seen in the class number Y:433:6.73'N5.

83 POSTULATE FOR SPACE AND TIME FACETS GIVEN IN THE *Elements*, ED 3

"Ordinarily, [S] and [T] should be put last and in the sequence in which they are mentioned here."

In ed 6, the author has given a revised schedule of featured time isolates. It is given in section H51 under zones in the array of time facet.

CC: ZONE ANALYSIS ILLUSTRATED

CC: ZONE ANALYSIS AND MIXED NOTATION IN AN ARRAY

1 Postulate for Zones in an Array

Regarding the four zones in an array, the author has enunciated a Postulate which reads thus: "Each array of isolates has 4 zones, holding respectively

1 Enumerated Common Isolates;

2 Enumerated Special Isolates;

3 Special Isolates by (AD), (CD), or by the Device of Enumeration;

and

4 Common Isolates and Isolates of the Traditional (MC) got by (SD)"

11 Four Groups of Common Isolates and Special Isolates

In the idea plane, an array is split up into two major groups.

12 First Major Group

The first major group consists of the group of common isolates, i e, the (I) commonly recurring in any specific universe of classification. The abbreviated form used for common isolates is CI.

13 Second Major Group

The second major group consists of the group of special (I), i e, the (I) derived by the application of a characteristic special to the immediate universe classified. The abbreviated form used for these (I) is SI.

14 Two Groups of (CI)

Common isolates fall into two groups in their turn. These groups are the following:

1 The group of common isolates got by enumeration. This is denoted by the abbreviated form ECI.

2 The group of common isolates got by a device, viz (SD) in this case. This is denoted by the abbreviated form DCI.

15 Two Groups of (SI)

Special isolates fall into two groups in their turn. They are:

1 The group of special isolates got by enumeration. This is denoted by the abbreviated form ESI.

2 The group of special isolates got by a device, viz (AD), or (CD), or the Device of Enumeration. This is denoted by the abbreviated form DSI.

2 Four Zones

These four groups of (I) are termed as four zones and their sequence is determined as shown below.

21 First Zone

The first zone consists of ECI, i e, the (CI) got by enumeration. This means that these (I) are enumerated in their canonical sequence and then specific digits are assigned to them.

22 Second Zone

The second zone consists of ESI, i e, the special (I) got by enumeration. These (I) are derived on the basis of a characteristic special to the immediate universe classified.

23 Third Zone

The third zone consists of DSI, i e, the special (I) got by a device. The device generally required to be used is (AD), (CD) or the Device of Enumeration.

231 General Characteristic (I)

It is said in the *Prolegomena* that the (I) in this zone are based on a general characteristic, such as

1 the alphabetical make-up of the name of the (I), or

2 its time of origin, or

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3 its canonical order or its featuring on the basis of Mnemonic Device.

These are the general characteristics used as the basis for classifying the (I) in the third zone.

232 SPECIAL (I) IN THE SECOND ZONE

It is said in the *Prolegomena* that the (I) in the third zone do not need enumeration. This means that they are not required to be enumerated like the special (I) in the second zone which are derived on the basis of a special characteristic which is special to the host class.

For example, if Economics is the host class, then Business characteristic is the special characteristic applied to it and on the basis of this special characteristic the divisions of the 1st order array of the business facet are enumerated. And hence, these (I) are termed as special (I) got by enumeration and are grouped in the second zone of the first order array of the business facet of Economics.

24 FOURTH ZONE

The fourth zone consists of DCI, i e, of the (CI) and also of the subjects represented by the traditional (MC) and their subdivisions got by (SD).

25 FOUR SPECIES OF DIGITS USED

The four species of digits used for these four zones in CC are
1 Roman smalls for the first zone;
2 Indo-Arabic numerals for the second zone;
3 Roman capitals for the third zone; and
4 Packeted notation for the fourth zone.

3 First Zone

The first zone consists of classes which are of the nature of approach material, i e, the material which is used as preliminary to the actual comprehensive study of the subject proper or the immediate universe proper. It is, as it were, the suburb of the city proper. Bibliographies, Encyclopaedias, Periodicals, Serials, Conference proceedings, History, Biography and Collected writing are the varieties of this type of material that is incorporated in this

zone. These are the (CI) in the idea plane and they are derived by enumeration, i e, they are more or less enumerated as canonical or traditionally recognised classes and the notation of Roman smalls is used to represent them.

4 Second Zone

The second zone comprises the classes which are special divisions of the immediate universe. These classes are generally derived by enumeration, i e, they are based on a characteristic special to the immediate universe classified. The special divisions of Economics in [P] are based on Business characteristic. The special divisions of History in [P] are based on Community characteristic; and so on.

5 Third Zone

The third zone consists of special (I) got by a device, viz (AD), or (CD) or the Device of Enumeration. The classes in the third zone are split up into two groups, viz

    1 a group of classes occupied by the penultimate sector; and
    2 another group of classes occupied by the last sector.

In [P] of certain (MC), the penultimate sectors of classes are called specials, such as,

    specials in Physics
    specials in Chemistry

And the last sectors of classes are called systems, such as,

    systems in Physics
    systems in Medicine

6 Fourth Zone

The fourth zone of classes consists of classes got by a device, viz (SD).

ZONES UNDER *z* GENERALIA

0 Introduction

In part F, we have given the general layout of the (MC) of CC. We have seen that these (MC) are grouped into four zones.

In this chapter, we shall describe the four zones of the second order array under the (MC) *z* Generalia.

1 First Zone

The first zone consists of the classes, pertaining to the different forms of exposition of the Generalia Class. The names of the classes and the class numbers assigned to them are given in section F11.

11 PRE-FIRST SECTOR

These classes are designated as the pre-first sector of the Generalia (MC), because small letters of the Roman alphabet which are given the least ascending sequence of absolute value, are used to represent them. A pre-first sector means a sector or a group of classes which stands before the first sector or the first group of classes.

12 SECTOR

The term 'Sector' is used in this Scheme for a group of classes formed either of the 1 to 8 Indo-Arabic numerals or the A to Z capital letters of the Roman alphabet or *a* to *z* small letters of the Roman alphabet.

13 SECTOR DEVICE

This is done on the basis of a powerful device called Sector Device used by this Scheme to gain infinite hospitality in array. This Device is explained in detail in section R15.

14 SECOND ORDER ARRAY

The four zones of classes under *z* Generalia are said to form the

second order array, because, the first order array consists of the (MC) themselves, and the Generalia (MC) represented by *z* is one of them.

15 PROPER METHOD OF WRITING CLASS NUMBERS

The (MC) letter for the Generalia (MC) is the small letter *z* and hence the proper method of writing the class numbers of the Generalia Form (MC) may be shown as below:

za	General Bibliography	*zw*	General Biography	
zk	General Encyclopaedia	*zx*	General Miscellaneous Collec-	
zm	General Periodical		tions, Works	
xn	General Directory, Year-book			

16 REASON FOR NOT WRITING SMALL *z* IN CLASS NUMBERS

But the reason for not writing the small letter *z* in the class number of these Generalia Form (MC) is that even though the class numbers are expansions of the original class number small *z*, they get anterior position in arrangement on account of a rule which says that "any number followed by a small letter shall have precedence over the number itself". And as without writing the initial small letter *z* they automatically get precedence over it in the arrangement, the author has put a convention that in the class number of these Generalia (MC), the Generalia (MC) number small *z* need not be written.

2 Second Zone

The second zone of the second order array represents materials of an encyclopaedic nature centering round a geographical area. The rule regarding this group of classes reads thus: "If the exposition is confined only to Generalia Materials on a specific geographic area, the digit small *z* should be divided by the geographical divisions as per schedule provided in the Scheme, using the areas concerned for the purpose."

The classes in this zone are:

*z*4	Orientalia	*z*441	Dravidology
*z*41	Sinology	*z*4498	Ceylonology
*z*42	Nipponology	*z*5	Occidentalia
*z*44	Indology	*z*51	Greekology

z57   Scandinaviology   z73   Americanology
z677 Egyptology

3 Third Zone

The third zone of the second order array represents materials centering round any person who has been encyclopaedic in his range of influence and contribution to recorded thought and attracts contributions on himself from the angle of most of the (MC). The part of the (IN) lying in the second order array of this zone is to be got by (AD).

31 OUTSTANDING PERSONALITY

The rule regarding the construction of a class number for an outstanding personality requiring a place in this zone reads thus: "If the exposition is confined only to generalia materials by and on a specific person, the digit small z should be amplified by (AD) using the name of the person concerned for the purpose." This rule is applicable only to a person of truly 'Generalia' activity and output and not to one who is dominantly assignable to a subject lying within any other (MC). Indeed this rule will be applicable only to a few persons.

32 MAHATMA GANDHI

Such an outstanding personality requiring to be classed in this group of classes is Mahatma Gandhi who had been encyclopaedic in his range of influence and contribution to recorded thought and who has also been attracting contributions on himself from the angle of most of the (MC). Hence we can construct a class number for Mahatma Gandhi by (AD) thus:

zG   Gandhiana

33 GANDHIANA

This class number is designated as Gandhiana. The name Gandhiana means Generalia Material by and on Mahatma Gandhi. This class number will hold collected works of Mahatma Gandhi and such works on him as describe his multifarious activities touching various branches of knowledge during his life time. In this class number

z = (MC) Ganeralia which is the (BC)

G = (IN) in the facet of outstanding personalities. It represents Mahatma Gandhi

4 Fourth Zone

The fourth zone of the second order array represents materials on Generalia centering round particular subjects.

41 SUBJECTS GROUPED

The subjects that are grouped under this zone are the following:

1 Jainology 2 Catholicology 3 Islamology

Regarding these subjects the author observes thus: "These subjects are not merely on the Religions concerned. Nor are they on the Sociology of the community following the Religion concerned. They are Generalia in every sense of the word." The class numbers for these subjects are written as shown below:

z(Q3) Jainology z(Q7) Islamology
z(Q62) Catholicology

CC: ZONES IN PERSONALITY FACET

1 Three Zones

From the schedules of the individual (MC) in ed 7, we see that only the first three zones in the first order array of the [P] of the (MC), viz, Physics, Chemistry, Biology, Agriculture, Medicine, Psychology, Education and Economics are used.

2 Zones in [P] of Law

In the schedule of the first order array of [P] of the (MC) Law, three zones of classes are seen, viz, the first zone, the second zone and the fourth zone. The first zone as usual consists of the approach material, the second zone consists of the special (I) got by enumeration on the basis of the community characteristic and the fourth zone consists of the community (I) got by (SD). These three zones in the first order array of the community facet of [P] of Law are illustrated below:

First Zone:

Za	Bibliographies of law	Zm	Periodicals in law
Zk	Cyclopaedias of law		

Second Zone:

Z1	International law	Z42	Japanese law
Z2	Indian law	Z5	Law of European communities

Fourth zone:

Z(Q2)	Hindu law	Z(Q6)	Christian law
Z(Q5)	Jewish law	Z(Q7)	Muslim law

3 Zones in [P] of Other (MC)

In the first order array of [P] of the other (MC), only two zones, viz, the first and the second zones are used. Regarding this situation

as we see in the schedules, the author observes thus: "All the zones in all the arrays are not being used at present. The reasons for this should be found out. It may be that in certain arrays certain zones will always have to be kept barren. But the Law of Parsimony would keep us ever on the alert to find uses for them, for it would not like any zone in any array left fallow. According to this law the additional versatility added to the notational system by the idea of zone analysis may open our eyes to certain types of (I) which we had hitherto overlooked in the idea plane or set aside as beyond the capacity of classification for the very reason of the inability of the notational system to implement them. Therefore, an ever-continuing task will be to examine every array brought into use from time to time and to investigate the possibility of bringing all its zones into use."

4 Zones in Arrays of Other Facets

Even as the arrays in [P] are split up into four zones, so also the arrays of a similar nature in other facets, such as [M] [E] [S] and [T] can be split up into four zones and mixed notation allows us to distinguish them in the notational plane.

CC: ZONES IN MATTER FACET

1 First Zone

Regarding zones in arrays of [M] the author observes thus : "The matter facet is not much in use in superficial classification, but it is bound to be much in demand in depth classification. A profitable utilisation of all the four zones needs examination... Attributes of a physical, chemical or biological nature, and of the nature of value may be looked upon as common matter isolates and accommodated in zone 1 of array 1 of the matter facet... The isolates in this zone will be very large in number, therefore, several arrays may be necessary. Each letter in the array of order 1 may represent a group of attributes or values which can be correlated more or less to the traditional main classes. Each of these, may be subdivided on the basis of some suitable characteristic. Such a comprehensive schedule is yet to be constructed, but here is a short illustrative schedule of that kind." [42A]

2 Illustrative Schedule

c   Physical properties (the lower case letter *c* represents the (MC) Physics)
c4   Thermal properties (the digit 4 represents the canonical class Heat in the (MC) Physics)
c4283 Specific Heat (the digits 283 represent Specific Heat in [E] of the canonical class Heat in the (MC) Physics)
c47   Thermodynamic properties (the digit 7 represents Thermodynamics in [E] of the canonical class Heat in the (MC) Physics)
e   Chemical properties (the lower case letter *e* represents the (MC) Chemistry)
g   Biological or Vital properties (the lower case letter *g* represents the (MC) Biology)
r4   Ethical value (the lower case letter *r* represents the (MC) Philosophy and the digit 4 represents the canonical class Ethics in the (MC) Philosophy)
r5   Aesthetic value (the digit 5 represents the canonical class Aesthetics in the (MC) Philosophy)

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s   Psychological value (the lower case letter *s* represents the (MC) Psychology)

t   Educational value (the lower case letter *t* represents the (MC) Education)

y   Social value (the lower case letter *y* represents the (MC) Sociology)

These (IN) are used as analogues of (SD), i e, the initial capital letters of the subjects represented by them are replaced by the corresponding lower case letters and hence they are analogous to the (SD) numbers.

3 Two Groups of Attributes

31 FIRST GROUP OF ATTRIBUTES

The (IN) are split up into two groups. The first group of attributes consists of property attributes, i e, Physical, Chemical and Biological or Vital property attributes. Regarding these (I) the author observes thus: "It was believed till recently that there can be no pre-first octave common matter (I). This would mean running the pre-first octave of the [M] to waste. This would offend the Law of Parsimony. The exegetic principle was applied to utilise this unused zone of the first order array of [M]. It has been provisionally decided to accommodate in this zone Physical, Chemical and Vital attributes when the host is a concrete entity, as if these were matter (I). To regard such attributes as manifestations of matter is no doubt artificial. But curiously in our discussion with various people, we have found that this is not altogether unacceptable. It gets confirmed by the practice of the *Thesaurus* also which lists words for ideas." Here, the author refers to the *International Thesaurus of English words and phrases* by Peter Roget, in which words for different ideas are collected. It lists all such physical, chemical and vital attributes under the heading 'Matter'.

32 SECOND GROUP OF ATTRIBUTES

The second group of (I) in this schedule are value attributes— such as, Musical, Literary, Linguistic, Ethical, Aesthetical, Psychological, Educational and Social value attributes. It is likely that such attributes arise mostly when the host subject represents a person or a social personality. The construction of the (CI) numbers for this second group of (I) is analogous to that of the

first group of (I) representing Physical, Chemical and Biological attributes.

The use of these (I) in class numbers may be illustrated as below:

F118	Chemical technology of Gold
F118;c	Physical constants of Gold
F118;c4	Thermal constants of Gold
F118;c4283	Specific Heat of Gold
J37	Fruit
J37;e	Chemical content of Fruit
J37;e97	Vitamin content of Fruit
O111,2J64	Shakespeare. Dramatist
O111,2J64;nr	Musical quality of Shakespeare's Plays
O111,2J64;p1	Rhythm in Shakespeare's Plays
O111,2J64;r4	Ethical quality of Shakespeare's Plays
O111,2J64;s43	Imagination in Shakespeare's Plays
O111,2J64;t	Educational Value of Shakespeare's Plays
O111,2J64;y	Social Value of Shakespeare's Plays

The anteriorising quality of a lower case letter in each of the above examples becomes fruitless as it is preceded by a (CS). J37;e has precedence over J37. But J37; is not a class number.

4 Zones 2, 3 and 4 of [M]

Regarding the zones 2, 3 and 4 in arrays of [M], the author observes thus: "The number of materials figuring in depth classification will be very large. But in a particular basic or host class, only a limited number of materials will be relevant. It is only these, that will have great literary warrant. The number of such, may not exceed the capacity of the three octaves of zone 2. Therefore, they may be numbered by the Favoured Category Device. The schedule has yet to be constructed for various host classes. Many artificial materials may figure in certain host classes. Such artificial materials will appear from time to time and also disappear from use similarly. It is likely that they have international trade names. If so, they may be given (IN) by (AD). If not, they may be given (IN) by (CD). The former class of materials will be accommodated in the last octave of zone 3; and the latter will be accommodated in the penultimate octave of the same zone. Occasionally, certain materials not chosen for zone 2 or 3 may figure in any host class. It will be a convenience to have for this purpose a more or less exhaustive

schedule of materials. It will be an advantage to make the schedule correspond to the schedule of Useful Arts. Then the number for any additional unusual material of a host class may be enclosed within brackets and accommodated in zone 4." [43]

CC: ZONES IN ENERGY FACET

1 Common Energy Isolates

Zone one, in the array of [E], is assigned to ECI. In this case, they become common energy (I). In CC their (IN) begin with Roman smalls; but Roman small's anteriorising quality is fruitless, as it will be preceded by the (CS) colon (:) and a number ending with a (CS) cannot be a class number by itself. Thus, the common energy (I) is a posteriorising one. In depth classification, there will be need to occupy zone one more fully than in superficial classification. In the latter, it is only the (I) Evaluation that is usually incident. Example:

2 First zone (ECI)

2:f	Research in Library Science
2:g	Evaluation of Library Science
2:u	Survey of Library Science

3 Second zone (ESI)

2:1	Library book selection
2:2	Library organisation
2:3	Library functions
2:4	Library cooperation
2:5	Technical treatment of library resources
2:6	Circulation work of library resources
2:8	Library administration

4 Fourth zone (DCI)

2:(B28)	Statistical study of libraries
2:(S)	Psychological study of libraries
2:(Y)	Sociological study of libraries
2:(Z)	Library legislation

In this illustration, we see that three zones of the first order array of [E], are used.

CC: ZONES IN SPACE FACET

0 Zones

"In superficial classification adequate for macro-thought embodied in books, the conventional division of the world into continents, countries and constituent states is usually sufficient. These divisions occupy zone 2 of their respective arrays in the notational plane. In depth classification need will often arise for divisions of the world on the basis of other characteristics, such as orientation, near-world-state formation, minerals, crops and political, economic and social and other similar factors. So, in this Scheme, zones 3 and 4 are used for the purpose in the array of order 2 having '1 world' as its immediate universe." [43A] Zone 2 is assigned to hemispheres, oceans and global zones of the earth. Let us have a glance at these three zones having world as their immediate universe.

1 World

Zones in array of the second order.

When the isolate in the first order is '1 World', we get the following divisions in the second order array.

Second zone:

11 Eastern hemisphere	15 Countries bordering	192 Tropical zone
12 Southern hemisphere	on Indian ocean	193 Sub-tropical zone
13 Western hemisphere	16 Atlantic countries	195 Temperate zone
14 Northern hemisphere	17 Pacific countries	197 Sub-arctic zone
	191 Equatorial zone	198 Arctic zone

Third zone. Penultimate sector:

19A	By orientation, i e, by the geographical directions beginning from East				
19B	East	19G	South	19W	Northeast
19C	Neareast	19L	Southwest	19X	Inside
19D	Middleeast	19M	West	19Y	Surrounding
19E	Fareast	19R	Northwest	19Z	Outside
19F	Southeast	19S	North		

Third zone. Last sector. Near-Sovereign formations by (CD):

N   League of Nations Area (Established in 1918)
1N4   United Nations Area (Established in 1945)
1N48   The Commonwealth of Nations Area (Established in 1948)

Fourth zone. Divisions by (SD).

1(F)	Industrial countries
1(H7118)	Countries with gold mines
1(H71691)	Uranium areas
1(J:134)	Saline tracts of the world
1(P111)	English speaking countries
1(P123)	Spanish speaking countries
1(Q7)	Muslim countries
1(W4)	Monarchies
1(W6)	Democracies
1(W691)	Communistic countries
1(W7)	Colonies
1(W78)	Mandated countries
1(X61,56)	Sterling area (Sterling currency is the name given to English currency to distinguish it from other currencies)
1(X61,73)	Dollar area
1(Y:3)	Developed countries
1(Y:41)	Under-developed countries
1(Y:438)	War devastated countries

2 Two Zones of [S2]

The schedule for [S2] is split up into two zones, viz,

1 the first zone, consisting of physiographical features grouped under pre-first sector and

2 the third zone consisting of population clusters grouped under penultimate sector and individual localities grouped under last sector. These zones are illustrated below. The first zone in the schedule of geographical divisions accommodates physiographical features as illustrated below:

21 First Zone of [S2]

Pre-first sector : Physiographical features

a Geosphere	f Forest	j Hydrosphere
e5 Delta	g1 Valley	p6 Lake
e6 Island	g6 Mountain	r River

23 THIRD ZONE OF [S2]

Penultimate sector : Population clusters

9A	Population clusters	9J	Small cities
9B	Cities	9P	Villages
9C	Super-cities	9T	Hamlets
9F	Medium cities		

Last sector : Individual localities

A to Z Individual localities by (AD)

3 Arrangement of Physiographical Divisions

In the arrangement of the schedule of the physiographical divisions, there is progression in a vertical direction from below the earth's surface through the geosphere and hydrosphere to the atmosphere.

31 NEED OF THESE DIVISIONS

The separate second level facet of physiographical divisions and population clusters, is much needed and hence is found useful in depth classification.

32 USE OF THESE DIVISIONS

When these divisions are required to be used, the digits representing them may be used after the relevant geographical division numbers of the first level [S]; and the two numbers thus brought together may be separated by the (CS) dot (.). The initial letter of the name of the specific physiographical area may be written after the [S2] number. Examples:

U.2.g1G   Geographical description of Gangetic valley
U.2.g6V   Geographical description of Vindhya mountains
U.2.rG   Geographical description of the river Ganges
U.21.g1V   Geographical description of Vaigai valley
U.21.g6N   Geographical description of Nilgiri mountains
U.235.P   Geographical description of Poona city
U.4.g6H   Geographical description of the Himalayas

4 Use of the Third Zone of [S2] as the Third Zone of [P2] in History

The schedule of population clusters is also used as the third

zone of [P2] in History. The second zone of [P2] of History consists of the (I) which are derived on the basis of Constitutional Organ characteristic. These (I) are also required to be used as the organs of a local body.

5 [P2] of History. Telescoped Facet

This makes [P2] of History a telescoped facet.

51 TELESCOPED SCHEDULE

The telescoped schedule for [P2] of History reads as below:

1	Head	7	Judiciary
2	Executive	8	Civil service
3	Council	9A	Population clusters
4	Party	A to Z	Individual localities by
5	Public		(AD)
6	Committee		

The use of this schedule in class numbers may be illustrated as below:

V235, 3'N62	Legislature of Maharashtra State in 1962
V235, 9A'N6	History of the Local Bodies of Maharashtra State brought upto 1960's
V235, 9A, 3'N62	Councils of the Local Bodies in Maharashtra State in 1962
V235, P'N6	History of Poona City brought upto 1960's
V235, P, 3'N62	Council of the Corporation of the Poona City in 1962.

CC: ZONES IN TIME FACET

0 Two Zones

Two zones are indicated in the array of [T] by the author, viz, the first zone and the third zone. The first zone is represented by Roman smalls as the first significant digits. It is assigned to Featured Time Divisions. The third zone is represented by the Roman capitals as the first significant digits. It is assigned to Public Time Divisions.

1 Featured Time Divisions

The schedule of featured time, i e, the time presenting some special features, such as day time, morning, noon, sunset, etc, reads as below:

c	Day-time	n5	Autumn
d	Night	n7	Winter
e	Twilight	p	Meteorological period
n	Season	p1	Dry [Summer- (i) Vasant, (ii) Grīṣma]
n1	Spring	p5	Wet [Rainy season-(i) Varṣa, (ii) Śarad]
n3	Summer	p8	Snow [Winter-(i) Hemant, (ii) Śiśir]

In western countries four seasons of the year are recognised. They are indicated in the above schedule by the names, Spring, Summer, Autumn and Winter. In India, however, three seasons are recognised, viz, Dry, Wet and Cold. So to represent these three seasons in India, the meteorological period divisions, viz, Dry, Wet and Snow, as indicated in the above schedule appear to be quite appropriate. The names of the three seasons popularly known in India are Summer, Rainy and Cold or Winter. Therefore, the popular names of these seasons along with the appropriate Sanskrit names of the pairs of seasons corresponding to these three seasons are given in

brackets after the names of the meteorological periods in the above schedule.

2 Public Time Divisions

The schedule of chronological divisions that is given in CC is the general schedule of chronological divisions. It is also termed as the schedule to represent public time divisions. This schedule is useful to represent duration of time in the case of many subjects.

3 Use of Featured Time Divisions

The schedule of featured time divisions can be used in the first level facet of time and also in the second level of that facet. It is used in the second level of that facet when an (I) of it appears in relation to a particular day, month, or year. Examples:

L44:453'p5   Incidence of asthma in rainy season
L44:453:55'd   Adopting controlling measure for the incidence of asthma at night
L44:453.441'N54'p5   Incidence of asthma in the rainy season in 1954 in Madras State

CC: ECONOMICS

1 Four Trains of Characteristics

Four trains of characteristics may have to be used in the classification of a subject in the (BC) Economics. They are:

1 Business   2 Problem   3 Geographical Division, and   4 Chronological Division.

11 FACET FORMULA

The facet formula of these trains of characteristics reads as below:

X [P] : [E] [2P]. [S] ' [T]

In this facet formula

X	=	(MC) Economics	.	=	(CS) for [S]
P	=	[P] or Business facet	S	=	[S] or Geographical division facet
:	=	(CS) for [E] or Problem facet	'	=	(CS) for [T]
E	=	[E] or Problem facet	T	=	[T] or Chronological division facet
2P	=	[2P] or Actor facet			

12 BUSINESS CHARACTERISTIC

Out of these four trains of characteristics, if we take the train of business characteristics, the first divisions obtained by its application to Economics, are as shown below:

3	Communication	6	Credit
4	Transport	7	Public finance
5	Commerce	8	Other Businesses

2 Array of Order One

This group of divisions is called the array of order one. The term 'Array' is used for a set of mutually exclusive coordinate sub-classes, totally exhaustive of a class, derived by its division according to some one characteristic.

21 First Order Array of Economics

The array of the first order of Economics derived by its division on the basis of the Business characteristic satisfies this condition as it consists of a set of mutually exclusive coordinate sub-classes totally exhaustive of the class Economics.

22 Array of Order Two

Now, if we take the subclass 3 Communication, we find that it is again subdivided on the basis of another characteristic, viz, the Type of communication characteristic. By the application of this characteristic, we get the subclass Communication subdivided as below:

31 Communication by Post

35 Telegraph communication

36 Telephone communication

These subdivisions of the subclass Communication are said to form an array of order two and as it is derived by the application of two characteristics of one category, viz,

1 Business characteristic, and

2 Type of communication characteristic

we say that it is derived by the application of a single train of characteristics.

3 Business Facet

In this way, we can see how the other subclasses in the first order array of the train of business characteristic can again be subdivided on the basis of other relevant characteristics, which are of the same kind as the business characteristic.

When all these subclasses are thus subdivided, they are said to form a whole group of divisions produced by the application of a single train of characteristics and the totality of isolates in this group is said to form a facet. The term 'Facet' is thus used to signify the whole series of isolates in all the arrays based on a set of related characteristics of division. The facet is also given the name of the particular train of characteristics. Thus, in the present instance, the facet derived by the application of the train of business characteristics is called business facet. The division

X8(A) is fixed as a general class number for Industry in general and class numbers for specific industries are obtained by (SD) thus. X8 (F182) Iron industry. In this class number F stands for Chemical technology, 1 stands for Inorganic substances, 8 stands for the 8th group of the Inorganic substances, and 2 stands for Iron. Thus, F182 means Chemical technology of iron and X8(F182) means Iron industry.

31 Applied Economics

The specific Industries whose class numbers are obtained by (SD) form a group of specific industries and this group is called Applied economics. In Pure economics, the problems of economics are considered in a general way and in Applied economics, they are considered in a restricted way with reference to a particular industry. The subject 'Economics of consumption' considers the problem of Consumption in a general way; but the subject 'Economics of the consumption of agricultural commodities' considers the problem in a restricted way. Its range of consideration is restricted to a limited range of the Agricultural industry. At the head of this group of classes, there is a Generalia industry class. The whole of this group is numbered as shown below:

X8(A)	Industry	X8(M13)	Paper industry
X8(F182)	Iron industry	X8(M6)	Glass industry
X8(F551)	Coal industry	X8(M7)	Textile industry
X8(J)	Agricultural industry	X8(MJ452)	Cigar industry
X8(JX)	Lumber industry		

4 Pure Economics

The first group of classes consists of the isolates of Pure Economics, such as:

X3	Economics of communication	X4	Economics of transport

41 Specific Industries

Another group of classes consists of specific industries or the group of Applied economics. These are illustrated in section H631.

42 Specials in Economics

Let us next consider the classes of Specials in Economics. The

classes in this group are derived on the basis of the Device of Enumeration. They are illustrated below:

X9A	Specials in Economics	X9S	Private enterprise
X9B	Small scale industries	X9V	Public utility
X9D	Large scale industries	X9W	Public enterprise

43 SYSTEMS OF ECONOMICS

Lastly, let us consider the classes of Systems of Economics. By a System of Economics is meant, Economics expounded according to a particular system of thought. The class numbers of the Systems of Economics are obtained by (CD) with a Generalia systems class at the head of all the Systems of Economics. These classes and their class numbers are as given below:

XA   Systems of Economics (in general)

XB   War economics (War dates from the most ancient historic period. As the digit A representing the most ancient period is assigned to the Generalia Systems Class, the next digit, i e, B in the table of chronological divisions, representing the next ancient period is assigned to War economics)

XM   Cooperative economics (The System of Cooperative economics was recognised sometime in the 19th century and hence the digit M representing that century is assigned to it).

XM2   Socialism (The idea of Socialism originated in the classical work of Karl Marx, viz, *Capital*. Marx was born in 1818 and hence Socialism is individualised as a System of Economics by the chronological division number M2 which stands for 1820's)

XN1   Guild socialism (This System got recognition in the 2nd decade of the 20th century and hence the digits N1 representing that decade are used to individualise it).

XN16   Syndicalism (This System was recognised in 1916 and hence the digits N16 representing that year are used to individualise it).

XN17   Communism (This System has its origin in the Russian Revolution which took place in 1917 and hence the digits N17 representing that year are used to individualise it).

XN19   Technocracy (The term 'Technocracy' appeared for the first time in the writings of William H Smyth. He defined it in 1919 as a theory of social organisation and a system of National Industrial Management. This is why the digits N19 representing that year are used in the class number to individualise this System).

CC: TELESCOPED FACET

1 Three Levels of [P]

The whole Business facet of Economics or as it is also called [P] of Economics is a Telescoped Facet, as it consists of three levels of [P] in the round, arranged within one facet one after another on the basis of the Principle of Increasing Concreteness in one continuous array according to their distinct sectors:

1   The sector of [P]   3   The sector of (Sys)
2   The sector of [Sp]

In the idea plane, these three sectors of classes are three levels of [P] but in the notational plane, they have been accommodated in one level. This is due to the use of distinctive notation for the classes in the respective sectors. This method of telescoping a facet into an array has helped a good deal to shorten class numbers and simplify notation. In this method, we telescope two or more facets into an apparently single facet in the schedule. Such a telescoping exploits the formation of zones and sectors in an array as a result of the use of Mixed Notation. The use of the Principle of Zone Analysis secures helpfulness among (I) in an array.

2 Sequence of Sectors

In this telescoping, the appropriate Principle for Facet Sequence is used to decide the sequence of the different facets. The earliest possible level of facet is accommodated in one of the latest sectors— either in the last sector in zone 3 or even in a sector in zone 4, if the number of possible facets to be telescoped warrants it. The successive later levels are accommodated in the appropriate earlier sectors. The oft-recurring last level is accommodated in zone 2. This has resulted in considerable economy in the length of class numbers and at the same time in the retention of the capacity to accommodate several levels of facets in conformity to the Wall-Picture Principle and Whole-Organ Principle.

3 Array of Order One

If we overlook the first digit 'X' denoting the basic class Economics, then what remains constitutes the array of order one as viewed from the angle of the notational plane. Let us illustrate:

31 FIRST SECTOR

The first sector of zone 2 in the first order array is assigned to the subdivisions of the Favoured System of Economics, based on Business characteristic. These are:

3   Communication to 8 Other Businesses

32 PENULTIMATE SECTOR

The penultimate sector of zone 3 in the first order array is assigned to Specials in Economics. These are:

9A   Specials (Generalia Class) to 9W Public Enterprise

33 LAST SECTOR

The last sector of zone 3 in the first order array is assigned to Systems of Economics. These are:

A   Systems (Generalia Class) to N19 Technocracy

331 CONVENTION REGARDING CHRONOLOGICAL (IN)

Though the number assigned to Technocracy consists of 3 digits, it is to be considered as the number consisting of only one digit. This is a convention adopted in CC. This convention as enunciated in the *Prolegomena* reads thus: "A chronological isolate number may have one, two, three or even a larger number of digits. Whatever be the number of digits, they are all taken to be coordinate and to form a single array." A number got by (CD) is significantly a fused number in the *Classified Catalogue Code*.

4 Amplifying Facet of Kind One

The facet of Systems is called an amplifying facet of kind one, the canonical classes of Economics and also the problems of Economics are expounded in each of the Systems according to the normative principles of that particular System. A rule is, therefore, laid down by the author that the systems facet should precede all the

other facets of the basic subject. This means that the divisions, such as Communication, Transport, etc, which are the divisions of the (BC) Economics and which form the business facet or the facet of Canonical Economics and also the other facets of Economics, such as the problem facet, [S] and [T] are to be used for subdivisions of each of the Systems of Economics in a similar way as for the (BC) Economics itself. Systems facet is taken to be a [P].

This special feature of the Systems facet may be illustrated as below. Let us take War economics as an illustration. The class number for War economics is XB. The class numbers formed by the addition of the divisions of the business facet may be shown as below:

XB,3   Economics of communication in War economics
XB,4   Economics of transport in War economics
XB,5   Economics of commerce in War economics
XB,6   Credit transactions in War economics
XB,7   Public finance in War economics

The comma (,) in these class numbers is used as a (CS) to show distinctly the divisions of the business facet. The comma (,) is indicative of [P] in the Scheme. The business facet of Economics is a level of [P] of Economics. When an (I) of it is added immediately after X, the comma (,) is not to be used. But when these divisions are added to the class numbers of any of the Systems of Economics, they feature as [P2] and the comma (,) is required to be used, as the preceding system number is [P] and is already added immediately after it.

5 Amplifying Facet of Kind Two

The facet of Specials is called an amplifying facet of kind two, as in its case, the exposition of the (BC) Economics is restricted to a limited range of any of the Specials Classes. The rule regarding this Specials Facet is also laid down. It stipulates that the specials facet should succeed the systems facet but precede all the other facets. Specials facet is a [P]

Let us illustrate this feature of the specials facet, succeeding a systems facet:

XB,9B   Small scale industry in War economics
XB,9D   Large scale industry in War economics
XB,9S   Private enterprise in War economics

An illustration of the specials facet preceding the business facet of Economics may be shown as below:

X9B,4   Transport in small scale industry
X9B,5   Commerce in small scale industry
X9B,8(F182) Small scale iron industry

In these class numbers, the (IN) of the business facet are featuring as [P2] and the (CS) comma (,) is required to be used as the (IN) B standing for Small scale industry may perhaps be required to be expanded further.

An illustration of a class number in which the three sectors of the business facet are featuring as three levels of [P] may be given as below:

XM,9B,8(M7).2'N6 Cooperative Small scale textile industry in India in 1960's

CC: ZONES IN ARRAYS OF FACETS OF INDIVIDUAL (MC)

0 Zones in an Array

The idea of zones according to the specific types of (BC) and the specific types of notation used to individualise respective zones in an array as developed in the distribution of the array of the (MC) of this Scheme is also followed in a similar way in the subdivision of any array in any facet of the individual (BC) of this Scheme.

1 Zones in the Business Facet of Economics

11 First Zone

The zone of the approach material of the first order array of the business facet of Economics is its first zone. It consists of the classes as shown below:

Xa   Bibliography of Economics
Xk   Cyclopaedia of Economics
Xm   Periodical in Economics

12 Second Zone

The zone of the first sector of the first order array of [P] of Economics is its second zone. It consists of the Special Isolates of the (MC) as shown below:

X3   Economics of communication
X4   Economics of transport
X5   Economics of commerce

131 Third Zone: Penultimate Sector

The classes consisting of the Specials in Economics which are represented by the empty digit 9 augmented by numbers got by the Device of Enumeration formed the Penultimate Sector of the third zone. The classes in this sector are given in section H642.

132 THIRD ZONE: LAST SECTOR

The classes consisting of the Systems of Economics in which capital letters are used to indicate the period of recognition of the specific systems form the last sector of the third zone. The classes in this group are illustrated in section H643.

2 Energy Facet of Economics

X:1   Economics of consumption
X:2   Economics of production
and so on.

21 TRAIN OF PROBLEM CHARACTERISTICS

This array of classes is said to be the array of order one of [E] or Problem Facet. Each isolate class in this array is subdivided by the application of a specific characteristic pertaining to it. The characteristic used is said to be one of the train of problem characteristics.

211 ASPECT OF CONSUMPTION CHARACTERISTIC

The divisions of X:1 Economics of consumption are derived by the application of the 'Aspect of consumption characteristic'.

The class numbers derived on the basis of this characteristic are written as shown below:

X:16   Standard of living   X:17   Economic conservation

Examples of other class numbers for other isolates in [E]

X:2   Economics of production
X:3   Economics of distribution

3 Transport in Business Facet and Transport in Problem Facet

There is a difference between the term 'Transport' used in the business facet and that used in the problem facet. The term 'Transport' in the business facet indicates mode of transport, such as land transport, water transport, and air transport. The term 'Transport' in the problem facet indicates the processes of transport, such as packing, collection, haulage, freight, warehousing, etc.

4 Commerce in Business Facet and Trade in Problem Facet

Similarly, there is a difference between the term 'Commerce' in the business facet, and the term 'Trade' in the problem facet. The term 'Commerce' in the business facet indicates the mode of Commerce. It is divided into 6 groups. These groups are as follows:

X51	Commerce by State	X55	Commerce by Geography
X52	Commerce by Structure	X56	Commerce by Finance
X54	Commerce by Transport	X57	Commerce by Personality

5 Material Facet for X61 Money

There is a special material facet for X61 Money. It reads as below:

1 Gold   2 Silver   4 Paper   5 Bimetalism

Before adding these divisions to the class number X61, the (CS) semi-colon (;) indicating [M] is to be used as shown below:

X61;1 Gold currency
X61;2 Silver currency
X61;4 Paper currency
X61;5 Bimetalism

6 Currencies of Different Countries

For indicating currencies of different countries, the numbers of the countries from the table of the geographical divisions are used and these numbers are added to the class number X61 after writing the (CS) comma (,) indicating that it is [P2] of the class number X61.

This feature may be illustrated as below:

X61,2   Indian currency i e Rupee
X61,56   British currency i e Pound Sterling
X61,73   USA currency i e the Dollar of USA

7 Problem Facet after Industry Number

The divisions of the problem facet are used directly after X when the problems are considered in a general way. But when they are related to any specific industry then they are used after the properly constructed industry number. We may illustrate this feature by means of examples as below:

X8(F182)	Iron industry
X8(F182):1	Consumption of iron
X8(F182):2	Production of iron
X8(F182):3	Distribution problem in iron industry

8 Problem Facet after Specials and Systems

Similarly, the divisions of the problem facet are also required to be used as the subdivisions of any of the Specials and Systems of Economics. Their use under Specials and Systems of Economics may be illustrated as below:

X9B:1	Consumption of commodities in small scale industries
X9B:2	Production of commodities in small scale industries
X9B:3	Distribution problem of small scale industries
XB:1	Consumption in War economics
XB:2	Production in War economics
XB:3	Distribution problem in War economics

91 Problem Facet after Industry Number in Specials and Systems of Economics

Again, these divisions are also used for the subdivision of a specific industry in a specific Special or System of Economics as shown below:

X9B,8(F182):1	Consumption of iron produced on the basis of small scale industry.
X9B,8(F182):2	Production of iron on the basis of small scale industry
X9B,8(F182):3	Distribution problem of small scale iron industry
XB,8(F182):1	Consumption of iron in War economics
XB,8(F182):2	Production of iron in War economics
XB,8(F182):3	Distribution problem of iron industry in War economics
XB,9B,8(F182):1	Consumption of iron produced on the basis of small scale industry in War economics
XB,9B,8(F182):2	Production of iron on the basis of small scale industry in War economics
XB,9B,8(F182):3	Distribution problem of small scale iron industry in War economics.

92 Space Facet

The divisions of [S] are taken from the schedule of the geographical divisions. Some of the geographical divisions may be shown as below.

General divisions:

289

1	World	42	Japan	58	Russia
2	Mother country	43	Southeast Asia	7	America
3	Favoured country	44	India	72	Canada
4	Asia	5	Europe	73	USA
41	China	56	Great Britain	8	Australia

921 DIVISIONS OF INDIA

India being our mother country, we may use the digit 2 for India and write its divisions as per schedule of the Reorganised States after 1956 as provided in ed 6 as shown below:

2	India	23	Western States
21	Southern States	231	Former Bombay State
211	Madras State	232	Goa (Alternative)
212	Kerala State	235	Maharashtra State
213	Mysore State	236	Gujarat State
		237	Rajasthan State

As the former Bombay State is now split up into Maharashtra and Gujarat States, the number 231 assigned to it will not be required to be used now. The numbers for the Northern and Eastern States read as below:

24	Northwestern States	273	Bihar
243	Punjab (East)	275	Bengal (East)
245	Himachal Pradesh	277	Assam
247	Jammu and Kashmir	28	Centrally administered areas
25	Northern States	281	Delhi
252	Uttar Pradesh	282	Goa, Diu, Daman
255	Madhya Pradesh	297	Himalayan States
27	Eastern States	2971	Bhutan
271	Orissa	2973	Sikkim

Neighbouring States

298	Ceylon

2Q7 Pakistan (The digits Q7 representing Muhammadanism added after 2 are used as an analogue of (SD) and hence they are not enclosed in the circular bracket).

Examples:

X.1	Economic growth in the world
X.2	Economic growth in India
X.4	Economic growth in Asia
X:16.2	Standard of living in India

X8(F182).2   Iron industry in India
X8(F182):2.2   Production of iron in India

93 TIME FACET

The divisions of [T] are taken from the schedule of the chrono-
logical divisions. In that schedule the letter N is assigned to 20th
century. The decades and the years of the 20th century are shown
below:

N00 to N01   1st decade of the 20th century
N10 to N19   2nd decade of the 20th century
N20 to N29   3rd decade of the 20th century
N30 to N39   4th decade of the 20th century
N40 to N49   5th decade of the 20th century
N50 to N59   6th decade of the 20th century
N60 to N69   7th decade of the 20th century
N51 = 1951 A D N59 = 1959 A D N62 = 1962 A D

Examples:

X.1'N   Economic growth in the world in the 20th century
X.2'N6   Economic growth in India upto the 7th decade of the 20th
               century
X:16.2'N6   Standard of living in India in the 7th decade of the 20th
               century
X8(F182):1.2'N6 Consumption of iron in India in 1960's

94 SPECIAL PROBLEM FACET FOR BANKING

The division X62 Banking in the business facet is provided
with a special problem facet as the nature of its problems is different
from that of other divisions in the business facet. The schedule
of the problem facet for this class reads as below:

1   Lending   3   Discount
11   Rate of interest   5   Cheque
2   Reserve

The specific subjects obtained by the use of these divisions along
with their class numbers may be illustrated as below:

X62:1   Lending policy of a bank
X62:11   Rate of interest offered by a bank
X62:2   Reserve (which means that a percentage of deposits kept as reserve to
         meet the demands of the depositors)

X62:3   Discount (This means, the discount received by the bank for realising the amounts on bills, i e, cheques, bills of exchange, share certificates on behalf of the customers)

X62:5   Cheque transactions of banks

X62:8   Bank management

Other divisions of the problem facet of Economics are not applicable to Banking.

95 SPECIAL PROBLEM FACET FOR TAXATION

The division X72 Taxation in the business facet is also provided with a special problem facet as the nature of its problems is different from that of other divisions in the business facet.

The schedule of the problem facet for this class reads as below:

1	Incidence of taxation	127	*Ad Valorem* taxation
11	Equal taxation	13	Progressive taxation
12	Proportional taxation	2	Tax exemption
124	Specific taxation	32	Double taxation
		5	Effect of taxation

Examples:

X72:10bY2-49.3	Kolthammer (F W). *Some notes on the incidence of taxation on the working-class family in England*
X72:1.298'N42t	Das Gupta (B B). *Report on incidence of taxation.* 1942 (Ceylon, Finance Ministry, Committee)
X72:13	Seligman (Edwin R R). *Progressive taxation in theory and practice.* 1894
X7242:2	Exemption from tax on income from government bonds
X7292:2.231'N4	Exemption from stamp duty in Bombay in 1940's
X72:32.73'M9	Walter (Francis). *Double taxation in the United States.* 1895

CHAPTER H91

CC: BUSINESS MANAGEMENT

1 Devices Used

The class number X: 8 Business management is subdivided into distinct sectors and the devices used to obtain them are:

1 Sector Device
2 Device of Enumeration

The Sector Device has been described in section R15.

2 Device of Enumeration

21 ENUNCIATION

The Device of Enumeration consists in representing the isolates in any array by 24 Roman capitals (excepting I and O) in some mnemonic way or arranging the divisions in their canonical or traditional sequence and assigning Roman capitals to these divisions according to the sequence arrived at.

22 WHEN IS IT TO BE USED?

This Device is to be used when (CD) or (AD) cannot be conveniently applied to certain divisions. This Device is used for Specials in Physics, Chemistry, Biology, Agriculture, Medicine, Psychology, Education and Economics. The subdivisions of Business management and the Personnel management are also made on the basis of this Device.

3 Divisions of Business Management

Some of the divisions in the schedule of the Business management read as below:

X:8	Business management *Foci in*	X:81	Top management
	2P		*Array Telescoping begins*
First Sector of Zone 2		X:82	Board of management
Controlling Authorities		X:87	Executive

Array Telescoping ends   *(More Concrete Sector of 89)*
First Penultimate Sector of Zone 3   *Telescoping Point in Array* 1
Main problems of management   Earlier Level
      Telescoping Point   Development problems
Earlier Level   X:89ZB Development
X:89A   Production management   X:89ZC Laboratory stage
   Array Telescoping (1) *begins*   *Array Telescoping* (1) *ends*
X:89C   Standards management   Last Sector of Zone 3
   Array Telescoping (2) *begins*   Finance and accounts and office
X:89K   Location   management
X:89L   Lay-out   X:8C   Finance and accounts
   Telescoping Point Array 2   *Array Telescoping* (1) *begins*
Earlier Level   X:8D   Finance
X:89MA Working condition   X:8E   Budget
X:89MG   Material   *Array Telescoping* (2) *begins*
   Array Telescoping (2) *ends*   X:8G   Book-keeping
X:89N   Production engineering   X:H   Accountancy
X:89Q   Production control   *Telescoping Points* (1) and (2) *end*
   Array Telescoping (1) *ends*   X:8M   Office management
Second Penultimate Sector of Zone 3   X:8N   Public relation

In these divisions, the digit 8 is the main (IN) representing Business management.

4 Two Groups of Business Management

We see that the subject Business management is, in the first place, divided into two groups. The first group consists of the general problems of management and the second group consists of the specific problems of finance, accounts and office management.

41 FIRST GROUP

The first group is divided into two sectors, viz, the first sector and the penultimate sector. The penultimate sector is again sub-divided into two groups. The first group comprises the main problems of management and the second group comprises the development problems. The divisions of the development problems are used as second penultimate sector and capital letter Z is used as the empty digit for this second penultimate sector.

42 SECOND GROUP

The second group of divisions of Business management is classed

under the last sector divisions. In these divisions, the Roman capitals are used on the basis of the Device of Enumeration.

5 Use of Capital Letters Mnemonically

The author first arranged all the problems of the Business management in their canonical or traditional sequence as recognised by the specialists in Business management and then assigned Roman capitals to these divisions according to the sequence arrived at. The author has introduced this Device recently and his aim is to use capital letters as far as possible on the lines of the Mnemonic Device which is one of the devices employed to form or sharpen the focus in any facet. This method of using notation mnemonically has been systematically followed in this Scheme for all significant digits, i e, Indo-Arabic numerals, Roman smalls and Roman capitals. In the beginning, this Device was introduced for using mnemonically Indo-Arabic numerals only.

6 Zone Analysis for the Schedule of Business Management

Another feature of the schedule of the Business management is that the notation is used on the basis of zone analysis.

61 ZONES USED IN THE SCHEDULE

The zones actually used in the schedule are the second zone consisting of divisions denoted by Indo-Arabic numerals in the first sector and the third zone consisting of divisions denoted by the empty digits 9 and 9Z in the penultimate sector and Roman capitals in the last sector.

7 Miscellaneous Nature of (I) in the Array

Some of the divisions in this array such as

X:8	Business management	X:8F	Accounts
X:8D	Finance	X:8M	Office management

may be required to be used often in the case of many subjects; but some special divisions in this array, such as

X:81	Top management	X:89N	Production engineering
X:89M1	Emotion study	X:89Q	Production control

will be required to be used in a particular specialised host class, i e, (BC) in the business facet. Some of the (I) in such heterogeneous

arrays have to be got by enumeration while others are better got by some device, such as (AD), (CD), or (SD).

8 Proper (I) or True (I) and Quasi (I)

Further, some are (I) proper which indicate a single subject of study; while others have to be quasi-isolates, i e, artificial (I) which indicate a group of subjects or which are viewed as characteristics for subdivision. The (I) such as:

X31 Communication by Post   X36   Telephone communication
X35 Telegraph communication

in the business facet of Economics are proper (I) or true (I). The (I) X:8 Business management and X:9 Personnel management in the problem facet of Economics, indicate groups of subjects or are viewed as characteristics for the formation of (I) proper and hence these (I) are called quasi (I) or artificial (I).

91 MIXED NOTATION

To meet the requirements of such a heterogeneity, i e, miscellaneous nature of its (I) an array has itself to use a mixed notation; that is, it has to use substantive digits of different species, such as Roman smalls, Indo-Arabic numerals and Roman capitals. This leads to the formation of zones in an array. The implementation, i e, satisfying the condition in the notational plane of the findings of the zone analysis in the idea plane is well developed in this Scheme. Its use of four species of digits, viz, Roman smalls, Indo-Arabic numerals, Roman capitals and circular brackets used for packet notation enables the formation of four zones in an array corresponding to these respective species of digits.

CC: PERSONNEL MANAGEMENT

1 Three Sectors

The divisions of the Personnel management are subdivided into three sectors. Some of the class numbers in these sectors may be shown as below:

X:9   Personnel management
       (Labour problems)

First Sector of Zone 2
       (*Least Concrete sector of 9*)
General labour problems
       (Quasi Isolate)
X:91   Job evaluation
X:92   Merit rating
X:93   Wage
X:936 Profit sharing
X:97   Industrial relation
(*Least Concrete sector of* 97)
X:971 Morale maintenance
X:972 Collective agreement
(*More Concrete sector of* 97)
Telescoping Point in Array 2
       Earlier Level
X:979A Strained relation
X:979B Grievance
Telescoping Point in Array 2
       Earlier Level
X:97B Employee
X:97D Trade union
Resumption of Array 1
X:991 Labour market
Penultimate Sector of Zone 3
(*More Concrete sector of* 9)
Telescoping Point in Array 1
       Earlier Level
       Grades (Quasi Isolate)
X:99A Grades (in general)

Array Telescoping begins
X:99B The staff rendering manual
       labour (wage earning staff)
X:99C Unskilled staff
       Array Telescoping ends
X:99N The staff rendering intellec-
       tual service (salaried staff)
X:99P Clerical staff
Last Sector of Zone 3
(*Still more concrete sector of* 9)
Telescoping Point in Array 1
       Earlier Level
       Type of Labour (Quasi Iso-
       late)
X:9A   Type of labour (in general)
X:9B   Child labour
X:9F   Female labour
X:9G   Labour by time (Part-timed.
       Seasonal)
X:9H   Labour by area (Rural. City)
X:9J   Labour by origin (Migrant.
       Refugee)
X:9J2 Migrant
X:9J4 Refugee
X:9J5 Emigrant
X:9J6 Immigrant
X:9K5 Alien (Foreigner)

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2   Quasi (I) and True (I)

In these class numbers, the subjects (1) Personnel management, (2) Grade, (3) Type of labour, (4) Labour by time, (5) Labour by area and (6) Labour by origin are quasi (I), i e, artificial (I) which are viewed as characteristics; and the (I) shown as their sub-divisions are proper (I) or true (I) which indicate a single subject of study.

3   Mnemonic Use of Digits

Again, in these class numbers, we find, some digits used mnemonically as is the practice developed by the author of this Scheme.

31   Female Labour and Female Medicine

In the class number X:9F, the letter F is assigned to Female labour. The same letter is assigned to Female medicine in the specials in medicine. In that (MC), the class number L9F is assigned to Female Medicine. This is an illustration of one of the features of the Device of Enumeration.

32   MIGRATION, EMIGRATION, IMMIGRATION

Similarly, in the subdivisions under the class number X:9J which holds the group of labourers subdivided by the origin of geographical area, we see that the digit 2 is assigned to Migrant labour, the digit 5 is assigned to Emigrant labour and the the digit 6 is assigned to Immigrant labour. If we refer to [P] of the (MC) Geography, we see under that facet, the division U4 assigned to Anthropogeography. Some of the subdivisions of this division read as below:

U42	Migration	U426 Immigration
U425	Emigration	

From these class numbers, we see that the author has used the digit 2 for Migration, the digit 5 for Emigration and the digit 6 for Immigration; and we have also seen that the same digits have been used mnemonically for Migrant labour, Emigrant labour and Immigrant labour as the subdivisions of the class number X:9J Labour by origin.

33 REFUGEE AND ALIEN

We again see that the digit 4 used for Refugee labour in the class number X:9J4 and the digit 5 used for Alien labour in the class number X:9K5 are also used mnemonically. This we can see, if we throw our glance at some of the class numbers in [P] of Sociology. The class numbers and the names of the relevant subjects read as below:

Y394 Sociology of Refugees
Y55   Sociology of Aliens

In the class number Y394, the last digit 4 is used for Refugees and in the class number Y55, the second digit 5 is used for Aliens. The same digits are found to have been used in History to show the relation of the State with Refugees and Aliens or Foreigners. This may be illustrated by means of class numbers under History as below:

V2:44 Relations of the Government of India with Refugees
V2:45 Relations of the Government of India with Aliens

4 Levels of Facets

A rule given by the author regarding these sectors reads thus : "The isolates under the class number X:9 Personnel management are arranged in three sectors, viz

1 Least concrete sector covering numbers in the first two sectors, thus:

X:91 to X:97   1st sector   X:991   2nd sector

2 More concrete sector covering numbers in the penultimate sector thus:

X:99A to X:99W   Penultimate sector

3 Still more concrete sector covering numbers in the last sector thus:

X:9A to X:9Q   Last sector.

If a book covers more than one sector, the isolate number of

each sector should be made a level in second round personality after 9 in [E]. The more concrete sector should be made the earlier level."

The first facet of a class is termed as the first round [P]. In Economics, the facet derived on the basis of the Business characteristic is the first round [P]. In each round of [P] there may be levels of [P]. Example:

Let us take an example of a book covering more than one sector. Let us suppose that the name of the book is "Profit-sharing by clerical staff". This book covers two sectors, viz (1) Profit-sharing and (2) Clerical staff. Profit-sharing belongs to the least concrete sector. Its class number is X:936. Clerical staff belongs to the more concrete sector. Its class number is X:99P. According to the rule, the (IN) in each sector is to be made a level in [2P] of 9 in [E]. In the class number X:9 standing for Personnel management, the (IN) 9 is in [E]. In the class number, X:936, the (IN) 36 standing for Profit-sharing belongs to least concrete sector. So this number will be made a level in [2P] of 9 in [E] in constructing the class number for Profit-sharing by clerical staff. Similarly, in the class number X:99P, the (IN) 9P standing for clerical staff, will form one level in [2P] of 9 in [E] while constructing the class number for the same subject. The rule asks us to make the more concrete sector, the earlier level in [2P] of the class number. As X:99P standing for clerical staff belongs to the more concrete sector, it naturally becomes the earlier level or the first level in [2P] of the class number to be constructed for the subject "Profit-sharing by clerical staff". In the class number X:99P, the (IN) 9P meaning clerical staff belongs the second round first level [P] of 9 meaning personnel management. Each round of [E] is likely to have one or more levels of [P]. According to Postulate 7 about five (FC), [E] can have only one significant digit. All the subdivisions of the individual significant digits in [E] are considered as the manifestations of [2P]. So in the class number X:99P, the (IN) 9P stands for the first level in [2P]. To this number we have to add the (IN) 36 meaning Profit-sharing as [2P2] and the number arrived at is written thus: X:99P,36. This number means "Profit-sharing by clerical staff."

5 Conclusion

The elaborate treatment of Economics in chapters H6 to H92 of this part is sufficient to make out the point that the author of this Scheme has ingeniously managed to systematise the method of constructing class numbers for subjects of any dimension and get them arranged according to their filiatory position as is required by the specialists in different fields of knowledge. We have seen that the difficult problem of an array of heterogenous nature which is composed of dissimilar or miscellaneous (I) is neatly solved by the author by devising the method of Zone Analysis and Mixed Notation in an Array. We have dealt sufficiently with this special feature of this Scheme as seen in (1) the zones of the Array of the (MC), (2) the zones of the Array derived on the basis of the Business characteristic, (3) the zones of the quasi isolate, Business management, and (4) the zones of the quasi isolate, Personnel management.

PARTS J/T

DC and CC on the Touch Stone

PART J

THE TOUCH-STONE

CHAPTER J1

CANONS OF CLASSIFICATION

1 Touch-stone

In a comparative study of the different schemes of classification, we must first study each of them critically against the background of the canons, such as those enunciated by Dr Ranganathan in his *Prolegomena*. These canons are of primary importance for the proper study of classification. They serve as a touch-stone to assess the efficiency or otherwise of a scheme of classification. A goldsmith is able to assess the quality of the metal in his hand by rubbing it on the touch-stone. While doing so, he uses critically the method and skill developed by him or learnt by him from others of finding out if there are any impurities in it. He can then remove the impurities in the metal and make it finer. Similarly, a classificationist, i e, the author of a scheme of classification, is able to give the desired fineness to his Scheme of Classification by conforming to the canons of classification. It is, therefore, necessary to study these canons with a view to seeing how DC and CC observe or violate them.

2 Canons

Before enunciating his Canons, Dr Ranganathan studied the principles and canons laid down by W C Berwick Sayers, E C Richardson and Henry Evelyn Bliss. He also critically studied the schemes of classification of his predecessors; and then in 1937, he wrote his *Prolegomena*. The total number of canons enunciated in ed 2 of this book is 33. It was W C Berwick Sayers who invented the phrase 'Canons of Classification'.

3 Three Main Groups

The 33 canons are divided into three main groups:
1 22 canons pertain to the General Theory of Classification;
2 6 canons pertain to the Special Theory of Knowledge Classification; and

3   5 canons pertain to the Special Theory of Book Classification.

4 Six Groups of the Canons of the General Theory of Classification

The 22 canons for the General Theory of Classification are again divided into six groups in relation to the six concepts involved in a scheme of classification. The six concepts are:

1 Characteristic   4 Filiatory Arrangement
2 Array of Classes   5 Terminology
3 Chain of Classes   6 Notation

5 Planes of Work

The first four of these concepts are inherent or basic in the idea plane. The concepts of terminology and notation belong to the verbal and the notational planes respectively. The classes in a scheme require to be denoted by a set of names; therefore, the terminology of the scheme. In order to arrange the classes in a unique sequence, there is need to have a set of ordinal numbers to represent them. This means naming each class by an ordinal number and thus mechanise the arrangement of the classes. To mechanise means to eliminate the need to remember or consider the exact connotation or denotation of the classes in their mutual relation.

GENERAL THEORY OF CLASSIFICATION

PART K

CANONS FOR CHARACTERISTICS

Chapter K1

DIFFERENTIATION (CANON 1)

0 Enunciation

The Canon of Differentiation is enunciated thus: "Each characteristic used should differentiate." Sayers describes it as follows: "A classification proceeds by the assembly of the groups of sciences or of the principal fields of knowledge into main classes (or divisions) which are coordinate with the theory of knowledge adopted. Such classes have great extension and small intension. The process is continued in each main class and thus subclasses or divisions are made, the differentiating qualities being likeness which groups the things in each division. Each division in turn is divided by further differentiating qualities to produce the subdivisions until further subdivision is impossible." (Sayers. Canon 9). This process of dividing a class by differentiating qualities is systematically followed in CC. In fact the schedule of each (MC) of CC begins with the statement of the successive trains of characteristics used for its subdivision. The rules in the first part give further instructions regarding the sequence and the use of the characteristics. Each train of characteristics gives a facet.

Example:

Five trains of characteristics may be normally used for the subdivision of subjects in the (MC) History. The facets of such subjects are shown as follows in the tabulated form in chapter V of the rules.

1 Facets

Facet	Term	(IN) by
[P]	Community	(GD)
[P2]	Organ	Enumeration
[E]	Problem	Enumeration

In this table, the first column indicates in rectangular brackets the short form of the name of the (FC) manifested in the facet. [P] stands for the first round, first level personality facet. [P2] stands for the first round, second level personality facet. [E] stands for energy facet. The second column indicates the name of the characteristic used for the formation of the facet indicated in the first column. Thus 'Community characteristic' is used for the formation of the first round, first level personality facet. 'Constitutional organ characteristic is used for the formation of the first round, second level personality facet. 'Problem characteristic' is used for the formation of the energy facet. The symbol (IN) in the heading of the third column stands for 'Isolate Number'. It means that the isolate numbers are obtained by the method indicated under that heading. The symbol (GD) stands for 'Geographical Device'. This means that the divisions by the community characteristic are obtained from the schedule of the geographical divisions in part 2 of the book. The term 'Enumeration' means that the divisions by the constitutional organ characteristic are enumerated in the form of a schedule in the chapter pertaining to the (MC) History in part 2 of the book. The fourth and the fifth facets are not indicated in the tabulated form; but they are indicated in the facet formula in part 2. It reads as below.

2 Facet Formula

$$V [P], [P2] : [E] [2P] ' [T]$$

In this facet formula

V	=	(MC) History
[P]	=	Community facet
,	=	(CS) for [P2]
[P2]	=	Constitutional organ facet
[E]	=	Problem facet
[2P]	=	Second round personality facet
'	=	(CS) for time facet
[T]	=	Time facet

21 COMMUNITY FACET

If we add any of the geographical divisions to V, we get class numbers as shown below:

V1	History of the world	V63	History of South Africa
V2	History of India	V73	History of USA
V235	History of Maharashtra	V8	History of Australia
V5	History of Europe		

The above classes are distinguished from one another by their different communities. Community is, thus, a differentiating characteristic.

22 ORGAN FACET

Classes with organ facet are illustrated below:

V2,1	President of the Indian republic	V2,32	Rajya Sabha
V2,2	Cabinet of the Indian republic	V2,4M	Congress party of India
V2,31	Lok Sabha	V3,4	Political parties in Great Britain

The above classes are distinguished from one another by the different organs involved in them. Organ is, therefore, a differentiating characteristic.

23 PROBLEM FACET

Classes with [E] are illustrated below:

V2:2	Constitution of India	V2:5	Indian civics
		V2:7	Indian archaeology

The above classes are distinguished from one another by their problem isolates. Problem is, therefore, a differentiating characteristic.

24 FIELD OF POLICY FACET

Classes with [2P] or Field of Policy facet are illustrated below:

V2,12	Home policy of India	V2,195 Peace policy of India
V2,19	Foreign policy of India	

The above classes are distinguished from one another by the different fields of policy involved. Field of Policy is, therefore, a differentiating characteristic.

3 General Works on History

General bibliographies of History, books which give an account of the methodology or the content or the history, etc, of History or

any problem isolate of History as an art or science, and biographies and miscellaneous works of historians do not admit of any community isolates. This feature of certain books may be illustrated as below:

VaaN3	Coulter (E M) and Gerstenfeld (M). *Historical bibliographies, a systematic and annotated guide.* 1935
Vam73,N30	International committee of historical sciences. *International bibliography of historical sciences* (a periodical)
VaN4	Allison (William Henry). *Guide to historical literature.* 1937
VxL37	Gibbon (Edward). (born 1737). *Miscellaneous works.* 1814
VxM61a	Baynes (N H). *Bibliography of the works of J B Bury* (born 1861)
V06X	Rogers (James E). *Economic interpretation of history*
V06Y	Maurice (William). *Social interpretation of history*
V	Sarkar (Benoy Kumar). *Science of history and the hope of mankind.* 1912
V	Heras (H). *Writing of history.* 1926
V	Social science research council. Historiography (Committee on—). *Theory and practice in history study.* 1946

The absence of an isolate based on community characteristic distinguishes the above classes from those with community isolates mentioned in the earlier sections. Here too — Community — that is absence of community — turns out to be a distinguishing characteristic.

4 History in DC

In the (MC) History of DC the divisions 940-999 assigned to Modern History are based on two characteristics, viz (1) community characteristic, and (2) chronological division characteristic. The divisions derived by the chronological division characteristic always follow those derived by the geographical division characteristic. The facets in History may be illustrated as below:

	History		*Geographical division facet (Space)*		*Chronological division facet (Time)*
(1)	9	42	England	02	Norman period (1066-1154)
(2)	9	52	Japan	02	Feudal period (1186-1868)
(3)	9	54	India	02	Moslem period (650-1774)
(4)	9	94	Australia	02	Settlement period (1788-1851)

The constitutional organ facet and the problem facet of History are not found included in the History class of DC. They are given places under 320 Political science, 340 Law and 350 Public administration in the (MC) 300 Social sciences. Archaeology is classed as a subclass of Geography in 913.

5 History in CC and DC

Let us illustrate how these subjects are well collocated in CC and spread over under various classes and separated from their immediate universe, viz, History in DC:

CC	Constitutional organ facet	DC
V73,1	President of the USA	353.03
V73,2	Cabinet of the USA	353.05
V73,3	Legislature of the USA	328.73
V73,4	Political parties in the USA	329.1 to 329.8
V73,7	US Judiciary	353.5
V73,8	US Civil Service	351.10973
V73,9A	US Local Bodies	352.073
	Problem facet	
V73:17	US Colonial policy	325.373
V73:18	US Mandatory policy	325.310973
V73:19	US Foreign policy	327.73
V73:2	US Constitution	342.73
V73:3	Functions of the US Government	353
V73:4	Relations of the State of the USA with special classes of people	323.0973
V73:5	Relations of the State of the USA with citizens	323.40973
V73:6	Source material of the history of the USA	?
V73:7	Archaeology, etc of the USA	913.73
V73:8	Archives of the USA	?
V73:91	Elections of the USA	324.73

CONCOMITANCE (CANON 2)

01 Enunciation

The term 'concomitance' means concurrence or agreement, i e, the state of being together.

The Canon of Concomitance is enunciated thus: "No two characteristics should be concomitant."

This means that no two characteristics should divide a subject into the same subdivisions. This again means that care should be taken in the choice of characteristics for the division of a subject; so that they do not give the same subdivisions. Examples:

Age and year of birth should not be used as two successive characteristics in dividing persons; on the other hand, age and height can be used as two successive characteristics, for they will yield different sets of divisions.

The date of first publication and the date of first edition of a book should not be used as successive characteristics for classifying books. For both of them will create the same divisions.

1 Observance or Violation

If we examine the various facets of CC which are derived on the basis of different characteristics, we do not find a single example of concomitant characteristics used anywhere in the Scheme.

The characteristics used for successive divisions in DC are not explicitly named. Therefore, search for concomitant characteristics is not easy—All the same, no evidence of concomitant characteristics is experienced.

CHAPTER K3

RELEVANCE (CANON 3)

0 Enunciation

The Canon of Relevance is enunciated thus : "Each characteristic should be relevant to the purpose of classification." This Canon is called by Sayers, the Canon of Essential Characteristic and it is enunciated thus: "The chosen characteristic which is that most useful for the purpose of the scheme is called the essential characteristic." (Sayers. Canon 8).

Example: Taking the universe of books, if the purpose of classification is to suit the needs of the readers in the library, subject matter, language, date of publication and author may be relevant characteristics; but the cover of books, the paper used for the books and the type used for printing are not relevant characteristics for the purpose, if the purpose is to supply information to the readers.

1 Observance or Violation by CC and DC

There is no instance of the violation of this Canon by CC or DC. All the characteristics used by the Schemes are relevant to the purpose of classification.

To illustrate the observance of this Canon by both the Schemes, we may quote the example of the (MC) Linguistics, the basic divisions of which are derived on the basis of language characteristic in both these Schemes. Here are a few divisions of the (MC) Linguistics based on the relevant characteristic of Language:

CC		DC
P111	English language	420
P122	French language	440
P15	Sanskrit language	491.2

2 Difference between CC and DC

Let us consider the following subjects

CC		DC
V73:17	US Colonial policy	325.373
V73:18	US Mandatory policy	325.310973
V73:19	US Foreign policy	327.73
V73:2	US Constitution	342.73
V73:3	Functions of the US Government	353
V73:4	Relations of the US Government with special classes of people	323.0973
V73:5	Relations of the US Government with citizens	323.40973
V73:6	Source material of the history of USA	?
V73:7	Archaeology, etc of the USA	913.73
V73:8	Archives of the USA	?
V73:91	Elections of the USA	324.73
V73,1	President of the USA	353.03
V73,2	Cabinet of the USA	353.05
V73,3	Legislature of the USA	328.73
V73,4	Political parties in the USA	329.1 to 329.8
V73,7	US Judiciary	353.5
V73,8	US Civil service	351.10973
V73,9A	US Local bodies	352.073

The following points are for consideration:

Are the problem divisions involved in the above subjects relevant to the (MC) History or not? The class numbers in CC are seen to be based on the assumption that they are relevant to the study of history. On the other hand, the class numbers of DC seem to be based on the assumption that these problems are not relevant to the study of history, for some are assigned to Administration, some are assigned to Political science, some are assigned to Law, and some are not provided for at all. If the problem divisions involved in the above subjects are relevant to the (MC) History, CC is helpful. If they are not relevant, DC is not unhelpful.

Chapter K4

ASCERTAINABILITY (CANON 4)

0 Enunciation

The Canon of Ascertainability is enunciated thus : "Each characteristic should be definitely ascertainable." Unless this test is satisfied, it will be difficult to use the characteristic.

1 DC

In all the first fourteen editions, in the case of the literature of some European languages, DC uses a characteristic which would divide writers as major writers and minor writers. But this characteristic is not definitely ascertainable.

This violation of the Canon of Ascertainability is avoided in ed 15 and 16. This avoidance arises out of the fact that the classification is not carried out down to the level of all individual authors. This is shown by the following extract from the DC schedule for English Poetry as given in ed 16:

821.1 Early English Poetry (1066 — 1400)
821.3 Elizabethan Poetry (1559 — 1625)

2 CC

CC avoids the fault of DC and yet its classification reaches down to the level of individual authors. It avoids categorising the authors as major and minor. It individualises the authors by (CD).

PERMANENCE (CANON 5)

0. Enunciation

The Canon of Permanence is enunciated thus: "Each characteristic should continue to be both ascertainable and unchanged so long as there is no change in the purpose of classification."

1 Periodical in DC

Let us take an example from the universe of periodicals. It has been the tradition to divide periodicals into two classes thus:

1 Those that are published by learned societies are put in one class; and

2 Those that are not so published are put in another class.

This practice has led to not a little difficulty in libraries because periodicals undergo frequent changes in the sponsoring body. For instance, 'The Journal of Indian Botany' was launched as a private concern in Madras in Sept 1919. It was the property of a private individual. In 1921, the Botanical Society came into existence and it was decided that the periodical should be taken over. In fact, with the second issue of v 3, it became the official organ of that learned body. In a library where a large number of periodicals are received, the difficulty caused by such cases of changes in the characteristic used for classification will be so pronounced that the library will have to be put to much expense and confusion. Therefore, this distinction should be avoided by a scheme of classification. Both kinds of periodicals should be put together — i e, should be assigned the same common subdivision.

2 Periodical in CC

CC, on the other hand does not use the sponsorship of a periodical as a characteristic in classifying it. In fact, it lays down that in the case of occasional or periodical publications issued by a learned society, the society should not be used as a characteristic. Such

publications are to be treated as ordinary books or ordinary periodicals as the case may be. On account of this, 'The Journal of Indian Botany' will get Im2,N19 as its class number. In this class number, the small letter '*m*' stands as an (ACI) meaning periodical. Its facet formula reads as below:

$$m \text{ [P], [P2]}$$

In this facet formula

m	=	Periodical
[P]	=	The facet indicating the country of the parent-body of the periodical, if it is an organ of an institution or a society; otherwise, the location or the country of the first publication of the periodical
,	=	(CS) for [P2]
[P2]	=	The facet indicating the year of foundation of the society which publishes the periodical in question; otherwise the year of starting of the periodical concerned.

According to this facet formula the number for 'The Journal of Indian Botany' is constructed. This number is the original class number and indicates the year 1919 as the year of commencement of its publication. Though in 1921 this periodical became the property of the Indian Botanical Society no change is made in its class number.

RELEVANT SEQUENCE (CÁNON 6)

0 Enunciation

The Canon of Relevant Sequence is enunciated thus: "The characteristics of the scheme are to be used in a sequence relevant to the purpose of classification."

1 Literature in DC and CC

In DC, language, form, period and author are the four characteristics used in classifying literature. There are 23 other sequences in which these four characteristics can be used. But DC has rightly chosen the sequence, language, form, period and author as the most relevant to the purpose of classification. Similarly, in CC, language form, author and work, are the four characteristics used in classifying literature. Out of the 24 different sequences possible, CC has fixed the sequence, language, form, author and work, as the most relevant sequence. Regarding the implications of this choice in shelf arrangement, the author of CC observes thus: "We shall imagine all the literature books divided according to their languages and we shall imagine a separate building for the literature of each language. A reader interested, say, in English literature will have to go into the 'English' building, so to speak. On entering the building, he will find that all poetry is put in one room, that all drama is put in another room, all fiction is put in a third room, and so on. Let us assume that the reader is interested in drama and that he enters 'Drama' room. There, we may imagine that he will find several cupboards, each devoted to one dramatist. If the cupboard pertaining to any dramatist is opened he will find that each shelf is devoted to one work of the dramatist. In that shelf, all the editions of that work and all the criticisms of that work will be found arranged in a helpful sequence. Roughly speaking, this is the result of taking the four facets in the sequence given by the facet formula. One can easily construct a similar picture for other

possible sequences of the facets and satisfy oneself about the greater helpfulness of the particular sequence prescribed by the facet formula." DC does not have any facet formula for the classification of the various (MC) and subclasses in that Scheme. Due to this drawback of the Scheme, we get classes derived on the basis of different characteristics intermingled among themselves and hence the Scheme is not able to satisfy this Canon in a satisfactory manner.

2 Zoology and Medicine in DC and CC

Let us take another example. According to CC, organ is used as a characteristic both in Medicine and in Zoology. But in Medicine, organ occurs as the first characteristic of division, whereas in Zoology, it occurs as a secondary one, as the first characteristic of division of that class is 'natural group of animals'. The sequence of the 'organ characteristic' in both these (MC) is made in the light of the primary lines of specialisation which obtains in these two subjects. Let us illustrate this feature by means of an example. Let us first take an example from the (MC) Medicine. The facet formula for Medicine reads as shown below:

$$L [P] : [E] [2P] : [2E] [3P]$$

In this facet formula

L	=	Medicine	[E]	=	Problem facet
[P]	=	Organ facet	:	=	(CS) for handling facet
:	=	(CS) for problem facet	[2E]	=	Handling facet

According to this facet formula, a book with the title 'Treatment of diseases of the respiratory system' will get L4:4:6 as its class number. In this class number.

L	=	Medicine
4	=	(IN) in the organ facet. It means respiratory system
:	=	(CS) for problem facet
4	=	(IN) in the problem facet. It means therapeutics
:	=	(CS) for handling facet
6	=	(IN) in the handling facet. It means therapeutics.

Hence, the whole class number means 'Treatment of diseases of the respiratory system'.

Now let us take an example from the (MC) Zoology. The facet formula for this (MC) reads as below:

K [P] , [P2] : [E] [2P]

In this facet formula

K	=	Zoology	[P2]	=	Organ facet
[P]	=	Natural group of animals facet	:	=	(CS) for problem facet
			[E]	=	Problem facet
,	=	(CS) for organ facet	[2P]	=	Second round [P]

According to this facet formula, a book with the title "Mammalian ecology with special attention to the colours of desert mammals" will get K97-995121,875:5 as its class number. In this class number

K = Zoology
97 = (IN) in the natural group of animals facet. It means mammalia
- = (CS) for (SID)
995121 = Another (IN) in the natural group of animals facet. It means desert animals
, = (CS) for organ facet
875 = (IN) in the organ facet. It means pigment, i e, the colour of the skin
: = (CS) for problem facet
5 = (IN) in the problem facet. It means ecology

Hence the whole class number means "Colour of the mammalia inhabiting desert region" which means the same as "Mammalian ecology with special attention to the colours of desert mammals". The DC number for this subject will be either 591.15 which stands for Animal Ecology or 599 which stands for Mammalia; and hence none of them is coextensive to the specific subject.

3 Conclusion

The reason for not getting coextensive class number for this subject in DC is that the divisions derived on the basis of different characteristics, viz, the natural group of animals characteristic and the problem characteristic cannot be put in a sequence relevant to the purpose of classification as the scheme does not have the method of using characteristics in the sequence of a fixed facet formula similar to the one found in CC and hence DC is not able to satisfy this Canon.

CHAPTER K7

CONSISTENCY (CANON 7)

01 Enunciation

The Canon of Consistency is enunciated thus: "The sequence of applying the chosen characteristics should be consistently adhered to."

This Canon requires consistency not only in the characteristics used but in the sequence in which they are used. It is obvious that lack of consistency will lead to chaos and defeat the purpose of classification. Once the choice and the decision are made, we should not deviate from them.

1 History in CC and DC

Let us take a few examples. DC has chosen 'geographical division' and 'period of time division' as the characteristics for the classification of books in the (MC) History and has decided their sequence as geographical division and period of time division. Those that use DC, should not change this decision from time to time. They should adhere to it consistently. For the same universe, CC has chosen four characteristics, instead of two. They are: (1) community or geographical division, (2) constitutional organ, (3) problem and (4) period of time division. The Scheme has also decided this as the most relevant sequence and its facet formula indicates this sequence as shown below:

$$V [P] , [P2] : [E] ' [T]$$

This facet formula may be indicated by the very names of the characteristics as below:

V [Community] , [Organ] : [Probelm] ' [Period]

This facet formula prescribes the sequence in which the four facets should be arranged in class numbers. This sequence has been found to be helpful in the majority of cases. Regarding the helpfulness of this sequence the author observes thus: "We shall

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imagine all the history books divided according to the country about which they treat and we shall imagine a separate building for the history of each country. A reader interested, say, in Indian history, will have to go to the 'Indian building' so to speak. On entering the building, he will find that all the books on the Cabinet of India are put in one room, all the books on the Legislature of India are put in another room, and so on. Let us assume that the reader is interested in the problems of Indian history and that he enters the 'Problem room'. There, he will find several cupboards, each devoted to a particular problem, such as, policy, constitution, function, archives, etc. Let us assume that he is interested in the Constitution of India. Then, he will open the cupboard marked 'Constitution of India'. There, he will find that each shelf is reserved for a different period of the constitution of India. Roughly speaking, this is the result of taking the four facets in the sequence given by the facet formula. One can easily construct a similar picture for other possible sequences of the facets and satisfy oneself about the appropriateness of the particular sequence prescribed by the facet formula."

2 Conclusion

While considering the Canon of Differentiation, we have seen that DC has not got a special auxiliary schedule of geographical divisions and another schedule of chronological divisions. Moreover, the History class of DC does not contain the constitutional organ facet and the problem facet. This is due to the fact that the Scheme does not follow systematically the method of using facet formulas for the subdivision of a class. Hence it is not able to satisfy this Canon in a methodical way. CC is able to give entire satisfaction to this Canon, due to its method of using prescribed facet formula for classifying any subject. This feature may be illustrated as below:

CC	Subject	DC
V2	History of India	954
V2.A	Ancient India	954.01
V2:2	Constitution of India	342.54
V2,1	President of India	354.5403
V2,8	Civil service of India	351.10954

PART L

CANONS FOR ARRAYS OF CLASSES

CHAPTER L0

CANONS FOR ARRAYS OF CLASSES

01 Enunciation

"An array is the sequence of the classes of a universe derived from it on the basis of a single characteristic and arranged among themselves according to their ranks."

1 First Order Array

The (MC) of each of DC and CC form an array of the first order. The rank of each individual (MC) is fixed by the authors of these Schemes on the basis of some principles selected by them.

2 Arrays of Classes in DC

Let us take the (MC) of DC to illustrate the different orders of arrays in the Scheme. Its (MC) represent an array of the first order as shown below:

0	Generalia	3	Social sciences
1	Philosophy	4	Linguistics
2	Religion		and so on.

The divisions of each of these classes form different arrays of the second order. Thus, under Philosophy, the second order array is as below:

11	Metaphysics	13	Fields of psychology
12	Metaphysical theories	14	Philosophical topics
			and so on

The sections of each of these divisions form different arrays of the third order. Thus under 11 Metaphysics, the third order array is as follows:

111	Ontology	114	Space
112	Methodology	115	Time and duration
113	Cosmology	116	Motion and change

3 Arrays of Classes in CC

Similarly, under CC, the (MC) of the Scheme form an array of the first order as shown below:

z	Generalia	**B**	Mathematics
A	Natural sciences	**BZ**	Physical sciences
AZ	Mathematical sciences	**C**	Physics
			and so on

Under Philosophy, the array of the second order is as shown below:

R1	Logic	R4	Ethics
R2	Epistemology	R5	Aesthetics
R3	Metaphysics	R6	Indian philosophy
			and so on

Under Logic, the array of the third order is as shown below:

R11	Inductive logic	R14	Symbolic logic
R12	Deductive logic	R16	Genetic logic
R13	Dialectic logic		and so on

4 Arrays of the Second Order in DC and CC

The number of arrays of the second order of any (MC) in DC cannot exceed one. But, it can in CC. For, in CC, the division of a (MC) can belong to any one of the five (FC). It can also be based on Specials or Systems. Therefore, corresponding to each of the five (FC), there can be one array of order 2 arising out of any given (MC). Thus, there can be as many as five second order arrays. Here are some examples taking X Economics as the (MC).

X.2	Economic condition of India	X.8	Economic condition of Australia
X.3	Economic condition of Great Britain		

All these form an array of second order according to (FC) Space.

X:1 Consumption   X:4 Transport   X:5 Trade

These form another array of second order arising out of the same (MC) X. This second order array corresponds to the (FC) [E]. Again,

X3 Communication   X6 Credit   X7 Public finance

These form a still another array of second order arising out of the same (MC) X. This second order array corresponds to the (FC) [P].

X9B Small scale industry   X9D Large scale industry   X9S Private enterprise

These form a still another array of second order arising out of the same (MC) X. This second order array corresponds to Specials in Economics.

XB War economics   XM Cooperative economics   XM2 Socialism

These form still another array of second order arising out of the same (MC) X. This second order array corresponds to Systems of Economics.

5 Collateral Arrays and Collateral Classes

The term 'Collateral' means derived from the common ancestor but through a different line.

Two arrays of the same order derived from the same universe are called collateral arrays ; and the classes in one of them are related to the classes in the other as collateral classes.

For example : The second order arrays under Economics relating to the (FC) Time, Space, Energy and Personality are collateral arrays and the classes in each of them are related to the classes in the other arrays as collateral classes.

6 Canons for Arrays of Classes

There are four Canons for Arrays of Classes and each array is expected to satisfy them. These Canons are:

1 Exhaustiveness (Canon 8)
2 Exclusiveness (Canon 9)
3 Helpful Sequence (Canon 10)
4 Consistent Sequence (Canon 11)

CHAPTER L1

EXHAUSTIVENESS (CANON 8)

01 Enunciation

The Canon of Exhaustiveness is enunciated thus; "The classes in any array of classes should be totally exhaustive of their common immediate universe."

According to this Canon, every entity comprised in the immediate universe, should find a place in one of the classes in the array derived from the immediate universe. This is always possible. The real value of the Canon consists in drawing our attention to the need for examining if the enumeration of classes in the array has been correctly completed.

1 DC Practice

In the first fourteen editions of DC, throughout the (MC) Literature, a class entitled 'Minor poets', 'Minor dramatists', or 'Minor writers' comes after the enumeration of certain individual authors. Such a provision under the caption 'Other' can also be seen scattered throughout DC.

2 Partially Comprehensive (MC)

DC and CC formally satisfy this Canon with equal efficiency as far as their layout of the (MC) or their first order array is concerned by the provision of classes, which appear, from their names or otherwise to be partially comprehensive classes, i e, the classes which are expected to accommodate any new classes not already provided for in the Scheme. In DC the (MC)

0 Generalia   3 Social sciences   5 Pure science   6 Useful arts

are classes of partial comprehension.

Similarly, in CC, the (MC)

z	Generalia	BZ	Physical sciences
A	Natural sciences	G	Biological sciences
AZ	Mathematical sciences	M	Useful arts

MZ	Humanities and Social sciences	PZ	Religion and Philosophy
MZA	Humanities	SZ	Social sciences
NZ	Language and Literature		

are classes of partial comprehension.

These classes are called partially comprehensive (MC) as they comprehend more than one of the other (MC), as is indicated by their very names. These classes accommodate books covering two or more (MC). The Canon of Exhaustiveness demands that classes of this kind should be provided in a scheme.

3 Second Order Arrays of the Partially Comprehensive (MC) of DC

The Canon of Exhaustiveness is not actually satisfied in arrays of higher order by DC. This is due to the fact that its notation limits the number of classes in any array to 10. The second order array of each of these partially comprehensive (MC) of DC has exhausted all the ten digits. An example of the table of Divisions of DC—these contain the arrays of second order—will prove this.

4 Sociology in DC

For example, in the (MC) Social sciences, the class Sociology which has taken shape in recent years is that predicament. In ed 15 and 16, it is given the number 301. But the two early arrivals of Sociology, viz, Social welfare and Customs, had been already given the numbers 360 and 390 respectively. The intervening number 370 would have respected the filiatory leanings of Sociology, at least to some extent; but 370 has been already assigned to Education. Therefore, it has been a job to find a number for Sociology anywhere, though not filiatory. In fact, the number so found is 301—as far away as possible from its rightful place.

5 Social Pathology in DC and CC

Other branches of Sociology like Social pathology are also indiscriminately separated from each other. CC has included Social pathology as division 4 under the problem facet of the (MC) Sociology. Its subdivisions and the corresponding subdivisions under DC read as shown below:

CC	Subject	DC
Y:4	Social pathology	301.246
Y:41	Intemperance	178
Y:42	Degeneration	301.246
Y:43	Destitution	339.46
Y:44	Social evil	301.424
Y:45	Crime	364.1
Y:46	Short life	?
Y:48	Disunion	?
Y:484	Espionage	364.13

From this table, we see that in DC the subdivisions of Social pathology are spread over under Sociology (301), Ethics (170), Economics (330) and Criminology (364).

6 Man in Society

Again, topics dealing with 'man in society' like Archaeology, Ethnology and Anthropology have to find shelter under 570 Biological sciences which is strictly the pure science of the bodies of living organisms, their ontogeny and phylogeny and has nothing to do with social life of humans in groups. CC has correctly included Archaeology under the (IN) 71 of the problem facet of V History. It has also given appropriate places for Anthropology and Ethnology under the group facet of Sociology. Anthropology appears under the group facet with the epithet 'Race as a social group' under the class number Y7 and Ethnology is made its subdivision with the epithet 'Ethnological divisions' under the class number Y73. The class numbers of these subjects under CC and the corresponding class numbers given to them in DC are as shown below:

CC	Subject	DC
V:71	Archaeology	571
Y7	Anthropology	572
Y73	Ethnology	572/573

7 Forestry in DC and CC

In DC, the situation is even worse and almost borders on the ridiculous in the case of the ancient subject Forestry which is

given the ninth place under the class number 634 assigned to Fruit culture and is closely followed by 635 Horticulture in 630 Agriculture. This is due to the earlier enumeration of subjects in DC —leaving no vacancy in a filiatory position to the subject Forestry.

In CC, on the other hand, the subject Forestry is given a filiatory position after the subject Agriculture, instead of amidst the divisions of Agriculture. This division in the idea plane is implemented in the notational plane. The new concept of emptying digit has made this possible. The number for Forestry is JX. X is an emptying digit. Therefore its preceding digit J is made semantically empty. But it is allowed to retain its ordinal value. This makes JX come after J, i e, Forestry comes after Agriculture.

8 Open Arrays and Closed Arrays

The author of CC employs the concept of 'Open Arrays' and 'Sector Notation' to meet the Canon of Exhaustiveness. An array of class numbers which does not admit of extrapolation, i e, extension by adding new divisions at the right end is called a closed array. An array of class numbers which admits of extrapolation at the right end is called an open array.

81 OPEN ARRAYS IN DC

In DC, 3 arrays of the second order, 23 arrays of the third order and just a few arrays of higher orders are kept as open arrays by the 'Other' principle. A few of these arrays may be indicated as below.

82 ARRAYS OF THE SECOND ORDER

DC
290 Non-Christian religions
490 Other languages
890 Literature of other languages

83 ARRAYS OF THE THIRD ORDER

DC
039 Other general encyclopaedias
049 Other general collected essays
059 Other general periodicals

337.

84   Closed Arrays in DC

The remaining arrays of the second order, 63 arrays of the third order and most of the arrays of the higher order are closed arrays in DC.

85   Arrays in CC

In CC, practically all the arrays are kept as open arrays by

1   Sector Principle
2   Subject Device
3   Chronological Device
4   Geographical Device
5   Alphabetical Device
6   Device of Enumeration

9   Conclusion

From all the above, it is clear that CC has observed this Canon in a satisfactory way due to its method of keeping all arrays as open arrays by adopting some suitable devices. DC is not able to do full justice to this Canon and has violated it in many arrays of classes due to the fact that a large number of arrays of classes in the Scheme are kept as closed arrays and it has no device to keep them open for accommodating any number of new coordinate classes as is possible in CC.

To satisfy this Canon, the author of CC has also made use of the Device of Zone Analysis and Sector Analysis in certain arrays of [P] and [E] of some of the (MC) and subclasses in his Scheme. The Device of Zone Analysis is also used in the arrays of [M], [S] and [T]. This special feature of CC is elaborately treated in part H.

EXCLUSIVENESS (CANON 9)

01 Enunciation

The Canon of Exclusiveness is enunciated thus : "The classes in an array of classes should be mutually exclusive."

The Canon means that no entity comprised in the immediate universe can belong to more than one class of the array. In other words, no two classes of the array can overlap or have an entity in common. This condition will be automatically satisfied, if we follow the principle that the classes of an array are to be derived from the immediate universe on the basis of a single characteristic. To show that it is possible to construct an array without adhering to a single characteristic, an example may be given.

1 Economics in DC and CC

11 DC

The first order array under the class 330 Economics of DC is not derived from the same characteristic. This is seen in the following table :

DC	Subject	Characteristic
331	Labour	Problem
332	Money, Credit, Banking	Business
333	Land. Rent	Problem
334	Cooperation	System
335	Collectivistic systems like Communism and Syndicalism	System
336	Public finance	Business
337	Tariff policy	Problem
338	Production and prices	Business
339	Distribution	Problem

A perusal at the above table reveals how DC has indiscriminately used three different characteristics to form the first order array of Economics.

12 CC

On the contrary, CC has arranged all these classes in different first order arrays belonging to different facets. When arranged they form a helpful sequence and respect the Canon of Exclusiveness.

CC	Subject	Characteristic	First Order Array in
X:2	Production	Problem	
X:3	Distribution	Problem	
X:332	Land. Rent	Problem	Energy Facet
X:53	Tariff policy	Problem	
X:9	Labour	Problem	
X6	Credit, Money, etc	Business	Personality
X7	Public finance	Business	Facet
XM	Cooperation	System	
XN16	Syndicalism	System	System Facet
XN17	Communism	System	

2 Cross Classification

The divisions under 330 Economics of DC can be cited as an instance of Cross Classification. This means division by more than one characteristic in a single process of division. This leads to confusion of ideas. The classes result with no real relationship to one another. This violates the Canon of Exclusiveness.

Let us consider the subject 'Cooperative Credit'. This may be put under Cooperation or under Credit. This is Cross Classification. Some may put it in Cooperation and others in Credit. The same classifier may put the books on the subject in Cooperation at one time. At another time, he may put other books with the same subject in Credit. This will cause scattering of books on the same subject. This cross classification should be avoided. It can be avoided only, if all the classes of an array are derived on the basis of one

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and the same characteristic. This means respecting the Canon of Exclusiveness.

In CC, this difficulty is avoided by the recognition of 'Cooperative Credit' (Money, Banking, etc.) as an independent subject with two facets and respecting both of its constituents. XM,6 Cooperative Credit.

3　Education in DC and CC

31　DC

The same fault of cross classification is found in the array of the first order in 370 Education of DC.

DC	Subject	Characteristic
371	Teaching; school organisation	Problem
372	Elementary education	Educand
373	Secondary education	Educand
374	Adult education	Educand
375	Curriculum	Problem
376	Education of women	Educand
377	Religious and moral education	Problem
378	Higher education	Educand
379	Education and the State	Problem

32　CC

On the other hand, CC has arranged all these classes in their filiatory sequence without violating the Canon under consideration.

CC	Subject	Characteristic
T:2	Curriculum	Problem
T:2(Q)	Religious education	Problem
T:2(R4)	Moral education	Problem
T:3	Teaching technique	Problem
T15	Elementary education	Educand
T2	Secondary education	Educand
T3	Adult education	Educand

CC	Subject	Characteristic
T4	University education	Educand
T9(Y15)	Education of women	Educand
W:3(T)	Education and the State	Problem

The above tables lay bare the faults in the first order array of Education in DC. It is evident that it is formed by mixing up classes derived on the basis of two characteristics, viz, Educand and Problem. In such an array, a subject is likely to be put in more than one class of the array.

4 Cross Classification

Let us take the subject "Curriculum for secondary schools" as an example. This subject may be placed in 373 Secondary Education as well as in 375 Curriculum. This is a violation of the Canon of Exclusiveness. It is Cross Classification. It will cause much confusion and inconsistency in actual practice. In CC, this difficulty is avoided by the recognition of "Curriculum in Secondary Schools" as an independent subject with two facets and representing both of its constituents.

T2:3   Curriculum in secondary schools.

Chapter L3

HELPFUL SEQUENCE (CANON 10)

01 Enunciation

The Canon of helpful sequence is enunciated thus: "The sequence of the classes in any array should be helpful. It should be according to some convenient principle and not arbitrary wherever insistence on one principle does not violate more important requirements."

This Canon is considered as the basic and most important canon of classification. The author of CC has indicated various types of principles that may be available for fixing the sequence of classes.

011 PRINCIPLES FOR SEQUENCE OF CLASSES

The principles are as follows:

. 1 Increasing Quantity   6 Canonical Sequence
2 Later-in-Time   7 Favoured Category or
3 Later-in-Evolution   Literary Warrant
4 Spatial Contiguity   and
5 Increasing Complexity   8 Alphabetical Sequence

1 Increasing Quantity

The principle of Increasing Quantity is enunciated thus: "If the characteristic used admits of quantitative measure, the sequence of the classes may be in the ascending sequence of the measure in which the classes share the characteristic."

11 GEOMETRY IN CC AND DC

In classifying the universe 'Geometry' on the basis of the dimensions of space characteristic, CC arranges the classes in the sequence:

CC	Subject	DC
B6	Geometry	513
B61	Geometry of lines or Geometry of one dimension	513

CC	Subject	DC
B62	Plane geometry or Geometry of two dimensions	513.1
B63	Solid geometry or Geometry of three dimensions	513.3
B64	Geometry of four dimensions ⎤	
B65	Geometry of five dimensions ⎬	513.5
B67	Geometry of n dimensions ⎦	

DC also has respected this Principle in this case.

2 Later-in-Time

The Principle of Later-in-Time is enunciated thus: "If the classes in an array have originated in different times, they may be arranged in a parallel progressive time-sequence."

21 RELIGION IN CC

In classifying the universe 'Religion', CC arranges religions as shown below, in the more or less commonly accepted progressive time-sequence of their origin.

Q	Religion	Q5	Judaism
Q1	Vedic Hinduisim	Q6	Christianity
Q2	Post Vedic Hinduisim	Q7	Muhammadanism
Q3	Jainism		
Q4	Buddhism		

22 RELIGION IN DC

But DC arranges the Religions in the following sequence:

200	Religion	294.4	Jainism
220/289	Christianity	294.5	Post Vedic Hinduism
294.1	Vedic Hinduism	296	Judaism
294.3	Buddhism	297	Muhammadanism

In the above, DC does not respect the Principle of Later-in-Time.

3 Later-in-Evolution

The Later-in-Evolution Principle is enunciated thus: "If the characteristic is of an evolutionary nature, the sequence of the classes may be parallel to the course of evolution."

This Principle prescribes arranging a set of coordinate isolates which belong to different stages in the same line of evolution in

the increasing sequence of evolution and assigning isolate numbers to them so as to preserve that sequence.

31 ZOOLOGY IN CC AND DC

In classifying the universe Zoology on the basis of the 'Natural group of animals' as characteristic, CC and DC arrange the resulting classes in evolutionary sequence, beginning with Protozoa which are the earliest to evolve and ending with Mammalia, the latest to evolve.

32 LINGUISTICS IN CC

In classifying the (MC) Linguistics on the basis of the Element of Study as characteristic, CC arranges the resulting classes as below:

P,1	Isolated sound	P,6	Sentences
P,2	Syllable	P,7	Pieces of composition
P,3	Word	P,8	Punctuation
P,4	Phrase	P,9	Materials for practice,
P,5	Clauses		readers

The evolutionary nature of this sequence can be easily seen.

4 Spatial Contiguity

Spatial Contiguity means the state of being adjacent to each other.

The Principle of Spatial Contiguity is enunciated thus.—

"If the classes of an array occur contiguously in space, they may be arranged in a parallel sequence."

41 GEOGRAPHICAL AREAS IN CC AND DC

CC arranges geographical areas on the basis of this Principle. For the sake of making divisions according to this Principle, a rule is laid down by the author, which reads thus :

"If any ultimate area mentioned in the schedule requires further subdivision, the subdivision may be effected in accordance with the plan which may be given below.

"Let the area be divided into eight convenient sectors thus:

1	East	4	Southwest	7	North
2	Southeast	5	West	8	Northeast
3	South	6	Northwest		

"If only one sub-area falls in a sector, the number of the sector may be given to the sub-area. If more than one sub-area falls in a sector, it may be further subdivided in a similar manner. The digit 9 may be reserved for indicating the islands in the neighbourhood of the area. A strict adherence to this Principle is not demanded, nor is it possible in all cases. All that is intended is that the rule may be used as a rough guiding principle." The schedule of the geographical divisions of CC is based on this Principle. Under the continent of Asia the countries are arranged approximately on the basis of this Principle as shown below:

4	Asia	45	Persia (West)
41	China (East)	46	Arabian Peninsula (West)
42	Japan (East)	47	Asia Minor (Northwest)
43	Southeast Asia (Southeast)	48	Siberia (Northeast)
44	India (South)		

Similarly, under the continent of Australia the countries are also arranged approximately on the basis of this Principle as shown below:

8	Australia	84	South and Central Australia (Southwest)
81	Queensland (East)		
82	New South Wales (Southeast)	85	Western Australia (West)
83	Victoria (South)	86	North Australia (Northwest)

DC does not follow this Principle in dividing the geographical areas, e g, in the latest ed 16, we see that the Scheme has given the following numbers under the History class:

<center>954.7 Pakistan   954.79 Bombay   954.799 Goa</center>

All these three numbers are assigned in an arbitrary way. It is absurd to consider Bombay as the subordinate division of Pakistan and Goa as the subordinate division of Bombay. CC has grouped all the reorganised States in India on the basis of the Principle of Spatial Contiguity.

5 Increasing Complexity

The Principle of Increasing Complexity is enunciated thus: "If the classes in an array show different degrees of complexity, they are arranged in the sequence of increasing complexity."

51 GEOMETRY IN CC AND DC

In the class Geometry, CC and DC arrange curves and surfaces
of increasing complexity according to their degrees of complexity
as shown below:

CC	Subject	DC	
B622:2	Analytical geometry of quadric curves i, e, the curves of the second degree	516.22	516.2
B623:2	Analytical geometry of cubic curves, i e, the curves of the third degree	516.26	616.2
B632:2	Analytical geometry of quadric surfaces, i e, the surfaces of the second degree	516.42	516 4
B633:2	Analytical Geometry of cubic surfaces, i e, the surfaces of the third degree	516.46	516.4

In the class numbers of CC, the digit 2 after colon (:) is the
method number indicating algebraic or analytical method. The
numbers before colon (:) may be interpreted as shown below:

B62   = Plane geometry or Geometry of two dimensions. The digit 2 in
the number stands for plane or two dimensions. In the present
example, it stands for curves

B622   = Curves of the second degree. The second two in the number,
stands for the second degree

B623   = Curves of the third degree. The digit 3 in the number, stands for
the third degree

B63   = Solid geometry or Geometry of three dimensions. The digit 3 in
the number stands for solid or three dimensions. In the present
examples, it stands for surfaces

B632   = Surfaces of the second degree. The digit 3 in the number, stands
for surfaces and the digit 2, stands for second degree

B633   = Surfaces of the third degree. The first digit 3 in the number-
stands for surfaces and the second digit 3, stands for third
degree

The class numbers of DC may be interpreted as shown below:
In the class number 516.22.

516 = Analytical Geometry
2   = Curves or two dimensions
22 = Quadric curves or curves of the second degree

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In the class number 516.26

26 stands for cubic curves, i e, curves of the third degree

In the class number 516.42

4   =   surfaces or three dimensions

42   =   Quadric surfaces, i e, the surfaces of the second degree

In the class number 516.46

46 = Cubic surfaces or surfaces of the third degree.

We do not find these class numbers in ed 15 and 16 of DC. They are taken from ed 14. In ed 16, only numbers for Analytical Geometry of curves and Analytical Geometry of surfaces are given as shown below:

516.2   Curves in Cartesian form
516.4   Surfaces in Cartesian form

Cartesian Geometry is one of the oldest variety of Analytical Geometry. It was founded by Rene Decrates (1596—1650), a great French philosopher and mathematician of the 17th century.

From these illustrations, we see that both Schemes arrange classes in Geometry on the basis of the Principle of Increasing Complexity. In these classes, Geometry of curves deals with planes or two dimensional space and Geometry of surfaces deals with solids or three dimensional space which are more complex and hence the classes belonging to curves get precedence over the classes belonging to surfaces, thus satisfying the Principle of Increasing Complexity.

52 TOWN PLANNING IN CC

The (I) in [P3] of the class Town Planning are arranged by CC on the basis of this Principle as shown below:

NB,1	Village planning	NB,5	City planning
NB,3	Town planning	NB,7	Metropolis planning

6 Canonical Sequence

The Principle of Canonical Sequence is enunciated thus: "If the classes in an array are traditionally referred to in a specific sequence although no underlying principle is discoverable, it will be convenient to conform to this traditional sequence." For illustrations, see section G191.

7 Favoured Category

The Principle of Favoured Category is enunciated thus: "The classes in an array may be arranged in the sequence of the decreasing quantity of published documents in them."

701 LITERARY WARRANT

This Principle is also called the Principle of Literary Warrant, a term introduced by Wyndham Hulme, a British librarian, about half a century ago. The term "Literary Warrant" means the quantity of publications available in a subject. This Principle indicates that the subjects having a relatively large number of publications on them, may be treated as favoured subjects in any array of classes, when no other principle will arrange them in a more helpful sequence.

71 AGRICULTURE IN CC AND DC

In the (MC) Agriculture, the division 38 of the crop characteristic is assigned to cereals and other seeds that are primarily produced for human consumption. The cereals under this division are arranged according to this Principle. "Rice" having greater literary warrant is put first. 'Wheat' comes next. The other cereals are arranged in the decreasing sequence of their literary warrant.

8 Alphabetical Sequence

The Principle of Alphabetical Sequence is enunciated thus: "When no other sequence of the classes in an array is more helpful they are arranged alphabetically by their names current in international usage."

9 Conclusion

From all this, we conclude that CC has entirely satisfied all the Principles indicated by the author of CC for securing helpful sequence of classes in an array. DC does not follow these Principles in all cases; but it does in some cases.

CONSISTENT SEQUENCE (CANON 11)

01 Enunciation

The Canon of Consistent Sequence is enunciated thus: "Whenever similar classes occur in different arrays, their sequence should be parallel in all such arrays wherever insistence on such a parallel does not run counter to other important requirements."

Conformity to this Canon will be conducive to economy of time and of attention or mental energy. It will minimise load on memory both for the classifier and for the user. It is the first aspect of this Canon in the form "arrange the same group of isolates in the same sequence whatever be the array in which they occur" that is responsible for certain practices in some of the schemes of classification.

02 DC and CC Practice

In DC, the geographical classes, the classes of industries and the common isolates are arranged exactly in the same sequence, wherever they occur.

In CC, this practice of automatically securing conformity to the Canon in question is developed to a much larger extent resulting in great economy in the length of the schedule.

03 Devices used in CC

The different devices used by CC to satisfy this Canon are

1. Common Isolate Device   4. Facet Device
2. Chronological Device   5. Subject Device
3. Geographical Device   6. Phase Device

1 Common Isolate Device

In chapter 2 of part 2 of ed 7 of CC, we see that the schedules of five types of (CI) are given. They are:

1. Anteriorising Common Isolates (applicable before [S]);

2 Anteriorising Common Isolates (applicable after [S]);

3 Anteriorising Common Isolates (applicable only after [T]);

4 Posteriorising Common Isolates: Energy Common Isolates;

5 Posteriorising Common Isolates: Personality Common Isolates.

These (CI) fall into a parallel sequence in whatever array they may occur.

Let us illustrate this feature by means of class numbers according to CC and the corresponding class numbers of DC:

CC	Subject	DC
Va	Bibliography of History	016.9 or 900.16
Vk	Cyclopaedia of History	903
Vm	Periodical in History	905
T.2r	Administration report of the Ministry of Education of India	370.6154
X.231sN47	Bulletin of the Bureau of Economics and Statistics (Bombay State)	330.830615479

If we use these (CI) in any array of any other class, they will fall in the same sequence as shown below:

DC	Subject	DC
R4a	Bibliography of Ethics	016.17 or 170.016
R4k	Dictionary of Ethics	170.3
R4m	Periodical in Ethics	170.5
X5.2r	Administration report of the Ministry of Commerce of India	380.6154
X8(J).231sN50	Bulletin of the Department of Agricultural Statistics of the Bombay State	338.10830615479

(CI) in DC are not systematically grouped in different schedules according to their respective categories as is done in CC.

2   Chronological Device

There is a schedule of chronological divisions in CC. This schedule enables us to have exactly the same sequence of periods in all cases where classification proceeds on a chronological basis.

21   ENUNCIATION

The scheme has enunciated a Device called the Chronological Device which consists in using the appropriate. chronological number for the formation or the subdivision of an (I) which is capable of chronological formation or subdivision or when the individualisation of the (I) or subisolates may be made to depend conveniently on the period of origin or birth or on the year of first invention or on the year of discovery or on the year of initiation or commencement or on the year of occurrence or on the year that may be definitely associated with the respective (I) in any manner or for any reason. Some of the cases where this Device may be employed are generally indicated either in the schedules or in the rules. Similar cases, where it may be employed, will suggest themselves in the course of actual classification.

22   USE IN CC

The (CD) is used in quite a large number of cases in CC, practically several times in most of the subjects. The schedules contain many examples in which this Device is usefully employed. This Device is illustrated (1) in the individualisation of special forms and functions in mathematics, (2) in fixing the author numbers in literature, (3) in the classification of artificial languages in the schedule of language classes, (4) in the classification of the different systems of Physics, Medicine, Psychology, Education and Economics and (5) in many other instances. The (CD) automatically secures conformity to the Canons of (1) Consistent Sequence (2) Helpful Sequence, (3) Hospitality in Chain and (4) Mnemonics'

23   SYSTEMS OF PSYCHOLOGY IN CC AND DC

Let us illustrate how the Systems of Psychology are individualised by (CD) in CC along with their corresponding class numbers in DC:

CC	Name of the system	DC
SA	System of Psychology	150.19
SM	Experimental Psychology (invented in 1879 by William Wundt)	150.72
SM9	Psycho-analytic Psychology (founded in 1895 by Sigmund Freud)	131.34
SN	Gestalt Psychology (initiated in 1907 by Max Wertheimer)	150.19
SN1	Behaviouristic Psychology (founded in 1912 by John Broadus Watson)	150.19
SN14	Individualistic Psychology (established in 1914 by Alfred Adler)	?
SN17	Reflexology (initiated in 1917)	?
SN2	Eidetic Psychology (initiated in 1925 by Erich R Jaenesch)	?
SN3	Field Psychology (initiated in 1935 by Kurt Lewin)	?
SN36	"We" psychology (Initiated in 1936)	?

From these illustrations we see that CC is able to arrange all the Systems of Psychology in their chronological sequence by the use of (CD). As DC has not used this Device, the Systems of Psychology are not properly arranged in the Scheme and some of them are not even individualised.

24   DIOPHANTINE EQUATIONS IN CC AND DC

The (CD) is used by CC in Mathematics for showing special forms of Diophantine equations under the class number B13,3. Diophantine equation is the equation concerning the Theory of Numbers devised by Diophantus, a great mathematician who flourished during the 4th century A D.

In the class number B13,3

B   =   Mathematics
13 =   Theory of Numbers
,   =   (CS) for [P2]
3   =   (IN) in [P2]. It means Diophantine equation.

In DC the class number 512.23 is shown as the number for Diophantine equations. But there is no scope to individualise specific Diophantine equations, such as Pell's equation which is one of the most famous Intermediate quadratic equations based on the Diophantine equation and devised by John Pell, a mathematician

of the 17th century. CC has correctly individualised this equation by the use of (CD), thus : B13, 3K Pell's equation. The letter K in the number represents 17th century.

25 SPECIAL ARITHMETICAL FUNCTIONS IN CC AND DC

In CC, Special arithmetical functions are individualised under the class number B13,9 which stands for Associated arithmetical functions. But in DC, all these functions have to be classed under a single class number, viz, 512.81.

26 SPECIAL FORMS OF ALGEBRAIC EQUATIONS IN CC AND DC

Again, Special forms of algebraic equations are also individualised in CC under the class number B239. DC puts all these equations under the class number 512.82 standing for Theory of equations. Let us illustrate how these Special forms are individualised by CC. The Scheme has assigned B239 as a general class number for these Special forms. Under this class number specific Special equations are individualised, thus : B239M Abelian equation. This Equation was devised by Niels Henrik Abel, a Norwegian mathematician during the 19th century. In this class number

B23   =   Theory of equations
B239   =   Special equations by (CD)
M   =   19th century when the Equation was devised by Abel.

Another example of the special Form of algebraic equation is B239M7 Sylow equation. This Equation was devised by Ludwig Sylow, an eminent Norwegian mathematician who flourished during the period 1832-1918. The digits M7 in the class number stand for the eighth decade of the 19th century when it was devised by Sylow.

All these Special algebraic equations will have to be classed in DC under a single homonymous class number 512.82 which simply represents Theory of equations.

CC has made use of (CD) in a profuse manner. In fact, there is hardly any subject where this Device is not employed by the Scheme. We know that there is no special auxiliary schedule of chronological divisions in DC and hence the Scheme is not able to make use of (CD) as profusely as possible with a view to satisfy this Canon.

3 Geographical Device

CC has provided a schedule of geographical divisions. The use of this schedule enables us to secure parallel sequences of classes in all geographical arrays, wherever they may occur.

31 ENUNCIATION

The scheme has also enunciated a Device called the Geographical Device which consists in using the appropriate number, i e, of continent, country, state, district, etc, as the case may be, for the formation or the subdivision of an (I) which is capable of such formation or subdivision or when the individualisation of the (I) or sub-isolates may be made to depend conveniently on the place of origin or prevalence or habitation or one that may be definitely associated with the respective foci in any other manner or for any other reason. The cases where this Device may be applied are generally indicated either in the schedules or in the rules.

The geographical classes of Geography, History, Economics and Sociology fall in a sequence parallel to the one obtained in the schedule of the geographical divisions. The (GD) is used in several other places, such as (1) the classification of Dialects and Jargons in Linguistics, (2) certain Religions in the (MC) Religion and (3) certain systems of philosophy in the (MC) Philosophy. Further several (CI), such as laboratories, exhibitions, periodicals of all kinds, statistics and history are also subdivided by (GD). The result is that in all these and similar other cases the geographical classes in whatever array they may be found, follow in the parallel sequence. DC also does similarly.

32 LANGUAGES IN CC AND DC

Let us take the example of the Sumerian language. It takes F467 as its class number in CC. In this class number

P   =   Linguistics
4   =   Asia
46   =   Arabian Peninsula
467 =   Iraq (Mesopotamia) which is the place of origin of the Sumerian language.

Now let us see how DC represents this language. 499.95

Sumerian language. In this class number 499 stands for Austronesian languages. Austronesian is a name applied by ethnologists to the region, where the people speak closely related languages. Linguistically this region has three subdivisions, viz,

991   Indonesia   996   Polynesia
993   Melanesia (New Zealand) and

Each of these regions is inhabited by Austronesian subfamily. Under the class number 499 the languages of these three Austronesian subfamilies are numbered as shown below:

499.2   Malayan (Indonesian) languages
499.4   Polynesian languages
499.5   Melanesian languages (the languages of the people inhabiting New Zealand)

And the class number 499.9 is assigned to other languages not provided for in the whole schedule. From this, we see that the class number 499.95 assigned to Sumerian language has no mnemonic feature in it. As the place of origin of the Sumerian language is Iraq (Mesopotamia) we expect to get some indication of the number assigned to Iraq in the History class of DC. The number for Iraq in that Scheme is 956.7.   So we may say that the digit 5 in the class number 499.95 represents Asia. This means that the DC number is not able to show the exact place of origin of Sumerian language which is Iraq. The whole language schedule in DC under Linguistics is arbitrarily distributed. It is not divided on any universal standard principle. Let us take another example. P615 Chichewa language (A Bantu language of British Central Africa). In this class number

P   = Linguistics
6   = Africa
615   = Nyasaland which is a part of the British Central Africa and is the place of origin of the Chichewa language.

The possible number for this language in DC is 496.3 which stands for Bantu languages and which includes Chichewa language. In the class number 496.3, the digits 496 stand for African languages and the digit 3 after dot (.) stands for Bantu languages. The DC number indicates that Bantu languages are African languages, but does not show the particular region in Africa which is the place of origin of Bantu languages, i e, Nyasaland, as does the CC number in the case of Chichewa language.

33   RELIGIONS IN CC AND DC

Now let us take an example of a Religion individualised by (GD). Q8411 Pre-Confucianism. In this class number

Q	=	Religion	841	= Religions in China
8	=	Other Religions	8411	= Pre-Confucianism

The last digit in this class number indicates the preferential order given to this particular Religion among the other Religions in China. It is an illustration of the Favoured Category Device. There is no number for Pre-Confucianism in DC. Confucianism gets 299.512 as its class number. In this class number 299 stands for Religions not otherwise provided and 299.51 stands for Religions of Chinese origin and 299.512 stands for Confucianism. DC has used (GD) in the case of Religions of Chinese origin. Thus, in the class number 299.51, the digits 51 represent China. They are taken from the number 951 standing for History of China.

34   OTHER LANGUAGES IN CC AND DC

The languages not belonging to the Indo-European, the Semitic or the Dravidian families are prescribed to be individualised by (GD) in CC. The class numbers for these groups of languages may be illustrated in both the Schemes as below:

CC	Language	DC
P4	Other Asiatic languages	495
P5	Other European languages	491.6 to 491.99
P6	Other African languages	496
P7	Other American languages	497 and 498
P8	Other Australian languages	} 499.1 to 499.8
P9	Oceanic regional languages	
	Other languages	499.9

4   Facet Device

41   ENUNCIATION

The Facet Device is enunciated thus: "Facet Device consists of adding after a class number of any number of links, a digit of

ordinal value less than that of the least of all the substantive digits and adding thereafter a set of digits constructed on the basis of a train of characteristics related to one another but unrelated to those previously used. The digit first added is called a connecting symbol. The set of digits added thereafter is called a facet."

Example

42 MEDICINE IN CC AND DC

A subject in the (MC) Medicine may have the organ facet and the problem facet. The organ schedule contains about 200 isolates. Some of the Problem Isolates are Morphology, Physiology, and Diseases. As a result of using the Facet Device, the problem divisions of all the approximately 200 classes of organs are automatically arranged in one and the same sequence. This is illustrated as below:

L:2	Morphology of human body	L183:4	Diseases of the ear
L:3	Physiology of human body	L185:2	Morphology of the eye
L:4	Disease of human body	L185:3	Physiology of the eye
L183:2	Morphology of the ear	L185:4	Diseases of the eye
L183:3	Physiology of the ear		

5 Subject Device

51 ENUNCIATION

The subject Device is enunciated thus: "The Subject Device consists in using the appropriate class number for the formation or the subdivision or when the individualisation of the isolates or sub-isolates may be made to depend conveniently on a class number that may be definitely associated with the respective classes in any manner or for any reason. The cases where this Device may be applied are generally indicated either in the schedules or in the rules of CC."

The (SD) number is enclosed in circular brackets. This Device secures automatic conformity to the Canons of (1) Consistent Sequence, (2) Helpful Sequence, (3) Hospitality in Array, (4) Hospitality in Chain and (5) Mnemonics. This Device is employed at different stages in certain subjects. Many illustrative divisions by (SD) are given in the schedules. This Device adds greatly to the profuseness as well as to the minuteness of the classes. At the

same time parallel sequences are automatically secured wherever it is possible in all similar arrays. It is also employed by CC in almost all subjects.
Examples:

52 USEFUL ARTS IN CC AND DC

Several divisions of the (MC) Useful Arts are formed by (SD) used as an analogue; thus

CC	Subject	DC
MB1	Calculating machines	681.141
	B1=Arithmetic. It is not enclosed in circular brackets as it is used as an analogue of (SD)	
MB9	Horology	681.11
	B9= Astronomy. (Horology is the art of constructing machines for measuring time, as clocks, watches, etc.,)	
MC3	Gramophones	681.843
	C3= Sound	

53 BUILDINGS IN CC AND DC

Most of the buildings under the utility characteristic in Architecture in CC get their class numbers by (SD). Let us illustrate this by means of an example; thus:

CC	Subject	DC
NA2,N8(V,3)	Parliament House of the Republic of India	725.110954

NA = Architecture
2   = India in [P] indicating the country or region of Architecture
,   = (CS) for [P2]
N   = 20th century in [P2] indicating the century or epoch of Architecture.

The [P] and [P2] jointly indicate the style of Architecture and therefore, it is laid down that 'Style' is a joint manifestation of [P] in two levels.

8(A) = Other buildings in [P3]. This facet is called utility facet. No (CS) between [P2] and [P3] is necessary as the century number in [P2] is not required to be expanded.
(V,3) = Parliament got by (SD)

DC 725.11 Legislative buildings

54 ICONOGRAPHY IN CC AND DC

Most of the subjects under figure characteristic in sculpture get their class numbers by (SD); thus:

CC		Subject	DC
ND,J8(Q)		Iconography or images of Gods in India in the 16th century	731.87095403
ND	=	Sculpture	
2	=	India in [P] indicating the country or region of Sculpture	
,	=	(CS) for [P2]	
J	=	16th century in [F2] indicating the century or epoch of Sculpture. The [P] and [P2] jointly indicate the style of Sculpture and therefore, it is laid down that 'Style' is a joint manifestation of [P] in 2 levels.	
8(A)	=	Other subjects in [P3] which is called figure facet. No (CS) between [P2] and [P3] is necessary as the century number in [P2] is not required to be expanded.	
Q	=	Religion got by (SD) and analogically it means God.	
		DC	
731.8	=	Specific subjects in sculpture. This number is to be divided like 704.94 Specific Subjects in art, e g, 704.947 Mythology in Art. Therefore	
731.87	=	Mythology in sculpture which includes Gods.	
09	=	Local treatment	
54	=	India	
03	=	Modern period which begins from 16th century	

55 SUBJECT DEVICE IN [E] OF CC

In CC, it is recommended that (SD) may be used wherever warranted to extend the schedule in any [E]. In such cases the (SDI) should be more abstract than the (BC). An example of the use of (SD) in [E] may be illustrated; thus:

CC		Subject	DC
D646:(C4:7)		Engines of high output: Thermodynamical consideration	621.43
D	=	Engineering	
6	=	Mechanical engineering	
64	=	Heat engines	
646	=	Internal combustion engines which are of high output	
:	=	(CS) for [E]	
(C4:7)	=	Problem of Thermodynamics which is the aspect or point of view of the treatment of the subject, got by (SD)	

The subject Thermodynamics belongs to the pure and abstract

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science 'Physics' while the subject 'Engines of high output' belongs to 'Engineering' which is the applied science of Physics and hence it is evident that the (SDI) Thermodynamics is more abstract than the (BC) 'Engines of high output'; and thus this specific subject fulfils the condition laid down by the author for using (SD) to extend the schedule in [E].

DC

621   = Mechanical engineering
621.4   = Internal combustion and heat engines other than steam
621.43   = Internal combustion engines

The DC number simply means Internal combustion engines. It is not able to carry theexact meaning of the subject, i e, thermodynamical consideration of Internal combustion engines as the Scheme has not got a special method of using (SD), wherever it is necessary in a systematic way as we see in CC.

In DC, we do find the method of (SD) followed in a restricted way in certain subjects in which we find instructions like 'Subdivide like the whole classification from 000 to 999'. For instance, under the class number 016 Subject bibliographies, we find instructions which read thus,—'Divide like 000—999 e g 016.51 Bibliography of mathematics. So, we may say that DC partially satisfies the Canon of Consistent Sequence by adopting the (SD) method in the case of certain subjects where specific instructions are given to subdivide either like the whole classification or like some particular divisions in some (MC) of the Scheme.

6 Phase Device

The Phase Device is another means by which sequences of the same classes are made to be the same in all the different arrays in which they occur. The author of CC has recognised two types of phases in a class number, viz,

1   The Primary Phase and   2   The Secondary Phase.

601 ONE PHASED SPECIFIC SUBJECT

A specific subject is considered as one phased or consisting of one phase when it involves only a single (MC) or any of its subclasses (with or without facets).

The specific subject Education involves only a single (MC)

without any facet and hence it is considered as a one-phased subject or a subject consisting of one phase. We write its class number as shown below:

CC	Subject	DC
T	Education	370

The specific subject Elementary education involves only a single sub-class of the (MC) Education with one facet, viz, the facet of Elementary education and hence it is a one phased subject or a subject consisting of one phase. We write its class number as shown below:

CC	Subject	DC
T15	Elementary education	372

The specific subject Curriculum of elementary education involves only a single sub-class of the (MC) Education with two facets, viz, (1) Elementary education, and (2) Curriculum and hence it is also a one phased subject or a subject consisting of one phase. We write its class number as shown below:

CC T15:2   Curriculum of elementary education
DC 372   Elementary education   375   Curriculum

In DC, the educand facet and the problem facet are mixed up together and hence these two facets cannot be distinctly shown in a class number. Therefore in DC either of the class numbers, viz, 372 standing for Elementary education or 375 standing for Curriculum will have to be given to the subject under consideration. The CC class number is able to show distinctly the two facets of the subject and hence it means Curriculum of elementary education.

602   COMPOUND SUBJECT OR COMPOUND CLASS

A one phased specific subject may be a simple or a compound subject or a (CdC). Its class number is called a (CdCN). A (CdC) consists of one (BF) and one or more (I) foci. Any (MC) or any canonical class is called a (BF). The (MC) of CC and those of DC are Basic Foci. The (MC) Medicine in both the Schemes is a (BF). So also their class number, i e, L in CC and 610 in DC are (BCN).

An (I) focus is any of the divisions of a (BC) based on a characteristic or a succession or a train of homogeneous characteristics and enumerated in the scheme of classification used as foci in a facet. In the class number L185:4:6 standing for the Treatment of the diseases of the eye, L standing for Medicine is a (BF), 185 standing for Eye as a division of the (BC) Medicine is an (I) focus in [P] or organ facet of that class. Similarly, 4 standing for Disease as a division of the same (BC) is an (I) focus in [E] or problem facet of that class; and 6 standing for Treatment as a division of the same (BC) is an (I) focus in [2E] or handling facet of that class.

A (CdF) with one facet is said to be of the first order, one with two facets is said to be of the second order, and so on.

The class number L185 standing for Ophthalmology (i e, the Science of the eye) is a (CdF) of the first order. The class number L185:4 standing for Diseases of the eye is a (CdF) of the second order, and the class number L185:4:6 standing for Treatment of the diseases of the eye is a (CdF) with three facets or a (CdF) of the third order.

603 COMPLEX CLASS

A class formed by the Phase Device is called a complex class.

604 TWO PHASED SPECIFIC SUBJECT

A subject is said to be two phased, when it brings into relation two (MC) or any of their subclasses (with or without facets), one of them being the actual subject of exposition and therefore the primary phase, the other, not the subject of exposition and therefore secondary. The secondary phase indicates a subject which comes into relation with the primary phase.

61 INTER-SUBJECT PHASE RELATION

The relation of the two subjects, thus coming together is called Phase Relation (PR). (PR) are of five types. They are:

1 General (PR)   4 Difference (PR)
2 Bias (PR)   5 Influencing (PR)
3 Comparison (PR)

In CC, the class number of a two-phased subject is got by in-

serting between the class numbers of the first and the second phases, the (CS) zero (0) and a digit to represent the (PR). The schedule of the digits assigned to different (PR) in CC is:

a   General relation   d   Difference relation
b   Bias relation   g   Influence relation
c   Comparison relation

611   GENERAL (PR)

The General (PR) denotes a more or less all comprehensive relation which is not merely any one of the other (PR).
Example :

W0aX   Relation between Political science and Economics

The rule regarding the sequence of the two classes forming a subject of General (PR) reads as below:
"The constituent whose class number is of smaller ordinal value than that of the other should be used as the first phase."
In the above example, we have made Political science the First Phase as its class number W is of smaller ordinal value than the class number X standing for the other Phase, viz, Economics. The second phase is called Relation Phase in this case.

612   BIAS (PR)

The Bias (PR) indicates that the exposition of the first phase is biased towards the second phase. This means that the subject is treated in such a way as would suit the needs of a specialist in the subject which forms the second phase. Examples:

B0bC   Mathematics for   B0bG   Mathematics for
       Physicists   Biologists
B0bD   Mathematics for Engineers

613   COMPARISON (PR)

When a comparison is made between two subjects, the subject whose class number is the earlier ordinal number is to be treated as the first phase. The second phase is called the Comparison Phase.
Example:

C0cE   Physics compared to Chemistry

614 DIFFERENCE (PR)

When the difference between two subjects is expounded, the subject whose class number is the earlier ordinal number, is to be treated as the first phase. The second phase is called Difference Phase in this case.

Example:

B850dCN2 Difference between Wave function and Wave mechanics

In the above class number B85 stands for Wave function and CN2 stands for Wave mechanics.

There is no number for Wave function in DC, but there is a number for Wave mechanics which is given as a subdivision of Physics in general; thus: 530.12 Wave mechanics.

62 INTRA-FACET PHASE RELATION

In classification, we come across another type of relation between two isolates in the same facet. This is called Intra-facet phase relation.

A subject is said to involve an intra-facet (PR) when it brings into relation two isolates of one and the same facet of a class. Intra-facet (PR) are of five types. They are

1 General intra-facet (PR),
2 Bias intra-facet (PR),
3 Comparison intra-facet (PR),
4 Difference intra-facet (PR),
5 Influence intra-facet (PR). These are similar to those for Inter-subject (PR). The class number of an intra-faceted specific subject is got by inserting between the two (IN) of the constituent divisions, the (CS) zero (0) and an appropriate digit representing (IFR). The schedule of the digits assigned to the different (IFR) reads thus:

j	General (IFR)
k	Bias (IFR)
m	Comparison (IFR)
n	Difference (IFR)
r	Influence (IFR)

The specific features as indicated under the different (PR) hold good for the different (IFR).

621　GENERAL (IFR)

X:5.440*j*56　Commercial relation between India and Great Britain

622　BIAS (IFR)

X5.440*k*1N48　Commonwealth preference in India's Commerce

In the above class number, the digit 5 in the Business Facet is used in the sense of mode of commerce, such as commerce by state, commerce by structure, and so on.

623　COMPARISON (IFR)

B910*m*43:68　Comparison of the constitution of Earth and Mars

624　DIFFERENCE (IFR)

V2,10*n*21:3　Difference between the functions of the President and the Prime Minister of the Indian Republic.

625　INFLUENCE (IFR)

V2,410*r*21　Influence of the Prime Minister on the Party in office in the Indian Republic

In the above class number, the (IN) 41 stands for Party in office and the (IN) 21 stands for Prime Minister. The number for Party in office is written first on the basis of the rule for Influencing (PR).

63 INTRA-ARRAY PHASE RELATION

There is a third type of relation between two specific subjects which is called intra-array phase relation.

It is possible to have books expounding the relation of two array isolates in one and the same array. An array isolate formed by thus bringing into relation two array isolates in the same array is called a Complex Array Isolate.

The difference between the Intra-Facet Specific Subject and the Intra-Array Specific Subject is that in the case of the Intra-Facet Specific Subject any two (IN) which do not form constituent divisions of a single array but are constituent divisions of a facet come into relation with each other. In the case of the Intra-Array Specific Subject, any two (IN) which form the constituent divisions of a single array come into relation with each other.

Rules analogous to rules for Phase and Intra-Facet Phase Relations hold good for Intra-Array Phase Relations. Intra-Array Phase relations are of five types. They are:

1 General Intra-Array (PR)
2 Bias Intra-Array (PR)
3 Comparison Intra-Array (PR)
4 Difference Intra-Array (PR)
5 Influencing Intra-Array (PR). The class number of an Intra-Array Specific Subject is got by inserting between the two (IN) of the constituent divisions, the (CS) zero (0) and an appropriate digit representing (IAR). The schedule of the digits assigned to the different (IAR) reads as below:

t	General (IAR)	*w*	Difference (IAR)
u	Bias (IAR)	*y*	Influencing (IAR)
v	Comparison (IAR)		

This Device is newly introduced by the author. On account of the introduction of this Device, we are able to save one digit in the class number which we were required to use compulsorily in the case of (IFR) Device, though sometimes both the isolates belonged to the same array in the facet. This saving of one digit is possible in the case of the (I) in the second and subsequent orders of arrays only. This will be clear from actual examples given below.

631 GENERAL (IAR)

Q110*t*2   Rgvedic and Yajurvedic religion

In the class number of CC

Q	=	Religion
1	=	Vedic religion
11	=	Rgvedic religion
0	=	(CS) for (IAR)
t	=	A symbol for general (IAR)
2	=	Yajurvedic religion

The full (IN) to represent Yajurvedic religion is 12; but the digit 1 in it is taken as understood as it is already included in the (IN) of the Primary (IAR) number, i e, 11 standing for Rgvedic religion. Before the introduction of this Device, we were constructing the class number for this subject as Q110*j*12.

This is how one digit is saved by the introduction of the (IAR) Device. There will be no confusion between the numbers constructed on the basis of (IFR) Device and (IAR) Device, as the relation symbols of both the Devices are quite different.

632 BIAS (IAR)

L:20u3 Human physiological anatomy

In the above class number the digits 2 and 3 in the [E] are constituent divisions of the first order array of the [E] of the (MC) Medicine.

633 COMPARISON (IAR)

V2,310v2:3   Comparison between the powers of Lok Sabha and Rajya Sabha

In the above class number the digit 1 in the (IN) 31 stands for Lok Sabha and the digit 2 after small v stands for Rajya Sabha. It is a constituent division of the second order array formed on the basis of 'Houses of Legislature Characteristic' applied to the isolate 'Legislature' represented by the digit 3 in the first order array of the Constitutional Organ Facet. The digit 3 in the primary (IAR) number is retained to indicate that both the (IN) showing (IAR) are derived from it.

634 DIFFERENCE (IAR)

Y310w5   Difference beteeen Rural folk and City folk

In the above class number, the digit 1 in the (IN) 31 stands for Rural folk and the digit 5 after small w stands for City folk. These digits are constituent divisions of the second order array formed on the basis of 'Social group by residence characteristic' applied to the isolate 'Community by Residence' represented by the digit 3 in the first order array of the Group Facet. The digit 3 in the primary number is retained to indicate that both the (IN) showing (IAR) are derived from it.

635 INFLUENCE (IAR)

Q60y4   Influence of Buddhism on Christianity

In the above class number, the digits 6 and 4 are constituent divisions of the first order array in the [P] or Religion Facet of the (MC) Religion.

64 PHASE ANALYSIS

Phase Analysis means analysis of a specific subject into phases. In our classification, we come across such subjects as cannot find a suitable place in any (MC) or its subclass; but which indicate a sort of relation of a (MC) or its subclass with another (MC) or its subclass. Such subjects are termed as mixed subjects or mixed (MC). Dr Ranganathan also calls them as loose-assemblages. Such subjects get class numbers on the basis of a device called Phase Device.

The phased notation increases the capacity of a given notational system to individualise subjects. In fact, it increases its versatility. It also brings out the nature of relation between two self contained regions which are only loosely assembled. It increases the autonomy to the classifier.

7 Conclusion

From all our elaborate discussion on the observance or violation of the Canon of Consistent Sequence by DC and CC, we have seen that CC has observed this Canon quite satisfactorily due to its method of using various devices consistently and systematically. DC uses these devices at random and hence we see very few instances of the observance of the Canon by that Scheme. The instances of the violation of the Canon by DC are seen in a large number of cases because of the structural rigidity of the Scheme and the absence of any definite rules for using the various devices as a regular process, as we see in CC.

PART M

CANONS FOR CHAINS OF CLASSES

CHAPTER M0

CANONS FOR CHAINS OF CLASSES

1 Chain

11 ENUNCIATION

"A chain is a sequence of classes made up of any given class which forms the last link of the chain, its immediate universe, its immediate universe of the second remove, of the third remove, etc. A chain may be arrested at any stage short of the original universe concerned."

To illustrate this feature of the chain, let us take the subjects, viz

1 Exemption from tax on income from government bond, and

2 Exemption from stamp duty in Bombay in 1940's.

These subjects form last links of two chains. Let us illustrate these chains along with the class numbers of CC and DC which form different links in them:

CC	Subject	DC
	Chain 1	
X	Economics	330
X7	Public finance	336
X72	Taxation	336.2
X724	Income tax	336.24
X7242	Tax on income from government bond	?
X7242:2	Exemption from tax on income from government bond	?
	Chain 2	
X729	Indirect taxes	336.271
X7292	Stamp duty	336.272
X7292:2	Exemption from stamp duty	?
X7292:2.231	Exemption from stamp duty in Bombay	?
X7292:2.231·N4	Exemption from stamp duty in Bombay in 1940's	?

If we look at these classes, we see that CC is able to represent each and every class in these chains by its class numbers, while

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there are five classes which do not get any class number according to DC. Let us examine the arrangement of the classes as effected by the class numbers of CC. The arrangement indicates that these classes have formed two chains. One chain begins at X Economics and ends at X7242:2 standing for Exemption from tax on income from government bond. The second chain begins at X729 standing for Indirect taxes and ends at X7292:2.231'N4 standing for Exemption from stamp duty in Bombay in 1940's.

2 Removes in the Chain

In the chain which begins at X Economics and ends at X7242:2 the last mentioned class, i e, Exemption from tax on income from government bond, bearing class number X7242:2 forms the last link of the chain. Tax on income from government bond, bearing class number X7242 forms its immediate universe. Income tax bearing class number X724 forms its immediate universe of the second remove. Taxation bearing class number X72 is its immediate universe of the third remove. Public finance bearing class number X7 is its immediate universe of the fourth remove. Economics bearing class number X is its immediate universe of the fifth remove. The condition of a chain is that no two classes of a chain can be of the same order. Thus, in the chains under consideration, we find that no two classes are of the same order and hence we call them chains.

3 Orders of Classes

The first link of a chain is the class of the lowest order comprised in it. In the present instance X is the first link of the chain as it is the class of the lowest order. The last link of a chain is the class of highest order comprised in it. In the above example X7242:2 is the last link of the first chain and X7292:2.231'N4 is the last link of the second chain as they are the classes of the highest order comprised in them.

4 Canons for Chains of Classes

Each chain of classes in a scheme of classification has to satisfy two canons, viz,

  1 Decreasing Extension (Canon 12); and

  2 Modulation (Canon 13).

DECREASING EXTENSION (CANON 12)

01 Enunciation

The Canon of Decreasing Extension is enunciated thus: "While moving down a chain from its first link to its last link the intension of the classes should increase and the extension of the classes should decrease."

The Canon gives us an idea regarding the nature of classification as one is able to see in chains of classes, so related that each class is of wider extension than the next below it in its chain. The extension of a class is measured by the range comprised in the class; while its intension is measured by the number of characteristics used in deriving the class from the original universe or the order of the class. In other words, extension is a quantitative measure of a class and intension is a qualitative measure. Example.

In the chain illustrated in Chapter M0, the intension of the classes is increasing and the extension of the classes is decreasing.

1 Number of Characteristics Used

If we consider the number of characteristics that have been used to derive each class in the first chain, we see that it increases as we go down the chain and reach the last link, viz, "Exemption from tax on income from government bond". This feature can be illustrated as below:

(a) Public finance is derived from the class Economics by the use of one characteristic, viz, Business;

(b) Taxation is derived by the use of two characteristics, viz, (1) Business and (2) Source of public finance;

(c) Income Tax is derived by the use of three characteristics, viz, (1) Business, (2) Source of public finance and (3) Kind of taxation;

(d) Tax on Income from government bond is derived by the use of four characteristics, viz, (1) Business, (2) Source of public

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finance, (3) Kind of taxation and (4) Tax on kind of income;

(e) Exemption from Tax on income from government bond is derived by the use of five characteristics, viz, (1) Business, (2) Source of public finance, (3) Kind of taxation, (4) Tax on kind of income and (5) Problem of taxation.

2 Extension and Intension

From the above, we can conclude that the greater the range of a class, the greater is its extension and the less its intension. Conversely, the greater the number of characteristics used to derive the class, the greater is its intension and less its extension.

In the chain under consideration, we find that Economics comprises the greatest range and hence it forms the first link of the chain and it is the class of the greatest extension in the chain. Similarly, the class Exemption from tax on income from government bond is derived with the greatest number of characteristics and hence it is the class of the greatest intension and forms the last link of the chain. The chain shows how the intension of the classes increases and the extension decreases as we go down the chain and thus, this chain satisfies the Canon under consideration.

3 Lineal Kinship

We must remember that the Canon of Decreasing Extension cannot be applied to any set of classes which have no lineal kinship, i e, which do not show close affinity just like that of father, son and grandson. For example, the classes Democracy and Steam engine do not show any lineal kinship and hence the Canon cannot be applied to them. Similarly, the Canon cannot be applied to classes which though belonging to the same (MC) occur in different chains of subordination such as Birds and Reptiles, both of which belong to the same class 'Animals', but are not subordinate, one to the other, i e, do not occur in the same chain and hence we cannot tell which has the greater intension nor, if that were decided, would we be able to infer from the decision which had the greater intension or comprised the greater number of subordinate species.

4 Conclusion

From all this, we conclude that the chain formed by CC class

numbers shows how the intension of the classes increases and the extension decreases as we go down the chain and hence the Scheme is able to observe the Canon of Decreasing Extension in a satisfactory manner. DC also does similarly.

MODULATION (CANON 13)

0 Modulation

Modulation is a difficult concept to define. We can only illustrate it. Let us take the chain beginning with 'World' as the universe. Consider the following chains:

Chain 1		Chain 2	
1	World	1	World
5	Europe	5	Europe
56	Great Britain	563	Scotland
563	Scotland		

When comparing these two chains, we find the intermediate link 'Great Britain' missing in the second chain. We find that modulation is respected in the first chain. But it fails in the second chain.

1 Enunciation

The Canon of Modulation is enunciated thus: "A chain of classes should comprise one class of each and every order that lies between the orders of the first link and the last link of the chain."

Example: Let us take the example considered while discussing the Canon of Decreasing Extenstion. In that example, we find that Economics is the first link and Exemption from tax on income from government bond is the last link of the chain. Economics is a class of the order zero and Exemption from tax on income from government bond is a class of order five. The Canon of Modulation stipulates that the scheme of classification would be defective, if the chain omitted to give either Public finance or Taxation or Income tax or Tax on income from government bond which are the classes of the intermediate orders, viz, one, two, three and four in the first chain. This condition has been satisfied by CC from the first link to the last link of both the chains under consideration. We find that DC also satisfies this Canon in most cases. There are, however, a few instances of missing links.

2 Missing Link

For example in the (MC) Religion, we find that the chain of classes of Christianity omits the link of Christianity itself. This chain as seen in CC and DC may be illustrated as below:

Subject	CC	DC
Religion	Q	200
Christianity	Q6	?
Sacred books (Bible)	Q6:2	220

In this chain Religion is the first link and Bible is the last link. In the chain of DC classes, we see that the Scheme has omitted the link of Christianity while CC has mentioned it.

3 Chain-with Gap

The chain of DC classes is called a Chain-with Gap by Dr. Ranganathan in the *Classified catalogue code*, ed 4. A chain-with Gap is defined thus: "A Chain-with Gap is a chain of (I) in a schedule of classification in which an intermediate (I) is not given as a result of failure to conform to the Canon of Modulation." The (I) missing in a Chain-with Gap is called Missing Isolate. Dr Ranganathan suggests that the missing (I) Christianity in DC chain may as the last resort be written thus,—220/280 to represent Christianity. In this class number the number 220 is the first number in the schedule of class numbers assigned to Christianity in the (MC) Religion and the number 280 is the last number in that schedule standing for Christian churches and sects.

PART N

CANONS FOR FILIATORY SEQUENCE

CANONS FOR FILIATORY SEQUENCE

A filiatory sequence means a sequence which respects the degree of mutual relation between subjects. Mutual relations are of two types, viz, relations of classes as coordinate classes and relations of classes as subordinate classes. To secure satisfactory filiatory sequence the Canons for Arrays and Chains of Classes and those for Filiatory Sequence are required to be satisfied by a scheme of classification.

The efficiency of a scheme of classification is measured by the degree to which it fulfils the purpose of providing a distinct or different class number for each specific subject, however many they may be and securing a filiatory sequence among the specific subjects when arranged by their class numbers.

SUBORDINATE CLASSES (CANON 14)

01 Enunciation

The Canon of Subordinate Classes is enunciated thus : "All the subordinate classes of a class in whatever chain they may occur should immediately follow it without being separated from it or among themselves by any other class."

1 Filiatory Sequence

The Canon means that the subordinate classes of a class should be arranged immediately after it according to their degree of relation. In other words, the arrangement should be similar to the

**GENERATIONS OF
THE FAMILY**

genealogical arrangement of a family in which the ancestor of the family is at the head of the chain and below him his sons, grandsons, and sons of the further generations are arranged, each son having his own sons arranged immediately after him without any other member of the family intervening. This type of arrangement is called an arrangement of filiatory sequence, i e, a sequence in which children get arranged in relation to their parents. Example:

The arrangement of subordinate classes satisfying the Canon of Subordinate Classes is illustrated by Dr Ranganathan in a diagram in his *Prolegomena*. In that diagram, he has shown three chains. One of the chains is given in the diagram on p. 384:

This chain illustrates how the ancestor of the family is at the head and below him how a chain is formed by one of his sons.

2 Collocation of Related Subjects

Henry Evelyn Bliss uses the phrase 'Collocation of related subjects' for the concept 'Filiatory Sequence'. The Term 'Collocation' means the association of subjects according to the degree of affinity or likeness between them; or arranging the closely related classes in propinquity (i e, nearness in place, time, relationship, etc). (Collocation of Related Subjects is Principle 18 out of the 32 Principles of Classification enunciated by Bliss.)

COORDINATE CLASSES (CANON 15)

01 Enunciation

The Canon of Coordinate Classes is enunciated thus : "Among the classes in an array no class with less affinity should come bet-ween the classes with greater affinity."

1 Genealogical Tree

Let us take the first order array of the genealogical tree illustrated in the *Prolegomena*.

ORDERS OF ARRAYS

O
ZERO ORDER ARRAY

FIRST ORDER ARRAY

ORIGINAL UNIVERSE
i.e.
THE ANCESTER OF THE FAMILY

| 00 | I | 2 | 3 |

E   E
ELDEST SON   SECOND SON   THIRD SON
1st RANK   2nd RANK   3rd RANK

The letter E in the above diagram represents an Entity, i e, a being having no son or a non-father. In this diagram the original universe or the ancestor of the family is shown by a zero (0) in the rectangle which is at the head of the diagram. Below this rectangle there is a row of four rectangles. The first rectangle contains two zeros (00) and it is a dotted rectangle. This rectangle is consider-ed as a Pseudo Entity, i e, an artificial or a false entity or a pseudo unitary class or a sorting box through which the classes of the first order array are drawn. The first zero (0) in the rectangle indi-cates that the classes in the first order array, are derived from the

original universe which is numbered zero (0) and the second zero stands for the array of order one. The array of the original universe is the array of order zero and the array of the classes derived from it by first assortment, i e, on the basis of a first single characteristic is the array of order one. The rectangle with two zeros is dotted with a view to show that it is an Empty Box from which the classes of the first order array have been taken out. The sorting box may be said to represent the characteristic used to derive the classes in the array.

2 Social Sciences in DC and CC

Example: CC is able to give entire satisfaction to this Canon due to the fact that all arrays in the Scheme have been formed consistently on the basis of the relevant principles and devices enunciated by the author of the Scheme. DC has failed to satisfy this Canon due to its practice of enumerating new classes without abiding by these principles. As an instance we may quote the array of the classes under Social sciences which reads as below.

310	Statistics	360	Social welfare
320	Political science	370	Education
330	Economics	380	Commerce
340	Law	390	Custom
350	Public administration		

In this array, Public administration has greater affinity with Political science and hence, the intervening classes Economics and Law require to be separated from these closely related classes. Similarly, Commerce has greater affinity with Economics and hence it would have been better, had these two closely related classes been given places near to each other. Again, the classes Social welfare and Custom have greater affinity with Sociology which gets 301 as its class number and hence, they require allocation in close proximity with that class. Statistics comprises statistical method or statistical theory and actual statistical data. As a method or theory it is considered as a branch of Mathematics, and as actual data, it requires a place in the table of form divisions or common subdivisions, and as such the form division number 083 already represents it. So it is a misfit as one of the classes of the first order

array under Social sciences. All these classes are well collocated in CC which may be shown as below:

B28	Statistics	X5	Commerce
T	Education	Y:356	Customs
W	Political Science	YX	Social work (which includes
W,8	Public administration		social welfare)
X	Economics	Z	Law

3 APUPA Arrangement

The arrangement in a filiatory sequence is termed by Dr Ranganathan as an APUPA arrangement. Each letter in this term stands for a specific term as shown below:

A stands for Alien Record, i e, a totally irrelevant record

P stands for Penumbral Record, i e, a partially or remotely relevant record

U stands for Umbral Record, i e, a totally or intimately relevant record

P the second P in the term again stands for Penumbral Record, i e, a partially or remotely relevant record

A the last letter A in the term again stands for Alien Record, i e, a totally irrelevant record.

This kind of arrangement is described by Dr Ranganathan thus: "While facing a collection of recorded material at a given moment a consumer regards some as more or less relevant to his needs at the moment and some as totally irrelevant. The latter will be equivalent to 'noise'. The boundary lines between relevant and irrelevant records is not sharp and clear-cut. Various degrees of intensity are possible in the relevance and irrelevance of recorded materials. An APUPA arrangement of recorded materials throws them in a helpful order, i e, the order in which all the most relevant recorded materials are at the centre and the other materials stand fanned out on either side of the centre in decreasing order of their relevance. An everywhere APUPA arrangement is one such that whatever region or point is taken as Umbral all the recorded materials stand fanned out in APUPA Pattern in relation to it." Conformity to the Canon of Coordinate Classes and the Canon of Subordinate Classes is necessary to produce APUPA arrangement.

PART P

CANONS FOR TERMINOLOGY

CANONS FOR TERMINOLOGY

Terminology is a system of terms used to denote or name the classes and isolates in a scheme of classification. In the words of Sayers 'A Classification is expressed in class names or terms' (Sayers. Canon 13). The terms used should not be vague, should not hide or confuse the original intention. They should carry exact meaning of the subject under consideration. In other words, "Terms may be any word or phrase which expresses adequately the connotation or meaning of the class it names". (Sayers. Canon 14). So also "Terms should be unambiguous. They may be technical or popular, but with a tendency towards the technical as likely to be more permanent". (Sayers. Canon 15).

This principle regarding terms is put by Bliss as his Principle 4 under the caption 'Terms distinctive' which reads thus: "The terms defining distinct classes should be *distinctive* and be used *consistently*; for a class, though wholly *comprehensive* of its own subclasses, is not always *exclusive* of the sub-classes of other coordinate classes, or their terms. A sub-class may be common or alternative to two or more coordinate classes."

Dr Ranganathan has enunciated four Canons relating to terminology which should be observed in the construction and use of a scheme of classification. The Canons are:

1 Currency (Canon 16)   3 Enumeration (Canon 18)
2 Reticence (Canon 17)   4 Context (Canon 19)

CURRENCY (CANON 16)

01 Enunciation

The Canon of Currency is enunciated thus : "Each of the terms used to denote the classes in a scheme of classification must be the one currently accepted by those specialising in the universe to which the scheme is applicable."

1 Implications of the Canon

This Canon implies two things. In the first place the terms chosen at the time when a scheme of classification is designed should accord with the usage then current among the specialists concerned. Secondly, there should be some arrangement by which the terms can be changed over to current ones as and when changes take place among the specialists.

2 Congress Classification and DC

In this matter, the best provided scheme today is the Congress classification of the Library of Congress of the USA as the library minded government of the USA is at the back of the organisation and has provided a liberal establishment of specialists to be in constant charge of the revision of the Classification. There is also a permanent editorial staff for the revision of the Decimal Classification of Dr Melvil Dewey doing their work side by side with the editors of the Congress Classification. Such an arrangement is quite essential for every standard scheme of classification with a view to satisfy the Canon of Currency.

3 Fundamental Constituent Terms

The author of CC has been very particular in using current terms in his Scheme. The Speciality of the Scheme is that the terms used in its schedules are fundamental constituent terms or Isolate Terms. Derived composite terms are seldom used, as full class

numbers are seldom given in CC. This has saved the Scheme so much from the trouble of constantly revising its schedules.

4 Drawbacks of the Enumerative Schemes

In the case of the enumerative schemes, it is quite essential to change over from obsolete terms to current ones. Because the terms used in these schemes are derived composite terms. This will be clear from the following example:

5 Social Sciences in DC

The term 'Sociology' in the sense of Social sciences was used by DC in many of its previous editions. But in the latest ed 15 and 16, the Scheme has appropriately used the terms 'Social sciences'; and Sociology has been shown as one of its subdivisions. In this, DC has reacted correctly to the Canon of Currency.

6 Linguistics in DC and CC

The term 'Philology' for the Science of language was used by DC in many of its previous editions. But in the latest ed 15 and 16, the Scheme has appropriately used the term 'Linguistics' which is the term currently used by the specialists of that science.

7 Personnel Management in CC and DC

In the first four editions of CC the term 'Labour' was used to represent labour problems in Economics, but in all the later ed, the Scheme has used a comprehensive and currently accepted term 'Personnel Management' for Labour Problems.

On the whole we may say that the latest schedules of both the schemes observe the Canon of Currency fairly well.

RETICENCE (CANON 17)

01 Enunciation

The Canon of Reticence is enunciated thus: "The terms used to denote the classes in a scheme of classification should not be critical."

The term 'Reticence' means avoidance of giving out one's own opinion. A few examples are given below.

1 Major and Minor Writers in DC

In all the 14 editions of DC, the term frequently occurring much against the Canon of Reticence is 'Minor'. The term 'Minor Authors' is found scattered over all the pages of the literature schedule. It is beyond the province of the classifier to adjudge men of letters as major and minor. Regarding the faulty use of this term, Dr Ranganathan observes thus : "Again, even supposing that a particular author is so generally taken as being insignificant that there is likely to be no offence in referring to him at the moment as "minor", how can one be sure that he may not, in course of time, rise in public esteem so as to be included among the major writers?" [44]

2 'Humbugs' in DC

The term 'Humbugs' which means deception or cheating used in the index of ed 16 of DC to denote the class, viz, Charlatanry (133.7) which is a subdivision of Occultism and means mysterious or metaphysical method of deception by fair words or by boasting to possess a skill or knowledge which one does not possess, is quoted by Dr Ranganathan as an example of DC of the violation of the Canon of Reticence, as the term is a critical one and is not able to carry the exact meaning of the term 'Charlatanry'.

3 Conclusion

Excepting such a few examples, we may say that DC, in general observes the Canon of Reticence fairly well. CC respects this Canon almost without exception.

ENUMERATION (CANON 18)

01 Enunciation

The Canon of Enumeration is enunciated thus : "The denotation of each term, i e, the indication of the exact area or extension of each term in a scheme of classification should be decided in the light of the classes enumerated in the various chains of lower links which have the class denoted by the term as their common first link."

1 Necessity of the Canon

This Canon becomes necessary as there is no agreement or uniformity in the denotation of terms as used by different persons and by different schemes of classification. Nor is it possible to force any such uniformity by the order of any government or academy. Hence the only course open to users of a scheme of classification is to find out the denotation of a term by a reference to the classes and the chains of sub-classes shown to be included by it in the scheme.

2 Arithmetic in DC and CC

For example, the enumeration of the subclasses of the class denoted by the term Arithmetic shows that it includes only what is known as Lower arithmetic in DC. But Higher arithmetic, otherwise known as the Theory of numbers is also implied by the term Arithmetic in CC. The array of the subclasses of Arithmetic in DC as given in the latest ed 16 reads as below:

511	Arithmetic
511.1	Numeration systems
511.2	Fundamental arithmetic operations
511.3	Prime numbers and factoring
511.4	Fractions and decimal fractions
511.6	Proportion and ratio
511.7	Involution and evolution

511.8 Business mathematics
511.9 Arithmetic problems and tables

The divisions of Arithmetic in CC read as below:

B1 Arithmetic
B11 Lower arithmetic
B12 Concept of numbers
B13 Integers (theory of numbers)
B15 Algebraic numbers and Ideal numbers
B16 Complex and Hyper-Complex numbers
B18 Transcendental numbers

The above table shows that Arithmetic of DC = Lower arithmetic of CC.

3 Psychology in CC

In all the schemes but CC, the enumeration of the subclasses of the class denoted by the term 'Philosophy' includes Psychology. On the contrary Psychology is left out in the enumeration under the class Philosophy in CC and is given a coordinate place with Philosophy.

4 Conclusion

On the whole, we may say that both DC and CC have observed this Canon fairly well.

CONTEXT (CANON 19)

0 Enunciation

The Canon of Context is enunciated thus: "The denotation of each term in a scheme of classification should be decided and should be left to be decided in the light of the different classes of lower order or upper links belonging to the same primary chain as the class denoted by the term."

Sayers has put this Canon as his Canon 16 which reads thus: "Terms should be used with a consistent meaning (with reference to context) in every act of classification."

1 Accident in CC and DC

In DC, the term 'Accident' occurs in Mining engineering, in Insurance and in the subclass Labour in Economics. If we have a book which has the term 'Accident' as a prominent word in its title, we should not put it into any one of the classes at random. We must see that the context in which it is used in the book agrees with the context in which it is used in the schedule in fixing the class number of the book. In CC, under the problem characteristic for Mining engineering the fourth division or the fourth isolate subject is termed as Danger and Accident. Its class number is written thus : HX:4. In this class number, HX is Mining engineering and HX:4 is Accident in Mining engineering.

In this chain HX:4 is the last link lower. It is with the help of this chain that we are able to confirm the denotation of the term 'Accidents' as Accidents in Mining engineering in the light of the class forming upper link in the chain to which 'Accident' belongs.

2 Applications of Electricity in DC

In ed 16 of DC, the number 537.8 is translated as Applications. By looking a few lines higher up, we infer that the meaning of

the term 'Applications' is to be completed by the addition of the term 'Electricity'. In actuality, however, the term 'Electricity' is omitted against the class number 537.8 and taken as understood. This practice of omitting words on the part of the classificationist and of mentally supplying the omitted word on the part of the classifier does lead to economy in the construction of the schedules of classification; and therefore in such cases the Canon of Context is required to be taken into consideration for elucidating the correct and complete meaning of the term which is incomplete in meaning or is capable of more than one meaning.

3 Permanency of Meaning of Terms

These four canons about terminology can be well satisfied if the scheme of classification consists of schedules of fundamental constituent terms based on the relevant trains of characteristics and the digits assigned to these terms giving permanence to their meaning. How this permanence of meaning of terms is effected by the classificatory language is well described by Dr Ranganathan thus: "The individual digits of the base form at once the radicals, i e, the roots of words and the phonemes, i e, the speech-sounds of the classificatory language. A concatenation, i e, a linking together of a number of basic digits, i e, radicals and phonemes can be intelligible only if it conforms to the rules of construction of the classificatory language. These rules constitute its grammer. A classificatory language has only substantives and connectives. It is an isolating language, i e, the digits of radicals are not subjected to any morphological change like the elements of most of the known natural languages. A disturbing quality of a natural language is ambiguity and impermanence of the meaning of terms, and therefore, of assemblages of terms. These qualities cannot be eliminated since a natural language is used by one and all and the folk-force deforming it is beyond control by any body. But an artificial language which is used by a disciplined few can be controlled by rules. In fact the rules of a classificatory language must ensure that every intelligible concatenation of digits has a unique and permanent meaning, i e, represents one and only one specific subject for ever." [45]

PART Q

CANONS FOR NOTATION

PART 6

CANONS FOR NOTATION

CANONS FOR NOTATION

There are three Canons for notation. They are:

1 Relativity (Canon 20)
2 Expressiveness (Canon 21)
3 Mixed Notation (Canon 22)

1 Notation

Before considering these Canons we shall have general observations on notation. Regarding notation Sayers observes thus: "When our classification was equipped with Generalia and Form Classes and Divisions, it required two accessories to make its application to books practicable. These were a notation and an index. The more important of these is notation." A notation is defined by Richardson as a short-hand sign. He observes thus: "The notation which is really a condensed word for each class but which nevertheless may and should convey a representation not merely of the division but also of the sequence and not only of the artificial sequence but of the logical sequence so far as it can be expressed."

2 Criteria of Notation

The criteria of notation are that it must be brief, simple and flexible.

21 BREVITY OF NOTATION

The brevity of notation depends much on length of base, i e, the number of symbols available for division at each step. The length of the base of DC is 10 as it uses only Indo-Arabic numerals. The length of the base of CC is 59 as it uses 9 Indo-Arabic numerals, 23 Roman smalls, 26 Roman capitals and 1 Greek letter.

22 SIMPLICITY OF NOTATION

Simplicity of notation indicates two distinct features.

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The first feature is that the notation should convey sequence clearly. The Indo-Arabic numerals and the letters of alphabet convey sequence automatically. If other symbols are used these must be given an ordinal value which must be strictly observed. This feature is well satisfied by CC and DC.

The second feature is that the notation should be easy to write, to pronounce, and to remember. This feature is also seen well observed by CC as well as by DC.

23 FLEXIBILITY OF NOTATION

Flexibility of notation means the ability of notation to accommodate new topics in the correct position. This is also termed Hospitality of Notation. Hospitality requires new topics to be accommodated at both ends, i e, at the left end and at the right end of an array as well as in the middle. This is called extrapolation and interpolation. CC is able to satisfy this condition in its entirety by using various devices to secure infinite hospitality in array and also in chain. This topic is elaborately dealt with in the chapters on the Canons of Hospitality in Array and Hospitality in Chain.

3 Pure and Mixed Notation

A notation which uses one and only one species of digits is said to be pure. A notation which uses two or more species of digits is said to be impure or mixed.

The notation of DC is sometimes considered as a pure notation, but it is not apparently so. Because it uses two species of digits, viz, Indo-Arabic numerals and a dot. So, the notation of DC must be strictly considered as a mixed notation. However, as the dot serves only as a punctuation mark without either ordinal or semantic value, the notation is in reality Pure.

The notation of CC is a mixed or impure notation. It uses five species of digits, viz, 10 Indo-Arabic numerals; 26 Roman capitals; 23 Roman smalls (excluding i, l and o); a Greek letter; and punctuation marks, arrows and brackets. CC uses a notation which is more mixed than that of any other commonly known scheme of classification. Its base is elastic. It is linear, right-handed and decimal fractional. The absolute values of the digits in the notation are fixed by rules.

RELATIVITY (CANON 20)

0 Enunciation

The Canon of Relativity is enunciated thus : "The length of a class number in a scheme of classification should be proportional to the order or the intention of the class it represents."

1 Medicine in CC

To illustrate the exact representation of a subject in a class number, let us take the class number of a book, viz, "Indian statistical studies of surgery in intestinal diseases, 1940's". The class number of this book according to CC is written thus : L25:4:7:(B28).2ʻN4. In this class number

L	=	Medicine			
L25	=	Intestines			
L25:4	=	Diseases			
L25:4:7	=	Surgery	L25:4:7:(B28). 2	=	India
L25:4:7:(B28)	=	Statistical study got by (SD)	L25:4:7:(B28). 2ʻN4	=	1940's

From this illustration, we see that the length of the class number for a subject is proportional to the order or intention of the class it represents.

2 Medicine in DC

The only class number available in DC for the subject, that we find in Medicine is 617.554 which means Surgery in intestinal diseases. It is not possible to make the class number give the exact translation of the whole title automatically as is possible in CC. There is an arbitrary method sometime adopted to show the representation of the words in the title which remain unrepresented in the class number. By this method, the subject under considreation will get 617.5540001311095404 as its class number. In this class number, we have brought together class numbers from two classes

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under two partially comprehensive (MC), viz, 600 Useful Arts and 300 Social Sciences and the symbol 0001 is used as a relation sign. After joining the two class numbers, we have added the form division number 09 augmented by the geographical division number 54 and the chronological division number 04. The translation of this class number is written thus : "Surgery in intestinal diseases related to statistics in India in the 20th century". It is evident that this translation does not carry the exact meaning of the title under consideration.

3 Conclusion

From the above illustration, we conclude that CC as well as DC conforms to the Canon of Relativity.

EXPRESSIVENESS (CANON 21)

0 Enunciation

The Canon of Expressiveness is enunciated thus : "A class number should be expressive of the relevant characteristics of the class represented by it."

This Canon means that every characteristic used in deriving the class from the original universe will be represented by a digit in the class number.

1 Medicine in CC

Example: In the class number L25:4:7:(B28).2'N4 the characteristics used may be mentioned as below:

1 The digits 25 standing for Intestines represent Organ Characteristic;

2 The digit 4 standing for Diseases represents Problem Characteristic;

3 The digit 7 standing for Surgery represents Handling Characteristic;

4 The digits (B28) standing for Statistical Study represent Method of Study Characteristic;

5 The digit 2 standing for India represents Space Characteristic; and

6 The digits N4 standing for 1940's represent Time Characteristic. This shows that the class number is expressive of the relevant characteristics of the class represented by it.

2 Telescoped Array

In certain cases the representation of every characteristic in a class number is not possible. Such cases are, when the number of classes in an array is definitely known to be considerably smaller than the number of places normally available in the array. Then classes of two successive orders of arrays may have the same number

of digits—i e, may have been represented by the digits in the array of the same order. In such cases, the resulting array is called a Telescoped Array. This means that the Array of order 2 is telescoped into array of order 1, even as the several tubes in a telescope are packed into one another so as to look like one tube when not in use.

3 Continents

The array of continents stands telescoped into the same array of 'World', since the latter, i e, World needs only one place in its own array. In the first order array of [S], the divisions representing continents are subdivisions of the world in the idea plane, but they are given coordinate places in the notational plane. This is done with a view to prevent the (IN) of any array from running to waste in cases where the number of (I) in an array is too small—one or two. The telescoped array of order one of [S] is as follows:

1	World	5	Europe
2	Mother country	6	Africa
3	Favoured country	7	America
4	Asia	8	Australia

4 Natural Group of Animals

The first order array derived from the 'Natural Group Characteristic' is a telescoped array. The array is given below:

K1	Invertebrata	K6	Vermes
K2	Protozoa	K7	Mollusca
K3	Porifera	K8	Arthropoda
K4	Coelenterata	K9	Prochordata and Vertebrata

In this array, the divisions from K2 Protozoa to K8 Arthropoda are sub-divisions of K1 Invertebrata. This is as viewed from the Idea Plane. But in the Notational Plane, they are given coordinate places in this array and hence this array is a telescoped array.

If we take the class number K2 indicating Protozoa, the digit 2 in this class number does not represent the primary characteristic, viz, the Phylum, but a second characteristic, viz, the characteristic of the classes of Invertebrate Animals. This class number, therefore, requires to be represented by a digit in the second order array; but

here it is represented by a digit in the first order array. This class number, therefore, does not fulfil the Canon of Expressiveness, which insists that the primary characteristic must also be represented in this class number.

5 Natural Group of Plants

The first order array of the natural group of plants is also a telescoped array. It is illustrated in Sections G221 to G2221.

6 Arrays in DC

The arrays in DC are not systematically based on relevant characteristics and hence its class numbers cannot satisfy this Canon. As an illustration, let us split up the title 'Indian statistical study of surgery in intestinal diseases, 1940's' into facets and indicate the characteristics used to derive these facets, thus:

61 MEDICINE IN DC AND CC

610 Medicine (MC)

N	Characteristic used	Represented by (I)	DC
1	Organ	Intestine	554
2	Problem	Disease	?
3	Handling (Treatment)	Surgery	7(617)
4	Point of view	Statistical study	311
5	Geographical division	Form division number augmented by geographical division number	0954
6	Chronoligical division	1940's	04 ?

In the DC schedule of the class Medicine, the Organ Facet, the Problem Facet, and the Handling Facet are not distinctly shown. They are intermingled and hence the class number 617.554 meaning Surgical treatment of intestinal diseases cannot distinctly show three facets as we see in the CC class number as shown below:

Organ Facet	Problem Facet	Handling Facet
L25	4	7

Further, the method of study characteristic by Facet Device is

neatly represented in the CC class number. The geographical division characteristic is represented in the DC class number; but the number 04 derived on the basis of chronological division characteristic cannot represent the particular decade, i e, 1940's.

7 Conclusion

So, ultimately it must be admitted that CC satisfies this Canon fairly well, while DC has occasionally failed to do so.

MIXED NOTATION (CANON 22)

0 Enunciation

The Canon of Mixed Notation is enunciated thus: "The notation of a scheme of classification should be mixed."

1 How CC Observes this Canon?

The necessity of keeping constantly a filiatory sequence of books and other literary resources and the ever increasing complications in the branches of knowledge, has compelled the authors of the standard schemes of classification to adopt a mixed notation with various useful devices. This we have been observing in CC. Due to the adoption of mixed notation, CC could introduce the idea of zones in arrays, it could use the different types of digits mnemonically for the different kinds of (II) in the present day universe of knowledge as manifestations of the five (FC). This feature we have sufficiently illustrated so far. We have also seen that CC has made full use of different (CS). It is the use of mixed notation with various ingenious devices that has enormously increased the versatility of CC, and therefore, we conclude that CC has observed this Canon well.

2 DC Violates

While discussing the Canon of Relativity and Expressiveness, we have seen that in many instances the length of its class numbers is not proportionate to the order or the intention of the class it represents and it is also not expressive of the relevant characteristics of the class represented by it. This drawback of the Scheme is to some extent due to its non-adoption of a mixed notation and thus, we may say that DC violates this Canon.

PART R

THEORY OF KNOWLEDGE CLASSIFICATION

PART B

THEORY OF KNOWLEDGE CLASSIFICATION

THEORY OF KNOWLEDGE CLASSIFICATION

1 Introduction

In the general theory of classification, we dealt with the classification of entities that are known to us.

In the special theory of knowledge classification, we have to deal with entities, some of which are unknown or may become known only in future. This feature of the knowledge classification has to do much with the problem of notation.

In the general theory of classification, it was sufficient to know that the length of notation in a scheme of classification should be proportional to the order or intention of the class it represents.

But in the special theory of knowledge classification, it is essential to equip the notation with such devices as will enable us to have unlimited hospitality in array and also in chain, so that any number of new entities as they become known to us in future can be appropriately represented in the arrays and chains.

This necessitates the observation of six additional canons in the construction and use of a scheme of classification of the universe of knowledge. The canons pertaining to the knowledge classification are:

1 Hospitality in Array (Canon 23)   5 Scheduled   Mnemonics
2 Hospitality in Chain (Canon 24)   (Canon 27)
3 Mnemonics (Canon 25)   6 Seminal Mnemonics
4 Verbal Mnemonics (Canon 26)   (Canon 28)

All these canons concern the notation of a scheme of classification.

2 Modes of Development of the Universe of Knowledge

The Canons for Arrays and Chains of classes have brought out a fact that a scheme of classification requires to be equipped with four modes of the formation of a new specific subject so as to enable it to face efficiently and adequately the ever changing structure of the universe of knowledge. The names of the modes are:

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1 Dissection   3 Lamination
2 Denudation   4 Loose Assemblage

Some familiarity with these four modes may be of help.

3 Dissection

The mode of Dissection is the process of deriving an array of classes on the basis of a single characteristic. This mode is used for the formation of subclasses in the first instance and for the addition of coordinate subclasses at any time thereafter. In this connection, Dr Ranganathan observes thus: "The simplest method by which a new specific subject is formed is by dissection of a specific subject. Let us call the specific subject that is dissected the immediate universe and the new specific subjects formed, its classes of the first order. The dissection is taken to be such that the classes are mutually exclusive. The mutually exclusive classes having a common immediate universe are said to form an array of order one with respect to the immediate universe. In dissection the boundary lines of the classes formed are exclusive of one another." The process of forming new specific subjects by the method of dissection on the basis of a single characteristic may be illustrated as below.

31 CHEMISTRY

The (MC) Chemistry in CC is first dissected on the basis of substance characteristic to form its first order array as shown below:

1 Inorganic substances
2 Hydroxyls, basic oxides
3 Acids
etc

4 Denudation

The mode of Denudation is the process of progressive diminution or lessening of the extension and the increase of the intension of a class. This mode is used when a succession of subclasses—each subordinate to the earlier one—are required.

41 EXAMPLE

Let us illustrate the chain of classes beginning with "Economics

and ending with Exemption from tax on income from government bond" in circles.

ECONOMICS
PUBLIC FINANCE
INCOME TAX
TAX ON INCOME FROM GOVERNMENT BOND

EXEMPTION
FROM TAX ON INCOME
FROM
GOVERNMENT BOND

This illustration shows that the boundary lines of the successive classes lie within one another.

5 Lamination

The mode of Lamination is joining together the isolates in different facets of one and the same subject or compounding foci from different facets of the same subject. This is Facet Device.

Illustrations are given in section L44.

6 Loose assemblage

The mode of Loose Assemblage means the process of linking together different classes. This mode is used when a new subject is

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required to be formed, but cannot be found a suitable place in any (MC) or its sub-classes. This new subject usually involves a sort of relation of a (MC) or its subclass.

Illustrations are given in section L46.

HOSPITALITY IN ARRAY (CANON 23)

0 Enunciation

The Canon of Hospitality in Array is enunciated thus: "The construction of a class number should admit of an infinite number of new coordinate class numbers being added to an array without disturbing the exisitng class numbers in any way."

1 Need for the Canon

This Canon is a version of the Canon of Exhaustiveness as applied to the infinite universe of knowledge. The efficiency and enduring capacity of a scheme of classification will depend mostly on the devices it employs to secure compliance with the Canon of Hospitality in Array. If a scheme does not provide for infinite hospitality in array, it is bound to break down sooner or later.

2 How DC Seeks to Satisfy This Canon?

DC seeks to satisfy this Canon by using a principle which is enunciated thus : "When more than nine divisions are needed the difficulty is commonly obviated by grouping on single numbers the subjects most closely allied or by assigning numbers 1 to 8 especially to the most important subjects and grouping minor subjects on the digit 9 as 'Other'."

We have already illustrated how DC groups minor subjects on the digit 9 as 'Other' while discussing on 'Closed Arrays' and 'Open Arrays' with reference to the Canon of Exhaustiveness. The method of grouping minor subjects on the digit 9 as 'Other' as followed by DC is like asking several guests not even related to one another, but of coordinate status to occupy the same chair. This violates the Canon of Hospitality in Array.

3 How CC Seeks to Satisfy This Canon?

CC seeks to satisfy this Canon by using

1 Interpolation Device;
2 Sector Device;
3 Chronological Device;
4 Alphabetical Device;
5 Common Isolate Device; and
6 Subject Device

4 Interpolation Device

This Device is described in detail in section F33

Example: This Device has helped to increase the hospitality of the array of the (MC) of CC. With the help of this Device, the author has interpolated certain partially comprehensive (MC) and also a few altogether new (MC) among the traditional (MC) at the appropriate filiatory coordinate places. This feature is Illustrated in section F32

5 Sector Device

The Sector Device is of immense use in securing infinite hospitality in array. This Device is one of the powerful devices used in CC to form or sharpen the (IN) in any facet, so as to produce new coordinate divisions wherever required in any facet without disturbing the sequence of the existing divisions in the facet. Sharpening a focus means decreasing its extension on the basis of a characteristic. On account of this Device any number of coordinate classes can be accommodated in any array according to requirements.

50 ENUNCIATION

"The Sector Device consists in representing the isolates in any array by the successive digits 1, 2, . . . 7, 8 ;91,92, . . . 97,98 ;991,992, . . . 997, 998; and so on. The first eight classes are said to form the first sector, the second eight classes, the second sector, and so on. The digit 9 is called the emptying digit. That is, it does not generally represent an isolate by itself.

51 NUMBERS OF SECTORS

According to this Device, when the classes of any array are numbered with Indo-Arabic numerals, only numbers 1 to 8 are to be used. 9 is not used ordinarily to individualise any class. The sector

consisting of the numbers 1 to 8 is called the first sector. In the second sector also only numbers 91 to 98 are used. 99 is not used ordinarily to individualise any class. The number next in order after 98 is 991 and not 99, and so on. This Principle is almost universally followed. The term sector is extended in its use to · cover the set of numbers A, B, . . . Z.

52 Two Categories of Sectors

This method gives us two categories of sectors.

521 first category of sectors

The first category of sectors is termed as 'First Sectors' in which an Indo-Arabic numeral is the first significant digit. The sectors of this category may be shown as below:

First sector	1,2,....8
Second sector	91,92,....98
Third sector	991,992,....998

In these sectors, the digit 9 is used as an empty digit. It is not a significant digit. This means that it is not used to show any particular division in any particular sector. It simply shows the number of the sector. If the sector begins with a single 9 it is called second sector of the first category. If it begins with two nines, it is the third sector of the first category, and so on. We can have an infinite number of sectors of this type.

522 second category of sectors

The second category of sectors is termed as 'Last Sectors' in which a Roman capital is the first significant digit. The sectors of this category may be shown as below:

Third last sector	99A, 99B,....99Z
Second last sector or Penultimate sector or the Last but one sector	9A, 9B,....9Z
Last Sector	A, B,....Z

In these sectors, the third last sector is third from the last and hence it is called the third last sector. The digits 99, i e, two nines

in the third last sector indicate that the sector is third from the last sector. Similarly, the second last sector is second last sector and the digit 9 in this sector indicates that the sector is second from the last sector.

53 INFINITY OF SECTORS

It can be seen that there is an infinity of sectors with an Indo-Arabic numeral as the first significant digit. It can be further seen that there is a similar infinity of sectors with a Roman capital as the first significant digit. The first set of the infinity of sectors is called the first sectors. Similarly, the second set of the infinity of sectors is called the last sectors. This nomenclature will be found to be convenient for reference when there are two species of digits in an array.

54 EMPTY DIGIT

The last digit in any species of digits can be made an empty digit. For example, small z can be made an empty digit for Roman smalls. Similarly, capital Z can be made an empty digit for Roman Capitals. This will make each such species of digits infinitely hospitable.

Example:

55 LANGUAGE FACET

The first order array of the language facet in Linguistic is formed on the basis of this Device.

The first sector is used for families of languages and other continental languages as shown below:

P1	Indo-European languages	P5	Other European languages
P2	Semitic languages	P6	Other African languages
P3	Dravidian languages	P7	Other American languages
P4	Other Asiatic languages	P8	Other Australian languages

The second sector is used for other oceanic languages as shown below :

P94	Other oceanic languages in Asia
P95	Other oceanic languages in Europe
P96	Other oceanic languages in Africa
P97	Other oceanic languages in America
P98	Other oceanic languages in Australia

The last sector is used for artificial languages as shown below:

PM   Solresol ,   PN   Interlingua ,   etc.

From the above example, we see that CC entirely satisfies the Principle of Sector Device with a view to secure infinite hospitality in array.

6 Chronological Device

Another sharp device used by CC to secure conformity with the Canon of Hospitality in Array is the Chronological Device. This Device has been considered in detail in Section L42. Let us illustrate how this Device is used by CC to satisfy the Canon under consideration. This is illustrated below.

61 AUTHORS IN ANY FORM OF LITERATURE IN CC AND DC

CC

O111,2L51   Sheridan (born in 1751)
O111,2M56   Bernard Shaw (born in 1856)
O111,2N00   Richard Hughes (born in 1900)

The individualisation of authors is not possible in DC as the Scheme does not make use of this Device to secure infinite hospitality in arrays of literary authors and thus it violates this Canon.

62 GRAMMAR OF ARTIFICIAL LANGUAGES IN CC AND DC

The Grammar of Artificial languages is individualised by (CD) by CC and any number of these languages can be accommodated in the last sector of zone 3 in the language facet of P Linguistics. Let us illustrate:

CC   *DC*
                                                        408.92
PM87   Esperanto (invented in 1887)
PN2   Hom-idyomo (invented in 1923)

CC has given distinct class numbers for nine Artificial languages. They are given places after natural languages. They feature as the last sector of zone 3 in the first order array of the schedule of language divisions. DC has as usual assigned arbitrary places to Artificial languages in its (MC) Linguistics. Under the class number 408 Collections, a division 408.9 is assigned to Artificial languages

and under this division only three Artificial languages are shown as below:

DC		DC	
408.91	Volapük	408.93	Interlingua
408.92	Esperanto		

There is no scope in DC to accommodate any number of Artificial languages in a systematic way as we see in CC, as DC does not observe the Canon under consideration.

63 SYSTEMS OF PHYSICS IN CC AND DC

Different Systems of Physics are individualised by (CD) in CC. Let us illustrate the numbers assigned to some of the Systems by CC and the corresponding numbers of DC:

CC		DC
CK	Gravitation theory (first enunciated in 1686)	521.12
CM65	Electromagnetic theory (first enunciated in 1865)	537.1
CNO1	Quantum theory (first enunciated in 1901)	530.12

From DC numbers we see that the Systems of Physics are not systematically arranged by the Scheme. The reason for this is that the Scheme does not possess any device to secure infinite hospitality in array. The author of CC has laid down a convention regarding the chronological (IN). It reads thus: "A chronological (IN) may have one, two, three or even a larger number of digits, they are all taken to be coordinate and to form a single array." This is a convention adopted by CC.

7 Alphabetical Device

As a last resort, the Alphabetical Device is used by CC to secure conformity with this Canon. This Device is used only when alphabetical sequence is no less helpful than any other. We have already considered this Device in relation to the Canon of Helpful Sequence.

70 ENUNCIATION

The Alphabetical Device consists in representing a category by the first letter or the first few letters in its name. If the names of two or more categories coming in the same array begin with the same letter then one of them is represented by that letter and the

others are represented by the first two letters in their respective names. If the names of two or more categories begin with the same two letters then one of them is represented by these two letters and the others are represented by the first three letters in their respective names. And so on.

71 ADVANTAGES OF THE USE OF ALPHABETS

"Alphabets have ordinal values in respect of their mutual sequence. They can also be used as decimal fractions. Thus, they are quite suited for use as digits in the construction of class numbers. In fact, the construction of class numbers or any part of them by the alphabetical use is quite easy. It does not need the prior construction of a schedule for its use while classifying. On the other hand, the construction of a class number based on characteristics, intrinsic to the entities of a universe requires more work. It requires a schedule to be set up by a classificationist. It requires a knowledge of the classificatory language set up by the schedule."

72 WHEN SHOULD (AD) BE USED?

Alphabetical arrangement does not give a helpful sequence in most cases. However, when arrangement on the basis of a characteristic is not more helpful than alphabetical arrangement in any subject or in any array derived from it, (AD) may be preferred with advantage.

Examples :

The arrangement of makes of bicycles or motor cars, of different variant forms of an instrument, having distinctive names, and of the different strains of an agricultural crop or cultiver, are instances justifying the preference of numbers by (AD) to the use of specially constructed ordinal numbers.

The different species of rice which are known by distinct names in South India are individualised by (AD) in CC as shown below:

J381K	Kuruvai	J381S	Sirumai	J381V	Vadansamba

Different makes of bicycles which are known by distinct names are individualised by (AD) in CC as shown below :

D5125R	Raleigh Cycle	
D5125Ru	Rudge Cycle	

In DC no such device is used to satisfy this Canon.

8 Common Isolate Device

We know that in CC (CI) are represented by Roman smalls. These digits are of lower ordinal value than 1; therefore, the use of these digits to denote (CI) results in increasing the hospitality in the array to the left of division 1.

The example of such an array as given by the author in the *Prolegomena* along with the corresponding class numbers of DC may be shown as below:

CC		DC
2:*k*	Library publicity	021.7
2:*p*	Library organisation	020
2:*w*	Library administration	025
2:1	Book selection	025.21
2:6	Issue work	025.6
2:7	Reference service	025.52

The array of CC (IN) is systematically arranged and the coordinate nature of the classes in the array is well represented by the (IN) represented by them. If we look at DC numbers, we see that they do not satisfy the definition of an array and hence consequently the Canon under consideration is violated by the Scheme in the case of these divisions.

In CC, we know that (CI) are given anteriorising value and the group of the digits formed on the basis of (CI) becomes the first zone in any array of any of the facets, viz, [P][M][E][S][T]. We have illustrated the use of (CI) featuring as first zones of the arrays of [P][M][E][S][T].

81 CONCLUSION

On the whole, we see that the Common Isolate Device has been used by CC extensively. We know that the arrays in DC are not formed systematically. It uses only one type of notation, i e, Indo-Arabic numerals used decimally. To distinguish (CI) from other subdivisions of a class, the Nought Device is used by the Scheme and the nought or zero has got posteriorising value. So, (CI) in DC do not help to increase the hospitality in an array as we see in CC.

9 Subject Device

In CC, the Subject Device is used to increase the hospitality in several arrays. While considering the Canon of Consistent Sequence, we have elaborately discussed on this Device and illustrated its use for the formation or the subdivision of an (I) which is capable of such formation or subdivision. We have seen that the fourth zone in any array of classes is formed on the basis of (SD) for which packeted notation is used. The fourth zone of the (MC) of CC is formed on the basis of (SD). On account of the use of this Device, we can add any number of new (MC) to the schedule of the (MC) of CC. Throughout CC, we find (SD) used profusely to increase the hospitality in the arrays of [P], [E] and [S]. We also know that it is used as an analogue in [M].

91 MACHINERY IN CC AND DC

Some examples of the use of (SD) to increase the hospitality in arrays may be given below:

The sector of the fourth zone under the (IN) 8 in the first order array of [P2] under D6 Mechanical engineering which is called the 'Field of Application Facet' is formed to represent other machinery. Let us illustrate the class numbers assigned to other machinery under the (IN) 8 in CC along with the corresponding class numbers of DC.

D6,8(D2:71) Excavating machinery for irrigation engineers

In DC, there is a class number, viz, 624.152 which is assigned to Excavating machinery or Excavating engineering. The corresponding class number for Excavating engineering in CC is D:71. So the DC number 624.152 cannot be said to stand for Excavating machinery for irrigation engineers.

D6,8(D85)	Pumping machinery	621.64
D6,8(M14)	Printing machinery	681.6
D6,8(M7)	Textile machinery	677.0285
D6,8(MJ38)	Flouring machinery	No number in DC
D6,8(MJ381)	Rice husking machinery	No number in DC

From these comparative illustrations of class numbers for different types of machines according to CC and DC, we see that CC

has formed a systematic sector of the fourth zone to represent different varieties of machines by the use of (SD) and has considerably enriched the hospitality of the second order array under the (IN) 8 in [P2] of D6 standing for Mechanical engineering. The DC numbers are indiscriminately distributed under various classes. For Flouring machinery and Rice husking machinery there is no number in the Scheme. This is the result of enumerating ready made class numbers to various classes as followed by DC without following any systematic method of forming arrays of classes and providing for infinite hospitality in arrays as is done by CC.

92 EXTRAPOLATION

To secure infinite hospitality in an array, the notational system of a scheme must be able to secure adequate extrapolation. Extrapolation means the extension of an array at the left end as well as at the right end by new coordinate divisions. This is termed as providing for open arrays.

The Sector Device and the Common Isolate Device provide for extrapolation in CC. The Sector Device extrapolates at the right end of an array. The Common Isolate Device extrapolates at the left end of an array.

We have seen that CC has been able to secure extrapolation fairly well. No other existing scheme of classification has been able to solve this naughty problem in as a satisfactory manner as is done by CC.

93 CONCLUSION

From all the above discussion of the Canon of Hospitality in Array, we see that CC has observed it in a satisfactory manner. DC does not use systematically and consistently any device to secure infinite hospitality in arrays of classes.

HOSPITALITY IN CHAIN (CANON 24)

0 Enunciation

The Canon of Hospitality in Chain is enunciated thus: "The construction of a class number should admit of an infinity of new class numbers being added at the end of its chain without disturbing any of the existing class numbers in any way."

1 Need for the Canon

This canon is a version of the Canons of Decreasing Extension and of Modulation as applied to the infinite universe of knowledge. Any of the chains of the universe of knowledge may have to accommodate in course of time an infinitely large number of classes derived by a succession of independent additional characteristics. The efficiency and enduring capacity of a scheme of classification will, therefore, depend mostly on the devices employed to secure compliance with this Canon. A scheme not providing infinite hospitality in chain is bound to break down sooner or later.

2 Devices Available

There are various devices which may be used to secure hospitality in chain. The names of the devices which are at present used by standard schemes of classification are:

1. Gap Device;
2. Decimal Fraction Device;
3. Facet Device;
4. Phase Device; and
5. Superimposition Device

3 Gap Device

30 ENUNCIATION

"The Gap Device consists of leaving a certain number of vacant

places between the class numbers of two classes which appear to be consecutive at the time of the enumeration of these classes in order to accommodate new classes claiming their filiatory places within that gap."

31 USE BY THE LIBRARY OF CONGRESS CLASSIFICATION

This Device is employed by the Library of Congress Classification. The notation of that Scheme is integer notation, i e, the Indo-Arabic numerals are used as integers by that Scheme.

32 DEFECTS

The defect of this Device is that in course of time the gaps are filled up and there is no scope for further interpolation. Constant revisions in the class numbers are necessary for preserving helpful sequence in the inter-related subjects. Though the Library of Congress has engaged a very big staff for the revision in the schedules of its Classification Scheme, still the integer notation is not able to provide for infinite hospitality in arrays and chains systematically.

4 Decimal Fraction Device

40 ENUNCIATION

"The Decimal Fraction Device consists of treating each class number as a pure decimal fraction."

41 HOW IS IT USED?

In using this Device, every class number, without exception, is treated as a pure decimal fraction. No class number is treated as an integer or as a mixture of integer and fraction. There is, therefore, no need at all to use decimal point. Indeed, it is taken as understood before any class number. This method satisfies the Law of Parsimony. A new class is created in a chain by subdividing the class forming its last link on the basis of a new additional characteristic. By the Canons of Relativity and Expressiveness, this should result in the addition of a digit to the class number of the class subdivided. This method of subdivision may have to be continued *ad infinitum.* The Decimal Fraction Device will give a

distinct helpful class number to each new class, because it provides for the addition of digits *ad infinitum* without disturbing the ordinal value of any existing class number. Thus the Decimal Fraction Device provides infinite hospitality in chain.

42 DEWEY'S IMPORTANT CONTRIBUTION

The Decimal Fraction Device was brought into popular use by the Decimal Classification. It has been adopted by most of the later schemes. This Device of the Decimal Fraction notation is an important contribution of permanent value by Dr Melvil Dewey.

43 DURATION OF WORK IN DC

But the Canon of Hospitality in Chain is voracious, i e, eager to swallow up any number of new devices without limit. That the Decimal Fraction Device is inadequate to satisfy its voracity may be shown by means of examples. Let us consider a chain of the Decimal Classification which runs as below :

	Universe of knowledge
300	Social sciences
330	Economics
331	Labour
331.8	Labouring classes
331.81	Duration of work

In this chain, the last link is duration of work. We shall illustrate how the Scheme has accommodated new subordinate classes which are formed on the basis of three trains of characteristics, viz,

    1   Duration characteristic

    2   Industry characteristic

    3   Geographical characteristic

The first group of classes is formed on the basis of the Nature of Duration Characteristic. The classes under this group read as below:

331.811	Length of day (8 hour day, 10 hour day, etc.)	331.814	Overtime work
		331.816	Leave
331.812	Night work	331.817	Holidays
331.813	Sunday work		

(This group of classes is not shown in ed 15 and 16. It is shown in ed 14).

44 INDUSTRIES

The second group of classes is formed on the basis of Industries Characteristic. The classes derived on the basis of this characteristic are split up into two sub-groups. The first subgroup of classes derived on the basis of Special Industries Characteristic is the group of professions, services and minor industries.

45 PROFESSIONS, SERVICES AND MINOR INDUSTRIES

The class number assigned to this sub-group of classes is 331.8181. This class number is recommended to be subdivided like the whole classification from 000 to 999. This sub-group includes industries not provided for in class numbers 331.8182 to 331.81898. For example, the specific subject 'Hours of work in Nursing profession' will get 331.818161073 as its class number. In this class number

331.8181 is the (BCN) standing for Professions, Services and Minor Industries; and the digits
61073   stand for Nurnsing profession.

The Canon of Hospitality in Chain is satisfied.

46 MAJOR INDUSTRIES

The second sub-group of classes derived on the basis of Special Industries Characteristic, is the group of Major Industries. The class numbers assigned to this group of classes are 331.8182 to 331.81898. This group of classes is recommended to be subdivided like 620—698. This means that the class number 331.818 is to be expanded by the digits representing specific industries as shown by the divisions under the (MC) Useful Arts from 620 assigned to Engineering to the class number 690 assigned to Building Industry. For example, the specific subject 'Duration of work in Engineering Industries' will get the class number 331.8182. In this class number, the last digit 2 stands for Engineering. Similarly, the specific subjecs 'Duration of work in agricultural industry' will get the class number 331.8183. In this class number, the last digit 3 indicates Agriculture. So also, the specific subject 'Duration of work in automobile manufacturing industry' will get the class number 331.818292. In this class number, the last digits 292 stand for

Automobile manufacturing engineering. The original class number for Automobile manufacturing engineering or Motor vehicle Engineering is 629.2. Here the Canon of Hospitality in Chain is satisfied.

47 GEOGRAPHICAL AREA

The third group of classes is formed on the basis of geographical area characteristic. The basic class number assigned to this group is 331.819. This class number is expanded by the geographical divisions 930—999 under the (MC) History. The use of these numbers may be illustrated as below:

DC
331.8194 Duration of work in Europe
331.8195 Duration of work in Asia
331.81954 Duration of work in India

Here again, the Canon of Hospitality in Chain is satisfied.

48 INCIDENCE OF DURATION, INDUSTRY, GEOGRAPHICAL AREA

Let us take a book on 'Overtime in agricultural industry in India'. It is difficult for us to decide whether we should assign to it the class number

331.814   standing for Overtime or
331.8183 standing for Duration of work in agricultural industry or
331.81954 standing for Duration of work in India

This will lead to different conventions to be developed by different libraries. Apart from this, whatever place is prescribed by convention to the book in question, it is obvious that it requires to be placed in a class of greater intension, i e, of higher order than the one chosen. While DC has recognised the existence of these three distinct characteristics for lengthening the chain whose last link is 331.81 Duration of work, it is its notation that prevents the lengthening of the chain on the basis of all these three characteristics simultaneously. In other words, the notation of DC is too limited in its capacity to allow of the subdivision of the class in question in every possible manner. To put it in another way, the limited capacity of the notation of DC restricts the extent to which the Canon of Hospitality in Chain can be respected by the Scheme. It may also

be added that it is its notation that has made it break the Canon of Exclusiveness.

49 How CC Faces the Problem?

How a more efficient notation can get over the difficulty created by the notation of DC can be illustrated by describing the way in which the problem is faced by CC. Let us take the corresponding chain of CC which runs as below:

> Universe of knowledge
> SZ Social sciences
> X Economics
> X8(J) Agricultural industry
> X8(J):9 Labour in agricultural industry
> X8(J):95 Service conditions in agricultural industry
> X8(J):955 Hours in agricultural industry
> X8(J):9551 Overtime in agricultural industry
> X8(J):9551.2 Overtime in agricultural industry in India
> X8(J):9551.2'N3 Overtime in agricultural industry in India in 1930's

The position is this, Economics can be subdivided on the basis of four distinct trains of characteristics. They may be called:

1. The Train of Business Characteristic;
2. The Train of Problem Characteristic;
3. The Train of Geographical Characteristic; and
4. The Train of Chronological Characteristic.

In CC, the chains based on each of these trains of characteristics are put in four independent schedules. Any chain in any of the four schedules can be lengthened according to its own requirements and possibilities quite independently of any chain in any other schedule. The classes in each of these four schedules correspond to the standard pieces of a Meccano Apparatus. A class number in Economics can be constructed by picking out one number from each of one or more of these schedules and combining them in a prescribed sequence with the appropriate (CS) assigned to the different facets, taking the places of bolts and nuts to keep the parts together. In this way, class numbers can be formed for all possible topics, whatever be the combination of the four trains of characteristics that may be required. This is the function of the device of using different (CS) for different facets. In fact, the Device of (CS) is described as the

Device for separating by the relevant (CS) the parts of a class number which relate to different trains of characteristics forming the basis of classification. It is this feature which makes CC an Analytico-Synthetic Scheme of Classification and it is the Device of using (CS) for facetisation of class numbers that makes an unusual richness of hospitality in chains, a special feature of CC. This is Facet Device.

5 Facet Device

50 ENUNCIATION

"Facet Device consists of adding after a class number of any number of links, a digit of ordinal value less than that of the least of all the substantive digits and adding thereafter, a set of digits constructed on the basis of a train of characteristics related to one another but unrelated to those previously used. The first digit added is called a connecting symbol. The set of digits added thereafter is called a facet."

This Device secures a manifold hospitality in chain, for it can be applied repeatedly; and this we have already illustrated in the chains of CC. We have also dealt with this Device elaborately in connection with the Canon of Consistent Sequence.

6 Phase Device

In CC, the Phase Device consists of attaching one class number to another, by means of a (CS) of ordinal value less than that of any (CS) used for a facet.

This Device secures an additional infinity for hospitality in chain. It is generally used to represent a subject resulting from or appearing in the form of the exposition of a relation between two subjects. The resulting subject is a phased subject, the two latter subjects are its phases.

Let us illustrate the use of the Phase Device in CC :

CC
B0bX   Mathematics for Economists
X0bB   Economics for Mathematicians
B0cX   Comparison of Economics and Mathematics
X0gB   Economics as influenced by Mathematics

B0gX   Mathematics as influenced by Economics

DC has no provision to implement phase relation. In the class numbers of CC, the digit '*b*' represents biasing phase, the digit '*c*' represents comparison phase, and the digit '*g*' represents influencing phase.

The (CS) zero (0) is used before the (PR) digit. Its ordinal value is less than the (CS) ' . : ; , which are the (CS) used for indicating different categories of facets.

61 Intra-Facet Phase Device

We know that Intra-Facet Phase Device is a device similar to the Phase Device with the difference that Phase Device is used in the case of a subject which brings into relation two (BC) or two (CDC); while the Intra-Facet Phase Device is used in the case of a subject which brings into relation two (I) in the same facet. The class number constructed on the basis of the Intra-Facet Phase Device secures another singlefold infinity for hospitality in chain. This singlefold infinity for hospitality in chain is within a facet. Let us, therefore, illustrate the use of the Intra-Facet Phase Device in CC. Examples:

General (IFR)
X:5.440*j*56   Commercial relation between India and Great Britain.

In the above class number, the digit 5 from [E] is used for Commerce in the sense of trade activities, such as Marketing, Tariff, Export, and so on.

Bias (IFR)
X5.440*k*1N48   Commonwealth preference in India's commerce

In the above class number, the digit 5 from the business facet is used in the sense of mode of commerce, such as commerce by State, Commerce by Structure, and so on. ·

Comparison (IFR)
B910*m*43:68   Comparison of the constitution, i e, structure of Earth and Mars

In the above number

B9 = Astronomy   43 = Mars
1   = Earth   68 = Constitution, i e, structure

Difference (IFR)
V2,10n21:3   Difference between the functions of the President and the Prime
             Minister of the Indian Republic
Influence (IFR)
V2,210r41   Influence of the Prime Minister on the Party in Office in the
             Indian Republic

62 INTRA-ARRAY PHASE DEVICE

This Device also secures another singlefold infinity for hospitality in chain. This infinity for hospitality in chain is within an array. This Device is described in detail in section L463.

7 Super-Imposition Device

The term 'Super-imposition' means the act of placing a thing above something else; or the act of imposing a thing on something else.

70 ENUNCIATION

"The Super-Imposition Device consists of dividing an (I) by restriction of its extension to the portion of it falling within another (I) of the same category." In other words, "The Super-Imposition Device consists of attaching to one number within a facet another number within the same facet with a distinctive connecting symbol chosen for the purpose."

This Device is required to be used in the case of a specific subject which is not found scheduled in a facet; but which can be represented by two (I) in the same facet, if they are joined together by a (CS). The (CS) used for the purpose is a hyphen (-).

71 RURAL WOMAN

The specific subject 'Rural woman' is not found scheduled in the group facet or [P] of the (MC) Sociology; but it can be represented by the two (I) in the same facet, viz, Y15 standing for Woman and Y31 standing for Rural community, if they are joined together by the (CS) hyphen (-) as shown below:

Y15-31   Rural woman

So, according to the first definition of (SID), in the case of this specific subject, the (I) 'Woman' is said to have been divided by

restriction of its extension to the portion of it, i e, to the group of women residing in the rural area falling within another (I), viz, the isolate representing 'Rural community' of the same category, i e, in the same facet.

In the class number Y15-31, the (IN) 31 standing for 'Rural community' is said to have been imposed on the (IN) 15 standing for 'Woman' in the same facet with a view to obtain the (I) 'Rural woman'. This is what is meant by the term 'Super-imposition'. The (I) rural woman is called a (SII).

72 OTHER EXAMPLES

In the organ facet of the (MC) Medicine, we have normal (I) like L163 Arms, L181 Face, and L41 Nose, and also like L36 Veins, L74 Nerves and L86113 Mucous membrane. But a specific subject in Medicine may also have (SII) like Veins of arms, Nerves of face, Mucous membrane of nose.

Again in the group facet of the (MC) Sociology, we have normal isolates like Y11 Children, Y15 Women, Y2 Family, Y31 Rural community, Y49 Working class and Y73(Q2) Hindus. But a specific subject in Sociology may also have (SII) like Rural children, Working class women and Hindu families. (SII) may similarly arise in several other (MC) like Psychology, Education, History, and so on.

The class numbers for the (SII) cited above as examples may be illustrated as below:

L163-36	Veins of arms	Y11-31	Rural children
L181-74	Nerves of face	Y15-49	Working class women
L41-86113	Mucous membrane of nose	Y2-73(Q2)	Hindu families

73 Rules for the Sequence of the Two (I)

The rules regarding the sequence of the two (I) featuring in a (SII) read as below.

731 RULE 1

The constituent (I) which occurs earlier in the schedule should normally form the first member of a (SII).

I,12-15   Tissue of the leaf

In this class number, the (IN)12 standing for tissue occurs earlier

in the schedule and hence it forms the first number of the (SII) 12-15. The (IN) 15 stands for leaf.

L167-37   Arteries of the hand

In this class number, the (IN)167 standing for Hand occurs earlier in the schedule and hence it forms the first member of the (SII) 167-37 meaning Arteries of the hand. The (IN) 37 stands for Arteries.

732 RULE 2

If the number got by rule 1 is unintelligible and the using of the constituent (I) which occurs later in the schedule as the first member yields an intelligible and more helpful (IN), it must be made the first member.

Let us suppose that we want to construct a class number for 'University education of women'. In the educand facet of Education, the (IN) 4 stands for Education of educands of the university stage and the (IN) 55 stands for Women as educands. If we construct the class number according to the first rule then it will be written thus : T4-55; but this class number is unintelligible, because it will occupy a place near the documents on the University education in general; but it is more helpful if all the documents on the Education of women are grouped under the (IN) 55. Hence in this case, we have to use the (IN) 55 which occurs later in the schedule as the first member thus : T55-4.

733 RULE 3

If both the sequences of the constituent (I) give intelligible (IN) and yield different meanings, the sequence should be determined by the meaning sought to be represented.

Let us suppose that we want a number for 'British territory in Africa'. In the geographical divisions, 56 is Great Britain and 6 is Africa. The (SII) number 56-6 will mean African territory in Great Britain and 6-56 will mean British territory in Africa. Here both the combinations are intelligible.

But they specify totally different things. The meaning sought to be represented by us is 'British territory in Africa'. And hence the sequence of these two (I) should be 6-56 and not 56-6.

74 Dependencies

The geographical (IN) for dependancies, i e, States governed by other States is constructed on the basis of the rule which reads as below:

"When an empire having territories in two or more continents is a focus, its number should be derived from 1 standing for world by (SID) using the number of the ruling country as the (SII) number."

1-52	Italian empire		6-52	Italian possessions in Africa
1-53	French empire		6-53	French possessions in Africa
1-56	British empire		6-56	British possessions in Africa

75 Hospitality in Chain Within a Facet

This device helps to enrich the Canon of Hospitality in Chain within a facet. Hospitality in Chain is already endowed with single-fold infinity of links within a facet by the

1   Intra-facet Device;

2   Intra-array Device; and

3   Decimal fraction Device

The (SID) endows a fourth singlefold infinity of links within a facet. Thus a facet is able to give fourfold infinite hospitality in chain within itself.

8 Conclusion

Ultimately, it is clear that CC has given great satisfaction to the Canon of Hospitality in Chain by using suitable devices. DC is unable to do so due to its structural defects and inadequacy of suitable devices which are necessary to observe the Canon in proper manner.

CANONS FOR MNEMONICS

1 Mnemonic Notation

A mnemonic notation is one in which an isolate number represents the same idea to whatever host class it is attached.

2 Mnemonics in DC

It is used in DC primarily for:
1 Form divisions;
2 Geographical divisions; and
3 Language divisions.

3 Mnemonics in CC

CC uses mnemonics in a profuse manner. This is why it helps us to translate the names of many a subject without referring to the classificationist. This mnemonic feature of the Scheme has also effected considerable economy in the schedules under various classes.

4 Canons of Mnemonics

The Canon of Consistent Sequence prescribed for the classes in an array has its counterpart in the Canons of Mnemonics to be satisfied by the notation. Dr Ranganathan has enunciated four Canons of Mnemonics. They are:
1 General Canon of Mnemonics (Canon 25)
2 Verbal Mnemonics (Canon 26)
3 Scheduled Mnemonics (Canon 27)
4 Seminal Mnemonics (Canon 28)

GENERAL CANON OF MNEMONICS (CANON 25)

0 Enunciation

The General Canon of Mnemonics is enunciated thus: "The digit or digits used to represent a specified concept in a class number should be the same in all class numbers having that concept represented in them provided that insistence on such consistent representation does not violate more important requirements."

1 Sayers on Mnemonics

Regarding the mnemonic use of notation in modern classifications, Sayers observes thus : "There is a very general quality in modern classification notation which is ingenious and within limits of great value to a classifier. This is its mnemonic quality; its power of assisting memory and of reducing the work of reference to tables and indexes to the minimum." [46]

2 Bliss on Mnemonics

Henry Evelyn Bliss observes about the value of mnemonics thus: "Notation as a kind of symbolic language depends extensively on memory of meaning. In learning to read and write a new language, we gradually learn the words and their meanings and remember more and more of them. In like manner librarians and users of libraries gradually learn the order of the classes and remember the class marks, though they continue to make use of the catalogue, shelf-lists and index to schedules. The more systematic the system is, the more readily they will learn and the more efficiently they will remember. This is the natural and rational ground for a system of mnemonics or symbols that may be readily and systematically remembered." [47]

3 Three Kinds of Mnemonics

In the *Prolegomena*, three kinds of mnemonics are mentioned. They are:

1 Verbal Mnemonics;
2 Scheduled Mnemonics; and
3 Seminal Mnemonics.

4 General Mnemonics and Restricted Mnemonics

. In the *Annals of library science* (9, 1962, 1), an article on Non-Seminal Mnemonics, by Abdul Rahman and T Ranganathan has appeared. In this article, the authors have mentioned two varieties of Mnemonics, viz,

1 General Mnemonics; and
2 Restricted Mnemonics.

There are three kinds of Restricted Mnemonics, viz,

1 Scheduled Mnemonics;
2 Systematic Mnemonics; and
3 Seminal Mnemonics;

A third variety of Mnemonics is also recognised. It is called Verbal Mnemonics or Alphabetical Mnemonics.

So, ultimately, there are five kinds of Mnemonics, viz—1 General Mnemonics; 2 Scheduled Mnemonics; 3 Systematic Mnemonics; 4 Seminal Mnemonics; and 5 Verbal Mnemonics. The Canons for General Mnemonics and Systematic Mnemonics have not yet been enunciated by the author of CC. These Mnemonics, therefore, are not dealt with in the succeeding chapters.

Some important observations of the authors of the above mentioned article will be found useful by the reader of this book and hence they are quoted below :

5 General Mnemonics in Notational Plane

"In the field of library classification, we represent each entity by an ordinal number. In fact an entity is first replaced by a complex of its essential differentiating attributes—or characteristics—essential to the subject-context under consideration, stated in a helpful sequence. Then, each characteristic is represented by a digit or a set of digits deemed to have been frozen into a single one. These digits are written in succession. Each digit is unique as if it were a proper noun to denote the measure of the characteristic concerned, within the context of the sequence of digits containing it. The digit is an array-isolate number. The idea represented by

it is an array-isolate idea. The term equivalent to it is an array-isolate term in the given subject context. This is general mnemonics in the notational plane. The entire sequence of digits—it may be an isolate number or a class number as the case may be—amounts similarly to general mnemonics in the notational plane. This is all primitive mnemonics."

These observations of the authors regarding General Mnemonics in the Notational Plane may be explained as below :

The class number O111,2J64,51 represents the entity named '*Hamlet*'. This class number is an ordinal number. The entity '*Hamlet*' is first replaced by a complex of its essential differentiating attributes or characteristics, essential to the subject context, i e, '*Hamlet*' under consideration, stated in a helpful sequence. The characteristics concerned may be mentioned in a helpful sequence as below :

Literature [Language], [Form] [Author], [Work]

Each of these characteristics is replaced by a digit or a set of digits deemed to have been frozen into a single one. In the class number O111,2J64,51, the language characteristic is replaced by the set of digits 111 deemed to have been frozen into a single one; the form characteristic is replaced by the digit 2; the author characteristic is replaced by the set of digits J64 deemed to have been frozen into a single one; and the work characteristic is replaced by the set of digits 51 deemed to have been frozen into a single one. These digits, i e, 111,2, J64 and 51 are written in succession in the class number. It is said that each digit is unique as if it were a proper noun to denote the measure of the characteristic concerned within the context of the sequence of digits containing it. This may be explained as below:

The measure of the characteristic means the serial order of the characteristic used in the formation of a facet. In the formation of the language facet, the measure of the characteristic, i e, the serial order of the characteristic, viz, 'The group of languages belonging to Teutonic languages' is 3. The first characteristic used to derive the first order array is the first group of the families of languages. The first order array derived from this characteristic is

1 Indo-European languages

2   Semitic languages
3   Dravidian languages
    and so on.

The second characteristic used to derive the second order array under the (IN) 1 standing for Indo-European languages is the 'second group of languages belonging to the Indo-European languages'. The second order array derived from this characteristic is

11	Teutonic languages	13	Greek language
12	Latin language	14	Slavic languages
			and so on

The third characteristic used to derive the third order array under the (IN) 11 standing for Teutonic languages is the 'third group of languages belonging to Teutonic languages'. The third order array derived from this characteristic is

111   English   112   Dutch   113   German, and so on

The isolate number 111 representing English language consists of 3 digits. This set of digits is considered to have been frozen into a single digit. This digit is unique as if it were a proper noun representing English language to denote the measure of the characteristic, i e, the order of the characteristic, viz, 'Teutonic languages' from which it is derived within the context of the sequence of the three digits containing it. The digit '111' is an array-isolate number representing the third order array. The idea of an individual language represented by it, is an array-isolate idea. The term 'English language' equivalent to it is an array-isolate term in the given subject context. So the set of digits 111 used to represent English language in the class number O111,2J64,51 is General Mnemonics in the notational plane. The entire sequence of digits—it may be an isolate number like the number 111 or a class number like the class number O111,2J64,51 as the case may be—amounts similarly to General Mnemonics in the notational plane. This is all primitive Mnemonics.

6 Mnemonics in a Restricted Sense

The authors observe regarding Restricted Mnemonics as below:
"Apart from the all-pervading primitive mnemonics inherent

in a system of class numbers, there are also mnemonics in a restricted sense. In this restricted sense a digit or a set of digits represents the same entity irrespective of the sequence of digits among which it occurs. Three varieties of restricted mnemonics of this kind have been recognised in classificatory language—Scheduled Mnemonics, Systematic Mnemonics and Seminal Mnemonics. Alphabetical Mnemonics is rather trivial and is used both in classification and in common usage. Abbreviations and initionyms are examples. It lacks uniqueness of representation. Indeed, Alphabetical Device —the means of alphabetical mnemonics—needs enumeration in each subject-context. It has, therefore, been stated to yield only special isolates instead of (CI). On the other hand, scheduled mnemonics and seminal mnemonics give (CI) and quasi (CI).

7 Mnemonics in CC

"A profuse use of scheduled, systematic and seminal mnemonics secures economy both in thought and in length of the schedule. It bestows on the classifier a large amount of autonomy. Its value increases as and when the mnemonics leads to reflex action. This is visible in every good scheme of classification. But much attention was not given to it in enumerative schemes. In this case it was a matter of casual occurrence rather than of conscious effort. The device of mnemonics was not therefore fully exploited. Its exploitation began only with the emergence of analytico-synthetic schemes of classification. CC is the first scheme to exploit it in great measure."

8 Systematic Mnemonics

The authors observe regarding Systematic Mnemonics as below:
"Another kind of mnemonics or aid to memory is when the arrangement of the isolates in an array is got by the enumeration of the special isolates in it in a systematic way. The following are the principles used by CC for such a systematic arrangement:

1	Increasing Quantity	6	Left-to-Right
2	Later-in-Time	7	Away-from-Position
3	Later-in-Evolution	8	Clock-wise
4	Spatial Contiguity	9	Increasing Complexity
5	Bottom-Upwards Contiguity."		

While discussing the Canon of Helpful Sequence we have dealt
with the Principles, viz, 1 Increasing Quantity, 2 Later-in-Time,
3 Later-in-Evolution, 4 Spatial Contiguity, and 5 Increasing
Complexity. The sequence obtained by the use of the Principles,
viz, 1 Bottom-Upwards Contiguity, 2 Left-to-Right, 3 Away-from-
Position, and 4 Clock-wise is a sequence of specific kinds of spatial
contiguity. Let us illustrate the sequence of classes in CC, obtained
by the use of the Principles, viz, 1 Bottom-Upwards contiguity and
2 Away-from-Position.

91   BOTTOM-UPWARDS CONTIGUITY PRINCIPLE

D3 Building engineering

Foci in [P2]	CC	DC
Earth work	D3,1	693.2
Foundation	D3,2	624.15
Floor	D3,3	
Support	D3,4	
Stairway	D3,5	
Roof	D3,6	695

92   AWAY-FROM-POSITION PRINCIPLE

B9 Astronomy

Foci in [P]	CC	DC
Earth	B91	525
Moon	B92	523.3
Sun	B93	523.7
Planet	B94	523.4
Mercury	B941	523.41
Venus	B942	523.42
Mars	B943	523.43
Asteroid	B944	523.44
Jupiter	B945	523.45
Saturn	B946	523.46
Uranus	B947	523.47
Neptune	B948	523.48
Meteor and Comet	B95	523.5 and 523.6
Star	B96	523.8
Planetary system	B97	523.2

The implied meaning of the sequence of the classes arranged
on the basis of the Principle of Away-from-Position is that the
classes in the array are arranged according to their measure of

distance as seen in the universe of classification concerned from the first class mentioned in the array. In CC, foci in [P] of Astronomy indicate this type of sequence. The Earth gets the first place in the array on the basis of the Favoured Category Device as we belong to this planet. The Moon comes next at it is the satellite of the earth. The origin of the whole planetary system is the Sun, and hence it gets the third place in the array. Then, the fourth place is given to Planets in general and under this isolate number the eight planets, viz, Mercury, Venus, Mars, Asteroid, Jupiter, Saturn, Uranus and Neptune are arranged according to the measure of their distance from the Sun. Meteor and Comet, the two other heavenly bodies are given the 5th place. The (IN) 6 and 7 are assigned to 'Star' and 'Planetary system'. So, in fact, in CC, the Principle of Away-from-Position is applied to the sequence of the planets excluding the earth according to their measure of distance from the Sun.

DC also has followed the same Principle in assigning class numbers to the respective planets under the general class number 523·4 standing for Planet.

VERBAL MNEMONICS (CANON 26)

0 Enunciation

The Canon of Verbal Mnemonics is enunciated thus: "Verbal mnemonics should be rejected without any hesitation if a sequence more helpful to readers or more filiatory than alphabetical sequence exists. Verbal mnemonics by Alphabetical Device should be preferred if the alphabetical sequence is as helpful as any other sequence. The word forming the basis of verbal mnemonics should be that of international nomenclature whenever it has been set up."

This is illustrated in section R172.

SCHEDULED MNEMONICS (CANON 27)

0 Enunciation

The Canon of Scheduled Mnemonics is enunciated thus : "A scheme of classification should include a preliminary set of schedules of isolates likely to occur in any array of some order or other of all or several classes or it should refer any recurrent sets of isolates to the one schedule of them given in connection with an appropriate basic class."

1 Meaning of the Canon

The Canon means that there should be certain schedules already prepared by a scheme of classification, such as the auxiliary schedules of CC. These schedules consist of divisions based on such characteristics as—1 Geographical Division, 2 Chronological Division, 3 Common Isolate, and 4 Language Division. These divisions recur in arrays of different orders in many classes and hence they are used mnemonically wherever needed. The second part of the Canon asks us to refer any recurrent array of divisions to the one schedule of them given in connection with an appropriate class. This refers to the mnemonic use of the digits assigned to certain recurring divisions mentioned in the (MC) of the scheme of classification.

2 Devices used in CC

In CC, six devices are used to secure scheduled mnemonics, viz,

1	Facet Device	4	Chronological Device
2	Common Isolate Device	5	Subject Device, and
3	Geographical Device	6	Phase Device.

3 Facet Device

31 PROBLEM FACET OF MEDICINE

In [P] or Organ Facet of Medicine of CC, different numbers are assigned to different organs. If we want to construct class

numbers for the Anatomy, Physiology or Diseases of any of the organs, we can mnemonically use the same numbers for these problems as given in the problem facet of that class. Let us illustrate this by means of the class numbers of CC and DC:

L:2	Anatomy of human body	611
L185:2	Anatomy of the eye	611.84
L192:2	Anatomy of joints	611.72
L219:2	Anatomy of tonsils	611.32
L185:3	Physiology of the eye	612.84
L192:3	Physiology of joints	612.75
L219:3	Physiology of tonsils	612.31
L185:4	Diseases of the eye	617.7
L192:4	Diseases of joints	616.72
L219:4	Diseases of tonsils	616.314

32 CONCLUSION

From these illustrations, we see that due to the adoption of the Facet Device, CC is able to secure scheduled mnemonics in a satisfactory way. DC does not make use of this Device and hence it has failed to secure these mnemonics in the case of organ numbers featuring under different problems, e g, the Eye is represented by the number 84 under Anatomy (611.84) and Physiology (612.84); while it is represented by the number 7 under Surgery (617.7). Joints are represented by the number 72 under Anatomy (611.72) and Diseases (616.72); while they are represented by the number 375 under Physiology (612.75). Tonsils are represented by the number 32 under Anatomy (611.32); by another number 31 under Physiology (612.31) and still by another number 314 under Diseases (616.314). This is how DC violates the Canon of Scheduled Mnemonics by avoiding to make use of the Facet Device.

33 IMPORTANCE OF THE FACET DEVICE

Due to the adoption of the Facet Device, CC has completely revolutionised the ideas of schemes of classification. This Device has considerably increased the value of scheduled mnemonics. It has given autonomy to facets to grow independent of each other according to the growth of knowledge from generation to generation. This has also removed a good deal of rigidity that is every now and then seen in the enumerative schemes of classification.

This method has ultimately resulted in the much needed autonomy for classifiers.

The facets get autonomy; this autonomy of facets results in the autonomy of classifiers; and CC is able to satisfy the Canon of Scheduled Mnemonics.

4 Common Isolate Device

41 BIBLIOGRAPHY IN CC AND DC

In the schedule of the (CI) of CC, the digit 'a' represents Bibliography. If we want to construct class numbers for bibliographies of any subject, we can mnemonically use this digit in all class numbers. In DC, there is no (CIN) for Bibliography. The class Bibliography is included as one of the main divisions of the Generalia Class in that Scheme; and the number 016 represents Subject Bibliographies under that class. There is a practice of using this number after the class number of any subject to represent the bibliographies on it. Let us illustrate the use of the (CI) digit small 'a' by CC and the corresponding class numbers of DC:

2a	Bibliography of Library science	016.02
Aa	Bibliography of Science	016.5
Ba	Bibliography of Mathematics	016.51
B6a	Bibliography of Geometry	016.513
O111,2J64a	Bibliography of Shakespeare	

42 (CI) USED AS SCHEDULED MNEMONICS IN CC AND DC

CC		DC
Qk	Cyclopaedia of Religion	203
Rk	Cyclopaedia of Philosophy	103
SZk	Cyclopaedia of Social sciences	303

In these class numbers the (CIN) k and 03 are used as scheduled mnemonics in CC and DC respectively.

43 CONCLUSION

The table of (CI) of DC which is designated as the table of Form Divisions is not as exhaustive and systematically prepared as are the schedules of (CI) of CC. CC has provided six different types of the schedules of (CI) in ed 7 and hence it is able to make use of this Device to secure scheduled mnemonics in several ways. This is not possible in DC.

5 Geographical Device

51 GEOGRAPHICAL DIVISIONS IN CC AND DC

In the schedule of the geographical divisions of CC, the number 44 is assigned to India. If we want to construct class numbers for such subjects as pertain to India, we can mnemonically use this number in all class numbers as shown below:

I:12.44   Flora of India   K:12.44   Fauna of India

In these class numbers, the digits 12 in [E] stand for natural history. DC has not got a separate schedule of geographical divisions. The numbers assigned to different continents and countries in History are generally prescribed to be used mnemonically in other classes. In the table of Form divisions, 09 is assigned to History and Local Treatment and the numbers 093 to 099 are prescribed to be subdivided like 930-999 which are the divisions in History. In History the number 954 is assigned to India.

52 FLORA AND FAUNA OF INDIA IN DC

581.954   Flora of India   591.954   Fauna of India

The class number 581.9 stands for Phytogeography, i e, geographical distribution of plants and the class number 591.9 stands for Zoogeography, i e, geographical distribution of animals. Under Botany the numbers 581.93 to 581.99 are prescribed to be divided like 930 to 999. Similarly under Zoology the numbers 591.93 to 591.99 are prescribed to be divided like 930 to 999. On the basis of this prescription, we have constructed the above class numbers of DC.

6 Chronological Device

Example:

61 LITERARY AUTHORS IN CC AND DC

CC provides a schedule of chronological divisions. In that schedule, the digits M74 are assigned to 1874. The well known English writer, G K Chesterton, was born in 1874. He was known as a poet, as a dramatist, as a novelist, and also as a prose writer. If we want to construct different class numbers for G K Chesterton,

we can mnemonically use the digits M74 indicating his year of birth in all class numbers as shown below:

```
      CC
      O111,1M74    G K Chesterton as a poet
      O111,2M74    G K Chesterton as a dramatist
      O111,3M74    G K Chesterton as a novelist
      O111,6M74    G K Chesterton as a prose writer
```

DC does not provide for a separate schedule of chronological divisions.

7 Subject Device

Examples:

71 X-Rays in CC and DC

In CC, the class number C53 is assigned to X-Rays under Physics. If we want to construct a class number for any other subject in which the subject X-Rays is featuring, we can use the same digits for X-Rays in all class numbers as shown below :

```
      CC
      C53          X-Rays
      MC53         Manufacture of X-Ray apparatus
      X8(MC53)     Economics of X-Ray apparatus industry
```

In DC, the class number 537.535 is assigned to X-Ray spectroscopy. This class number as shown in the index of the Scheme is used as a (SD) number for the manufacture of Spectrometer which is an apparatus attached to a spectroscope for purposes of measurement. The class number concerned is given as shown below:

```
      DC
      681.25375352    Manufacture of Spectrometers
```

In this class number, the digits 681.25 stand for Specific measuring instruments and the digits 375352 stand for X-Ray spectroscopy. These digits are taken from the class number 537.5352 which stands for X-Ray spectroscopy in Physics as per note under the class number 681.25 which asks us to divide this number like 500. The whole class number 681.25375352, standing for the manufacture of Spectrometers, can also be used as a (SD) number

in constructing a class number for the subject, viz, 'Economics of spectrometer industry' as shown below:

338.4768125375352   Economics of spectrometer industry

The above number is constructed as per note under the class number 338.47 standing for Specific secondary products which asks us to divide the number like 000 to 999. So, we see that both CC and DC use (SD) to secure scheduled mnemonics with a view to satisfy the Canon of Scheduled Mnemonics.

72 DIFFERENCE IN THE USE OF (SD) IN CC AND DC

The main difference in the use of this Device by CC and DC as seen by us in the present instance is that DC has used the class number representing X-Ray spectroscopy as a (SD) number for the manufacture of a particular instrument, i e, spectrometer while CC has used its class number representing X-Ray for the manufacture of X-Ray apparatus in general. According to the method followed by CC, this class number will require a special mnemonic schedule of fundamental constituent terms to get specific class numbers for specific instruments coming under X-Ray apparatus. DC uses the number 375352 to represent X-Ray spectroscopic apparatus after the class number 681.25 standing for specific measuring instruments, yet the number formed by its use is given the name of a specific instrument coming under X-Ray spectroscopic apparatus. Really speaking the class number constructed by the use of the class number representing X-Ray spectroscopy must mean X-Ray spectroscopic apparatus in general. But the scheme arbitrarily labels it for a specific instrument, i e, spectrometer.

8 Phase Device

Example:

S	Psychology
B0bS	Mathematics for Psychologists
B280bS	Statistics for Psychologists
U80gS	Psychology of travel-mindedness, i e, the idea of travelling or going on a travel influenced by Psychology

9   Four Kinds of Scheduled Mnemonics

In the article on "Non-seminal mnemonics", by Abdul Rahman and T Ranganathan referred to in Section R44, the observations of the authors regarding scheduled mnemonics will be found useful and hence they are quoted below.

"It is possible to recognise four kinds of scheduled mnemonics:

1   Common isolates;

2   Isolates or subdivisions of isolates got by Subject Device;

3   Isolates pertaining to two or a few basic classes running parallel; and

4   Isolates with casual mnemonics.

"The third kind mentioned here does not amount to common isolates as they are not applicable to any host class whatever and even to a fairly large number of host classes.

91   COMMON ISOLATE

In the *Prolegomena*, a common isolate is defined as "an isolate idea denoted by the same isolate term and represented by the same isolate number whatever be the host class to which it is attached." CC uses the working definition of a (CI), as "an isolate attachable to many classes if not all." According to DC ed 16, "the form divisions may be used with any subject when applicable."

911   COMMON ISOLATES IN DC

"DC has one schedule of common isolates. It is the schedule of form divisions given in pages 89-93 of ed 16. This schedule includes 63 common isolates. Some of these, viz 093-099; 026 to 0269; and 0613-0619, contain within themselves as many common isolates as the number of divisions comprehended by 930-999 in the main tables.

912   COMMON ISOLATES IN CC

"CC has ten schedules of common isolates. These are:

Ser N.	Nature of (CI)	Number of (CI)	Remarks
0	Anteriorising Common Isolate (ACI) (Applicable before space facet)	18	
1	ACI (applicable after space facet)	2	
2	ACI (applicable after time facet)	10	
3	Posteriorising Energy Common Isolate (ECI)	12	Estimated to be 1,000. Under investigation.
4	Posteriorising Matter Common Isolate (MCI)	471	Estimated to be 10,000. Under investigation.
5	Posteriorising Personality Common Isolate (PCI)	14	Estimated to be 100. Under investigation.
6	Time isolate (TI) Level 1	31	
7	Time Isolate (TI) level 2	12	
8	Space Isolate (SI) level 1	1,440	
9	Space Isolate (SI) level 2	10	

92 ISOLATE BY SUBJECT DEVICE

CC defines Subject Device as follows:

"The Subject Device consists in using the appropriate class characteristic for the formation or the subdivision of an isolate which is capable of such formation or subdivision or when the individualisation of the isolates, or sub-isolates, may be made to depend conveniently on a class that may be definitely associated with the respective foci in any manner or for any reason."

According to DC ed 16 "If directed to 'divide like main classification' as in 016, number for required subjects is added exactly as it stands in T (Tables); e g, Bibliography of Polish poetry 016.891851".

921 SUBJECT DEVICE IN DC

"DC specifies the places where (SD) can be applied, whether as fully as the main classification or restricted to a particular range of main classification. Here is an example of restriction to a particular range of main classification. "338.4562—45698 Machinery in major industries. Divide like 620-698". DC permits use of (SD) in cases not explicitly specified in the main tables, but it gives the following warning "combining numbers in a way not printed in tables must be dun with great care or confuzion results. Many uzers, fascinated with the posibilities of the sistem, make combi-

nations more injenius than useful; e g, 'The horse's foot and how to shoe it' was once markt 636.1682, i e, black-smithing number 682, added to horse number 636.1, while 636.168 means American ponies.''

922 SUBJECT DEVICE IN CC

"CC indicates either in the schedules or in the rules the cases where (SD) may be applied. This is not however exhaustive. With the gaining of experience, a classifier will develop the sense to decide the other cases where (SD) may be applied if the enumerated divisions fail him. The danger of the incidence of homonymous class number as a result of (SD) in the manner indicated in the quotation in section R6921, when applied in DC, is impossible in CC. In fact the incidence of such homonyms had been felt all along as a grave potential danger in developing CC. This feeling had led during the earlier years to the prohibitory instruction that (SD) should not be applied unless authorised in the rules or in the schedules. This prohibitory instruction reduced the autonomy of the classifier. This was undesirable. The situation was ultimately met in ed 5 (1957) with the concept of "packet notation". According to packet notation, the part of an isolate number contributed by (SD) should be enclosed within circular brackets. Thus (SD) can now be used in CC whenever warranted. Care should, however, be taken to see that an equivalent number has not been included in the enumerated part of the schedule. Otherwise synonyms will occur among isolate numbers and class numbers. And synonyms are as great a danger in a classificatory language as homonyms. In avoiding the Sylla of homonyms one should not dash against the Charybdis.

93 PARALLEL SCHEDULES OF ISOLATES

"Certain characteristics recur as the basis for the formation of any array of some order or other of several classes. It will be a help to memory, if the isolates in each array of such a set occur in a sequence parallel to those in every other array of the same set and in addition the same isolate number of digits is used to represent the corresponding isolates demanded by the Canon of Scheduled mnemonics.

931 PARALLEL SCHEDULES OF (I) IN DC

"In DC there are no parallel schedules of isolates. What appear to be parallel schedules by the device 'divide like' occurring throughout the schedules are due merely either to (SD) or to facet device.

932 PARALLEL SCHEDULES OF (I) IN CC

"CC has made sufficient use of the parallel schedules to fulfil the Canon of Scheduled mnemonics and the Law of Parsimony. Here is a list of the parallel schedules appearing in CC ed 6. A few examples are given below:

Ser N	BC	Facet	Parallel schedule
1	a	[P]	8 By social groups of readers (To be divided as in Y Sociology)
2	2	[M]	Same as foci in [P] for Generalia bibliography
3	B15		To be divided as B13
4	KX	[2E]	For 4 in [E] as in L Medicine.

9321 PARENT CLASS-CONTEXT

"CC follows a certain convention in respect of parallel schedules. The schedule is given only in one class-context. In all other class-contexts, only a reference to that one class-context is given. The choice of the class-context for giving the full schedule is not a random one. It is usually given in the particular class-context where the schedule may be said to have its origin or primary scope. We would call that class-context the parent class-context. Just as the right of naming a child goes to its parents, the right of scheduling a set of isolates recurring in several class-contexts goes with what may be reasonably taken as the parent class-context. One should, however, avoid mechanically taking the first class-context having a particular schedule to be its parent class-context. For example, the very first line of the above table illustrates this. The first class-context is a8 occurring in the very beginning of the schedule. But the parent class-context is taken to be Y Sociology occurring here from the end of the schedule.

94 ISOLATES WITH CASUAL MNEMONICS

"Schedule with casual mnemonics differs from scheduled mnemonics, in that only a few isolates in the array correspond with one another instead of all the isolates. Here is a list of such casual mnemonics.

Ser N	BC	Facet	Parallel schedule
1	B13	[E]	Only 1, 2, 3 and 6 are parallel to the canonical divisions of B Mathematics
2	B6	[E]	Only 1, 2, 3 and 6 are parallel to the canonical divisions of B Mathematics
3	S	[P]	Only 1, 2, 3, 5 and 6 correspond to 1, 2, 3, 5 and 6 of [P] of T
4	Y	[P]	Only 1 to 6 correspond to 11 to 16 of [P2] of Z law

SEMINAL MNEMONICS (CANON 28)

0 Enunciation

The Canon of Seminal Mnemonics is enunciated thus: "A scheme of classification should use one and the same digit to represent the same (II) by the same (IN) in whatever array, in whatever class-context it occurs, irrespective of the divergent terms used to denote it in different arrays in different class-contexts."

Examples:

Let us take the idea of 'Unity'. In CC, wherever the idea of unity occurs, the digit '1' is used mnemonically to represent it.

1 Geometry of One Dimension in CC

In Geometry, CC uses the digit '1' mnemonically to represent one dimension as shown below:

CC
B61   Geometry of one dimension—that is of a line.

2 World in CC and DC

In the schedule of the geographical divisions of CC, the digit 1 is used for world as shown below:

CC
U.1   Geography of the world   V1   History of the world

In DC, no specific digit is assigned to world in the geographical divisions given under History.

For Geography of the world, the general number 910, assigned to Geography in general, is required to be used; and thus the number becomes a homonym, under which

1   general treatises on Geography,
2   books on the Geography of the world, and
3   books on travel

have to be indiscriminately mixed up.

In DC, there is also no separate number for the history of the

461

world. The number 909 which should normally represent 'History of History' is used as the class number for the history of the world.

For the First World War and the Second World War, DC arbitrarily uses the class number 940 which would normally represent 'History of Europe'. The class numbers assigned to these wars by DC and the corresponding class numbers in CC may be illustrated as below:

DC	CC
940.3	VI'N1
940.53	VI'N3

3 God in CC and DC

In the (MC) Religion, the digit 1 is used in CC for God under the division Theology in [E] as shown below :

CC
Q:3   Theology   Q:31   God

In DC, the same digit 1 is used for God under Natural theology and also under Doctrinal theology of Christianity as shown below:

DC
210	Natural theology	231	Christian doctrines
211	God		relating to God.
230	Doctrinal theology of Christianity		

4 Head of the State in CC and DC

In History, the digit 1 is used in CC for Head of the State, in the Constituent Organ Facet or [P2] as shown below:

CC
V2   History of India
V2,1   Head of the Republic of India, i e, the President of the Indian Republic

On the other hand in DC, the Head of the State is represented by the digit 3 as shown below:

DC   353.03   President of the USA

In all these examples, we see that the idea of unity is implied in the terms, one dimension, world, God and the Head of the State. We see here how different terms are used in a natural language to denote the same seminal concept in different subject-contexts. On

the other hand, in a classificatory language, according to Seminal Mnemonics, the same digit is used to represent the same concept in different subject-contexts.

5 Difference between Scheduled Mnemonics and Seminal Mnemonics

In scheduled mnemonics, the same isolate idea is denoted by the same term and represented by the same number, in all its places of occurrence, i e, in all subject-contexts. This means that the relevant terms and the digits representing them, in all places of their occurrence have already been mentioned in some one schedule of a scheme of classification and from this schedule the same digits are taken for mnemonic use in other subject-contexts. This we have sufficiently illustrated while discussing on the Canon of Scheduled Mnemonics.

But the case of seminal mnemonics is quite different. There is no basic schedule for them anywhere in a scheme. They are based on some association of ideas as we have seen, taking the concept of unity as an example. These mnemonics were, therefore, originally called by the author unscheduled mnemonics. But on the suggestion of Palmer and Wells, he has designated them quite appropriately as seminal mnemonics.

Regarding the difference between scheduled mnemonics and seminal mnemonics, the author observes thus: "Following the usage brought into vogue by Berwick Sayers and others, representation of the same idea by the same number, wherever it may occur, is described as mnemonic use of notation. The Geographical, Chronological and Subject Devices are obvious means of securing mnemonics. As the digits representing geographical, chronological and subject divisions are already scheduled in a scheme, the mnemonics secured by their use are called scheduled mnemonics.

"In unscheduled mnemonics, there is no such recorded schedule to compel mnemonic use of digits mechanically. On the other hand, in order to be aware of it and to apply it, there is need to develop a subtle sensitiveness to recognise certain primordial patterns which inhere at great depths below the diversity of their manifestations in the phenomenal world and in arrays of coordinate divisions in facets of subjects." [48]

Examples of seminal mnemonics: To illustrate one such pattern, we have — structure, function, fault in structure or function, correction of faults. In Biological sciences, these manifest themselves and are denoted by the terms — morphology, physiology, pathology, remedy (therapeutics or treatment). In Sociology, these manifest themselves as social structure, social activities, social pathology and correctives (treatment).

By unscheduled mnemonics is meant the representation of these parallel ideas or analogues in the Biological sciences and Sociology by the same digits. In CC, the digits used for these ideas are:

  2 for structure and its analogues;
  3 for function and its analogues;
  4 for fault and its analogues;
  6 for correction and its analogues.

Thus:

6 Morphology in Biological Sciences

CC
G:2	Morphology of living organisms
I:2	Morphology of plant kingdom
J:92	Morphology of cultivated plants
K:2	Morphology of animal kingdom
KX:2	Morphology of livestock and domestic animals
L:2	Morphology of human body
Y:2	Physical character and feature of individuals in a society

7 Gestalt Value of Digits in Class Numbers

"In the natural language, there is no common term (word) by which all the analogues can be denoted. The classificatory language provides, however, a common term in the form of a digit by which they can all be denoted. What exactly the digit means in natural language when it occures in a particular subject, is determined by its Gestalt Value in its class number, i e, the value or meaning determined by the pattern of the class number. When the number of the particular subject occurs in the Gestalt, it is merely to be read with the name of the subject so that the notation in question yields the Weaning of the digit appropriate to the context." [49].

71 THE DIGIT 3

For example, in Sociology, the digit 3 yields the meaning of social activity as shown below :

CC
Y72:3   Primitive social activity

In Linguistic, it yields the meaning of Syntax as shown below :

CC
P12:3   Latin Syntax

Other analogous meaning represented by the digit 3, in other subjects, may be illustrated as below :

Analysis or analytical method.

CC
B13:3   Analytical method in Theory of numbers
B3   Mathematical analysis
E:3   Analytical chemistry

Technique

CC
△:3   Technique of Mysticism
T:3   Teaching technique

Legislature, Function in History and Political science

CC
V,3   Legislature in practice
W,3   Legislature in theory
V:3   Functions of the State in practice
W:3   Functions of the State in theory

A study of these examples discloses deeper mnemonics pervading these numbers. From these examples, we see that the digit 3 is used as mnemonic for analysis, technique, function, syntax, legislature, and activities. It is also used as mnemonic for physiology, transformation, propagation method, theology and distribution.

8 Analogues in the Idea Plane

"These are all analogues or parallels in the idea plane. They are, therefore, denoted by the same digit in the notational plane. In

the idea plane 'function' and its analogues are easily seen to stem from a common-root. No doubt, in the verbal plane of natural language, the term used to denote this root-idea is not the same in all the subjects. On the other hand, the term varies with the subject in which it manifests itself as an isolate; while in the notational plane, the root-idea is denoted by the same digit irrespective of the subjects in which it manifests itself as an isolate." [50]

As already stated, this phenomenon is denoted by Dr. Ranganathan by the term 'Unscheduled Mnemonics' or 'Seminal Mnemonics'.

91 Principle Underlying Seminal Mnemonics

The principle underlying seminal mnemonics is put in brief by the author thus: "An idea can and does exist without a word to denote it in its bareness and purity, though when viewed in the context of different particular subjects, its different contextual transforms do get expressed by different words. It is the translation of all such equivalent words into one and the same digit which is sought by unscheduled or seminal mnemonics."

92   ONE-MANY KIND RELATION

As we have seen, the relation between the digits of a classificatory language and the words of a natural language is of the one-many kind. Illustrations are given below.

921 THE DIGIT 3

R3   Metaphysiscs
S:3   Characters of consciousness.

922 THE DIGIT 5

C25   Liquid
F555   Petroleum
G:5   Ecology of life in general
I:5   Ecology of plants
K:5   Ecology of animals
I,35   Sap of plants
R5   Aesthetics
S55   Psychology of women
T55   Education of women
Y15   Sociology of women

Z,115	Woman as a legal person or law of women
U25	Oceanography
T35	Foreigner as an educand
V2:45	Relation of the State of the Indian Republic with a foreigner
W:45	Theory of the relation of the State with a foreigner
Y55	Alien as a social person
Z,135	Alien as a legal person

923 THE DIGIT 7

C7	Magnetism
S:7	Personality of an entity
Y:7	Personality of a social person or a social group
G:7	Ontogeny of living organism
I:7	Ontogeny of plants
K:7	Ontogeny of animals
L:7	Ontogeny of human body
P155, M7	Pieces of composition in modern Marathi language
P155,M6:7	Composition of sentences in modern Marathi language
P155, M76:7	Composing prose pieces of composition in modern Marathi language
V2:67	Literature as a source of Indian history

93 AUTONOMY OF CLASSIFIER

These scheduled and seminal mnemonics are a great asset to CC. They give considerable autonomy to the classifier. An enumerative scheme like DC is unable to do so. In the case of such a scheme, the classifier has to look to the classificationist for a class number to be given to any new subject not included in the existing schedules of the ready-made class numbers.

"The universe of knowledge is dynamic. It repeatedly throws forth new subjects. This makes the utter dependence of the classifier on the classificationist offend against the Laws of Library Science. For books embodying new subjects may have to be kept away from public use till the arrival of the class number from the classificationist, or they may have to be given class numbers of greater extension than the embodied thought would warrant.

"A scheme satisfying the Canons of Scheduled and Seminal Mnemonics and using the Sector Device, Decimal Fraction Device, Facet Device and Phase Device, gives some autonomy to the classifier. At the same time there is a high probability of the same class number being hit upon by every classifier to denote a new

subject. Of course, the classifier must be well disciplined in the grammar of the classificatory language chosen. He should also have been attuned to the feel of seminal equivalences. The autonomy of the classifier has been put in other words thus: "A scheme of classification should be self-perpetuating" and "Each new subject should bring its own class number in its pocket."

"The peculiarities of the infinite universe of knowledge are that many classes, now unknown and unknowable, will be known and will call for a helpful place and an appropriate class number from time to time in the future. A new class may present a new facet, not found scheduled in the scheme; or a facet of it, though already found scheduled, may present a focus not listed in the schedule. Then one of two things may happen. It may call for a new focus in an array already scheduled, or it may call for a new array to be formed.

"In an enumerative scheme, the classifier has to depend on the classificationist to find the number for the new class. He cannot create it by himself. Until he gets the number from the classificationist, he will have to give it a temporary number, more extensive than the one which would closely fit the new class. But in an analytico-synthetic scheme, the classificationist would have given rules of procedure to analyse the subject in the idea plane, to arrange the resulting facets in a definite sequence, and then to look up the schedule for translation into numbers. The further rules implementing the canons of classification, particularly those relating to mnemonics, will help in the putting up of a new schedule, or the extension of an existing array in the schedule, or the lengthening of an existing chain in the schedule, whatever is demanded by the new class. The classifier need not wait for the number to be given by the classificationist. He can create the number by himself. An analytico-synthetic scheme gives this much autonomy to the classifier, in the classification of books embodying macro-thought. The CC gives this autonomy to the classifier in an appreciable manner."

On the same point, i e, in regard to the autonomy of the classifier K M Shivaraman in his booklet entitled *Colon System and its working* (1944) observes thus: "Classifiers endowed with greater power and fired with more ambition can even venture to determine the facets and foci appropriate to them in the endless canonical

classes of Useful Arts as they attract more and more of literature. It would be wise however that the result at this level is not finally fixed without collaboration by the classificationist." Examples:

94 NEW CLASS AND ITS FACETS

. An example of a new class presenting a new facet, not found scheduled in CC is given by the author in his *Philosophy of library classification*. The new subject concerned is 'Package manufacture', i e, the art of making packets, bundles or parcels useful for packing goods. The class number for packing is under 'Transport—processes' in Economics. It is written thus: X:41. The class number for the manufacture of package will be constructed on the basis of scheduled mnemonics by (SD) under M Useful Arts thus:

M(X:41)   Package manufacture.

This number is fitted with Facet Formula by Mr A J Wells, the editor of the British National Bibliography, using autonomy of classifier thus:

M(X:41) [P] ; [M] : [F]
or
M(X:41) [P] ; [M] : [E]
In this facet formula

P = Part of the Package Facet or [P]
; = (CS) for [M]
M = for [M]
: = (CS) for Fabrication Facet, i e, the process of manufacture facet or [E]
F = Fabrication Facet or [E]

The facets in the formula are arranged on the basis of the Postulate PMEST.

Mr Wells used the Principle of Seminal Mnemonics in fixing the foci in the fabrication facet of this subject thus: He assigned the digit 2 to the act of making a package; 21 is assigned to moulding (producing a required shape); 22 is assinged to extending, etc. The digit 2 was selected because it is used mnemonically for structure, morphology, etc, and the processes of making a package decide its structure. The digit 4 is assigned to faults in a package. The digit 4 is used mnemonically for pathology, disease, etc, and fault is an analogue of these ideas. The digit 5 is assinged to decoration. The digit 5 is used mnemonically for aesthetics, women,

emotion, etc, and decoration is an analogue of these ideas. The digit 7 is used for filling package. This is the operation which leads to the fulfilment of the purpose of the package and it is at this stage that it attains to the fulness of its personality. The digit 7 is used mnemonically for personality, ontogeny, etc.

95   SHARPENING ISOLATE

Now let us illustrate an example of a facet of a specific subject not listed in the schedule but can be obtained on the basis of seminal mnemonics by using autonomy of classifiers. This example is given by the author in his *Philosophy of library classification*. The name of the book is *Pollen grains*, etc, by Wodehouse. Pollen means the male element of plants. In the Organ Facet of Botany, we find the focus 16 assigned to flower among the foci under the (IN) 1 standing for basic and regional organs. The next recorded focus is 17 assigned to fruit, which is coordinate with 16 flower. Since pollen is a part of flower, the focus 16 needs sharpening. Since the function of pollen is to help promote phylogeny and since phylogeny is one of the analogues represented by the digit 6, the number for pollen can be fixed as 166. In Biology, this digit is assigned to phylogeny. So the number for the book is written thus: I5,166.

96   COGNATE FOCI

When the same digit is involved for sharpening a focus more than once, i e, when more than one focus in its first order array has claim for one and the same digit, these foci are assigned to different sectors in that array. Such foci are called Cognate Foci, i e, foci similar in kind. Generally speaking, the focus assigned to the first sector is believed to attract more literature to itself than the one assigned to the second sector. Similarly, the latter is expected to attract more literature than the focus assigned to the third sector, and so on. There may thus be a parallelism of unscheduled mnemonics in the different sectors even as there is a parallelism in the quality of the notes in successive sectors of the musical scale. And the sectors are generally speaking in decreasing order of bibliographical richness even as there is a decreasing order of intensity in the secondary, tertiary, etc, spectral lines, i e, the lines of the images of light as investigated by Sir C V Raman and known

by his name. In general, this order will be the same as the order in which the cognate foci come to be written upon.

To give an example, there is a book entitled *Earth, radio and the stars* by H T Stetson. In this book, the author has given a detailed study of Cosmic ecology which means Ecology of the Universe, i e, the study of the heavenly bodies in relation to each other. This subject is a specific subject belonging to Astronomy. But among the listed foci of the problem facet, Ecology did not occur upto ed 3 of CC. Ecology first originated as a problem in Biology. In the problem facet of Biology, it stands against the number 5. But the problem facet in Astronomy had already used 5 to represent Spherical astronomy that is concerned with the position of the heavenly bodies regarded as points on the observers's celestial sphere and thus the digit 5 in the first sector was already used up. But in the second sector, the digit 5 was not used. The author, therefore, fixed 95 as the number for Cosmic ecology in the problem facet of Astronomy on the basis of the Canon of Seminal Mnemonics. This number was printed in the schedules of ed 4 and 5. In ed 6, the number 95 is assigned to Radio astronomy on the basis of the same Canon; and the subject Cosmic ecology is transferred to the third sector and the number 995 is assigned to it. Radio astronomy studies heavenly bodies by observations of the radio waves that they emit. This subject also deals with the ecological aspect of the universe and therefore, it is individualised by the digit 5 which stands for Ecology in the second sector. The number 95 assigned to Radio astronomy in the second sector and the number 995 assigned to Cosmic ecology in the third sector are based on the Principle of Cognate Foci in any array.

In DC, there is no number for Cosmic ecology; and the subject Radio astronomy is arbitrarily made a subdivision of Astrophysics and the class number 523.016 is assigned to it. In this class number 523.01 stands for Astrophysics and 523.016 stands for Radio Astronomy. The subject Astrophysics is that part of Astronomy which deals with the physical characteristics of the stars. CC has made Astrophysics as a focus in the problem facet of Astronomy and the isolate number 6 is assigned to it. The class number for Astrophysics in CC is written thus:

B9:6   Astrophysics.

The class numbers for the three cognate foci are written as shown below:

B9:5   Spherical Astronomy
B9:95   Radio Astronomy
B9:995   Cosmic Ecology

97 AUTONOMY FOR CLASSIFIER

Regarding the autonomy for the classifier, the author of CC observes in his *Classification and International Documentation* thus: "The adoption of facet analysis gives another advantage. It is sufficient if the schedules of the scheme of classification enumerate for each subject the foci in each of its facets with the numbers representing them. These foci correspond to the fundamental divisions of the subject. By combining them as prescribed by the facet formula, i e, by lamination several specific subjects can be derived. Enumeration of only m + n fundamental specific subjects under a subject enables the construction of m × n additional specific subjects. Algebra shows that m × n is greater than m + n. Thus, the schedule space becomes much smaller than will be required if all the m × n + m + n specific subjects are to be listed. Apart from this advantage, which may be regarded as trivial in one sense, all the m × n specific subjects may not have taken shape at the present time. But they are provided for in anticipation. The result is that, when any of them does appear and attract a book or an article on it, the classifier can fix its class number on his own initiative, without awaiting the sanction of the classificationist. All that he has to do is to examine the new specific subject and if it proves to be a laminated one, i e, requiring the combination of foci from different facets, analyse it with the aid of the facet formula appropriate to it, find out the focus in each facet and build its number accordingly.

"Again a new specific subject formed in the field of knowledge may be a laminated one. When it is analysed into facets and the foci in the several facets are determined, it may happen that one or other of these foci has not been assigned its number in the schedule of classification. In that case it is only the classificationist that must fix its number. This means a hold up of the work of the classifier or the assignment of a class number which does not indi-

vidualise the subject. It is true that the proportion of such refractory laminated specific subjects is small. But they occur sufficiently often, to justify asking that a classificatory language should have some automatic mechanism which will enable the classifier to find the correct number for unscheduled foci. The CC seeks to provide such a mechanism in what are described as 'Scheduled and Unscheduled Mnemonics'."

PART S

FACET ANALYSIS

FACET ANALYSIS

1 Preliminary

Dr Ranganathan's chief contribution to the general theory of classification is 'Facet Analysis'. According to him, 'Facet Analysis' is a mental process by which the possible trains of characteristics which can form the basis of classification of a subject and the exact measure in which the attributes concerned are incident in each facet of the subject are determined.

The concepts of 'Facet', 'Focus', 'Isolate', 'Main class', and 'Basic class' were first introduced by Dr Ranganathan in his *Library classification*: *Fundamentals and procedure*. These concepts and the terms in which they are expressed have been found to be more elegant than "Train of characteristics" and "Part of the class number corresponding to a single train of characteristics" which were first used for these ideas in CC.

11 FACETS INTRINSIC IN SUBJECTS

Regarding 'Facets', Dr Ranganathan observes thus: "It must be emphasised that facets are not qualities of class numbers alone; nor are they peculiar to the scheme of classification used. On the contrary, facets inhere in the subjects themselves, whether we sense them or not. Subjects will be helpfully featured, and their arrangement will be made filiatory and helpful within any scheme of classification, if such a scheme is based upon facet analysis, and if the class numbers reflect the facets properly. Particularly will this be so, if the method of building class numbers admits of each facet being kept intact, and of its focus being sharpened to any desired degree, as is the case in CC. It should not allow the dismemberment and scattering of a facet, nor the alternation of facets in order to arrive at the required sharpness of focus in each facet, as happens in DC."

12   How CC Follows this Method

This method of analysing a subject is consistently followed in CC. In fact, the whole structure of the Scheme is based on facet analysis. The scheme provides facet formulas as a guide for the classification of (BC) and under each facet, a schedule of fundamental constituent terms derived by the use of a single train of characteristics is provided. An example is given below.

2   Geography in CC

The facet formula given as a help for the classification of Geography consists of three facets, viz,

1   Factors of Geographical Study or simply Geography;
2   Geographical Division; and
3   Chronological Division.

These three characteristics yield the three facets of the facet formula. The divisions and subdivisions within these facets are termed foci. The parts of the class number representing the foci in the respective facets are the foci of the respective facets in the class number.

3   Facet Formula

The facet formula found at the head of the schedules for the (MC) Geography is

$$U [P] . [S] ' [T]$$

In this facet formula

U	=	Geography
P	=	[P] or Geography Facet
.	=	(CS) for [S]
S	=	[S] or Geographical Facet
	=	(CS) for [T]
T	=	[T] or Chronological Facet

The divisions in [P] read as shown below:

1	Mathematical geography	5	Political geography
2	Physical geography	6	Economic geography
3	Biogeography	8	Travel. Expedition. Voyage
4	Anthropogeography		

4 How a Class Number is Constructed ?

If we want to construct a class number for the specific subject 'Economic geography of India brought upto 1960's' we have first to analyse the specific subject into facets as shown below:

[Geography] [Economic geography] . [India] ' [1960's]
This analysis of the name of the subject into facets amounts to reducing it to a 'skeleton form'. This skeleton form really separates the terms in the name of the subject in accordance with the respective trains of characteristics of classification to which each of them relates. In the present example

1 Economic geography relates to the Factors of Geographical Study Characteristic;
2 India relates to the Geographical Division Characteristic; and
3 1960's relates to the Chronological Division Characteristic.

The skeleton form of the name of the specific subject suggests the appropriateness of saying that it has three facets. We may say that

1 Economic geography is a focus in the Geography Facet or [P];
2 India is a focus in the Geographical Division Facet or [S]; and
3 1960's is a focus in the Chronological Division Facet or [T].

The class number according to this analysis is constructed as shown below:

U6.2'N6

5 Advantages of the Method

Thus, the formula fixed for the classification of Geography helps us to analyse any subject in the (BC) Geography and give an appropriate class number to it. This method has to be followed in constructing class numbers for subjects. Unless the facets of a subject are properly analysed, it would not be possible for us to give an appropriate class number for it. This method also takes us deep into the subject. For classifying books according to this method, understanding the meaning and appropriate field of the subject is quite essential. This enables the classifier to develop familiarity with the special technicalities of the various fields of knowledge which may not be equally easy and compelling, if we classify books by an enumerating scheme of classification.

6 Economics in CC

In a subject in (BC) Economics, different facets may occur corresponding to different trains of characteristics. The foci will be distinctly shown in a class number by putting the relevant (CS) after everyone of them.

At the beginning of the chapter X giving the schedules for Economics, occurs a Facet Formula. This facet formula indicates the facets likely to occur in a subject in the (BC) Economics. These facets are

[P]	=	Business Facet
[E]	=	Problem Facet
[S]	=	Geographical Facet
[T]	=	Chronological Facet

The facet formula indicates also the sequence in which the facets should be arranged.

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FACET ANALYSIS

Step 0 Full Title

Write down the raw title. i e, the name of the subject as it is found in the title of the document.

Step 1 Full Title

Fill up the elegant, i e, container of stores in this if any, in respect of the (BC) number of the subject: otherwise, leave it in the title; and break up the derived compound terms if any into

CHAPTER S2

STEPS IN TRANSLATION

1 Title of the Book

To determine the subject of a book as a preliminary to translating it into classificatory language, we have first to examine the title, contents page and preface or the whole book in this sequence as far as may be necessary. The work of the classifier falls into two parts, viz,

1   determining the subject of the book, and

2   translating its name into class number, just as any other translator must first understand his text and then express the meaning in another language.

In most modern scientific books the title is reliable to infer the subject. But in other types of books, i e, works of literature and older classics in other domains as well (especially oriental ones), the title is often (1) Fanciful, (2) Oblique, i e, indirect or allusive, i e, not fully expressed, (3) Partial, (4) Ambiguous, (5) Understated, (6) Overstated, (7) Elliptical, i e, having some important words omitted, or (8) Misleading in other ways.

2 Facets of a Subject

We know that Personality, Matter, Energy, Space and Time are the different types of facets that may occur in a subject. An example of a subject in which all such facets occur is — "Fluctuation of the value of gold currency during the second world war".

3 Procedure for Classification

For analysing the title of a specific subject into facets and for giving to it an appropriate class number, the author has prescribed a procedure involving nine successive steps for translating the name of the subject. The steps are as given below.

Step 0 *Full Title*

Write down the raw title, i e, the name of the subject as it is found in the title of the document.

Step 1 *Full Title*

Fill up the ellipsis, i e, omission of words in the title if any in respect of the (BC) or any (I) which may not be explicitly stated in the title; and break up the derived composite terms if any into their fundamental constituent terms corresponding to the five (FC). If the raw title does not indicate the period or epoch covered by the subject, it should be added to it. The words so inserted should be put within inverted commas. This will be full title of the document.

Step 2 *Kernel Title*

Kernel title means the title which consists of the important terms that are sufficient to indicate the exact name of the subject. The original meaning of the term 'Kernel' is 'the seed of a fruit especially when enclosed within a hard husk or shell'. Figuratively, it means the essential point or the central part of anything. Omit all the auxiliary words; replace all the inflected words by their nominative forms, and thus reduce the title to telegraphic style, so to speak. The title thus arrived at will look like a skeleton or telegraphic version of the name of the subject.

Step 3 *Analysed Title*

Analyse the expression in step 2 into basic class and personality, matter, energy, space, time and anteriorising common isolates. Determine their respective rounds and levels, and mark the facets by symbols showing their nature in accordance with the scheme of symbols as indicated below :

(BC)	Basic Class
[P]	Personality facet of round 1, level 1
[P2]	Personality facet of round 1, level 2
[P3]	Personality facet of round 1, level 3
[2P]	Personality facet of round 2, level 1
[2P2]	Personality facet of round 2, level 2
[3P]	Personality facet of round 3, level 1, etc
[E]	Energy facet of round 1
[2E]	Energy facet of round 2
[3E]	Energy facet of round 3, etc

[S]   Space facet of level 1
[S2]   Space facet of level 2
[T]   Time facet of level 1
[T2]   Time facet of level 2
(ACI)   Anteriorising Common Isolate
(2ACI)   Second Anteriorising Common Isolate

• *Step* 4 *Transformed Title*
Rearrange the facets with the (BF) first, the (ACI) along with their own facets in their respective semantically appropriate places as determined by the rules of constructing class numbers of the symbolic classificatory language, the rounds in their numerical sequence, the levels of each (FC) in a round consecutively in the numerical sequence of their levels and the manifestations of each (FC) in a round in the numerical sequence of their levels.

Step 5 *Title in Standard Terms*
Replace all the terms surviving in step 4 by their standard equivalents as found in the schedules of classification in use. Retain the symbols marking the facets.

Step 6 *Title in Facet Numbers*
Translate each facet term into its facet number with the aid of the schedules of classification. Retain the symbols marking the facets

Step 7 *Class Number*
Remove the symbols marking the facets; and insert before the respective facet numbers the appropriate (CS), if any.

Step 8 *Digit by Digit Interpretation*
Give digit by digit interpretation of the class number.

4 Practical Classification

Classifying books according to this procedure is 'Practical Classification'. Regarding the steps prescribed for translating the names of a specific subject into the symbolic classificatory language, the author observes thus: "A beginner will do well to practise classifying by easy steps. There are normally nine steps. He should dwell consciously for some time on each step. No doubt this will enable him to observe the working of his own mind during the process of

classifying. It is good to become thoroughly familiar with the details of the process of thinking in this manner. After classifying a large assortment of books in this slow and conscious manner, the steps, the postulates, the canons, the principles, and the picking up of the appropriate one of these at each step will all be woven into a kind of reflex action. After such a reflex action gets established, the steps will all be gone through automatically, in a trice. Then a normal book can be classified almost instantaneously. How long will it take to reach this stage? It will depend on the individual. Some may take to it almost immediately as duck to water. But most people should have the patience to do each step slowly and consciously for a few dozen books of each grade of complexity. Wisdom lies in regarding oneself as belonging to the slower type of classifiers and not behaving as if one were a duck." [51]

5 Example

Now let us follow this procedure for constructing the class number for the subject ' Fluctuation of the value of gold currency in the Second World War.'

50 STEP 0 : RAW TITLE

Fluctuation of the value of gold currency during the Second World War.

51 STEP 1 : FULL TITLE

In the raw title, the Basic Class 'Economics' is implied. This should be supplied.

The isolate 'War Economics' of [P] is implied. This should also be supplied.

The term 'Second World War' is a derived composite term. The fundamental constituent terms 'War Economics', 'World', and '1940's' are to be taken as implied in it. So it must be broken into them.

This is an example of an Elliptical Title.

We, therefore, write down the full title as shown below : Fluctuation of the value of gold currency in War Economics in Economics in the world in 1940's.

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52 STEP 2 : KERNEL TITLE

The words 'of' and 'in' are prepositions and the word 'the' is a definite article. They are only auxiliary words. They are not essential to the indication of the subject. We, therefore, omit them and write down the kernel title as shown below :

Fluctuation. Value, Gold. Currency. War Economics. Economics. World. 1940's.

53 STEP 3 : ANALYSED TITLE

The kernel term 'Economics' denotes the focus in the Basic Facet. Therefore, the symbol (BC) should be added after it.

The kernel term '1940's' denotes the focus in the Time Facet. Therefore, the symbol [T] should be added after it.

The kernel term 'World' denotes the focus in the Space Facet. Therefore, the symbol [S] should be added after it.

The kernel terms 'Fluctuations. Value' stand for ' Business Cycle'. They, therefore, denote the focus in the Energy Facet. Therefore, the symbol [E] should be added after them.

The kernel term 'Gold' denotes the focus in the Matter Facet. Therefore, the symbol [M] should be added after it.

The kernel term 'Currency' stands for 'Money'. It, therefore, denotes the focus in the Personality Facet. This Facet becomes Second Level Personality Facet on the basis of the Principle of Telescoped Facet and, therefore, the symbol [P2] should be added after it.

The kernel term 'War Economics' denotes the focus in the Personality Facet. Therefore, the symbol [P] should be added after it.

We, therefore, write down the analysed title as shown below:

Fluctuation Value [E] Gold [M] Currency [P2] War Economics [P] Economics (BC) World [S] 1940's [T]

This is called facet analysis.

54 STEP 4 : TRANSFORMED TITLE

There is not more than one manifestation of any one fundamental category. By the Postulate of Sequence (Section G05611), the facets should be arranged in the sequence (BC) [P] [M] [E] [S] [T].

FACET ANALYSIS

The arrangement of the facets thus arrived at, may be shown as below:

Economics (BC) War Economics [P], Currency [P2] Gold [M] Value Fluctuation [E] World [S] 1940's [T]

55 STEP 5 : TITLE IN STANDARD TERMS

Economics (BC) War Economics [P] Money [P2] Gold [M] Business Cycle [E] World [S] 1940's [T].

56 STEP 6: TITLE IN FACET NUMBERS OR FOCAL NUMBERS

X(BC) B[P] 61 [P2] 1 [M] 74 [E] 1 [S] N4 [T]

57 STEP 7 : CLASS NUMBER OR TITLE IN SYNTHESISED FOCAL NUMBERS

XB, 61;1:74.1'N4

58 STEP 8 : DIGIT BY DIGIT INTERPRETATION OR VERIFICATION BY REVERSE TRANSLATION

In this step, we have to give digit by digit interpretation of the class number as shown below:

X	=	Economics
XB	=	War economics
XB,	=	(Transition to the next [P2]
XB,6	=	Credit transactions in War economics
XB,61	=	Money transactions in War economics
XB,61;	=	(Transition to the next [M])
XB,61;1	=	Gold currency in War economics
XB,61;1:	=	(Transition to the next [E])
XB,61;1:7	=	Value of gold currency in War economics
XB,61;1:74	=	Business cycle of gold currency in War economics (Fluctuation of the value of gold currency in War economics)
XB,61;1:74	=	(Transition to the next [S])
XB,61;1:74.1	=	Business cycle of gold currency in War economics in the World
XB,61;1:74.1'	=	(Transition to the next [T])
XB,61;1:74.1'N	=	Business cycle of gold currency in War economics in the World in the 20th century
XB,61;1:74.1'N4	=	Business cycle of gold currency in War economics in the World in 1940's.

which is the same as 'Fluctuation of the value of gold currency during the Second World War.'

PART T

THEORY OF BOOK CLASSIFICATION

BOOK CLASSIFICATION

1 Book Classification

Book classification denotes the classification of documents falling within the same ultimate class of knowledge. The ultimate class of a document is the class of the least extension of the scheme of knowledge classification adopted, in which it may be placed. The documents—i e, books, periodical publications, micro-films, etc—having the same ultimate class cannot be differentiated among themselves and arranged in a definite sequence by any further subdivision of the universe of knowledge. This is the implication of the definition of the ultimate class. They will, therefore, have to be subdivided, not on the basis of subject matter, but on the basis of other appropriate characteristics or trains of characteristics as indicated in the facet formula for Book Number in CC.

As compared with knowledge classification, book classification is relatively simple. It should bring together:

1 all the copies of a document,
2 all the volumes of a multivolumed document,
3 all the supplements of the host document, and
4 all the documents on a pedestrian book, i e, an ordinary book, be it a review, or a criticism, or an appreciation, or a parody, or any other kind of dependent document.

2 Helpful Sequence of Documents

It is also desirable that book classification should arrange all the documents in the same ultimate class of knowledge in a helpful sequence. Helpfulness of sequence requires that the documents in the same language and in the ultimate class should come together. Further, these documents should be arranged among themselves either by the year of publication or by the name of the author. Arrangement by year of publication will, generally speaking, be helpful in the long run. It will be particularly so, as the library

ages. This will make the current books come last and the oldest books come earliest.   This will be helpful in the case of pedestrian books. The one possible danger is that different editions of a classic will get separated. This conflict cannot be resolved by book classification alone. But it can be easily resolved by knowledge classification by making a classic, a quasi class, i e, an artificial class as it is termed. From this point of view, alphabetical arrangement by names of authors is not as helpful as chronological arrangement by year of publication. Moreover, in a substantial number of documents, there is a conflict of authorship, posing a greater difficulty in its determination than in the determination of the year of publication.

3 Canons for Book Classification

The theory of book classification requires five additional canons to be observed. They are:

1 Classics (Canon 29)
2 Local Variation (Canon 30)
3 Book Number (Canon 31)
4 Collection Number (Canon 32)
5 Distinctiveness (Canon 33)

CHAPTER T1

CLASSICS (CANON 29)

0 A Classic

A classic is a work usually appearing in several versions. It may have several adaptations and translations. It may inspire other works on itself; and it may also repeatedly come in print even long after its origin.

01 ENUNCIATION

The Canon of Classics is enunciated thus: "A scheme of book classification should have a device to bring together all the editions, translations, and adaptations of a classic, and next to them all the editions, etc, of the different commentaries on it, the editions, etc, of a particular commentary all coming together, and next to each commentary all the editions, etc, of the commentaries on itself in a similar manner (which are commentaries of the second order), and so on."

1 Implications of the Canons of the General Theory of Classification

The canons of the general theory of classification imply that all the books on all the various schools of thought, deriving from a given enunciation of fundamentals in a basic text, should be arranged in a filiatory sequence. Thus, the Canon of Classics is a corollary from the canons of the general theory of classification. The books relating to a class, form a family—an hierarchy. The canons for filiatory sequence should, therefore, be respected in arranging the books in such a family. The Canon of Classics merely spells out how it should be done in the case of the family of a classic.

2 Classic Device

The special apparatus employed by CC to fulfil this Canon is in

the form of the Classic Device which is enunciated thus: "The Classic Device is employed for bringing together the different editions of a classic in a class, the different editions of each of its commentaries, the different editions of each of the subcommentaries of each of its commentaries, and so on, and of securing that the group of sub-commentaries of a commentary is in juxtaposition to the commentary, that the group of commentaries of a classic is in juxtaposition to the classic, and that the group formed of each classic and its associated commentaries is in juxtaposition to the group of the other classics of the same class."

3 How this Device is Employed

The Classic Device consists in putting the digit small 'x' after the number representing the ultimate class to which the classic should be otherwise assigned and adding after it an Author Facet and also a Work Facet, if we cannot be certain that the author wrote only one work, provided the classic is not a sacred book or a work belonging to the (MC) O Literature, as these are individualised otherwise. In the class number of a classic, Author and Work Facets are personality facets. But the connecting symbol comma (,) need not be put between small 'x' and Author Number. The (I) in the author facet of the class number may be determined by the Favoured Category Principle for not more than 16 classical authors and by (CD) as in the (MC) Literature, for the others. The (I) in the work facet is to be determined as in the work facet of the (MC) Literature. A commentary facet may be added after the work facet. The (I) in it may be determined by the Favoured Category Device for not more than 16 commentaries and by (CD) for the others. Second order commentary facet, third order commentary facet, etc, may be added successively after the first order commentary facet. The (I) in them may be determined as in the first order commentary facet. All commentary facets are personality facets.

4 Purpose of the (CLD)

Regarding the purpose of the (CLD) in classification the author observes in the *Prolegomena* thus: "There are certain ineffable elements in the experiences and thought of men which cannot be communicated by any external means, but can only be experienced

by each one independently. Poetry, Painting, Sculpture, Music and other Fine Arts and Symbolism of all kinds can only communicate these elements partly. According to the well-known dictum current in literary criticism in Sanskrit, there is more in what is suppressed than in what is expressed. Mahamahopadhyaya S Kuppuswami Sastriar used to emphasise this with the words "There is more in suppression than in expression." A fathomless poem like the premier poem, the *Ramayana* of Valmiki, illustrates this unmistakably. The ineffability of experience in this sphere is traceable to its being trans-intellectual. Classification should abstain from analysing such ineffable elements of trans-intellectual experience. It should treat them as wholes. This is the purpose of Classic Device in classification." [52]

5 Advantages of the Classic Device

Regarding the advantages of the Classic Device, the author observes thus: "The problem that the Classic Device seeks to tackle is frequent in the case of classical works written in Sanskrit. There are also some cases of Occidental Classics—such as the classics of International Law and the Greek and the Latin Classics —which may more conveniently be grouped by the Classic Device. One result of the application of the Classic Device is that the classic becomes a class by itself. Hence its different editions come together with the book number differentiating them. In the case of a classic, several editions are likely to appear even at distant dates. But for this Device, they will get scattered and intermingled with ordinary books in the same class. Such an intermingling is bound to be revolting to the mind of readers. It is certainly not desirable that Aristotle's *Poetics* or Dandin's *Kāvyādarśa* should be indiscriminately clubbed with the ordinary modern books on Literary Criticism. Nor will it be happy to mix Śankaracharya's works on Indian Philosophy with the modern text-books on this subject. It frequently happens, particularly in works in the Sanskrit language that the classic gets many commentaries which themselves become classic and get many editions and sub-commentaries. All the Laws of Library Science will be best served if and only if the whole family of commentaries and sub-commentaries are grouped together and placed next to the different editions of the classic itself.

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Usually the commentaries and sub-commentaries carry forward the theories contained in the classic. This carrying forward is done step by step in the hierarchy of commentaries and sub-commentaries. Hence, the happy grouping of a classic with its commentaries and sub-commentaries brought about by the Classic Device, incidentally arranges the books in the proper evolutionary sequence. This adds greatly to the convenience of readers—nay it is even educative." [53]

6 Inherent Qualities of a Classic

"A book that stimulates other books and literature on itself is a classic. The inherent qualities of a classic that stimulate such auxiliary literature are that (*a*) it has elements of permanent value, (*b*) it is saturated with the personality of the author—which in itself was very powerful and highly organised; and (*c*) it is a seminal book cutting new ground, blazing new trail, stimulating new thought and so on."

Examples :

7 Grammar of Classical Sanskrit

A basic text for the grammar of classical Sanskrit shows different new schools of thought formulated in different chains of commentaries as shown below.

The basic text referred to is Pāṇini's *Aṣṭādhyāyi*. Its class number is written thus: P15, C*x*1,1. In this class number

P = Linguistics
15 = Sanskrit language
, = (CS) for [P2] or stage of language facet
C = 1st millennium B C which indicates the stage or period of classical Sanskrit during which period the work was written
x = (CI) number indicating that the work is a classical work
1 = Pāṇini who was the first Sanskrit grammarian. This number is given on the basis of the Favoured Category Principle. This is [P 3] or Author Facet
, = (CS) for [P4]
1 = *Aṣṭādhyāyi* which is the first work of Pāṇini.

Under this basic text, different chains of commentaries can be shown as below:

First Chain: The first chain belongs to the school of Kātyāyana

or Vararuçi who is the author of the commentary named *Vṛtti*
The class number for this commentary is written as shown below :

P15,Cx1,1,1   Kātyāyana or Vararuçi. *Vṛtti.*

In this class number, the third digit 1 after *x* stands for the first
commentary on *Aṣṭādhyāyi*. It stands as the [P5] and hence there
'is a comma(,) behind it. The mode of giving class numbers to
classics is similar to that of the literary authors in the Literature
Class.

Second Chain: The second chain belongs to the school of Pa-
tanjali who is the author of the commentary named *Mahābhāṣya*.
The chain formed by this commentary may be shown as below:

P15,Cx1,1,2   Patanjali. *Mahābhāṣya*
P15,Cx1,1,2,1   Kaiyyaṭa. *Mahābhāṣya-pradipa*
P15,Cx1,1,2,1,1   Nāgoji Bhaṭṭa or Nageṣa Bhaṭṭa. *Mahābhāṣya-pradipoddyota*

According to DC, all these works will have to be classed under
a single class number assigned to the grammar of the Sanskrit
language. The class number for Sanskrit grammar is written thus
491.25.
Other examples of classics.

(1) Aristotle's *Poetics* (Theory and Art of Greek Poetry)
(384-322 B C). This work is a critical classical work on the Theory
and Art of Greek Poetry. Its class number is written as shown
below:
O13,1:*g*x1,1. Aristotle is taken here to be the first writer on the
subject. Though this is the only work of Aristotle on the Theory
and Art of Greek Poetry, still it is essential to individualise it by
the work number and hence the digit 1 in the class number represents
this work.

The DC number for Aristotle's Poetics is written thus: 881.01.
In this class number 881 stands for Greek Poetry; and 01 stands for
criticism. This is too general. It does not individualise the classic.

The first classical work on Sanskrit Literary Criticism is Bharata's
Nāṭyaśāstra. The class number for this work is written thus:
O15:*g*x1,1.

The ultimate class of Aristotle's *Poetics* is considered as the critical
study of Greek Poetry and hence the class number O13,1:*g* which
stands for the criticism of Greek Poetry is taken as the basic class

number for Aristotle's *Poetics*. But in the case of Bharata's *Nāṭyaśāstra*, the basic class number is O15:g which means criticism of Sanskrit Literature in general as it comprehends critical study of all the forms, i e, poetry, drama, fiction and other forms of prose of Sanskrit Literature. The Science of Literary Criticism is called Alankāra Śāstra in Sanskrit.

(2) Newton (Sir Isaac). (Mathematician and Theologian) (1642-1727). *Principia Mathematica.*

CC

BxK42,1   In this class number K42 represents the year 1642 which is the year of birth of Newton.

DC

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8 How DC Observes this Canon?

In DC, some of the Greek Classical Philosophers, such as Plato and Aristotle in Philosophy are given individualising class numbers. It has no device to individualise other classics in Philosophy or classics in any other subject. The class numbers for Plato and Aristotle as Greek Philosophers according to CC and DC are shown below:

CC		DC
R7xC571	Plato (428-347 B C)	184
R7xC615	Aristotle (384-322 B C)	185

Plato was born in 428 B C. The number C571 is arrived at by the method of complement. The number C615 representing the year of birth of Aristotle in the class number assigned to him is also arrived at on the basis of the same method.

9 Helpful Sequence of a Classic and its Associated Literature

On account of this Device, a classic and its associated literature is arranged like a continuous spectrum with nothing outside itself intervening. The different editions of the classic itself and its several translations occupy the centre, i e, the Umbra (meaning a totally or intimately relevant record) as it were. The literature on either side, i e, the Penumbra (meaning a partially or remotely relevant record) gets arranged in correct filiatory sequence. The Penumbra, i e, the partially or remotely relevant record will be of two

types. The first type of material will be—Bibliographies, Periodicals, Year-Books, etc, which we call approach material and will be arranged on the left-hand side of the classic concerned. The second type of material will be—Commentaries, Sub-Commentaries, Adaptations, and Criticism bearing on the classic. This material will be arranged on the right-hand side of the classic concerned.

LOCAL VARIATION (CANON 30)

0 Enunciation

The Canon of Local Variation is enunciated thus: "The notational system of a scheme of book classification should provide for variation due to special interests."

1 Aim of the Canon

The aim of this Canon is to secure priority in sequence for national or local documents and documents in favoured classes and to shorten class number in these cases. The need to consider local variation is not very pronounced in the universe of knowledge, but when it comes to the classing and arranging of actual books in library to meet the requirements of the readers with the maximum possible conformity to the Laws of Library Science, the Canon of Local Variation is seen to be valuable.

Example :

2 Mother Country and Favoured Country

In CC, the digit 2 is set apart for the 'Mother country' in the schedule of geographical divisions. But in practice, when a library specialises in local collections so far as they are concerned, the digit 2 is used for the locality in question, whether it is a district, county, town or village. This results in considerable shortening of class numbers and gives priority to local collections in shelf arrangement. In such cases, the digit 3 may be used to represent the mother country. In the absence of a local collection of the kind mentioned the digit 3 is prescribed normally to represent 'Favoured country', i e, the country about which there are more documents in the library than about any other foreign country. This special use of 2 and 3 will provide for local variations in almost every subject and not merely in geography and history since the geographical characteristic figures as a basis of classification at some stage or other

in most subjects as a means of amplifying a common isolate, and in a few subjects even as a fundamental characteristic.

If we decide to use the digit 2 for India for the amplification of an anteriorising common isolate, the books bearing these digits in their class numbers will get priority over all the books bearing class numbers with respective digits assigned to other countries in the geographical schedule. If we take the subject 'Science', a periodical in Science published in India will get Am2 as its class number and periodicals in Science published in other countries will get later class numbers as shown below:

CC

Am2   Periodical in Science published in India

Am56   Periodical in Science published in Great Britain

Am73   Periodical in Science published in USA

3 Favoured Language

CC has also provided for local variation in the arrangement of books in Literature by defining 'Favoured language' and by providing special rules for Literature in the favoured language. The rules regarding the favoured language read as below : Rule 1: The favoured language of a library is the language in which the majority of the books of the library are written. Normally, the language of the country is likely to be the favoured language; but under peculiar conditions in India, it is likely to be varying from library to library. It may be English, Hindi or any one of the major languages in the country. Rule 2: In the case of the Literature in the favoured language, the language number should be replaced by a hyphen (-).

These two rules secure both saving of digits in class numbers and priority in shelf-arrangement for the Literature in the favoured language. The language of Maharashtra is Marathi and hence, it is the favoured language of the libraries of Maharashtra. We shall, therefore, assign class numbers to books in Marathi Literature according to CC by replacing the language number 155 by a hyphen (-). We shall illustrate how CC and DC numbers are given to these books :

CC		DC
O-	Marathi Literature	891.46
O-,1	Marathi Poetry	891.461
O-,2	Marathi Drama	891.462
O-,3	Marathi Fiction	891.463

4 Favoured Philosophical Systems

CC has also employed the Canon of Local Variation in giving class numbers to the Favoured Philosophical Systems. Let us illustrate this feature by means of class numbers given to the Philosophical Systems by CC and the corresponding class numbers according to DC :

CC		DC
R6	Indian philosophy	181.4
R7	Greek philosophy	182
R8	Other Systems (to be divided by (GD))	
R84	Oriental philosophy	181
R841	Philosophy of China	181.11
R842	Philosophy of Japan	181.12
R85	Western or European philosophy	
	1 Ancient western philosophy	182/188
	2 Medieval western philosophy	189
	3 Modern western philosophy	190

Indian and Greek philosophies are given special places by CC in the belief that they constitute the most elaborately worked-out Systems.

5 Favoured Host Class

A library may specialise in a particular subject, such as

Subject	CC	DC
Geological prospecting for gold	H7118:15	553.413 or 622.18413
Dairy products	KX31:7	637
Cotton spinning	M71:2	677.21
Indian constitution	V2:2	342.54
Labour disputes	X:979C	331.89
Famine relief	Y:4353:67	361.55
Income tax law	X724:(Z)	336.24026

Any one of such classes as the above which is the favoured subject of a library may be called the Favoured Host Class of the

library. The library is bound to have books on other subjects too; but it will be an advantage to give priority in shelf-arrangement and in the catalogue to the documents on the favoured host class and its sub-classes. In CC, this is secured by replacing the class number of the favoured host class by a hyphen (-). The ordinal value of hyphen (-) is fixed by the rules to be just below that of the small 'a', the smallest of the substantive digits. Therefore, all the books beginning their class number with hyphen (-) will stand prior to the books bearing class numbers with small 'a', that is before all other books. Let us illustrate this feature by means of an example:

Suppose 'Dairy products' is the favoured subject of a library. Then, it will become the favoured host class of the library. And with a view to give priority in shelf-arrangement and in the catalogue to the documents in this favoured host class and its sub-divisions, we shall have to replace its class number KX31:7 by a hyphen (-). The resulting arrangement in the shelves may be illustrated as below:

-	Documents on Dairy products
a	General bibliographies
k	General encyclopaedias
w	General biographies
2	Library science
A	Natural sciences

6 Conclusion

From all this we see that the notational system of CC has adequately provided for variations due to special interests and has observed the Canon of Local Variation in a satisfactory manner. The notational system of DC does not provide for any such variations and hence it is clear that the Scheme has violated this Canon.

COMPOSITE BOOK

1 Artificial Composite Book

A composite book includes, within the same cover pages, two or more documents, and, usually, though not always, these documents are also by different authors. Each document has its own specific subject-matter, and therefore, each admits of a different class number. At the same time, the component parts do not cohere and form a continuous exposition. Therefore, the different class numbers of the component parts do not have a common immediate universe. This is the cause of classificatory trouble in a composite book. Such a book is called an artificial composite book.

11 ENUNCIATION

"A composite book is said to be an artificial composite book, if its constituent contributions have not got a common generic title page or title or a common index or any combination of these. An artificial composite book is called artificial because it comprehends classes from more than one array and at the same time its comprehension is not sufficiently full to be given a place in a Generalia Class or a class of sufficiently low order. An artificial composite book may be created by the publisher by issuing two or more different books within one and the same cover, but without a common title-page. It may also be created by a library by binding several books together into a single volume." This is illustrated below.

The book, viz, Brahmānanda Saraswati's *Advaita Siddhānta Vidyotana* and Narasimhāśrama's *Nṛsimha-Vijnā-pana* have been issued as a single volume in the Princes of Wales Saraswati Bhawana Texts Series with distinct title-pages and sequences of pagination. The two works are distinct classical works of the Advaita Vedanta System of Hindu philosophy. What is the class number that the volume as a whole should get? Here a convention is needed in

adapting knowledge classification to book classification. The convention is to give to the volume as a whole the call number of the first constituent work of the volume. What about the second constituent work? It is left to the care of the catalogue. The catalogue gives a special cross reference entry.

· CC

R66xL20,1

      Brahmānanda Saraswati. *Advaita-siddhānta-vidyotana.*

R66xJ40,3 Narasimhāśrama. *Nṛsimha-vijñā-pana.*

Main entry

R66xL20,1   G3   *Composite book*

      BRAHMĀNANDA SARASWATI.

      Advaita-siddhānta-vidyotana.

      2 Narasimhāśrama: *Nṛsimha-vijñā-pana.*

               R66xJ40,3   G3

      (Princes of Wales Saraswatibhavana text series)

Special cross reference entry

R66xJ40,3

      Narasimhāśrama.

      Nṛsimha-vijñā-pana.

      Printed as part 2 with

      R66xL20,1   G3

      Brahmānanda Saraswati: *Advaita-siddhānta-vidyotana.*

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2 Complicated Position

Regarding the complicated position of a composite book the author observes in the *Prolegomena* thus: "It is not fair to blame the library profession for failing to invent devices to make the notation stand the strain of such anomalous and freakish books. It is legitimate and indeed proper and sensible for the discipline of classification not to stand on prestige but to send an SOS to the catalogue, i e, to express its pain for being incapable of providing a single class number for different specific subjects of the two or more documents included in such artificial composite books. And this is what it does. It assigns to such a composite book the class number appropriate to the first constituent work; and having given class numbers to each of the other constituent works, it passes the rest of the work on to the library catalogue. The catalogue

provides cross-reference entries for the second and later constituent works."[54] As the problem of such books is beyond the province of a classification scheme, no special canon is warranted by the peculiarity of the universe of books.

PARTIAL COMPREHENSION

1 Partial Comprehension

The feature of partial comprehension is seen in such books as contain some of the topics of an all comprehensive subject. Example :

Let us take Pure mathematics as an instance. It comprehends five classes, viz, Arithmetic, Algebra, Analysis, Trigonometry and Geometry. So far as the universe of knowledge is concerned, it is sufficient if a scheme of classification provides a class number for the all comprehensive class Mathematics in the earlier order and the five classes mentioned above in the next lower order. But this is not sufficient in the universe of books. For, it is possible to have books on any combination of the five classes. In addition to a book on Pure mathematics, we may have partially comprehensive books, such as

1 Arithmetic and Algebra;
2 Arithmetic and Analysis;
3 Arithmetic, Algebra and Analysis;

and so on.

No scheme of classification can conveniently provide class numbers for such combinations. This problem is, therefore, relegated to the catalogue in which the specific topics contained by such books are cross-referred under the class numbers of those topics in the classified catalogue. It is, therefore, not found necessary to have any canon for this type of books.

When the catalogue is provided with cross references, the reader need not depend on chance for his being successful in getting a book that treats of Algebra from among the books which have on their backs the class number of Pure mathematics, the fully comprehensive immediate universe. Reference to the catalogue under the class number for Algebra in the classified part of the catalogue

will show him exactly which of these books give information on Algebra.

The books of this type are one of the categories of books which are called multifocal books, i e the books dealing with two or more specific subjects.

BOOK NUMBER

1 Book Number

The books in any ultimate class of knowledge have to be subdivided, not on the basis of subject-matter, but on the basis of other appropriate characteristics or trains of characteristics. These characteristics should pertain to the subtle body of the document, i e, the body capable of drawing nice distinctions, such as language, form of exposition and other medium of expression, and to some extent to features of the gross body, such as year of publication and number of volumes.

2 Definition

The book number of a book is, therefore, defined by the author of CC thus:

1 The book number of a book is a symbol used to fix its position relatively to the other books having the same ultimate class;

2 The book number of a book individualises it among the books sharing the same class number; and

3 The book number of a book is the translation of the names of certain of its specified features into the artificial language of ordinal number, specified and elaborated in the rules for book numbers given in CC.

3 Characteristics Chosen

The need for individualising the books belonging to the same class has been felt ever since Dewey made classification practicable and scientific. Several attempts have been made to build helpful book numbers. Various have been the trains of characteristics chosen to build them.

31 AUTHOR MARKS

Author marks like Cutter Numbers, Merril Number, Jast Numbers

and Brown Numbers have been built upon the basis of author characteristic. But they do not individualise:

1 Different copies of the same book;

2 Different editions of the same book;

3 Different volumes of a multi-volumed book; and

4 Books by different authors, the first three letters of whose names are identical.

32 DATE MARKS

The year of publication is another characteristic on which the building of book numbers has been based by some. Bisco Numbers invented in 1885 are a well known example of this kind. This is better than Author Marks. But even here the different volumes of a multivolumed book are not individualised.

33 LANGUAGE MARKS

There is also another characteristic that deserves consideration—the language of the book. It is not helpful to mix up in a class, all the books written in different languages. Readers will feel happier, their time will be saved and their psychological tempo will be preserved at a pleasant level, if separate language groups are formed among the books that have the same specific subject. The need for this has been felt in the UDC. But it has achieved this by loading the already over-crowded or over-lengthened class number.

4 Colon Book Number

CC is the first to achieve strict and absolute individualisation of the books in a class by a system of book numbers built in organic relation to the class numbers themselves in such a way that books having the same specific subject stand automatically divided into different linguistic groups; those within each linguistic group are arranged by their date of publication and the volumes of a multi-volumed book also are individualised and yet obliged to stand together. A multi-volumed book is a book in two or more volumes giving a continuous exposition, and, for this or for any other reason in the distribution of thought among the volumes, compelling the treatment of all the volumes as an inseparable set, i e, as if they together form a single volume.

BOOK NUMBER (CANON 31)

0 Enunciation

The Canon of Book Number is enunciated thus: "A scheme of book classification should be provided with a scheme of book numbers to individualise the documents having the same class of knowledge as their ultimate class."

1 Facet Formula

To satisfy this Canon, CC prescribes a facet formula which reads as shown below:

$$[L][F][Y][A].[V] — [S];[C]:[At]$$

In this facet formula the letter L stands for the language of exposition. The language number is taken from the language schedule.

The letter F stands for the form of exposition. The form number is taken from a special schedule, some of the divisions of which read as shown below:

a1	Systematic arrangement	j	Parody
a5	Alphabetical arrangement	k	Adaptation
a6	Chronological arrangement	m	Catechism
b	Index	n	Opinion
c	List	p2	Dialogue
d	Data book	q	Code
f	Picture	v	Practical
g	Plan	x	Quotation
h	Graph		

The letter Y stands for the year of publication. The year number is taken from the schedule of chronological divisions.

The letter A stands for the accession facet of book number used to distinguish the different books in the same ultimate class and having the same language and form of exposition. This facet

consists of digits used as integers. In the case of the first of such books, the book number should end with the year number. In the case of the second, the digit 1 should be added after the year number, in the case of the third, the digit 2 should be added, the digit 3 in the case of the fourth, and so on.

The letter V stands for volume. The volume number is taken from the book itself.

The letter C stands for copy, other than the first copy. The copy number is serially written as per accession facet of book number.

The letters 'At' stand for Attachment Number. The number ':g' is used for Attachment Number. When a book is not deemed a classic and is therefore not made a class by itself by the Classic Device prescribed for classics; and if another book is written on it, say as a criticism or a reply or for any other reason, and is best kept with it, the former is called a pseudo-classic and the latter is called an associated book. The book number of an associated book should consist of that of its pseudo-classic followed by :g. The number thus added is called the Attachment Number or related document number.

2 Symbols Used

For constructing book numbers according to this facet formula different types of symbols are required to be used. They are:

1   24 Roman capitals got by omitting I and O. These are used as the first digits in the numbers of the years of publication of the documents concerned;

2   23 Roman smalls got by omitting *i, l, o*. These are used as the first digits in the numbers assigned to the forms of exposition as per special schedule provided by the Scheme;

3   The punctuation marks: (a) a dot (.), (b) a hyphen (-), (c) a semi-colon (;), (d) a colon (:); and

4   Indo-Arabic numerals.

3 Intelligible Concatenation of Symbols

The book number consists of an intelligible concatenation, i e, a linking together of one or more of these symbols. Each one of the symbols in a book number is called a digit. The digits are

written from left to right. The place value of a digit is as in a decimal fraction, except:

1 In the case of the digits representing the year of publication which are read as integers;

2 In the case of the accession facet of the book number when it consists of more than one digit and is read as an integer;

· 3 In the case of the volume number when it consists of more than one digit and is read as an integer;

4 In the case of the copy number when it consists of more than one digit and is read as an integer;

5 In the case of the accession facet of the Attachment Number when it consists of more than one digit and is read as an integer.

Now let us illustrate the use of this facet formula.

4 Language Facet

First let us take language facet. The language number is got by translating the name of the language in which the book is written into appropriate symbols in accordance with the language schedule provided by the Scheme. Suppose, we have in our library 25 books on Mathematics. The exposition of some of them is in English language, of some in Marathi language, some in Gujarati language and some in Kannada language. The class number for Mathematics is B according to CC. The books bearing this class number will get different language numbers as a part of their book numbers as shown below:

CIN	BN	
B	111	English books on Mathematics
B	155	Marathi books on Mathematics
B	156	Gujarati books on Mathematics
B	33	Kannada books on Mathematics

5 Form Facet

As there are books written in different languages, so there are also books written in different forms of exposition. The form number is got by translating the name of the form of exposition into appropriate symbols in accordance with the form schedule provided by the Scheme. Let us take books written in English language. The

·digits indicating the forms of exposition of these books may be written as shown below:

CIN	BN	
B	111*p*1	Lectures on Mathematics delivered in English
B	111*a*5	Topics in Mathematics alphabetically arranged and described in English
B	111*v*	Exercises in Mathematics described in English

6 Year Facet

Out of all the facets of the book number, the number indicating the year of publication is most important. It helps us to arrange books on one specific subject according to their dates of publication and the latest books on the subject are always found at the end. This is found quite convenient and useful by the readers. The year number is got by translating the number of the year of publication into appropriate symbols in accordance with the chronological table of the Scheme. The books on Mathematics in English language published in different years will get numbers of the years of their publication as shown below:

CIN	BN	
B	111N21	A book published in 1921
B	111N35	A book published in 1935

7 Accession Facet

The accession facet of the book number is the fourth facet in the facet formula for book number. After giving a number indicating the year of publication for the book concerned, the next point to be considered is the point regarding the accession facet of the book number. Sometimes more than one book are published on a specific subject in a particular year and they are purchased in the library. All these books will get the same number of the year of their publication. In such cases, the accession facet of the book number is required to be written with a view to individualise them. In the case of the first of such books, the book number should end with the year number. In the case of the second, the digit 1 should be added after the year number; in the case of the third, the digit 2 should be added; the digit 3, in the case of the fourth, and so on.

Suppose, three books are published on a specific subject in 1962 and we have purchased all these books in our library. Then, the first book will get N62 as its book number, the second book will get N621 as its book number, the third book will get N622 as its book number, and so on.

8 Volume Number Facet

Now we come to the volume number facet. It may happen that a work is in more than one volume. In such a case, it would be desirable to design the book number of the volumes in such a way that they are all brought together. The author of CC has formulated a rule which gives a set of sufficient tests for deciding when the volumes of a set are to be kept together. The rule concerned reads thus: "A set of volumes is to be deemed to be indivisible and to form a multi-volumed book if one or more of the following conditions hold good:

1 The set possesses a common index;

2 The same sequence of pagination is continued throughout all the volumes of the set;

3 The subject matter is so distributed among the volumes of the set that it is not helpful to treat each volume as a separate book."

The Device that is employed for keeping together all the volumes of a multi-volumed book reads thus: "In the case of an indivisible set of volumes, the volumes of a set are to be individualised by putting a dot after the year number or the accession facet of the book number, as the case may be, and putting the number of the volume in Indo-Arabic numerals after a dot. The digit or digits thus added after the dot may be termed the volume number. If the volume number consists of more than one digit, it should be read as an integer and not as a decimal fraction." This Device secured in a very natural way that the volumes of the set are kept in their proper sequence. If the volumes of an indivisible set are not published in the same year, the year to be used for the year number is indeterminate. The author has, therefore, given a rule to remove this indeterminateness. The rule reads thus: "The year of publication of an indivisible set is the year in which the earliest published volume of the set is published." Examples.

1 Taussig (Frank William). *Principles of Economics*. Published

in 2 volumes in 1920. The call numbers of these volumes will be written as shown below:

X N20.1   1st volume   X N20.2   2nd volume

2 Scott (Sir Walter). *Letters*. Ed by H J C Grierson. Published from 1932 onwards in several volumes.

The call numbers of these volumes will be written as shown below:

O111,3L71*w*,4   N32.1   1st volume
O111,3L71*w*,4   N32.2   2nd volume
and so on.

91   SUPPLEMENT NUMBER FACET

The next facet is the facet of the supplement number. In the case of a volume with supplementary volumes, the book number of the supplementary volumes should consist of the book number of the corresponding main volume followed by a hypen (-) which is itself followed by the number of the supplement in Indo-Arabic numerals. The digit or digits thus added after the hypen (-) may be called the supplement number.

Example: *Guide to reference books*, by Constance M Winchell. 1951.

Three supplements of this book have been published upto now. So the main volume of the book will get N51 as its book number. Its first supplement covering additions for the years 1950-53 will get N51-1 as its book number. Its second supplement covering additions for years 1953-55 will get N51-2 as its book number. And its third supplement covering additions for the years 1955-57 will get N51-3 as its book number.

"If a supplementary volume relates to more than one volume of an indivisible set of volumes, the number of the supplement should be attached to the book number of the last of such volumes in the set."

The result of this rule is to attach the supplementary volume to the last of the volumes to which it relates. The digit or digits thus added after hypen (-) may be called the supplement number. If the supplement number consists of more than one digit, it should be read as an integer and not as a decimal fraction.

The *Dictionary of national biography* was published in 22 volumes in 1909. The call number of the 22nd volume of this set is written thus: *wk*56,N N09.22. There are six supplements of this set of volumes so far published. They will get book numbers as shown below :

1   The first supplement containing additional names will get N09.22-1 as its book number.

2   The second supplement containing additional names covering the years 1901-11 will get N09.22-2 as its book number.

3   The third supplement containing additional names covering the years 1912-21 will get N09.22-3 as its book number.

4   The fourth supplement containing additional names covering the years 1922-30 will get N09.22-4 as its book number.

5   The fifth supplement containing additional names covering the years 1931-40 will get N09.22-5 as its book number.

6   The sixth supplement containing additional names covering the years 1941-50 will get N09.22-6 as its book number.

92   COPY NUMBER FACET

Now we come to the copy number facet.

The book number brought upto supplement number will be sufficient for arrangement of books in national, international, and all other forms of bibliography except library catalogues. But it may not be found sufficient for arranging the books on the shelves or their main cards in the catalogue-cabinets of a library. In libraries, the complicating factor is the presence of two or more copies of the same book. The facets considered so far will give the same book number to all the copies of a book. We have therefore to design a copy number for individualising the copies and yet keeping them together.

The book number of the second, third, etc, copies of a book should consist of that of the first copy followed by a semicolon (;) and thereafter by the digits 1, 2, etc, respectively. If the book number of the first copy is N49, those of the other copies will be written as shown below:

Second copy	N49;1	Hundredth copy	N49;99
Third copy	N49;2	Hundred and first	
Fourth copy	N49;3	copy	N49;100

If the book number of the first copy is N491 meaning second book on the same specific subject and published in the same year and accessioned in the accession register of the library, those of the other copies will be written as shown below:

<div align="center">Second copy N491;1   Third copy N491;2</div>

If the book number of the first copy is N491.7-2 meaning second supplement of the 7th volume of the second book published in 1949 and accessioned in the accession register of the library, those of the other copies will be written as shown below:

<div align="center">Second copy N491.7-2;1   Third copy N491.7-2;2</div>

The number added after the digit ";" may be called the copy number.

If the copy number is in more than one digit, it should be read as an integer and not as a decimal fraction.

<div align="center">921 EDITION NUMBER</div>

If a library finds it helpful to bring together successive editions of one and the same ordinary book, though there are changes from edition to edition, and at the same time disclose the year of publication of each of the successive editions they may all be treated as copies with the modification that the copy number may be made of the translation of the years of publication of the different editions instead of serial integers.

This device will be rarely used. It may be of use particularly in the text-book collections in academic libraries. Examples of edition numbers.

1 Sayers (W C Berwick). *Introduction to library classification.*

The first edition of this book was published in 1918. So its call number of the 1st edition is written thus: 2:51 N18. Its further editions may be brought together by treating them as copies and by making the copy numbers the translations of the years of publications of the different editions as shown below:

2nd	ed	1922	N18;N22	6th	ed	1943	N18;N43
3rd	ed	1929	N18;N29	7th	ed	1946	N18;N46
4th	ed	1935	N18;N35	8th	ed	1950	N18;N50
5th	ed	1938	N18;N38	9th	ed	1954	N18;N54

2 Winchell (Constance M). *Guide to reference books*. The first edition of this book was published in 1902. If a library decides to keep all the editions of this book together, the book numbers of its different editions will be written as shown below:

1st	ed	1902	N02	5th	ed	1936	N02;N36
2nd	ed	1908	N02;N08	6th	ed	1946	N02;N46
3rd	ed	1917	N02;N17	7th	ed	1951	N02;N51
4th	ed	1927	N02;N27				

93 FACET OF PSEUDO CLASSIC

When a book is not deemed a classic and is, therefore, not made a class by itself by the (CLD) and if another book is written on it, say as a criticism or a reply or for any other reason and is best kept with it, the former is called a pseudo-classic and the latter an associated book. Examples are given below.

Miss Mayo's *Mother India* is considered as a pseudo-classic. This book has exaggerated the social ills of India. Its class number is constructed thus:

Y:4.2 Miss Mayo's *Mother India*

This book was published in 1927. So, its book number will be written thus: N27. This book provoked some books, viz,

1 Lajpatrai (Lala). *Unhappy India*.

2 Natarajan (K). *Miss Mayo's Mother India—A rejoinder*.

3 Chapman (J A). *India—Its character, a reply to Mother India*.

So, these books will have to be kept next to Miss Mayo's book. They will get the same class number as that of the book of Miss Mayo. They will be distinguished from the book of Miss Mayo by writing the digit ':g' after the book number of Miss Mayo's book as shown below:

Y:4.2	N27:g	Lajpatrai (Lala). *Unhappy India*
Y:4.2	N27:g1	Natarajan (K). *Miss Mayo's Mother India—A rejoinder*
Y:4.2	N27:g2	Chapman (J A). *India—Its character, a reply to Mother India*

In the *Prolegomena* on page 374 the facet formula for book number is given as shown below:

$$L [F] [Y] [A] ; [V] - [S] , [At]$$

In this facet formula, the last facet is indicated as 'At' which

stands for 'Attachment Document'. This term is used for an asso-
ciated literary production on a pseudo-classic. Such a document may
be a review article or a criticism in the case of a pedestrian book, i e,
an ordinary book or a sequel which it is helpful to put along with
the original rather than separated from it. Regarding this facet the
author observes on page 377 of the *Prolegomena* as below:

"When we began to do documentation work and do bibliographies
of the 'by and on' type for an author, the problem of bringing a
non-classic book and the reviews on it put the book number to a
severe test of the same kind. The problem came to be faced seriously
in 1950. The first solution sought was to use ':g' as the isolate
number in the related-document facet. This was suggested by the
view that the related documents are in essence criticisms of the
basic book. But now it is felt that the purpose will be served equally
well by the use of mere serial 1, 2, 3, etc, as isolate numbers in
that facet." This means that instead of using ':g' as a connecting
symbol for related-document, we should use comma (,) as shown
in the above mentioned facet formula before the [At] facet and after
it serial numbers 1, 2, 3, etc, should be given to each of such related
documents. In that case, the critical books on Miss Mayo's book
will get as their book numbers as shown below:

<div align="center">N27,1   N27,2   N27,3, and so on.</div>

<div align="center">94   ECONOMIC MEASURE</div>

Regarding the elaborate facet formula for book number as given
in CC, the author observes thus: "There is no doubt that the
facet formula for book number looks rather formidable. In actuality,
however, the Colon book number of the majority of the books
is no more formidable than any other book number prescribed
for other schemes of classification. It is really simple and this is
secured by the economic measure" thus:

<div align="center">941   FIRST ECONOMIC MEASURE</div>

The language facet may be omitted in any class except Literature,
if the language of the book is the favoured language of the library.

<div align="center">942   SECOND ECONOMIC MEASURE</div>

The language facet may be omitted in the class Literature, if the

language of the book is the language of the Literature. This implies that a translation will be distinguished from the original by the presence of language number in the book number indicating the language of the translation. This is illustrated below.

The language of the book, Shakespeare's *Hamlet* is English. So, in the case of the different editions of this book, the language facet of the Book Number may be omitted. If an edition of this book is published in 1962, its call number will be written thus: O111,2J64,51 N62. In the book number of this call number, we have omitted the language facet as the language of the book is the language of the Literature. There are three Marathi translations of this book, viz:

1   Agarkar (Gopal Ganesh). *Vikāra Vilasita*. 1st ed 1883, 2nd ed 1908, and 3rd ed 1920. The call numbers of all the editions of this book will be written as shown below:

O111,2J64,51		155M83;N08	2nd edition
155M83	1st edition	155M83;N20	3rd edition

2   Kanitkar (Govind Vasudev). *Vīrasen kimvā vichitra-purīchā Rājaputra*. 1883. The call number of this book will be written thus: O111,2J64,51 155M831.

3   Barve (Anand Sakharam) (1845-1893). *Himmat Bahāddar*. No date of publication is given. The late Shri Barve died in 1893. So we may take some approximate date of the publication of his translation of *Hamlet*. If we decide to take it as 1890 then the call number of this book will be written thus: O111,2J64,51 155M90.

The book numbers in all the call numbers of these translations distinguish the translation of *Hamlet* by the presence of the language number in the book number indicating the language of the translation.

943   THIRD ECONOMIC MEASURE

The form facet may be omitted if the form of the book is the favoured form of the library. In most libraries, the favoured form will be prose.

944   FOURTH ECONOMIC MEASURE

In the accession facet of the book number, the first book will not require that facet to be given to it.

945 FIFTH ECONOMIC MEASURE

Similarly, the first copy of a book need not have copy number.

946 SIXTH ECONOMIC MEASURE

The volume number is inevitable, but the occurrence of a multi-volumed book is not very frequent.

947 SEVENTH ECONOMIC MEASURE

The supplement number will occur in a much smaller number of cases than the volume number.

948 EIGHTH ECONOMIC MEASURE

Related-document facet will be needed very, very rarely in a library collection. But it will be needed more often in an author bibliography of the 'by and on' type.

An author bibliography of the 'by and on' type consists of a list of the documents written by the author as well as a list of the documents written on him. Among the documents written by such an author, if there are any controversial documents then the articles and other documents on them will have to be individualised by the presence of the related-document facet in their book number in the bibliography of such an author. Suppose there is an author bibliography of Miss Mayo. Then all related-documents on her *Mother India* will be individualised in it by the presence of the related-document facet in the book number of the book.

95 CONCLUSION

Thus the majority of book numbers will consist only of the year of publication.

From all this, we conclude that CC observes well the Canon of Book Number as it is provided with a scheme of book numbers to individualise documents having the same class of knowledge as their ultimate class. DC has evaded this Canon as it is not provided with any such scheme of book numbers.

COLLECTION NUMBER (CANON 32)

0   Need for the Canon

In our libraries, we may have different types of collections. It may not be helpful to keep all these collections in a single sequence strictly according to their class numbers. For example, pamphlets or undersized books should be separated out from books of normal size. This will give a pamphlet collection. The pamphlets will of course be arranged among themselves by their class numbers. Similarly, separate collections should be formed for over-sized books, for books of abnormal or poor physique, and for worn-out books. Again, it may be necessary to form a separate collection for the reference books in the reading room, for the periodicals, for the less-used books (secondary collections), and for the still less used books (tertiary collection). Separate collections will have to be formed also according to the departments of location in academic and business libraries. It is necessary to indicate the collection both in the book itself and in the library catalogue and other records. Hence there should be some device to show their separate sequence. And for this reason an additional Canon is necessitated in the theory of book classification in connection with collection number.

01   ENUNCIATION

The Canon of Collection Number is enunciated thus:

"A scheme of book classification may be provided with a schedule of collection numbers to individualise the various collections of special documents to be formed on the basis of the peculiarities of their gross bodies, their rarity, or service exigency to facilitate use by readers. The collection numbers based on physical peculiarity may be of use in bibliographies also."

1 Illustrative Schedule

An illustrative schedule of collection numbers given in the *Prolegomena* and also in ed 6 of CC reads as follows:

	Nature of collection	Collection number	
1	Pamphlet, i e, under sized books	Underline book number thus	N62
2	Over-size books	Overline book number thus	N62
3	Abnormal books	Underline and overline book number thus	N62
4	Worn out books	Encircle book number thus	(M81)
5	Rare books collection	RB	RB X:54 M75
6	Reading Room collection	RR	RR X:54 N62
7	Secondary collection (less used books)	SC	SC X:54 N12
8	Tertiary or Text-books collection.	TC	TC X:54 N62
9	Periodicals collection	PC	PC X:54m2,N N61
10	Film strip collection	FS	FS X:54 M65
11	Physics Department collection	CD	CD C N62
12	Law Department collection	ZD	ZD X:54:(Z) N62

2 Conclusion

Thus we see that CC is provided with a schedule of collection numbers to individualise the various collections of special documents to be formed to facilitate their use by readers; and we may say that the Scheme satisfies the Canon of Collection Number. DC does not satisfy this Canon as it is not provided with any such scheme of collection numbers.

Chapter T8

DISTINCTIVENESS (CANON 33)

0 Enunciation

The Canon of Distinctiveness is enunciated thus: A scheme of library classification should consist of three components, viz,
1 knowledge classification,
2 book classification, and
3 collection classification.
Further, its notation should satisfy the Canon which reads thus:
"In a scheme of library classification the class number, the book number and the collection number together forming the call number should be written quite distinct from one another."

1 CC Satisfied This Canon

We have seen that CC consists of three components, viz, 1 knowledge classification, 2 book classification, and 3 collection classification, and in it the class number, the book number and the collection number, together forming the call number are written quite distinct from one another; and hence, we may say that the Scheme gives entire satisfaction to this Canon.

2 DC Evades It

DC evades it as it consists of only one component, viz, the component of knowledge classification. It is devoid of the two other components, viz, the component of book classification and that of collection classification; and its notation is not able to satisfy the condition of writing the class number, the book number and the collection number, together forming the call number as it is not provided with a scheme of book numbers and collection numbers as we see in CC.

Annexure 1

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      2 *Except where otherwise stated, the author of the book or article is*
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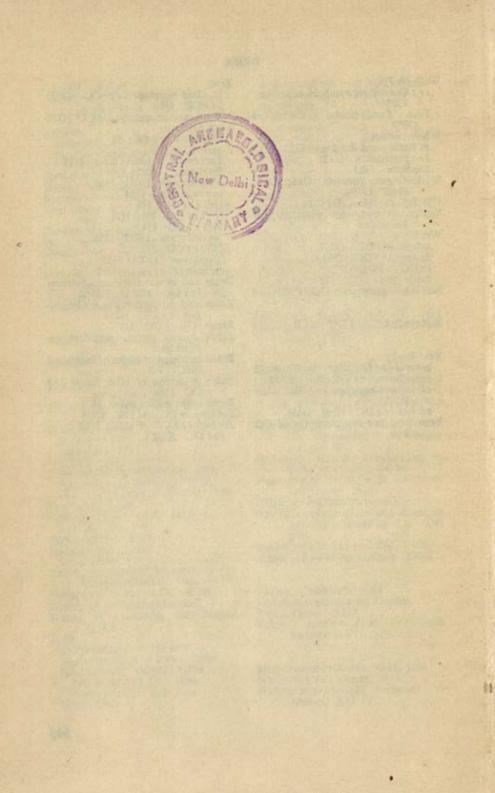
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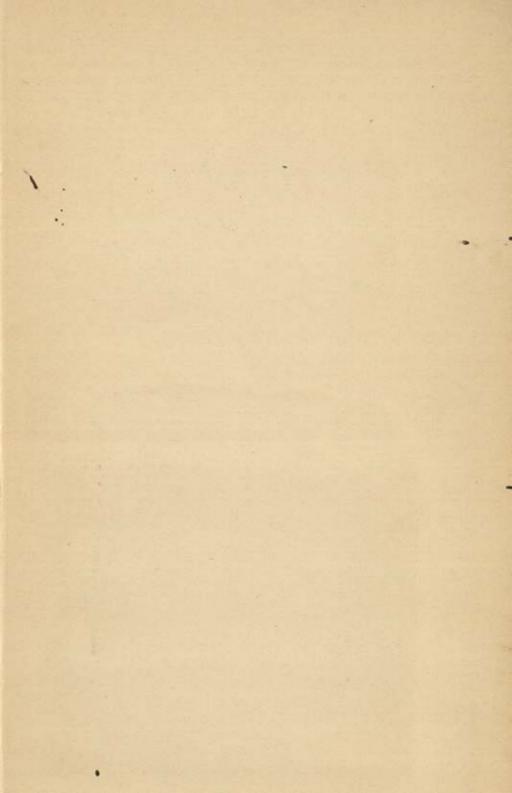 in CC and DC   R72
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