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Lesson No.

## Dewey Decimal Classification

 19th Edition2.1 : Basic Plan And Structure
2.1 : How to Assign Class Numbers in DDC
2.3 : Number Building Practical
2.4 : Use of Table 1 : Standard Subdivisions
2.5 : Use of Table 2 : Area
2.6 : Use of Table 3 : Subdivisions of Individual Literatures
2.7 : Use of Table $4 \&$ Subdivisions of Individual Language of 400

Languages Schedule \& List of Languages
2.8 : Use of Table 5 : Racial, Ethnic And National Groups
2.9 : Use of Table 6 : Languages
2.10 : Use of Table 7 : Persons

Practice Exercises
Answers to Self-Check Exercises

LESSON NO. 2.1
DR. M.P. SATIJA

## BASIC PLAN AND STRUCTURE

The DDC is a general classification System. It aims to classify documents of all kinds falling in any area of knowledge. The entire human knowledge has been divided into three disciplines. These three great divisions are divided into nine main areas of knowledge that are themselves divided into disciplines or sub-discipline. This division into nine main classes mirrors the educational consensus of the late nineteenth century Western academic world (and is influenced by the collection of the Amherst College library). The DDC scatters subjects by discipline, and the subjects are subordinated to discipline-any subject may occur in almost any discipline. For example, the subject metals may turn up in metaphysics, religion, the social sciences, the natural or physical sciences, technology, and the arts, and may appear several times within the same discipline. Thus there is theoretically no single class number for any subject.

The DDC, true to the times and country of its origin, is a practical scheme. Some would say, and have said, that a consideration of its theoretical grounding, sources, and the order of its main classes is not a profitable exercise.

Before Melvil Dewey, there were classification systems based on the subject contents of books, and the decimal notations was employed by many. He had no ambition of improving upon the subject orders that the various existing systems provided. His problem was different (and in this he was practical) : he wanted to invent a device, which could mechanize shelf arrangement and at the same time provide and appropriate place for the incoming new subjects without disturbing the established order. He did not ponder much upon the order of the main classes, though the DDC's order mirrors the academic consensus of its time.

Dewey borrowed his basic plan from William Torrey Harris, who had devised the classification for the St. Louis (Missouri) Public School Library. Whatever the case, this matter is no more than of scholastic interest, especially in light of the fact that the scheme now through its various devices and revisional techniques endeavours to reflect the current consensus of scholars in both the order and collation of subjects.

Dewey's originality lies not in intellectual structure but rather in the notation he used to represent it. Notation has always been underrated by theoreticians and overrated by practitioners. Those who write about the making of a classification invariably pronounce that intellectual structure must precede
the assignment of notations; this is probably an idea worth expressing but not holding, for the notation one employs, determine intellectual hierachy and subdivisional capabilities. If one develops a system without bearing in mind the notation to be used, a misshappen classification is bound to result. Dewey fitted his structure to his notation, which is one of the reasons the DDC has been so successful.

The first edition of DDC was published in 1876 , a thin pamphlet of 44 pages under the title of "A Classification and Subject Index for Cataloguing and arranging the books and pamphlets of a library". The second edition of DDC was published in 1885. The large size of the 14 th edition was published in 1942 , became a source of worry for concerned. To cope with the alarmingly increasing size, the sixteenth edition was published in 1958 in two volumes. The Nineteenth edition of DDC was published in 1979 in three volumes. The 20 th edition of DDC was published in 1989 in four volumes. The 22 nd edition of DDC was published in 2003. The 23rd edition of DDC is published in 2011 and this is the latest edition.

He decided to indicate the subject contents be 1-9 notation. Indo-Arabic numerals possessed zero (0), a device capable of providing the notation for a general class, such as 010 Bibliography, and for general aspects of a special subject, such as 510.7 the study and teaching of mathematics; Indo-Arabic numerals were more widely understood as a self evident order; and Numeral fractions were superior to alphabetical fractions.

It is the last point that gives both power and complexity to the notation Dewey devised. The Dewey Decimal Classification is not so named because a "decimal" point is placed after the third digit of every number having more than three digits.

The ten main classes of the DDC are assigned notation 0 to 9, from . 0000001 to .9999999 so to speak. The notation has a metaphysical side. If we say that $O$ is nothing and that 1 is the universe, the notation (and therefore the substance) of the DDC represents, or is capable of representing, everything in the intellectual universe. The ten main classes ought to be transcribed as follows:

| 0.0 | Generalia |
| :--- | :--- |
| 0.1 | Philosophy and related disciplines |
| 0.2 | Religion |
| 0.3 | Social Sciences |
| 0.4 | Languages |
| 0.5 | Pure sciences |
| 0.6 | Technology (Applied sciences) |
| 0.7 | The arts |

0.8 Literature (Belles - letters)
0.9 General geography and history and their auxiliaries.

But in practice, for ready comprehension and simplicity of notation the first zero and the point are not given, but they are understood to always be there. Instead a point is put after the first three digits. This is mathematical nonsense of course; such a point is never placed between the digits of a decimal fraction. The point is placed there to break up a number so that the mind can grasp its parts more readily. (Experience with telephone numbers tends to supports the assumption.) Nevertheless, the point presents a riddle: the point is where it is not, and not where it should be.

Another semantically equally useless and regrettable convention is the minimum of three digits in every class number. If a class number stops short of three digits, the required number of zeroes are used to fill the vacancies. For a main class we have to add two extra zeroes, for a division one. But true to mathematical conventions no decimal fraction may end with a zero after the point; they are redundant and probably misleading (in as much as they suggest to novices that the DDC notation is made up of ordinal integers rather than of ordinal decimal fractions).

## Notation and Division of Main Classes

The ten main classes are notationally transcribed as :
000 Generalia
100 Philosophy and related disciplines
200 Religion
300 Social sciences
400 Languages
500 Pure science
600 Technology (Applied sciences)
700 The arts
800 Literature (Belles-letters)
900 General geography and history and their auxiliaries.
The order of the main classes represents a mix of Baconian and Hegelian philosophy adulterated by the practical needs of organizing a collection of books. Practicality enters the structure of the DDC even at this the earliest of levels: philosophical systems do not require a generalia class, but library classification systems do to account for works that treat all subjects or are applicable to all subjects, such as systems, computer science, bibliography, general organizations. Another example of meeting practical need comes at 800 where one of the arts-literature-has an entire main class to itself, of course, literary warrant demands such notational allotment. As for Baconian philosophy, one can discern in the
main classes the three departments of learning made possible by the structure of the mind the Elizabethan thinkers espoused; that is, the mind has three faculties: memory, imagination, and reason-from these are derived the three departments of learning: history, poesy, and philosophy (history, works of the imagination (art), and science). Thus, 100 through 600 involve reason, 700 and 800 art, and 900 history (places and people). As for Hegelian philosophy, one cannot decry the evidence at first perusal. Study revels, however, that W.T. Harris, who devised the intellectual structure that Dewey used for his classification, though that Bacon's structure was a good one, but not for that reason given.

Each of the ten Main Classes has been subdivided further into what are technically known as divisions. Each main class has nine divisions and a general division that is the class itself subdivided into characteristics peculiar to itself or applicable to all the nine divisions. For example, at 530 one finds the standard subdivisions that represent such things as dictionaries of physics, the terminology of physics, and the like; one also finds mathematical physics, states of matter, instrumentation and dimensional analysis, all topics of general use throughout the subdivisions proper of 530 physics. We have, therefore, 10 main classes and 90 divisions. Here are the divisions of a main class :

600 Technology (Applied sciences)
610 Medical sciences
620 Engineering and allied operations
630 Agriculture and related technologies
640 Home economics and family living
650 Management and auxiliary services
660 Chemical and related technologies
670 Manufactures
680 Manufacture for specific uses
690 Buildings
Each of the $\mathbf{9 0}$ divisions has been further divided into nine Sections. For example, 610 Medical sciences, Medicine has been divided as

610 Medical Sciences, Medicine
611 Human anatomy, cytology, tissues
612 Human Physiology
613 General and personal hygiene
614 Public health and related topics
615 Pharmacology the therapeutics
616 Diseases
617 Surgery and related topics
618 Other branches of medicine

## 619 Experimental medicine

Continuing the decimal pattern, each section can be divided into what we may call Subsections, all being four-digit numbers.
614.1 Forensic medicine (Medical Jurisprudence)
. 4 Incidence, distribution, control of disease
. 5 Incidence, distribution, control of specific diseases
. 6 Disposal of dead
It may be noted that 614 is not divided into nine subdivisions. Not all sections require nine subdivisions; it is as simple as that. Problems for the editors crop up when more than nine are needed as is the case for 616 Diseases.

The subsections may be divided into Sub-subsections :
614.51 Salmonella, basically, enteric, influenza diseases
. 52 Eruptive diseases (Exanthemas) and rickettsial diseases
. 53 Protozoan disease
. 54 Miscellaneous diseases
. 55 Parasitic diseases
. 56 Zoonoses
.57 Bacterial and viral diseases
. 58 Other diseases
Subdivision may continue until literary warrant no longer exists; that is, 614.51 can be divided down to 614.512 Bacillary disease, and this to 614.5128 Tetanus. Then we stop subdividing the topic, though there may be subdivision of the literature on the topic; a dictionary of public health dealing with tetanus 614.512803 (in German 614.51280331).

The DDC has been criticised for its rigidity of division by nine at every step of its division. Division by nine has been likened to the procrustean bed. The major argument put forth by critics is that knowledge does not proliferate into nine branches at each stage of development. The growth of knowledge is not conditioned by any decimal or metric system. Division by nine is, according to these critics, a rigid and an artificial mould into which knowledge has been structured through force and violence reminiscent of Mr. Proerustes. The criticism is well taken. Here the notation has assumed the role of a master as it dictates its own conveniences. It distorts the structure of knowledge that DDC tries to represent.

It imparts a regularity and symmetrical pattern to the structure of the classification, thus promoting a powerful mnemonic capability. The decimal notation is simple to understand and apply; it provide infinite hospitality; it shows
subordinate and coordinate relations among subjects.

## Chain Structure

As noted above, the scheme is hierarchical in nature. It not only collocates the related material but also depicts through its notation the whole-part relations of subjects. It can be argued that the hierarchical pattern that the DDC so finely and easily depicts stems from the notation chosen. Whatever the case, it is an assert of the DDC which later classifications have admitted borrowing from the pioneering system. Progressive specificity is made visible by the lengthening chain of digits. Every progressive step of the unpeeling of a topic is accompanied by the addition of at least one digit to the immediately superior number. For example :

300 Social sciences
330 Economics
332 Financial economics
$332.1 \quad$ Banks and banking
332.11 Central banks
332.110952 Central bank of Japan

The subject denoted from 300 to 332.110952 build a chain of concepts, as they are in progressive subordination. In the schedules the chain of decimal digits is not depicted typographically, as it is otherwise quite discernible through the increasing length of the class number at each step. These subordination of terms is shown through the change of indentions to the right at every step. Chain analysis provides a mental ladder to arrive at a specific subject as each rung takes us nearer to out area of search by a progressive narrowing. (An added dividend : hierarchical notation is highly susceptible to computerisation.

Hierarchical structure also ensures that the instructions applicable to a given heading are equally applicable to all its subdivisions throughout the chain : (Just as the characteristics of parents are passed on to their children). This is called the Drip principle. There are exceptions to it, however, these will be discussed at the appropriate place.

## Array Structure

An array is a sequence of mutually exclusive entities of equal rank arranged in some chosen order. The main classes, divisions, and section of the DDC are three different arrays of classes. Array formations can be carried forward to any depth. For example, all he subsections four digit class numbers of a particular section from their own array. The class number 531.1 to 531.9 from the array of 531 mechanics. Quantitatively speaking, all the equal-digit class numbers, all having the same genus, form an array. Genealogically speaking, all the children
of a father form an array, while the family lineage forms a chain. Genealogical charts provide chains and arrays at the same time because they are twodimensional charts. Classifications, on the shelves cannot provide chain and array structure at a glance.

## Pattern in DDC Structure

The position of an entity in an array is not very important provided the array is exhaustive one, nevertheless, the order of the elements of any array tells us what is most important in the array and reveals the structure of the class the array represents. Over the years increasing synthesis in the DDC has emerged with recognised pattern.

The first subdivision of any array is generally given over to generalia topics, and the last division usually either expounds the historical and geographical treatment of the subject or is reserved for the rest of the unaccommodated topics, which are dumped together as "others". Thus the 9 "others" is a great hospitality device with the scheme. The array of the ten main classes (the first division of the universe of knowledge in the DDC) well illustrates this pattern, as the first division 000 denotes generalia subjects and the last 900 represents geography, history and other subjects. Pattern at the macro level is repeated at the micro level.

To illustrate the above array pattern from 320, we see that the 320.0 array represents the generalia topics of political science, and the 320.9 represents the historical and geographical treatment of the subject. If we investigate a little more the texture of the arrays, especially the third summary, we will see that the second and third sections of a division are generally made to represent the energy facets, and the rest of the sections in the array represent the personality facts. This can be illustrated from the array of 630 Agriculture, here 631 and 632 are two sections (dealing with the problems of agriculture) that can be added to the other sections and their subdivisions, i.e., 633-635, which represent the personality facet i.e. produce of 630 Agriculture. The above pattern can be seen in 540 Chemistry and 580 Botany; it can be seen elsewhere and almost everywhere. Such a pattern in the texture of the DDC is not widespread due to its early foundations, but is something that the structure of the DDC tends to reflect in the face of the increasing synthesis and the restructuring of the classes where possible.

## Hospitality

Hospitality of a classification is defined as its ability to accommodates the emerging topics at their proper places without dislocating the already existing ones. The longevity of a classification system is directly proportional to the efficiency of the hospitality devices employed.

Hierarchical notation provides infinite hospitality upon the given base and deterred somewhat by other practical realities : theoretically there is no limit to
the further elongation of a class number to any point demanded by the coexistensiveness of the subject. A newly-emerged independent topic hiterto forming an indistinguishable part of an already existing one may be easily accommodated at the end of the chain by adding another digit to the class number of the parent topic. It is an easy as to stretch an elastic cord. Hierarchy also makes it possible to adapt the DDC in any library, whether small medium, or large.

One disadvantage of the purity of notation inherent in the DDC's decimal fractions is that the accommodation of a new subject in an array is not easily done. If a new, independent subject merges in-between and coordinate with a class, say 510 Mathematics and 520 Astronomy, it is impossible to allot an appropriate place for such a subject. To avoid such a situation, one course of action is to leave some gaps in the notation that describes an array. For example, in he array 511-519 of mathematics, 517 and 518 have been left unassigned. If every a new branch of mathematics is developed, space is available (if the branch falls logically between geometry and probabilities).

In the third summary (the third level of subdivision in the DDC) there remain 86 unused classes; these are shown in the schedules by having their three-digit figures enclosed in square brackets. For example (136 unassigned) Some of these gaps may be used in the future. An gaps exist in all the arrays onward at any level. the more remote the array the greater the possibility of a home for a subject. The leaving of gaps is not a science; it is an art for its day. And the day may come when all the gaps are gone, but new subjects will continue to emerge and spin as we cannot turn our back upon them. Gaps are few in main class 600. Applied sciences, where subjects still merge dynamically. Moreover, the chain there has already been elongated to the limit of tolerance.

Another way to account for emerging fields is to redo several contiguous divisions, as has been done for 350-354 Public administration, 560-590 Life science in DDC-2 1 (1996).

The DDC is not the same as it was when created a century and quarter age. It has undergone constant changes; opened itself to latest developments in classification theory and information science and information technology. During the existence it has shown its mettle in the arena of bibliographic classification theory. What was remained stable is its basic plan, and its desire to serve librarianship.

## Further Readings :

1. Dewey Decimal Classification. Vol.I Introduction. Ed 23. 2011.
2. Satija (MP) and Camaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.
3. Sharma (CK) : Practical Handbook of Dewey Decimal Classification. Atlantic Pub. 2006.

LESSON NO. 2.2
DR. M.P. SATIJA

## HOW TO ASSIGN CLASS NUMBERS IN DDC

Work of practical classification consists of two distinct phases : intellectual work in sorting out the specific subject of the document under classification; and the craft of assigning the appropriate notations to the ascertained specific subject-yes, it is a craft, a mechanical work. These two phases can be likened to medical diagnosis and prescription respectively. If the aliment is correctly diagnosed then prescription for its cure can safely be administered by junior physicians. Former is an intellectual work, and for that reason the most important of the two. It is indeed the essence of classifying and somewhat independent of the classification system used. Determination of the specific subject of a given document is something of an elusive art. It is no exaggeration to say that it requires a tinge of intuitive insight. It easily comes through wide acquaintance with knowledge. This knowledge may constantly improve all through one's life, though may never reach perfection. Indeed, widely read people have more flair than others in determining the specific subject of a book. Indeed, a classifier has to be a jack of all... Intense specialization and very rapidly advancing frontiers of knowledge have, nevertheless, made it more difficult rather nearly impossible to know something about every subject. It is something which could be expected of scholars with encyclopedic knowledge such as Aristotle, Pythagoras, Francis Bacon, Leonardo de Vinci, Benjamin Franklin, Herbert Spencer, and lastly Bertrand Russell and Lala Hardyal who considered all knowledge as their province. It is atrocious to expect this much from lowly lying classifiers, a class of academicians with very humble knowledge and modernate intellect. It is not to suggest that to be able to assign an appropriate class number from a classification schedule our needs the intellect of Bacon or Russell. Far from that, an average librarian learns to do this job satisfactorily well.

## Subject Analysis :

The specific subject of a document may be determined by examining the document under classification through its title, sub-title, preface, table of contents, and the text itself. The name(s) of the author(s), subject index and the cited references may also provide some valuable clues. A classifier may occasionally consult some preference tools for help in this task. If all these efforts fail to arrive at the specific subject, the last resort is to consult some subject expert. This so far is the work in the domain of knowledge classification. Besides determining the specific subject of a book, there may arise many difficulties to class especially a composite book at its appropriate place. For all such difficulties
one can surely count on the classic book W.S. Merrill : Code for classifiers : Principles governing the consistent placing of books in a system of classification. Chicago : A.L.A., 1969, 189p. This book is independent of any classification system.

A librarian is always concerned with book Classification, as distinguished from the work of knowledge classification. Therefore, for book classification, besides the knowledge of knowledge qua knowledge, one needs to know the structure of knowledge, its subdivisions and various adjuncts in a particular system of classification. It is the work of match making : fitting in the subject into an already created pigeonhole. A classifier is essentially a match maker. To do this is needed the schedule and the technique to consult it. Contrary to Ranganathan's views the work of a classifier is more a matter of flair than anything else. Once the specific subject is determined decisively, the further need is to determine the core subject and its way of treatment by the author in context of the classification system used : that is determine from what viewpoint the subject has been treated. For example, a subject, say Economics, may be treated from the viewpoint of its philosophy, theory, history, research or from practical applications viewpoint. Further the above document treated from the viewpoint of its philosophy, theory, history, research or from practical applications viewpoint. Further the above document treated from any above mentioned viewpoint could be a dictionary, a journal or a mere collection of data in tabulated form. Not only this, any of the above internal or external arrangement may reach us in any of the numerous physical media, namely a book microfiche, video cassette, a film or a phonorecord, a CD-ROM or a multimedia item. Thus a classifier has to sort out three different aspects of a given document. After this is done, the only task left is to codify the subject and its treatment view-point into the decimal notation. First we codify the core subject then its viewpoints and physical media into decimal language and integrate there notations.

To enter the Decimal Classification, the better way is through its structured ladder (The other way is through the index, which will be discussed in the chapter on 'Relative Index'). One must know at the outset (through knowledge of the scheme) to what main class, and then to what division and finally to what section of the DDC the given work pertains. For efficiency, it is better to commit to memory the 100 Divisions of the scheme. It is not absolutely necessary though it surely lessens the avoidable leafing the page of the DDC schedules to assign a class number. With experience, many of the thousand sections come on one's fingertips. In this way, we go on narrowing our search successively at each step. Many a time we straightway reach the section concerned through our personal knowledge of the scheme by passing the scanning of ten main classes and its 100 divisions. If a subject is concerned with say education, we will go to 370 part of the schedules; and if it is concerned with medicine we look at 610 in the
schedules. Even if one is not conversant with the 100 Divisions, this much part of the class number should be worked through the three summaries given on pages 471 to 482 (Volume 1) of the DDC. The real need to consult the schedule arises on arriving, at the correct sections. To carry on the search for appropriate and specific class number all the immediate divisions of a section, viz., subsections are further scanned, which for the convenience of the classifiers are usually given at one place. For example, all the subsections of 515 Mathematical Analysis are given in multilevel or window type summary on page 626. These multilevel summaries have a great reference value, and save the time and patience of the classifier in nabbing the desired class number. In this way the search is carried down to the last level desired.

A classifier is like a traveller who has to select his path at every crossing where many roads diverge in various directions. By choosing the right direction at every step the classifier does not have to scour after the whole test to reach the desired class number (classifier will get lost if at any crossing a wrong path is followed). In this way the minutest number available may be the specific number to build further the coextensive class number matching exactly with the subject of the document under classification. The further extension of the class number may be either from the auxiliary tables or schedules. (This is discussed in the concerned chapters).

To illustrate this, say our subject is "Money". At the first instance we need to determine the discipline by examining whether the core subject of the book is minting of money or economics of money. If latter is the case, a knowledgeable DDC practitioner will tell at the outset that it is a subject of social sciences, then economics. On going to 330 Economics in the third summary (Volume 1, p. 476) we see that it pertains to 332 Financial economics. At this stage, we shift to the schedules proper at class number 332 (Volume 2, p. 261) Examining the summary of subsections of 332 (volume 2, p. 263) we find the subsection 332.4 Money, matching squarely with the subject of the given document. By assigning, the class number 332.4 to the document our search for the appropriate and specific class number ends.

Take one more example, "Anatomy of Human lungs". The book deals with a human body organ, so in a twinkling a veteran classifier can fell that it belongs to the main class Applied sciences, and then ton its Divisions medicine, which deals with human body machine, its part and functions. Looking through the Division 610 Medicine, we find that Anatomy (which is the science of Human organs) is 611, which is the desired section. At this stage we shift our search to the schedules at 611 (Volume 2, p. 828). Looking through the summary of the subsections of 611 (on page 829) we find that 611.2 Respiratory system is the next appropriate choice. Examining the further divisions (subsections) of 611.2 (page 830) we find the "Lungs" enumerated at 611.24 , which is our specific number. If the subject is "Study the teaching of lungs anatomy", the Dewey classifier will know that "Study and teaching" is an auxiliary aspect of the core
subject "Lungs anatomy", and the notation for the auxiliary aspect is to be taken from the Table 1 : Standard Subdivisions. Both the notations are to be combined as per rules.

In fact this is too facile a view of the process of assigning a class number to a document. In reality, a classifier may encounter many unheard and unimagined difficulties. Firstly, it may be borne in mind that we assign class numbers not to the title but to the specific subject of the document under classification. If the title fanciful one and the subject not explained in the subtitle (which usually is done) the specific subject of the book may be determined from the other places in the book. For example, a book with the title "Asian Drama" is not a book of creative literature but on the economic developments in the Third World. Sometimes the title may look incomplete, For example, a book may have a title "Shakespeare". At the outset one may not know whether it is the biography of Shakespeare, or his evaluation as dramatist, or poet, merely a collection his works. To classify correctly one will have to supply the wanting words from other parts of the text. On the other hand there may be many superfluous words in a title, which is usually the case. In such cases the title must be stuppled of such meaningless but decorative words, and the class number be assigned only to the core words connoting the subject succinctly. For example, a book may have the title "A Long and Exciting Expedition to the Himalayas". Here Himalayas expedition is the core subject and for the purpose of classifying one will have to ignore the remaining words, however, spiritually or emotionally important for the author. Melvi Dewey's "Introduction" to the $12^{\text {th }}$ edition of the DDC (1927) is also of still great use in this context. S.R. Ranganathan's eight step for classifying a document may be of great help to a novice classifier.

Above all the difficulty may ensure from the fact that no word in the title may be redunant, yet it may not be possible to assign a co-extensive class number to whole of the title. Take the title "Classification in School Libraries". In the DDC the class number for classification is 025.43 and that for school libraries is 027.8. There is no provision to integrate these two numbers. Here we will have to make a choice. Editors usually advise us to choose the more concrete of the two, which usually comes later in the schedules. Many a time, the Order of Precedence may be given : as under 362 Social welfare problems and services; and again at 362.79 Problems of and services to other classes of young people; and also at 363.1 and 364. Table of precedence is also given for the Standard sub-division in Table 1. Choice may also depend upon author's emphasis, or needs of the individual libraries.

Similarly, a book may treat more than one subject at a time. The classifier will have to choose a generic class number if possible or give class number for one of the subjects and ignore others. The reason is that the DDC still aims to group documents broadly as contrasted from the faceteers ambition to make
classification an artificial language of notation translating equivalently the subject of the book into the notation used. DDC does not aim to provide a unique class number for every document in the library. In reality it is an impossible task for any classification system.

Yet another difficulty may lie for the new subjects yet un-enumerated in the schedules. In such cases the book may be assigned to the closest possible broader class number, which may cover the subject of the book. In such cases, the standard sub-divisions are not added to the class number, even if the subject specially demands this. It is done with the hope that the new edition may probably provide a specific class number. In such a case the coexistensive class number may be provided by just adding a digit or two to the previous number, and the number from auxiliary tables may be added then. For example, a book may be "A Dictionary of Reclassification in Libraries". Here, we will have to put the book under classification 025.42, as there is no separate number for reclassification and the standard subdivision for dictionary is not to be added. For such problems the editors have provided guidance in DDC19 Volume 1, Sec 8.711-8.72 (pp lii-liv).

Another but more important problem may be of interpreting the schedules as per intended meaning. In spite of so many scope notes, and cross references, it is still an elusive task. However, some difficulty has been lessened by the publication of the Manual on the Use of the Dewey Decimal Classification : Edition 19 prepared by Dr. John P. Comaromi and his team (Forest Press, 1982). It provides interpretations of the class numbers and the headings used as done by the Decimal Classification Division of Library of Congress where the schedules are mostly prepared and first used. It is hoped by the Forest Press that this work will bring about more efficient, effective and more standardized use to the DDC. Even then subjectively in interpretation cannot be ruled out; and the subject analysis may disagree among themselves on the connotations of a heading and on the question of assigning a correct class number to a given book. J.B. Friis-Hansen aptly says that "Identical use of DC in all countries is impossible and hardly any chance of it exists. Identical classification of the same book is a difficulty, in one country, even by one person on different week-days" CIP data MARC Record, various national and trade bibliographies using the DDC, Manual on the Use of the DDC19 help to lessen this inevitable problem to a good extent.

## Further Readings :

1. Dewey Decimal Classification. Vol.I Introduction. Ed 23. 2011.
2. Satija (MP) and Camaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.
3. Sharma (CK) : Practical Handbook of Dewey Decimal Classification. Atlantic Pub. 2006.

LESSON NO. 2.3
DR. M.P. SATIJA

## NUMBER BUILDING PRACTICAL

Synthesis through "Add to......" Instruction from schedules.
(a) Add to from 001 to 999
(b) Add to from some slice of a class number from some other small portion of the schedules.
(c) Add to from the same division/section.
(d) Add to through special provision (facet indicator including the 04 general special :
Most of the specific subjects have readymade class numbers in the schedules as the DDC is basically an enumerative scheme. While for some other especially multifaceted subjects the number will have to be built on a given base number. The choice of the base number is the most important step to build the desired number. Ranganathan's facet formula is of much help in such matters, but that is no substitute to the familiarity with the DDC schedules. Every base number contains sufficient instructions in clear words to subdivide that number by any other number or part thereof.

On arriving at a specific number, it may be seen too frequently that if still required the number may be further subdivided by some number or its part as taken from the schedules itself. Broadly the above kind of general advice is that the decimal number should only be put after the first three digits when the whole number has been built.

Addition of any number from the whole schedule viz, 001-999. It seems easiest as to the designated base number, one is required to add another whole number from the schedules. It is as easy as that.
025.46 is library classification of specific disciplines and subjects. For library classification of any discipline one finds the instruction that to the base number 025.46 and 001-999. It means, we are to add the class number of that subject to the class number 025.46 e.g., Classification of books on mathematical analysis.
$025.46+515=025.46515$
(515 is the class number of Mathematical analysis)
Similarly, "Library Classification of India Philosophy" will get the class number.
$025.46+181.4=025.461814$
(181.4 is Indian Philosophy)

Similarly 026 libraries devoted to various specific disciplines is to be further subdivided like 001-999 for the class number of any library devoted to any specific subject

Science Libraries

$$
026+500=026.5
$$

Terminal zeros being redundant in a decimal figure have been removed in the ultimate class number.

Libraries of library and Information Science $026+020=026.02$
Libraries devoted to Indian Philosophy
$026+181.4=026.1814$
Library on Inorganic Chemistry
$026+546=026.546$
069.9 Museum devoted to specific discipline and subject are subdivided like 001-999 as per instruction for a museum devoted to specific subjects.

Museums of Zoology
$069.9+590=069.959$
Museums on Space flight $069.9+629.41=069.962941$
331.124 Job Vacancies and opportunities (Labour Economics)
331.1241 Job opportunities in occupations other than extractive, manufacturing and construction industries.

For job opportunities in Military Service : to the designed base 331.1241, as per instructions, we are to add the class number of Military Science taken from the schedules.
$331.1241+355=331.1241355$
Job opportunities in Library and information Science
$331.1241+020=331.124102$
Job opportunities in Public Libraries
$331.1241+027.4=331.12410274$
Student Societies and Organization
371.83

Student Organization in specific fields
371.84

It is to be further subdivided by 001-999 for student societies on specific subjects. To the base number 371.81 , we are to add the class number of that subject.

Students Chemical Societies
$371.84+540=371.8454$

Society of Library Science Students.
$371.84+020=371.8402$
Literary Societies formed by students
$371.84+800=371.848$
Educational Curriculum
375
As per instructions under 375.01-.09, curriculum for any specific subject is to be got by adding to the base number 375 , any appropriate number falling between 010-990*

Curriculum in Library Science
$375+020=375.02$
Curriculum in Dewey Decimal Classification
$375+025.431=375.025431$
Take another example :
778.53 Motion Pictures photography
778.538 Photography of specific subjects

To this base number we are required to add the class number of the subject concerned for its Cinematography.
$778.538+500=778.5385$
Many more such examples can be enlisted to topics admitting further division by the whole range of the schedules. However, this device is not to be used of its own : Classifier can use this number building device only on invitation, through one may be tempted to use such methods at one's own initiative.

One thing quite obvious is that whenever a class number admits further division from 001-999, ss (Standard subdivision), if required, for that subject is added with three zeroes, as two zeroes may be used sometimes for a subject class number. In such cases instructions exist for addition of a standard subdivision with the required number of zeroes.

Curriculum in Library Science
375.02

Directory of Curricula
375.00025

Here directory is a standard subdivision.
Similarly,
History of libraries devoted to various specific disciplines
026.0009

General libraries - A periodical
027.005

## Add to some designated base a portion of the class number from some smaller area of the schedule :

Instead of admitting a whole class number from anywhere in schedules a designated base may require addition from some specific part of the schedule, from a single main class or division or a section or even smaller than that. It is only a specialised extension of instructions "Add to...." from 001-999. In such a case instead of adding the whole class number to the specified base number a portion of a smaller number is added. Here the initial common digits from series of class numbers are removed, and the digit following these digits are added. This makes the resulting class number brief, without any ambiguity. There can be no difficulty in retranslation of the class number into ordinary language, too. For example,

## 181 Oriental Philosophy

181.04-. 09 Oriental Philosophy based on specific religions.

To derive the class number for any specified religious philosophy, we are instructed under 181.043-. 09 to add the number following 29 in 294-299 to the base number 181.0. For example,

Buddhistic philosophy
The number for Buddha religion is
294.3

Here the digits after 29 are " 43 ". These are to be added to 181.0 . The derived number thus is :
$181.0+43=181.043$
Similarly
Confucious Philosophy
Confuncianism is a religion, with the class number :
299.512

Hence the confucious philosophy will get the class number
$181.0+9512=181.09512$
Let us take another example :
331.2 Wages......of Labour
331.204 In specific Industries
331.2042-. 2049 In extractive, manufacturing, Construction industry.
For a class number for wages/condition of working in any specified industries related to manufacturing, extractive or construction, we are required to add to the based number 331.204 the number following 6 in 620-690.

Wages of Agricultural Labour
The number for Agriculture is 630 and the digit which follow 6 are 30. So

30 is to be added to the base number 331.204 the number following 6 in 620690.

Wages of Agricultural Labour
The number for Agriculture is 630 and the digits which follow 6 are 30. So 30 is to be added to the base number 331.204.

Hence
$331.204+30=331.2043$
Working conditions in Mines
$331.204+22=331.20422$
(The class number for mining being 622)
395 Etiquettes
395.1 Etiquette for specific ages and sexs.

The class number for Etiquette of a specified sex or age groups is to be got by dividing 395.1 (Base number) like 170.2024-170.2024.

The means we are to add to the base 395.1 , the number following
170.202 in 170.2022 - 170.2024

Etiquette for Men
$395.1+232=395.1232$
Whereas the class number for Ethics of Men and Ethics of Children are 170.202232 and 170.20222 respectively.

Take another example :
578 Microscopy in Biology
$578.4 \quad$ Use of microscopes
For the use of specific types of Microscopes, we are to extend 578.4 like the subdivisions 533.332, which enumerates the kinds of microscopes :
535.332 Microscopes
535.3322 Simple Microscopes
535.3323 Compound Microscopes
535.3324 Ultra-microscopes
535.3325 Electron Microscopes

Therefore, the corresponding numbers of Microscopes in Biology are :
$578.4+=578.42 \quad$ Use of Simple Microscopes (in Biology)
$578.4+3=578.43$ Use of Compound Microscopes
$578.4+4=578.44$ Use of Ultra-microscopes
$578.4+5=578.45$ Use of Electron Microscopes
Some more examples :
Wheat trade
$380.141+131$ (from 633.11 wheat) $=380.141311$
Air conditioning in Secondary School Buildings
$697.93+72$ (from 727.2) $=697.9372$
Air conditioning in law school buildings
$697.93+7434=697.937434$
Reviews of documents in Microforms
028.13 + 6 (from 011.36 )
$=025.136$
Reviews of Braille books
$028.16+3$ (from 011.63 )
$=028.163$
"Add to $\qquad$ " From the Same Division

There is a subtle difference between "add to....." instruction from the same Division/Section, and the number being added from some remote part of the schedules. This difference lies not in the method, but in the nature of the part of the number added. As said earlier, a Division is so further subdivided into sections, that second and sometimes (third also) section enumerate the action Ranganathan language. These personality facets from section XX3-XX9 are further divisible by the facets of XX1 or XX2; thereby giving the general citation order as personality followed by action. Exceptions are however there to this citation order. Therefore, actually it is an addition of a secondary facet. One can say without reservations that this technique has made the scheme really multifaceted. There seems not much difficulty in adding such a facet. It is more easy in light of the fact that one has not to flip many pages of the schedules, Frequently occurring characteristic of such a facet is that, this "add to..." instruction occurs not alone but one finds instructions to add a part of a particular numbers to a series of topics. Therefore, instead of repeating instruction at every class number, the editors give instructions at one place, and the class numbers or base number in this context susceptible to such a facet are marked with an asterisk. The meaning of asterisk is explained at the footnote of every page where asterisked base numbers occur. Another characterisitc is that such a facet is generally added through a facet indicator, prescribed used the instructions. For example, take the title.

## COTTON HARVESTING

Here cotton is the concrete subject, so will form the base number. Obviously this is a subject of agriculture; going to 630 Agriculture we find the number for Cotton at
633.51 Cotton (Gossypium)

It is marked with an asterisk, which at the page footnote explains : "add as instructed under 633-635". Going back to the instructions given at page 1041, we find a series of instructions. The very first instruction is relevant to our
purpose. We are asked to add to the base class number, the digits following 631.5 in 631.51-631.57. The class number, for Harvesting is 631.55. It means that as per instructions, we are to add to 633.51 the number following 631.5 i.e. 5 only. Therefore, the complex class number for Cotton Harvesting is
$633.51+5=633.515$
Similarly, we can add to 633.515 the whole series of number from 631.51.57

Soil preparation for, Cotton
$633.51+1=633.511$
Cotton Seeds
$633.51+21=633.5121$
New varieties of Cotton
$633.51+23=633.512$
Cotton yield
$633.51+58=633.5158$
Cotton Storing
$633.51+68=633.5168$
Take another example :
Reproduction in Protozoa
In this case protozoa with class number 593.1 will form the base number. Here we are told to add as instructed under 592-599 (p. 795). Instruction relevant to our purpose is 04 General Special, it means for general principle i.e. (action facet) we are to add first 04 to the designated based and further add the number following 591 in 591.1-591.8.

In 591 the number for reproduction is 591.16 . Therefore we are to add only "16" to the above compound number
$593.1+04+16=593.10416$
Here "04" only acts as a facet indicator. The general principle that emerges out is that we can add all the subdivisions of 591 to all the class numbers from 592-599, through a facet indicator either 0 to 64.

Reproduction in Invertebrates
Class number for Invertebrates is 592
General principle of Invertebrates.
592.01-.08

For a specific general principle, we are asked to add to 592.0 (Zero being, a facet indicator) the number 591 in 591.1-591.8.

Class numbers for "reproduction" is
591.16

Thus we are required to add 16 to 592.0 . The complete class number therefore for Invertebrates Reproduction is :

$$
592.0+16=592.016
$$

Similarly, we can build a series of class number on the base 592.0 for general principle of Invertebrates.

Physiology of Invertebrates $592.0+1=592.01$
Biophysics and Biochemistry of Invertebrates. $592.0+19($ from 591.19) $=592.019$
Evolution of Invertebrates
$592.0+38($ from 591.38$)=592.0 .38$
Anatomy of Invertebrates
$592.0+4=592.04$
Ecology of Invertebrates
$592.0+5($ from 591.5$)=592.05$
and so on.
It may be noted that since 0 has been utilized as a subject facet indicator, so all the standard subdivisions from Table 1 should be added with a double zero :

Dictonary of Invertebrates
592.003

Journal of Invertebrates
592.005

Experimental Research in Invertebrates
592.00724

But wherever the General Principle facet is added through "04" the standard subdivision can be added with the normal zero :

Dictionary of Protozoa
593.103

Study and teachings of Protozoan Zoology 593.107

Take another example :
Chemical Kinetics of Alkalodis
Basic number for Alkaloids is
547.72

Here, we are asked to add, as per the footnote, as instructed under 547 (on page 697). Since Chemical Kinetics is a topic of Physical Chemistry, so, the third instruction i.e. 045 Physical Chemistry is relevant to us. Here, we are asked to add to 045 the number following 541.3 in 541.34-541.39.

It means 045 is a compounded facet indicator.
Number for Chemical Kinetics is
541.394

The digits following 541.3 are " 94 " in this case. Thus the complete class number for the title in question is :
$547.72+045+94=547.7204594$
In this manner we can extend any class number in 546 and 547.
For example
Optical properties of Alkloid solutions
$547.72+045+414=547.72045414$
Thermodynamics of Chemistry of Alkaloids
$547.72+045+69=547.7204569$
Facet indicator for adding from the subdivisions of 541.2 is 044 as per the same instructions.

Stereochemistry of Alkaloids,
$547.72+044+23($ from 541.223$)=547.7204423$
Quantum Chemistry of Alkaloids
$547.72+044+8=547.720448$
Similarly in 294.4 Jainism, General Principles of Jainism have been placed in 294.41-.48. These General Principles can be further individualized as in 291; for this we are asked to add to the base 294.4 the number following 294 in 291.1 - 291.8. Let us take an example.

Sacred books of Jains
Our base number is 291.4 and the number for sacred books in 291 is 291.82. Thus to the base 294.4 , we will add " 82 ". Hence the class number for "the sacred books of Jains" is
$294.4+82=294.482$
Similarly,
Jain Eschatology
$294.4+23$ (from 291.23) $=294.423$
Sacred places for Jains
$294.4+35=294.435$
Worship in Jains
$294.4+43=294.443$
Jain Saints
$294.4+61=294.461$
Some of the most important examples of such a synthesis occur, however, in 350 Public Administration where 351 is Central Government (theoretical principles). All the Central Governments of various countries except US

Government, have been put at 354.3-9. For Central Government of a country, we are asked to add to the base number 354, the area notation for that country from the Table 2. For example,

Union (Central) Government of India
$354+54(\mathrm{~T} 2)=354.54$
Central Government of Italy
$354+45=354.45$
For specific organ or aspects of the executive of the Central Government, we are required to add to the resulting class number, a zero and further add the digits following 351.00 in
351.00 - 351.004. For example :

President of the Government of India
For Government of India we have.
354.54
and as per instruction (page 444) to this base we will add a zero $=354.54+$ 0 and further we will add to it the digits following 351.00 in 351.00313 , viz "313". Hence the complete class number for the India's President is $354.54+0+313=354.540313$
Similarly,
Queen of Great Britain
$354+41$ (Area Table) $+0+312$ (from 351.00312)
$=354.410312$
Vice-President of India

$$
354.54+0+318=354.540318
$$

Cabinet of Jammu \& Kashmir Government $354.546+0+4($ from 351.004$)=354.54604$
Similarly,
Indian Ministry of Finance $354.54+06$ (as under 354.3-.9, p. 444) +2 (as under 06) $=354.54062$
Indian Ministry of Defence $354.54+06+6=354.54066$
Some more examples :
Power of the US President
$353.03+22($ from 3514.00322$)=353.0322$
Powers of the President of the Republic of India
$354+54$ (Area Table) $+0+313$ (from 351.003 13)
$=354.540313$
This is in fact the class number for the President of India, as the further extension is not possible.

Term of Office of the Prime Minister of India (the Chief Executive)
$354+54+0+34($ from 351.0034$)=354.54034$
Cabinet of Madhya Pradesh
$354+543$ (Table 2) $+0+4$ (from 351.004)
$=354.54304$
Problems in Acquisition of Government Publications
$025.28+34$ (from 025.1734 ) $=025.2834$
Book Selection in National Libraries $025.218+75($ from 027.5$)=025.21875$
(Area can also be added to 027.5)
Book Selection in the Library of Congress $025.218+75+73$ (Table 2) $=025.2187573$
Reference Service in Children Libraries $025.527+7625($ from 027.625$)=025.5277625$
Cataloguing and indexing of Microforms $025.34+94($ From 025.1794) $=025.3494$
"Add to..." From the Same Section
Sometime some special facets, applicable to all the subdivisions of a Section are enumerated in the beginning of the same section. These special facets are of general applicability within the same section. Instructions are provided against each subsection and their further divisions to add the desired facet. Take for example, the title :

Heart Diseases Physicians
or Heart Specialists or Cardiologists
For heart diseases, we will have to go to the section dealing with all the diseases in medicine 610. The number for diseases is 616 ; and the specific number for heart diseases is
$616.12+0232=616.120232$
Similarly,
Prevention of Heart Diseases $616.12+05=616.1205$
Case studies in heart Diseases $616.12+09=616.1209$

In such cases, since the subject divisions have usurped the original place of the standard subdivisions, therefore, the standard subdivisions are advanced to the place beginning with a double zero :

Research in Heart Diseases $616.12+0072=616.120072$

Similarly instructions are also found under the subdivisions of 618
618.1 Gynaecology
618.11 Diseases of ovary

As per similar instructions one can add to this number any required facet enumerated under the heading 618.1-618.8

Preventive measures for ovary diseases
$618.11+052=618.11052$
Surgical treatment of ovary diseases
$618.11+07=618.1107$
Take another example
746 Textile arts and handicrafts.
To many of the subdivisions of 746 may be added special subdivision given under 746; and whenever these special facets are admissible such places have been marked with an asterisk.

Crochet Patterns :
Under 746 the specific class number for crochet is 746.434
and as per instruction we add to it the number for "Pattern" given on page 1283.

Thus the complete class number is :
$746.434+041=746.434041$
Pattern in Woven Carpets
$746.72+041=746.72041$
Similarly, under 787-789, "other" instructions and their music, many special facets have been enumerated, which can be added as explained before, to the subdivisions in 787-789

Guitar programmes
$787.61+0739=787.610739$
One can add area notation from Table 2 to 0739, if required :
Guitar Programmes in U.S.A.
$787.610739+73(\mathrm{~T} 2)=787.61073973$

## Guitar Scores

$787.61+5=787.615$
Take another example in 546 Inorganic chemistry. Here almost all the individual elements are extendably some special facet enumerated once for all in the beginning under the general heading 546 Inorganic chemistry. The instructions here is : Add to each subdivision identified by as follows :

1. The Element
2. Compounds
```
22 Acids and bases
24 Salts
25 Complex compound
```

5Physical chemistry
6Analytical chemistry

For example, if the subject is Potassium salt

Class number for Potassium is 546.383
and "Salt" is a Special facet having number "24".
The complete class number for Potassium salts, therefore is :
$546.383+24=546.38324$
Similarly, the Special facet for "Physical Chemistry" of individual elements is " 5 ". As per instruction, it is further divisible as the subdivisions of 541.3 as in 541.34-541.39. We are to add to 5 the digits following 541.3 in 541.34-541.39. We are to add to 5 the digits following 541.3 in 541.34-541.39
Take for example
Physical Chemistry of Potassium $546.383+5=546.3835$
Chemical Kinetics of Potassium
(It is a topic of Physical Chemistry)
The base number is 546.383

Since it is a Physical Chemistry aspect, so we add 5 $546.383+5=546.3835$
The digit " 5 " is further extendable by the subdivisions of 541.3
The class number for Chemical Kinetics is 541.394

The digits that follow 541.3 are "94". Hence the complete class number for Chemical Kinetics of Potassium is $546.383+5+94=546.383594$
Similarly,
Isotopes of Potassium
$546.383+5+88=546.383588$
Photochemistry of Potassium
$546.383+5+5=546.38355$
Quantitative Analysis of Sodium

$$
546.382+65=546.38265
$$

Some of the facets applicable to some of the subdivisions of 721-729 specific aspects of architecture have been enumerated there on page 1238.
722 Ancient and Oriental Architecture
722.11 Chinese

It, as per instruction admits a facet enumerated under 721.729
Maintenance and repair of the Chinese Architecture $722.11+0289=722.110289$
Preservation Theatre Buildings $725+82+0288=725.820288$
Architecture of Buildings for physically handicaps 725.54
(Here there is no need to adding "42" from the facets given under 721-729)
Preservation of Knitted laces
$746.22+0488=746.220448$
Repair of Woven rugs
$746.72+0489=746.720489$
Scores of Children Songs $784.624+06=784.62406$
Collection of Duet Songs sung by Children $784.82+1($ from 784.30611$)=784.821$

## Self Check Exercise 1

Classify the following titles using DDC $19^{\text {th }}$ ed

1. Classification of choreography
2. Prices of Cheese Production
3. Journal of Library Science
4. Classification of Social Sciences
5. Storing of China Jufurther Readings :
6. Satija (MP) and Comaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.
7. Sharma (CK) : Practical Handbook of Dewey Decimal Classification Atlantic Pub. 2006.


PROCESSING : CLASSIFICATION PRACTICE - CC AND DDC
LESSON NO. 2.4
DR. M.P. SATIJA

## USE OF TABLE 1 : <br> STANDARD SUBDIVISIONS

Knowledge, which is the predominant basis of library classification, is an abstract entity. It cannot have any form by itself. It requires some physical media for its encapsulation, dissemination, and preservation above all. A document, which is a source of knowledge, has always some physical form. Library classification on the face deals with documents. Library Classification in effect deals with knowledge as contained in documents. Therefore, library classification has to take into full account the outer attributes of these physical objects embodying knowledge. The library classification may be described by the following equation :

Library Classification $=$ Knowledge Classification + Viewpoint of the presentation of the text + Physical attributes of the document $=$ Subject + Internal form + External form.

These documentary forms are both internal and external. For example, it may be expedient in a library to separate a microfilm, or a phono record or a disk from a useful book, through the specific subject of these media may precisely be the same. It is equally expedient to distinguish between a dictionary and a periodical of a subject as well as the philosophical viewpoint from the historical one of the same subject.

To account for such physical attributes of the documents. Melvil Dewey in the second edition (1885) separated such non-subject forms of the documents and listed them in the beginning of each Division. These; tables could be attached to any class number and always remained the same in name and notation. The notation for such recurring, concepts always starts with a zero and they have meaning only when attached to some class-they cannot be used independently. "These are described as form divisions, as mostly they stood for the form of the document. In the seventeenth edition (1965) these form divisions were veritably renamed as "standard subdivisions", as these recurring non-subject divisions gathered there had obviously outgrown the form divisions. Now, they include some recurring viewpoints, and even facet indicators as they stand in the nineteenth edition. They are called "standard" because their meaning and notation remain the same whether they are used. What started truly as "form divisions" have evolved parri passu with complexities and varieties of incoming documents, to a conglomerate of some complex but recurring concepts terms as standard subdivisions. The standard subdivisions as they stand in DDC-19 (Volume 1, pp. 2-13) may broadly be
categorised as under :
01, Parts of 02, 07 and 09
View point
02 partially, 03, 05 and 06
Internal forms of treatment of
subject
04,08 and to some extent 09
Facet indicators to introduce a new facet.

Scope of the standard subdivisions has so much been widened that it is advisable to go through the Table 1 (in volume 1) to know their scope and variety. Some standard subdivisions give the illusion of a subject division. A knowledge of their nature and scope will surely add to the efficiency of the classifiers, Rules for adding standard subdivisions to a class number have been provided in Section $5.24,8.53$ and 8.7 of the "Editor's Introduction" in Volume 1. Here rules have been explained to use Table 1, and some advice is given for the situations where the classifier may feel intrigued. Some brief instructions to apply them and the Order of Preference also precede the actual Table 1 (page 1, Volume 1) Rules for adding a ss are summarised as follows :

1. Standard Subdivisions are added to the ultimate class number of the document in question. Having reached the most specific class number, we do not necessarily need any invitation to add any standard subdivision.
Encyclopedia of Islam
$297+03=297.03$
(Here Islam is the subject and Encyclopaedia the standard subdivision) History of Ahmadiya Movement
$297.86+09=297.8609$
(Here we have added ss 03 and 09 respectively, though there are no instructions to do so at these class numbers).
2. Subject whose specific class number yet do not exist in the schedules, should not be expanded with any ss. For example,
Standards for goat's milk
Here, "standards" is a ss whose number is-0218 in (Table 1). Goat's milk is a subject of animal husbandry. Where milk production is 631.1 (which is cow's milk). All other milks are put under 637.17 with no further subdivision. Thus no specific class number has been provided for goat's milk. Therefore, as per rules, we cannot add the standard subdivision here; the correct class number, therefore, is 637.17 and not 637.170218. This is done not because of any structural difficulty; it is an advice to ease expansion in the future. May, be some further edition, depending upon its literary warrant, provides a number for goat's milk, which probability would be a subdivision of 637.17 . If the ss is added to 637.17 it may entail total and
rewriting when we provide co-existensive class number in conformity with some future edition.
3. Usually two standard subdivisions are not applied in succession to a class number. If a subject poses two standards subdivisions, then only one is to be applied, on preferential basis, and the other is to be ignored. Table of preference is prefixed to the Table 1. If we examine, the preferential order it becomes obvious that facet indicator general special is followed by viewpoints, and the real form divisions come in the end. It means internal forms are to be preferred over the external forms.
Let us take the example "Encyclopedia of Organisations on "Applied Psychology". Here "Encyclopaedia" and "Organization" both are ss with notation 03 and 06 respectively. Therefore, only one of them is to be added. As per preferential table, "06" is to be given preference over "03". Therefore, the correct class number is 158.06 and not 158.03 or any number combining the two ss viz., 158.0306.

Similarly, "Directory of library School in India" will get the class number 020.711
54 instead of 020.2554
Therefore, whenever there are two standard subdivisions, this table must be consulted to know which of them is to be applied, and which is to be ignored.

If, however, a class number is susceptible to two standard subdivisional such cases in the schedule have been spelled out. For example, "Philosophy and theory of Nursing" : 610.7301. The class number is enumerated. Here 073 Nursing and 01 Philosophy both are standard subdivisions. Such cases admitting two ss through a few are clearly indicate. However, any standard subdivision from 01.09 may be added to the ss 04 . The reasons are obvious : 04 is not a ss in the real sense.

## IRREGULARITIES

## Extension in Meaning

If any of the ss when applied to a class get some local name in that context, then in that schedule all such proper standard subdivisions are to be used. In all such cases, the notation is compatible with the Table 1, but the nomenclature is somewhat modified. Striking example of such an extended meaning exists in 610 Medicine. In Table 1, we have - 073 students, learners, apprentices, novices; when it is added to 610 to make 610.73 , it gets the meaning "Nursing and other activities auxiliary to Medicine profession". Similarly the ss 013 value is context of 331 labour economics has been the meaning : "Freedom, dignity and value of labour".

Also the extended meaning, of ss 01 philosophy and theory exists in the Main Class 700 Fine Arts :

701
Philosophy and theory of Fine and Decorative Arts.
701.1

Appreciative Arts
$701.17 \quad$ Aesthetics
$701.18 \quad$ Criticism and appreciation
Such an extension of the ss 01 does not exist elsewhere. Similarly, the ss 08 Anthologies has been given the extended meaning Rhetoric and collections of literature (irrespective of language) which has further been subdivided as per need.

808 Rhetoric and collection
808.02 Authorship and editorial techniques
808.25 Writing for publication

However, the classifiers should abstain from giving their homemade extended meanings to standard subdivisions, however, demanding the situation be : and howsoever, apt the self extended meaning may appear to them.

## Irregular Places

Going beyond the extended meaning some standard subdivisions are shown a subject divisions and consequently moved to a division in the array. It happens in case that compound subject has a subject value and considerable literary warrant. Such a treatment allows further extension of such subjects. This happens usually for the geographical and historical treatment of a subject :
331.2 Wages (Labour economics)
331.29 Historical and geographical treatment of wages, instead of 331.209

To avoid cross classification cross reference is provided from the probable class number likely to be looked by the classifier to the actual number used in the schedules. For example, in the above case, the not used class number (331.209) is enclosed in square brackets, and a cross reference here directs the classifier to 331.29. Similarly, techniques, apparatus, material for art metal work is 739.1 instead of 739.028 . Though techniques, apparatus etc., is ss but here it has been enumerated like a subject. Similarly, 534.9 is Table reviews, exercises in sound physics, instead of 534.076 . Again in 535 optics 535.9 is Reviews and exercises in optics instead of 535.076 .

Similarly, 720.9 is Historical and geographical treatment of Architecture. But the architectures of specific ages, instead of being provided in 720.091.-905 have been shifted to 722-724. According at 720.901-.905 one reads the instructions "Do not use, class in 722-724." Therefore :

Medieval Architecture
722 instead of 720.902
Twentienth Century Architecture
724.91 instead of 720.904

Similarly, Historical and geographical treatment of art metal wok in gold.
739.227 instead of 739.2209

Consequently :
Goldsmithy around and before 1000 BC
739.227013 instead of 739.2209013

Another interesting aberration occurs at 666.3 Pottery-Ceramic technology. Here, we are asked to add ss at 666.31-39, instead of at the usual place viz. 666.309. Here a Journal of Pottery will get the class number 666.35, and Teaching and study of Pottery will be 666.37 and so on. Not only this, there is one exception to this exception viz. "techniques, procedures, apparatus, equipment, material" another ss, is to be placed at 666.4, instead of placing at the usual 666.328.

Similarly, some other irregularities also occur in case of the use of Chronological Table. In usual cases any chronological period division is to be taken from the Table 1, where the "ss" "09" has been further subdivided as 0901-0905 enumerating all periods of history. These are obviously attachable to any class number, but for some classes, for example 800 Literature, and 900 History, some special "Period Tables" have been provided. Therefore, in such cases these tables are to be used, instead of the general one viz. at ss 09. In fact, in case of Main classes 800 and 900 period is a subject facet, instead of being merely an auxiliary.
For example :
$20^{\text {th }}$ Century English Poetry
821.91 instead of 821.0904

Elizabethan English Drama
822.3 instead of 822.09032

History of India in 1970's
954.05 instead of 954.09047 or even 954.047

England under Elizabeth I
942.055 instead of 942.09031 or 942.031

History of $18^{\text {th }}$ Century Germany 943.05 instead of 943.09033

One more interesting irregularity occurs in 340. The usual place for ss here is given as 340.02.09 Dictionary of law. For example;
340.03

Study and teaching of law 340.07

But the philosophy and theory and theory of law has been placed at 340.1 with its own extended meaning :
340.112 Law and ethics (Ethics for lawyers falls in 170 ethics)
340.115 Law and society.

Extending the irregular use of the standard subdivisions a bit further, we find numerous cases, where a geographical facet is made inherent in the structure of
the class number. In such cases, the geographical facet is not added through the ss 09. For instance

General Statistics of Europe
314 instead of 310.094
General Statistics of France
314.4 instead of 301.0944

General Statistics of India
315.4 instead of 310.0954

Many a time, a classifier finds two places for the historical and geographical treatment of the subject. Both of them have their own meaning. We must learn to perceive through the subtle difference between the subject as an academic discipline, and the actual practical conditions in the field. A good example has been provided by 320 Political Science where
320.09 Historical and Geographical treatment of political science.

And 302.09 Political situations and conditions.
The correct class number for Political conditions in India will be 320.954
Similarly
591.09 Historical and geographical treatment of Zoology.

But 591.9 Geographical treatment of animals (Fauna)
Animals of India and Pakistan
591.954 instead of 591.0954

Similarly,
592 Invertebrate Zoology
592.009 Historical and geographical treatment of the study of invertebrates.
592.09 Geographical treatment of invertebrates Zoology.
592.0954 Invertebrates (fond in India)
020.9 History of Library Science
027.01-.09 Geographical treatment of libraries.

History of Library in India
027.054 instead of 020.0954

In case of 027, General Libraries, an unusual separation of historical and geographical treatment has been made;
027.009 Historical treatment of libraries.
027.009045 Libraries of the World in 1960's
but 027.054045 Libraries in India in 1960's
Similarly, a standard subdivision may be redundant, if the form or viewpoint is already inherent in the subject itself :

Dictionary of English Language

423 instead of 420.3 or 423.03
History of India
954 instead of 954.009
(Which may mean history of historiography in India not in India necessarily).
Similarly, under 340 Law, use of ss 026 law is redundant, though the use of the latter is itself optional in the $19^{\text {th }}$ edition :

Banking and Insurance Law
346.08 instead of 346.08026

Such examples may be multiplied enormously. It will be an interesting and useful exercise to isolate all such cases of irregular use of standard subdivisions.

## Enigma of Zeroes

In Table 1 every ss begins with a featured zero, which is essentially a facet indicator making the transition from subject divisions to the form division in the class number. The original rules for adding, standard subdivisions, though quite simple and uniform in the beginning, have become rather complex in the face of the warping structure of the DDC. Sometimes a featured zero may seem missing, while at others ss may begin with one, two or even three zeroes. These exceptions to the rule of one zero in ss, so out number the normal cases that abnormality is the rule now; and the pristine rules are applicable in exceptional cases. This has happened due to many strutctural variations in the schedules to accommodate the new subjects. These oddities have been abruptly grafted rather than evolved through. Therefore, some subjects have been pre-positioned to usurp the hereditary place of standard subdivisions. For example, 344.05 is not a journal of social law, but its subject division connoting "Police services, public safety, public morals and customs". Similarly, 616.07 is not study and teaching of diseases but means medical microbiology. Similarly, 535.014 is Ultraviolet light; instead of terminology of optical physics. Sometimes a subject division may being with two zeroes, as 351.002 means Finance Department of a Central Government, and 351.004 means Cabinets and councils of State. Since the position for standard subdivisions have been occupied by subject divisions, therefore, in such cases, the standard subdivisions are so designated to distinguish them from subject divisions to avoid confusion. This is done by denoting the ss with two zeroes or three zeroes as the case may be. Hence, there is no fixed formula for attaching or identifying a ss. The only formula is to follow the instructions, if any, provided in the schedules under a class number. In all such abnormal cases, the adequate and clear instructions are invariable provided. Such irregularities have discounted a great deal the mnemonic value of the scheme, and consequently the efficiency too has been at stake.

Dictionary of Human Diseases
616.003

Philosophy and theory of Constitutional Law 342.001

Journal of Constitutional Law
342.005

In case of 350 Public Administration, ss are to be added with three zeroes, as the subject division start both with one zero or two zeroes.

Study and Teaching of the Subject of Central Government. 351.0007

Journal of Central Government 351.0005

Journal of Local Government 352.0005

Journal of US Government
353.0005

## Rules for Adding Standard Subdivisions :

Subject to the above rules, a standard subdivision may be added to any class number. If the ultimate class number is a main class or a division i.e. ends with two zeroes or one zero, the zeroes filling the vacant space are to be removed before adding a standard subdivision; and the digit are reshuffled that the dot is put after the firs three digits. For example, take a title "Encyclopedia of Science. Science is 500, and Encyclopedia is a ss with notation 03. Since in 500 there are two formal zeroes, therefore, these are to be removed.

The synthesized class number is

$$
500+03=503
$$

Similarly
Journal of Philosophy $100+05=105$
In 510, Mathematics, we have only one redundant zero, so, it is to be removed while adding any standard subdivison :

History of Mathematics

$$
510+09=510.9
$$

Philosophy of Mathematics

$$
510+01=510.1
$$

The reader may be reminded here the zero/zeroes removed are those not belonging to the ss but to the class number. The featured zero of the ss is a always there.

But these statutory zeroes are not be removed, or removed partially as the occasion may demand, if the subject divisions have been moved to the places of ss. For example

## Dictionary of Social Sciences

300.3 and not 303

Here only one zero has been removed, though there are two reduntant zeroes in 300 social sciences. This has been done because the class number 303 has already been assigned the meaning of "Social processes", in Sociology. Similarly, 532.005 in Journal of Fluid mechanies instead of 532.05 , which means Dynamics here. Here (under 532) instructions have been provided to use ss at 532.001532.009. Such instructions do not have a hierarchic force, i.e., ss to the subdivisions of 532 are to be added with normal zeroes, as there will be no ambiguity on that account.

Journal of Dynamics
532.0505 instead of 532.05005

Research in Statistics
532.02072 instead of 532.020072

Here are given some more examples to illustrate the variety and scope of standard subdivisions :

Tools for Descriptive Cataloguing 025.32028

Library and Information Science as a profession 020.23

Acronyms is Library and Information Science 020.148

Indian History through Pictures 954.00222

History of Mughal India through Pictures
954.0250222

A VCR on the DDC 025.4310208

A VCR on the history of the DDC 025.43109

History of the DDC up to the end of $19^{\text {th }}$ Century 025.43109034

Exercises in the DDC 025.431076

Many of the Standards subdivisions may be further extended by synthesis either through Table 2 to 7 or from the schedules.

Optical principles of coordinate and Post-coordinate indexing $025.484+015(\mathrm{~T} 1)+35$ (from the class number 535 optics) $=025.48401535$
Here 015 Scientific Principle is a standard subdivision which is to be further
divided like 510-590 and optics is 535.
Indian Library Association
$020.622+54($ Table 2) $=020.62254$
Class Number for a National Library Organisation is 020.622 to which area notation from Table 2 is to be added as per instructions.

Universities imparting Library Science education in Maharashtra State.
$020.711+54792=020.71154792$
Under 07 Study \& Research - 0711 is a ss standing for College and Universities which is further divisible by area.

Research in Library Classification in Canada $025.42+072+0+71=025.42072071$
Life of Melvi Dewey by Wayne A Wiegand 020.924

Autobiography of S R Ranganathan edited by PN Kaula 020.924

Dictionary of Philosophy $100+03=103$
Dictionary of Philosophy in French 10.341

Here 03 has been extended by Table 6 where number for French language is 41.

History of Philosophy in India $100+09+51=109.54$
(It is not the history of Indian Philosophy). Here the ss 09 has been extended by the Area Table.

Reader Advisory Services to Doctors $025.54+08861=025.5408861$
Here, the subject has been treated among Doctors (non-racial, non-ethnic, regardless of national groups of people). Here ss 088 has been extended by Table 7 , where number for Doctor is 61

Reading interests of Doctors. $028.9+088+61=028.908861$
but
Reading Interest of Children 028.55

Here the use of ss 088 and its extension by Table 7 for children will be redundant, as the Class Number itself means children.

Reading Habits of Doctors (National Group) $028.9+088+61=028.908861$

Here the use of ss 088 and its extension by Table 7 for children will be redundant, as the Class Number itself means children.

Reading Habits of Indians (National Group)

$$
028.9+089+91411=028.908991411
$$

is a ss for treatment of the subject among national groups, which is to be further extended by the Table 5, where number for Indians is 91411 . The use of ss 088 and 089 should be distinguished from -024 which means a wok for specific type of users.

Dewey Decimal Classification for Indian Practitioners

$$
=025.4310240391411
$$

Science for School Children 502.40544

Child Psychology for Parents 155.40240431

Mathematical Statistics for Librarians 519.5024092

Arithmetic for Managers 513.024658

Political Conditions of the world in the Century
320.905

Political conditions of India in the next Century $=320.95405$

Self-check Exercise-2
Classify the following titles using DDC, Ed 19.

1. Marxian economics in 1950s.
2. Serial Publication on Vocational Education.
3. Research on life sciences in India.
4. Theory and philosophy of statistics.
5. Foreign trade between India and Australia.

## Further Readings :

1. Dewey Decimal Classification. Vol.I Table I : Standard Subdivision Ed 19. 1979.
2. Satija (MP) and Camaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.

# BACHELOR OF LIBRARY \& INFORMATION SCIENCE <br> PAPER - BLIS- 105 KNOWLEDGE ORGANIZATION AND INFORMATION PROCESSING : CLASSIFICATION PRACTICE - CC AND DDC 

LESSON NO. 2.5
DR. M.P. SATIJA

## USE OF TABLE 2 : AREA

## Introduction :

Whenever a subject is studied within the context of a given geographical area, the ultimate class number from the schedule may be qualified by the area number taken from the Table 2. Need to add Area notation usually occurs in Social Sciences and Humanities where the treatment and practice of a subject varies from place to place. Here area is more or less an integral part of the subject. Some other disciplines may also need the area facet occasionally. Where a schedule does not authorise us to add from the area table, the area table can still be added through the ss 09 from Table 1.

This is largest of all the auxiliary table (vol-1, pp. 14 to 386 out to the total of 452 pages). Its length consists not in any variety of subdivisions as it is in detail. A brief paragraph of instructions (p. 14) precedes the enumeration of area numbers. All areas of the World, natural geographical divisions, or political or administrative units, or some scattered geophysical divisions of earth or some non-continuous conceptual division based on various characteristics of people who habitat them, have been accommodated in divisions 1 to 9 . The area 1 stands for the scattered regions round by some geophysical characteristic or by some social characteristic, e.g. Plane regions, forests, deserts, oceans, socio-economic regions and so on. The digit 2 has been allotted to persons regardless of area, region places. Digit 2 denotes the ancient world, and the modern world as divided into various continents, countries, provinces, cities has been donated by the notation 4 to 9 . Obviously the list of the geographical subdivisional of area number for USA 73 are far more detailed than that of any other country. Here subdivisions have been enumerated upto country level, whereas for many other countries there are no divisions further to states/provinces.

Area number is added to the ultimate number in the schedules though some classes are directly based on the geographical characteristics, so the number for areas in inherent there; for example in History 954 is History of India, 973 in History for USA, as -54 and -73 are area numbers as taken from the Area Table; similarly 314 is General Statistics of Europe and 315 is General Statistics of Asia, where 4 and 5 respectively are the area numbers of Europe and Asia.

Use of Table 2 for Areas does not pose any difficulty. Whenever, a class number needs extension by some geographical area, there are sufficient instructions there in the schedules to do so. Generally, a division usually at "9" in the array is left for geographical and historical treatment of the subject :

## Political Conditions

320.9
(As per instructions, this class number is to be further subdivided by the area numbers 1 to 9 from Table 2)

Political Conditions of India

$$
320.9+54(\mathrm{~T} 2)=320.954
$$

Political Conditions in Rajasthan

$$
320.9+544(72)=320.9544
$$

Political Conditions in USA 320.973

Political conditions in Christian Countries $320.9+1761(72)=320.91761$
Sometimes a class number itself is to be divided by the area number as per instructions there :

Constitution of Canada $342+71(72)=342.71$
Japanese Diet $328+52(\mathrm{~T} 2)=328.52$
Foreign Policy of Britain $327+41$ (T2) $=327.41$
Here class number 342, 328 and 327 have been divided by the area numbers 71,52 and 41 respectively.
Adding Area Notation through the ss 09 :
Where there are no instructions but the subject of the document under classification requires the additions of area number from Table 2 , then the area number is added to the class number via the ss 09 , which works as a facet indicator.

Child labour in India - an economic study $331+09(\mathrm{TI})+54(\mathrm{~T} 2)=331.310954$
Men Consumes in Punjab

$$
391.1+09(\mathrm{~T} 1)=54552(\mathrm{~T} 2)=391.10954552
$$

Civil Rights in Communist Countries

$$
323.4+09(\mathrm{~T} 1)+1717(\mathrm{~T} 2)=323.4091717
$$

Standard of Living in Rural Areas

$$
339.47+09(\mathrm{~T} 1)+1734(\mathrm{~T} 2)=339.47091734
$$

So, area number may be added to any class number by any of the two ways depending upon whether there is invitation or not to add from the area table.

Sometimes, an area number may be added through "0" instead of 09. For example, 920.03-.09 Biographies by specific geographical areas.

Biographies of persons living in India
$920+0+54(\mathrm{~T} 2)=920.054$

Here as per instructions, the area number 54 for India has been added to the base number 920.0

Biographies of persons living in Rajasthan
920+0544 (T2) 920.0544
General libraries in USA

$$
027+0+73(\mathrm{~T} 2)=027.073
$$

General libraries in Pennysylvania

$$
027+0+748(\mathrm{~T} 2)=027.0748
$$

If a subject is a study extending to two non-adjacent areas, we cannot add area numbers for both : we will have to choose one.

Democracy in India and USA
321.80954 or 321.80973

Education of Workers in UKI and USA
376.973 or 376.941

Here we cannot combine both the area tables as we do in UDC. If, however, there is a relation between two different areas, then the schedules sometimes provides a mechanism to join them :

Foreign Relations between India and USA. $327+54(\mathrm{~T} 2)+\mathrm{O}+73(\mathrm{~T} 2)=327.54073$
Here, as per instructions, the class number 327 is to be subdivided by the first area, then $O$ is to be added and to the result the area number for the second geographical area is to be added.
Similarly,
India's Foreign Policy towards Non-aligned Countries
$327.54+\mathrm{O}+1716(\mathrm{~T} 2)=327.5401716$
Trade agreements between India and USA
$382.9+54$ (T2)+O+73 (T2) $=382.954073$
Migration from India to USA $304.8+54(\mathrm{~T} 2)+0+73(\mathrm{~T} 2)=304.854073$
Migration from Asia to developed Countries of the World $304.8+5(\mathrm{~T} 2)+\mathrm{O}+73(\mathrm{~T} 2)=1722=304.8501722$
Sometimes, a geographical facet is itself inherent in the subject, i.e. it appears as a subject division in the class number :

History of India 954
General Statistics of Asia 315
In such cases, these class numbers can further be divided like the Areas Table to provide class numbers in respect of subordinate areas.

History of Rajasthan

## 954.4

General Statistics of India 315.4

General Statistics of Rajasthan
315.44

Class number extended by area notation can also admit chronological subdivision. In such cases, we are only required to add the subdivisional of 09 in 0901-0905 from Table 1 or by the special chronological subdivisions, if provided.

History of Mughal India 954.025

History of Rajasthan under the Mughals

$$
954.4+025(\text { As under 954) }=954.4025
$$

Historical and geographical treatment of Sciences

## 509

History of Science in India

$$
509.54
$$

History of Science in British India 509.5403

Here the chronological subdivision 03 has been taken from the history schedule of India.

General Statistics of Asia in $19^{\text {th }}$ Century 315.034

Here 034 stands for the $19^{\text {th }}$ Century, as taken from the chronological table of Standard subdivisions.

Political conditions in India in 1980s
$320.9+54(\mathrm{~T} 2)+048($ from 09048 T 1$)=320.954048$
Political conditions in Rajasthan in 1980s
Sometimes, an area may be further extended by the special subject divisions as in case of 340 Law and 350 Public Administration :

Miscellaneous Public Law
343
Income Tax Law
343.052

Indian law of Income Tax $343+54(\mathrm{~T} 2)+52($ from 343.052$)=343.54052$
Here 343 has first been divided by country (India-54) then the resulting class number has been further extended by the subject division 052 Income Tax of 343. Similarly :

Law of Public Health
344.04

Indian Law of Public Health

$$
344+54(\mathrm{~T} 2)+04(\text { from } 344.04)=344.5404
$$

US Law of Public Health
$344+73(\mathrm{~T} 2)+04($ from 344.04$)=344.7304$
Prime Minister (in Cabinet from of Government) 350.00313

Central Government of various Countries (other than US) 354
Central Government of India
$354+54(\mathrm{~T} 2)=354.54$
Here " 54 " for India from Table 2 has been added to 354 as per instructions. This can be further extended like the subdivisions of 350. For example :

Prime Minister of India
$354+54(\mathrm{~T} 2)+0313($ From 350.00313$)=354.540313$
Queen of Britain
$354+41(\mathrm{~T} 2)+312($ from 351.00312$)=354.410312$
Separate provisions of the area table since the $17^{\text {th }}$ edition has only allowed more details in subdivisons for various countries, but has also made possible the division of the earth and population clusters from various conceptual viewpoints. These are various physiographic and socio-economic regions, all shown as subdivisions of 1 .

Standards of Living in Villages

$$
339.47+09(\mathrm{~T} 1)+1734(\mathrm{~T} 2)=339.47091734
$$

Atmospheric pressure in Forests
$551.54+09(\mathrm{~T} 1)+152(\mathrm{~T} 2)=551.5409152$
Here " 152 " is forests from the Area Table added through the ss 09.
As per instructions, each subdivision of 1 area is susceptible to be qualified by any region 3-9 from the same table. This has increased the versatility of the scheme :

Standard of Living in Indian Villages

$$
339.47+09(\mathrm{~T} 1)+1734(\mathrm{~T} 2)+\mathrm{O}+54(\mathrm{~T} 2)=339.47091734054
$$

Atmospheric Pressure in Indian Forests

$$
551.54+09(\mathrm{~T} 1)+9152(\mathrm{~T} 2)+\mathrm{O}+54(\mathrm{~T} 2)
$$

$$
=551.5409152054
$$

Political Conditions in Communist Countries $320.9+1717(\mathrm{~T} 2)=320.91717$
Political Conditions in Communist Countries in Asia $320.9+1717(\mathrm{~T} 2)+0+5+(\mathrm{T} 2)=320.9171705$
Political Conditions in Christian Countries of Africa $320.9+1761(\mathrm{~T} 2)+0+6(\mathrm{~T} 2)=320.9176106$

Commercial policy in British Colonies
$381.3+09(\mathrm{~T} 1)+1712(\mathrm{~T} 2)+0+41(\mathrm{~T} 2)$
=381.309 1712041
Here all the subdivisions of 1 have been further extended by the area number from 3-9 via 0 which acts as a facet indicator.

Some of the divisions may further be subdivided by some of the other auxiliary tables. For example - 174 Regions where specific racial, ethnic, national groups predominate : obviously this number is further divisible by the auxiliary Table 5 :

Places where Punjabi people predominate 174 (T2) +9142 (T5) $=-1749142$
Library buildings in the regions where Punjabi predominates $022.33+1749142=022.331749142$
Similarly, division -175 Regions where specific languages predominate.
Book Selection in English Speaking Countries

$$
\begin{aligned}
& 025.21+09+175(\mathrm{~T} 2)+21 \text { (T6) } \\
& =025.210917521
\end{aligned}
$$

Here area division 175 (Added via 09) has been further divided by Table 6, where number for English language is 21

Hospitality of Punjabi People

$$
395.3+09(\mathrm{~T} 1)+175(\mathrm{~T} 2)+9142 \text { (T6) }
$$

$$
=395.309 \quad 1759142
$$

Here Area "175" added via 09, has been extended by Table 6, where 9142 is the number for Punjabi language.

Similarly, the Area -176 can be further extended by the religions as taken from 29 and its subdivisions in Table 7 :

Book Selection in Muslim Countries $025.21+09$ (T1) +176 (T2) - 71 (From 2971 of T6) -025.210917671

Here to -176 we have added the digits following 29, in Table 7 , where number for Islam is 2971.

Summary : Area numbers may be added on instructions or through the standard subdivision 09. Two area numbers on instructions, may also be added through 0. In Law, History, Statistics etc. Area is a part of the number.

## Self-Check Exercise - 3

Classify the following titles using DDC, $19^{\text {th }} \mathrm{ed}$.

1. Political Conditions in Rajasthan in 1980s.
2. Parliament in non-aligned nations.
3. Women workers in India.
4. Banking in Maldives.
5. Restaurants of Goa.

# BACHELOR OF LIBRARY \& INFORMATION SCIENCE <br> PAPER - BLIS- 105 KNOWLEDGE ORGANIZATION AND INFORMATION PROCESSING : CLASSIFICATION PRACTICE - CC AND DDC 

LESSON NO. 2.6
DR. M.P. SATIJA

## USE OF TABLE 3 : SUBDIVISIONS OF INDIVIDUAL LITERATURES

As the name of this auxiliary table implies, this table is meant for the main class 800 literature. In the $19^{\text {th }}$ edition, the Table 3 , has been bifurcated into two tables viz, 3 and 3A, the latter is only to be used on instructions from Table 3, which in turn depends upon the instructions in the main class 800 for its use. However, in sections 808 and 809 , Table 3A can be directly used with the main class number on instructions from schedules. It may be again pointed out that the subdivision enumerated in the Table 3 and 3A are not any new or unfamiliar but have only been precipitated from the main class, especially the sections 808 and 809. What could be done earlier through the repetitious "divine like" is now done very neatly with simple "add to". These two tables have changed and made easy the mode of addition of facets. It was a step towards, making DDC more faceted and easy to operate.

The Table 3 consists of the standard subdivisions 01-07 in conformity with the Table 1 . In case of the ss 08 , its pristine meaning (that it carried upto the $18^{\text {th }}$ edition) has been preserved, i.e., it still deontes collections and anthologies whereas for other main classes the ss 08 on more stands for anthologies etc. Hence it is now a more or less special standards subdivisions for 800 literature. The ss-08 here can be further extended by the Table 3A. The ss-09 "History, description, critical appraisal' is applicable to the body of literature regardless of form or language in which the literature is written. The ss-09 'History, description, critical appraisal' is applicable to the body of literature regardless of form or language in which the literature is written. The ss-09 is extendable either by the period table, or by some literary viewpoints taken from Table 3A but not by both if no form of literature is given. It may be noted that period is to be taken not from the Table 1, but each language literature has its own special period (Time) tables given in the schedule of 800 (volume 2). Therefore, both the standard subdivisions08 and -09 are somewhat modified forms of the standard subdivisions here. The hard core of the table consists of the various forms of literature, which are the same for every literature irrespective of the language in which it is written :

- 1 Poetry
- 2 Drama
- 3 Fiction
- 4 Essays
- 5 Speeches
- 6 Letters
- 7 Satire and humour
- 8 Miscellaneous

Each from subdivision has further been subdivided into its various kinds and further into varieties, if any. These scopes kinds/varieties of forms have been further subdivided through a single zero, and the ss are also applicable to the form divisions through double zeroes. For example, take the form divisions. 3 Fiction :

- 3001 - 3009 Standard subdivisions of Fiction
- 301-308 Fiction of Specific Scope and Kinds
- 301 Short stories
- 306 Cartoon fiction
- 308 Specific type of fiction
- 3081 Historical and period
- 3083 Sociological, psychological, realistic
- 3084 Occupational
- 3085 Love and romance
- 3087 Adventure

Here, the subdivision of Fiction are known as kinds of fiction, while the further division, is known as variety e.g. 3081-3087 may be termed as varieties of the specific kinds of fiction.

31-79 is Fiction of Specific Periods.
Here 3, and for this reason any bare from division $1-8$ is divided by the period divisions specific to each language literature. Kinds of form do not admit period facet. Take, for example the case of English Fiction :

31 Fiction of Early English Period
32 Fiction of Pre-Elizabethan Period
33 Fiction of Elizabethan Period
34 Fiction of Post-Elizabethan Period
35 Fiction of Queen Anne Period
36 Fiction of Later $18^{\text {th }}$ Century
37 Fiction of early $19^{\text {th }}$ Century
38 Fiction of Victorian Period
39 Fiction of $20^{\text {th }}$ Century
Similarly, for say, Hindi fiction the period is as follows :
31 Hindi Fiction upto 1345
32 Hindi Fiction from 1345-1645
33 Hindi Fiction from 1645-1845

34 Hindi Fiction from 1845-1895
35 Hindi Fiction from 1845-1920
36 Hindi Fiction from 1920-1940
37 Hindi Fiction after 1940
After the period division, we can further add the ss special to the main class 800 as given in Table 3.

The main class 800 has thus many facets, viz., Language, Form, Period, Standard subdivision, latter being further extendable by a variety of viewpoints. In view of the multiplicity of facets, their citation order presents some complications especially when not all the facets are present. Language, form and period are the Central facets in their decreasing order of concreteness. We will discuss the various cases one by one.

1. When Language Facet is Absent Study of literature irrespective of the language falls in the sections 801 to 809 . On minutely viewing, it is clear that these are the standard subdivision (of course modified) as applied to the bare main class :

801 Philosophy and theory
802 Miscellany about literature
803 Dictionaries, encyclopaedias, etc.
805 Serial publications
806 Organisations
807 Study and teaching
808 Rhetoric and collection
809 History, description, critical appraisal of more than one literature.
Subdivisions of 801 and part of 808 have been enumerated in the schedule; some synthesis is also possible here. However, the citation order in 808.8 "Collection from more than one literature", needs some illustration. The citation formula is

Base number $808.8+$ Form + Period (From Table 1)
Collections from $20^{\text {th }}$ Century Literature (Regardless of Form)
808.8001-. 8005 collections from specific period.

As per instructions here, we are to add to the base number 808.800, the number following 090 in 0901 - 0905 from Table 1 (of standard subdivisions). Their number for $20^{\text {th }}$ Century is 0904, thus the digit following 090 is " 4 " only. Hence the class number is
$808.800+4=808.8004$
Similarly :
Collection of $17^{\text {th }}$ Century Literature
$808.800+31($ from 09031 Table 1) $=808.80031$

Selections from literature of 1990's

$$
808.800=+49(\text { from } 09049 \text { Table } 1)=808.80049
$$

A Collection of Poetry
808.81

Collections from Poetry of 1970 s
$808.81+0+47=808.81047$
808.81 is collections from poetry. This number is an asterisked number. As per instructions given under 808.81-808.88 we have added to the 808.81 the notation for period as explained there. Again the period has been taken from general period table viz. Table 1 of standard subdivisions. As a rule, when no language is given, the period is to be taken from the Table 1 of standard subdivisions.

It may be noted that period division cannot be added to the collections of some specific forms of literature displaying a specific kind or displaying some specific feature.

Collection of Epic Poetry of $20^{\text {th }}$ Century
$808.81+3=808.813$
(No period has been added)
Similarly,
Collection of $20^{\text {th }}$ Century Drama on Social Themes

$$
808.829+355=808.829355
$$

The notation 355 has been added from Table 3A, as per instructions under 808.829. No period division for $20^{\text {th }}$ Century can be added as there are no instructions to do so.

## II. When language is Present :

Literature of specific language is classed in 810-890, and the language makes the first facet in the citation order. Procedure for building a co-existensive class number for any language literature has been explained in the schedule on pages 1398-1400. It may be stated as follows in a simplified manner.

Combination of main class digit 8; and the language constitutes the compound facet, which is termed as the base. It is the base to which all other facets are added in an ordained order. Base numbers for almost all the languages have been enumerated and specifically indicated. For some minor or obscure language, base number can be built with the help of language number taken from Table 6 Languages.

For Example :
891.99 Literature in other Indo-European languages
891.991 Albanian
891.892 Armenian
891.993-.998 Others

Here the instructions reads : Add to 891.99 the number following 9199 in language notation 91993-91998 from Table 6, e.g. Hittide 891.998. In this way, the class number of Tocharian language literature is 891.994 . This however is not the base number but the final class number as no other facet is admissible to such a number.

To the available base number in the schedule, we add the facets in the following order :

Base number + Form + Period + ss 08 or 09 (Subject/viewpoint from Table 3A) (See flow charts)

It is obvious that in a given literary work all the above facets may not be present all the times. From facet is to be taken from Table 3. General instructions have been provided in the main class 800 to use the Table 3, and this table is invariable needed to build class number for titles having both the specified language and form. Whenever the Table 3 is to be used such base numbers are marked with an asterisk. Even for major literatures readymade class number adding the form facet have been enumerated. For example :

821 English Poetry
822 English Drama
827 English Satire and Humour
861 Spanish Poetry
862 Spanish Drama
863 Spanish Fiction
864 Spanish Essays
865 Spanish Speeches
866 Spanish Letters
867 Spanish Satire and Humour
868 Spanish miscellaneous writings
Instructions to use the Table 3 and to construct a class number have been explained in a programmatic manner preceding the divisions in Table 3, viz., pp. 387-388 (Volume 1). These instructions have made the facet structure quite transparent, though the instructions do not make a very easy reading mostly due to multiplicity of facets.

In case of individual authors the standard subdivisions and their further extension by standard subdivisions and Table 3A is not admissible. Hence the book by and on an individual literary author get the same number. For example

A critical study of John Keat's Poetry
(He was an English Poet of early $19^{\text {th }}$ Century)

82 (Base) +1 (Form : Poetry) +7 (Period from pp. 1403-4)
$=82+1+7=821.7$
(Here we cannot add the ss for criticism)
Similarly, a study of plot construction in the novels of Thomas Hardy will get the class number as follows :

82 (Base) +3 (Form, Fiction from Table 3) +8
$=82+3+8=823.8$
Here, the critical element "Plot Construction" will have to be ignored. Any work of fiction by Hardy, or any work on Hardy, as a fiction writer will get the class number 823.8, and the various Victorian novelists such as Hardy, George Eliot, Thackery, Dickens, Mrs. Gaskell could only be differentiated through Book Numbers. However, the works on and by an individual writer can further be divided on the analogy of the classification of the works on and by William Shakespeare 822.33. This, however, is beyond the scope of the present work.
III. In case the Form is absent, the citation formula takes the following order :

Base Number + $080+$ Table 3A (No period)
Base Number +0900 + Period for that Specific literature + Table 3A for viewpoint of theme

Collection of Hindi literature on love theme.
$891.43+080+354(\mathrm{~T} 3 \mathrm{~A})=891.43080354$
Collection of Hindi Literature on Tragedy $891.43+08016(\mathrm{~T} 3 \mathrm{~A})=891.4308016$
Critical Study of Characters in English Literature $82+09+27(\mathrm{~T} 3 \mathrm{~A})=820.927$
History of 20th Century English Literature

$$
82+0900+91=820.90091
$$

In the facet formula, the third facet is the time period in which the author flourished as a writer. It may be noted that in case of a specific language literature, the period is not to be taken from the ss 09 of Table 1 . For every language literature, special period divisions enumerating epochs of that particular literature have been given in the schedules at the beginning of each language literature. For example, for American literature, the Period Table as given under 810 is :

1Colonial period 1607-1776
2Post - Revolutionary period 1776-1830
3 Middle $19^{\text {th }}$ century $1830-1861$
4 Later $19^{\text {th }}$ century $1861-1900$
5Twentieth century
52 Early, 1900-1945

54 Later, 1945-.
It is especially to be noted about the period table that in case the literature in that language is written in more than one country, then different period tables are given for each major country. For example, for French literature different period tables exist for Asian and African countries, for Belgium, for Canada of course for France. It is obvious, as each country has different epochs in its literary history of that language. For instance, for French language literature period Table for French is :

For Asian and African Countries
1 To 1960
2 Later $20^{\text {th }}$ Century, 1960.
For Belgium
1 Early Period to 1830
$21^{\text {th }}$ Century, 1830-1900
3 20 ${ }^{\text {th }}$ Century
32 Early, 1900-1945
34 Later, 1945-
For Canada
3 Colonial period to 1867
4 Later $19^{\text {th }}$ Century, 1867-1900
$5 \quad 20^{\text {th }}$ Century
52 Early, 1900-1945
54 Later, 1945
For France
1 Early period to 1400
$2 \quad 15^{\text {th }}$ century, 1400-1500
$316^{\text {th }}$ century, 1500-1600
4 Classical period, 1600-1715
5 18th century, 1715-1789
6 Revolution and Empire, 1789-1815
7 Constitutional monarchy, 1815-1848
8 Later $19^{\text {th }}$ century, 1848-1900
91900 -
$91 \quad 20^{\text {th }}$ century
912 Early, 1900-1945
914 Later, 1945
After adding the period division, the ss may be added with only one zero. Detailed instructions have been provided to give step by step guidance. The period division is further extendable by the standard subdivisions as taken from 1001-
1009. Here the ss begins only with a single zero, as per rule. If needed, these ss especially 08 and 09 may further be extended by the viewpoint Table 3A. For example.

Collection of Victorian Poetry. (It means is English Poetry of late nineteenth century).

Base (English Language Literature) 82
Poetry (form, Table 3) 1
Victorian Period (pp. 1403-4 of Vol. 2) 8
Collection (as Instructed under 11-19 Table 3) 08
From Table 3. We have added to the period division the number following 10 in 1001-1009, and Collection is 1008

Hence the complete class number is

$$
82+3+8+08=821.808
$$

Similarly,
Critical appraisal of Victorian fiction

$$
82+3+8+09=823.809
$$

Social themes in Victorian Fiction
For critical appraisal of Victorian fiction. We have 823.809. Since 08 and 09 are further extendable by Table 3A, so we can add to the result the appropriate notation for social themes in Table 3A which is 355 . Hence the complete class number is

$$
823.809+355=823.809355
$$

Again
Critical study of plots in Post-War American novels :
81 (Base) +3 (Form) +54 (Period)
+90 (Critical appreciation, Table 3)
+24 (Plot, Table 3A)
$=81+3+54+09+24=813.540924$
Some graded examples will help to clarify :
American Literature 810

Dictionary of American Literature
$81+03=810.3$
(Note, Base for American Literature is 81)
International Conference on American Literature $81+0601$ (T1) $=810.60$
(We have added -54 from Table 2 to the base number 060 from Table

1. This has been done as per instructions under the ss - 0603-9)

History of the American Literature of the Colonial Period

$$
81+0900+1=810.9001
$$

(Here 1 has been added from the period Table for the American literature given at page. 041)

History of 20 th Century American Literature $81+0900+5($ p. 1401, vol. 2) $=810.9005$
History of American Literature for Children
$81+09+$ Notation for Children in Table 3A
$=81+09+9282=-810.99282$
History of Realism in American Literature

$$
81+09+12(\text { T3A, Realism })=81+09+12=810.912
$$

American Poetry

$$
81+1=811
$$

Dictionary of American Poetry
$81+1003(\mathrm{~T} 3)=811.003$
All India Conference of American Poetry
$81+10060(\mathrm{~T} 3 \& \mathrm{~T} 1)+54(\mathrm{~T} 2)=811.006054$
History of American Poetry

$$
81+1009(\mathrm{~T} 3)=811.009
$$

American Epic Poetry

$$
81+103(\mathrm{~T} 3)=811.03
$$

Dictionary of American Epic Poetry

$$
81+103(\mathrm{~T} 3)+03(\mathrm{~T} 1)=811.0303
$$

All India Conference on American Epic Poetry

$$
81+103(\mathrm{~T} 3)+06054(\mathrm{~T} 1, \mathrm{~T} 2)=811.0306054
$$

History of American Epic Poetry

$$
81+103+09=811.0309
$$

History of Realism in American Epic Poetry
Though in the subject here, period viz $20^{\text {th }}$ Century exists, but as per provisions for the kind of poetry, we cannot add it; so we will have to ignore the period, and treat it as if it is the history of American Epic poetry respective of time
$=81+103+09=811.0309$

## Literary works without language and form

Collection of $20^{\text {th }}$ Century Literature
808.8 Collection from more than one Literature
808.8001-. 8005 Collection from Specific periods

As per instructions, we are to add to the base number 808.800 the number following 090 in ss notation 0901-0905 from Table $1=808.8004$

The readers may be again reminded here that the period has been taken
from the general period table viz the Table 1 Collection of literature on Social Themes:
808.801-. 803 Collections displaying specific features.

Here, we are to add to the base number 808.80 notation 1-3 from Table 3A in Table 3A the notation for social themes is 355 . Hence required class number is
$808.80+355=808.8035$
Collection of Epic Poetry
(No language and period)
808.81 Collection of Poetry)
808.812-. 812 Collection of Specific kind of Poetry

As per instruction here we are to add to the base number 808.81, then number following 10 in 102-108 of Table 3 Subdivisions of Individual literature. The notation for Epic Poetry is 103 . So, as per instructions we are to add "3" to the base 808.81

$$
808.81+3=808.813
$$

Critical Appraisal of the Romanticism in the $19^{\text {th }}$ Century English Poetry. $821+7+09145=821.709145$
Portrayals of Children in Victorian English Fiction (Period is later 19th Century, the Victorian Period)
$823.7+09+352+054($ Table 7) $=823.709352054$
Account of London in English Drama of Queen Anne Period
$822+5$ (period) $+09+32$ (Place) from Table 3A
$=822.50932+421$ (London)
Specific Place from Area Table $2=822.50932+421$
(Table 2) $=822.50932421$
Depiction of India in Victorian Fiction
$82+3+8+09+32+54($ Table 2$)=823.8093254$
Collection of English Literature written by Negroes $82+08+0+8+($ From Table 3A) +036 (Table 5) $=820.808036$
$20^{\text {th }}$ century French Literature - A critical appraisal $84+0900+91$ (For $20^{\text {th }}$ Century) $=840.90091$
Romanticism in English Poetry $82+1009($ Table 3$)+145($ Table 3A) $=821.009145$
Plot in $17^{\text {th }}$ Century Spanish Novel $86+3+3$ (Period) $+09+24($ Table 3A) $=863.30924$
Description of Women in $20^{\text {th }}$ Century English Novel $82+3+91+09+352($ Table 3A) +042 (Table 7)
= 823.9109352042
Collection of German Language Literature written by Englishmen $83+08+0+8$ (Table 3A) +21 (Table 5)
$=830.80821$
Collection of German Language Literature by Jews
$83+08+0+8+924$ (Table 5) $=830.808924$
Collection of German Language literature by Afro-Asian writers
$83+08+0+9$ (Table 3A) +17165 (From Table 2)
$=830.80917165$
Depriction of Indian religious in English Literature $82+09+4($ Table 3A) +294 (From the schedules 001-999) $=820.94294$
A critical study of plot in Hindi Novels of Early $20^{\text {th }}$ Century
$891.433+09+24(\mathrm{~T} 3 \mathrm{~A})=891.4330924$
Contributions to Hindi Literature by Bengalis - A critical study (no form, no period)
$891.43+09$ (ss from Table 3)
+8 (Literature for and by various specific racial ethnic, national groups from table 3A)

As per instructions, 8 is to be further subdivided by Table 5, where the notation for Bengali people is 9144

Hence the complete number is $891.43098+9144$ (Table 5) $=891.430989144$
Contribution to Hindi Literature by Bengalis after 1940 891.4309007

Contribution of Bengalis to Hindi Poetry (No Period) $891.43+1009+$ Table $3 \mathrm{~A}=891.431009+8+9144$
(Table 5) $=891.43100989144$
Contribution of Bengalis to Hindi Poetry of Post 1940 era $891.43+1$ (From) +7 (Period) +09 (ss) + Table 3A + table $5=891.43+1$ (From) +7 (period) +09 (ss) +8 (by various national, ethnic groups, Table 3A) + 9144 (For Bengalis from Table 5)
= 891.43170989144
Hindu Religion in British Fiction
$823.009+4$ (Table 3A) +2945 (by 001-999)
$=823.00942945$
Hindu Religion in $20^{\text {th }}$ Century British Fiction $823+9$ (Period) $+09+4+2945=823.90942945$
Collection of Hindi Literature for Children $891.43+080$ (Table 3) +9282 (Table 3A)
$=891.430809282$
Collection of Hindi Poetry for Children

$$
891.43+10080(\mathrm{~T} 3)+9282(\mathrm{~T} 3 \mathrm{~A})=891.43100809282
$$

Collection of Modern Hindi Poetry for Children

$$
891.43+1+7 \text { (Period) }+08+(\text { Table } 3)+9282 \text { (T3A) }
$$

$=891.4317089282$
Critical study of Women Novelist of Victorian Period $823.8+09+9287=823.8099287$
The reader may be again remained that the elements from Table 3, or 3A can only be added on instructions. Where a number admits notation from Table 3 , such a number is marked with an asterisk. Where there is no asterisk, the number cannot be extended further. For example,

Old Low Germanic Literature
839.1

If we have old Law Germanic Poetry even then the class number is 839.1
Anthology of Pali Literature 891.3
Anthrology of Pali Poetry 891.3
(Here no other facet is admissible)
Let us take some more examples :
Stream of consciousness in $20^{\text {th }}$ Century English Novel
$82+3+91+0925=823.912925$
Anthology of French poems composed by Indians
(Here there is no period divisions)
Base number for Fench Literature
Collection of Poetry 84

For Indians as per instructions, the number is to be taken from 93-99 of Table 3A. Here 9 us the base which is to be further synthesized from Table 2, thus, the number for Indian is

$$
9+54=954
$$

Making 10080 as the base, we add to it the number for Indians :

$$
84+1008+0+954=841.0080954
$$

Collection of Hindi Lyrical Love Poetry

$$
891.43+103+08+354=891.4310308354
$$

Critical appraisal of Punjabi Statistical Poetry written by the writers living in Canada

$$
\begin{aligned}
& 891.42+107(\mathrm{~T} 3)+09(\text { as under }-1-8(73) \\
& +9(\text { from 93-99 T3A) }+71(\mathrm{~T} 2)=891.4210709971 \\
& \text { Collection of English Literature written by Children } \\
& \text { Base } \quad=82
\end{aligned}
$$

Collection $\quad=08$ (Table 3)
Here we have the instructions to go the Table 3A where number of children writer is 9282 :

$$
82+08+9282=820.89282
$$

Critical Appraisal of Hindi short stories written by Punjabis
Base number of Hindi short stories written by Punjabis
Base number for Hindi Fiction $=891.43$
Short Stories (T3) $=301$
Finding instructions, we go to instructions under - $1-8$ specific Forms page 390 (Vol. I)

Critical Appraisal 09
Literature for and by specific racial ethnic
national groups 8
8 is further to be extended by notations 03-99 from Table 5, where number for
Punjabi is 9142
Hence the complete number is $891.43301+09+8+9142=891.433010989142$
Conclusion : Table 3 is meant for Literature 800. It has two parts Table 3 and Table 3A. Latter is usually applied on instruction from Table 3. Table 3 contains Form Divisions such as Poetry, Drama, Fiction etc.

## Self-Check Exercise-4

Classify the following titles using DDC, Ed. 19.

1. International Conference on American Literature.
2. An anthology of Bengali Literature.
3. Social themes is comedies
4. Research on Hindi Poetry
5. Tagore's Poetry : Critical appraisal

## Further Readings :

1. Dewey Decimal Classification. Vol.I Table 3 : Subdivision of Individual Literature. Ed 19. 1979.
2. Satija (MP) and Camaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.
3. Sharma (CK) : Practical Handbook of Dewey Decimal Classification. Atlantic Pub. 2006.

## LESSON NO. 2.7

DR. M.P. SATIJA

## USE OF TABLE 486 : SUBDIVISIONS OF INDIVIDUAL LANGUAGE OF 400 LANGUAGES SCHEDULE \& LIST OF LANGUAGES

The, one of simplest tables to use, is exclusively used for the Main Class 400 Linguistics. If need be, it may further be extended by the Table 6 languages. The table 4 enlists linguistic problems, which is analogous to the energy facet in Colon Classification of Ranganathan.

Main Class digit 4 and the language number taken together form the base, and the base number for all the major languages have been enumerated. The base number is further extendible by Table 4 and if further need be by Table 6. The facet formula that emerges out is :

Base number + Table $4+$ Table 6
Whenever Table 4 or Table 6 is to be used, sufficient instructions guide us by marketing the base number with an asterisk :

Grammar of English Language
Base number for English $=42$
Grammar (Table 4) = 5
$=425$
A study of words of Sanskrit Language
Base number for Sanskrit 491.2
(Words Table 4)
81
491.281
---------------------
Hindi Primer (reader) for English speaking people
891.4386421

## Bilingual Dictionaries :

The DDC is able to provide very precise class number for bilingual dictionaries. Here the language in which the words are given from the base number; to the base number - 3 (from Table 4), which means dictionaries is added an to the resulting class number the language number for the language in which meanings are given is added as taken from Table 6. Thus the formula is :

Base number + (Table 4) + Table 6
For example, take "Sanskrit-German Dictionary". Here Sanskrit - forms the base number, as the words are given in Sanskrit.
$491.2+3+$ Number for German from Table 6
$=491.2+3+31=491.2331$
Similarly, the class number for German-Sanskrit Dictionary will be $43+3+912=433.912$
(Here 43 is the base number for German language and 912 the number for Sanskrit language as taken from Table 6).
Similarly :
Russian - Punjabi Dictionary
$491.7+3+9142=491.739142$
English - French Dictionary
$42+3+41=423.41$
Table 4 may also be supplemented by the Table 6 in many other classes also :

English words in Hindi Language
It is the study of Hindi Language so it will form the base number. For foreign elements, we have - 24 in Table 4 which is further extendible by Table 6 :
$491.43+24=$ Number for English from Table 6
$=491.43+24+21=491.432421$
Similarly,
French Phrases in English language
$=42+24+41=422.441$
English primer for Hindi Speaking readers.
$42+864+9143=428.649143$
It may further be noted that in the schedule of Main Class 400 Languages, class number for all the known languages do not exist, but the base number for such un-enumerated languages an be crystallised through the use of Table 6. Instructions to add from Table 6 exist in such cases. For example :

Tocharian Language
(It is a member of Baltic family of Languages and the class number for it has not been given specifically).
At 491.9, we have Baltic and other languages. Some languages have been enumerated; 491.993-.998 are other languages. Instructions say that to obtain the class number for other languages, we are to add to 491.99, the number following 9199 in 91993-91998 from Table 6. The number is Table 6 for Tocharian Language is 91994.
Thus the number for Tocharian Languages is :
$491.99+4=491.994$
Similarly for Egyptian Languages (It belongs to the family of Hamitic and Chad Languages whose class number is 493). As per instructions at 493, the class number for Egyptian Languages is :

## $491.99+4=491.994$

Similarly for Egyptian Languages (It belong to Altic Languages family) Base number is 494 . The class number thus is :
$494+2=494.2$
Some other Class numbers illustrating the use of Main Class 400.
English Dialects
427.9

Indian English
427.954

Pakistani English 427.9549
(Here 427.9 has been subdivided by area table)
English Slang
427.09

## Self-check Exercises-5

Classify the following titles using DDC, Ed. 19

1. Dictionary of French Homonyms
2. Tamil Speaking People in Asia
3. Collection of Essays in Hindi
4. Greek-Latin Dictionary
5. Education of women is urdu speaking areas of the World.

## Further Readings :

1. Satija (MP) and Camaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.
2. Sharma (CK) : Practical Handbook of Dewey Decimal Classification. Atlantic Pub. 2006.

LESSON NO. 2.8
DR. M.P. SATIJA

## USE OF TABLE 5 : RACIAL, ETHNIC AND NATIONAL GROUPS

This table enumerates people based upon their Racial or Ethnic or National origins. In the $18^{\text {th }}$ edition, the use of this table was very limited as it could be used only on invitation, but in the $19^{\text {th }}$ edition through the ss-089 its application has been universalized. It means that a subject can be treated among groups of people characterized by their national, racial or ethnic origin, even if there are no instructions in the schedule. Its use is very simple : where there are instructions in the schedule, we are simply to add the notation from Table 5 to the designated base number in the schedule.

Psychology of Negroes
For Psychology of Specific racial and ethnic groups, we have the class number
155.84

Under this class number, we have the instructions that to the base number 155.84, we have to add the number from the Table 5, where the number for Negroids is -036. The full class number therefore is :
$155.84+036=155.84036$
Similarly,
Psychology of Swedes
$155.84+397=155.84397$
Class numbers for some of the lesser known religions are obtainable with the application of Table 5 :

299 Other Religions
299.1- . 4 of Indo-European, Semitic, North African, North and West Asians Dravidian origin.
"Add Racial, Ethnic, National Groups Notation 91-94 from Table 5 to base number 29..."
For example :
Mithraism (it is a religion of Iranians)
$29+915=299.15$
Druidism (It is religion of Iranians)
$29+915=299.15$
Similarly, 299.68 is also further divisible by the Table to get the number for religions of specific tribes.

Another officially invited use occurs at 305.8 Social Structure of Racial

Ethnic and National Groups :
A Social Study of Bengalis
(Bengalis are a Linguistic Ethnic Group)
305.8 is the base number to which the notation for Bengalis is to be added from Table 5, as per instructions : 305.8+9144 = 305.89144

Jewish Society
$305.8+924=305.8924$
Another inevitable use of Table 5 occurs at 641.592 Ethnic Cookery. Here instructions exist to add to the above base the notation from table 5 for the Cookery of corresponding racial, ethnic or national groups.

Punjabi method of preparing food
$641.592+9142=641.5929142$
Another official use of the Table 5 is made at 784.76 songs of ethnic and cultural groups, which is in fact a part of 784.4 Folk Songs. Under 784.76 there is instruction to "add Racial Ethnic, National Groups notation 01-99 from Table 5 to base number 784.76 "

It may be noted that Class number for songs of ethnic and cultural groups in the United States and Canada is already enumerated at 784.75 , therefore US and Canadian culture group do not fall at 784.76

Folk Songs of Punjabis
$784.76+9142=784.769142$
Folk Songs of Indian gypsies
$784.76+91497=784.7691497$
Folk Songs of Duthes
$784.76+3931=784.762931$
Folk Songs of North Americans
784.75

Not $784.76+1=784.761$
Some of the numbers in Table 5 are further divisible by Table 2. For example in Table 5, the subdivisions - 68 Spanish American is further divisible by national groups of Spanish American by the addition of notation $7-8$ from Table 2 to the base number - 68.

Columbian People - $68+-861=-68861$
Belivians
$-68+-84=-6884$
Therefore, the class number for "Folk Songs of Bolivians" is :
$784.76+-6884=784.766884$
Similarly, National groups of Arabs are obtainable by the addition of area notation 5-6 from Table 2 to the base number -927.

Libyans
$-927+-612=927612$
Therefore the class number for Libyan Society is :
$305.8+927612=305.8927612$
Sometimes the area from Table 2 is added through the addition of zero as a facet indicator e.g. -96073 United Stated blacks. For "US blacks in Canada" the notation may be obtained by adding area number for Canada to the above base, but through the addition of a zero e.g.

96073071
Though the instructions are not explicit, the above method can be generalised, e.g.

Indians in U.S.
-91411073
Bengalis in England
$-9144+0+42=-9144042$
Brazilians in U.S.A.
$-698+0+73=-698073$
Nepalis in India
$-91495+0+54=-91495054$
Above generalization stands approved by the note given under 305.8 where instructions are provided to study a racial, ethnic, or national group of people in some countries of the world. Here the notation from Table 5 is added through a 0 (zero).

Social Study of Indians in the United States.
Indians here are a national group.
The basic class number is 305.8
As per instruction, to this base, number for Indians is added from Table 5.
Social Study of Indians
305.8+91411=305.891411

For Indians in U.S.A. to the resultant class number, add 0 and then the area number for USA as taken from Table 2.
$305.891411+0+73$ (Table 2) $=305.891411073$
Similarly :
Social Study of Nepalis in India
305.8+91495054=305.891 495054

Folk Songs of Libyans
$784.76+927612=784.76927612$
Apart from these, a few officially recognized institutions demanding the use of Table 5, this table can be used anywhere through the use of ss-089

Child Labour among Indians
$331.31+089$ (Table 1) +91411 (Table 5)
$=331.3108991411$
Indian Handicraftsman in England
$745.5+089+91411+0+42=745.508991411042$
Reading Habits of Indians
028.9+089+91411=025.908 991411

Reading Habits of Indian in England.
$028.908991411+0+42=028.908991411042$
World History of Jews
909.04+924 (From Table 5) $=909.09424$

Similarly :
History of Punjabis in the World
$909.04+9142=909.049142$
Period subdivisions of World History as given under 909.1-909.8 can also be added with a zero as facet indicator.

World History of Punjabis in the $19^{\text {th }}$ Century
909.04+91.42 (Table 5) $+0+8=909.04914208$

World History of Celtes in $20^{\text {th }}$ Century.
909.04+916 (Table 5) $+82=909.0491682$

Collected biographies of Jews
$920.0092+924$ (Table 5)=920.009 2924
Collected biographies of Punjabis
920.0092+9142 (Table 5)920.009 29142

Collected biographies of Celts
$920.0092+916$ (Table 5)=920.009 2916
Education of Punjabis in Canada
$371.97+9142$ (Table 5) $+0+71$ (Table 2)
=371.979 142071
Education of Eskimos in U.S.A.
$371.97+97$ (Table 5) $+073=371.9797073$
Sinhalese migrant labour in New York States
$331.63+9148$ (Table 5) $+0+747$ (Table 2)
=331.639 1480747
Migrant Labour of South Asian Origin in Canada
$331.63+914$ (Table 5) $+0+71$ (Table 2)
=331.639 14071
Jew Migrant Labour in U.S.A.
$331.63+924$ (Table 5) $+0+73=331.63924073$

Migrant Labour of Tanzanian Origin in North America
$331.63+96$ (Table 5) +78 following 6 in the Table 2, where Tanzania is $678+0+7$ (Table 2)
$=331.63967807$
Similarly :
Migrant Labour of Niegrian Origin in Mexico
$331.63+96+69+0+72=331.639669072$

## Self-check Exercise-6

Classify the following title using DDC, Ed. 19

1. Collections of literature by Indians
2. Social study of Indians
3. Punjabi folk songs
4. Psychology of Bengalis
5. Critical appraisal of Jewish literature

## Further Readings :

1. Satija (MP) and Camaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.
2. Sharma (CK) : Practical Handbook of Dewey Decimal Classification. Atlantic Pub. 2006.

## BACHELOR OF LIBRARY \& INFORMATION SCIENCE <br> PAPER - BLIS- 105 <br> KNOWLEDGE ORGANIZATION AND INFORMATION <br> PROCESSING : CLASSIFICATION PRACTICE - CC AND DDC

LESSON NO. 2.9
DR. M.P. SATIJA

## USE OF TABLE 6 : LANGUAGE

Whenever any subject is further divisible by a language facet the notation from Table 6 is added to the specified base number. Perniciously, this was done through divide like 420-490 instructions. Provision of a separate table only on invitation. For example, this division of general Encyclopaedias has been on broad languages has eased the process of synthesis; and made possible the detailed enumeration of many lesser known languages not hitherto easy.

Table 6 is to be used to supplement any number from the schedule or even from the tables only on invitation. For example, this division of general Encyclopedias has been on broad languages group, which further can be sorted into individual languages by the use of Table 6, for example :

036 Encyclopedias in Spanish and Portuguese
For any specific language Encyclopedia in this language group, one has to add to 03 the number for the particular language in 61-69 in table 6, as per instructions:

Spanish Encyclopedia
03+61=036.1
Papiamento Language Encyclopedia
$03+61=036.8$
Similarly, 039 is Encyclopedia in other Ianguages (not provided for in 031038). Class numbers for other encyclopedias are to be obtained by adding language notation 2-9 from Table 6 to base number 039.

Vishv Kosh (Encyclopedia in Hindi Language) 039+914 3
General Encyclopedia in Japanese
$039+956=039.956$
Similarly, class number for various translations of the Bible are also got by the device of Table 6 :
220.5 Modern versions and translations of the Bible.
220.53-59 Bible in other languages. For different languages, we are asked to add the number for corresponding language from Table 6 to the specified base 220.5

Bible in Hindi
$220.5+9143=220.59143$

## Bible in German

$22.5+31=220.531$
Through the Table 6 has been used at a fairly large number of places in the schedule, but the main classes 400 Linguistics and 800 Literature appears to be intrinsic fields of its application. In these two fields, the use of this table has already been discussed and illustrated while dealing with the use of Table 3 and Table 4 respectively.

In the Main class 400 Linguistics all the major languages have been enumerated with the exception of some lesser known languages. But the Table 6 contains almost an exhaustice list of all the knwon languages. Therefore, the class numbers for these un-enumerated languages can be obtained by the use of Table 6 on instructions.
For example :
470 Italic Languages
479 Other Italic Languages
to be obtained by adding to the base number 479 the number following 79 in 794-799 in Table 6.

Linguistic study of Faliscan language
Faliscan languages is one of the Italic language was, which has not been enumerated under 470-478. Therefore, it will obviously go to 479. In the Table 6 under -79 and its parts, we see that the notation for Faliscan language is 794. Following the above instructions, the class number for Faliscan language is :
$479+4($ from 794 of Table 6) $=479.4$
(we have added to 479 the digit following 79, which is "4").
Similar instructions appear at 491.993-.998, 493, 494, 495.92-.95, 496, 497 and 498.

Again take Tupi Language (It is a South American native language). Its class number is :

The use of Table 6 in conjunction with Table 4 for bilingual dictionaries in 400 has already been amply demonstrated in the chapter on the use of Table 4.

Similarly in 800 Literature Schedule some of the languages not enumerated can be obtained by the use of Table 6. The use here is just analogous to its use in 400 Linguistics.

For example, 893 Hamitic and chad Literature.
(Here particular language literature in this family of languages is to obtained by adding to the base number 893 the number following 93 in 931-937 in Table 6).

Egyptian Literature
$893+1=893.1$
(Since 931 is Egyptian language in Table 6, and the digit coming after 93 is "1")
Similarly :
Somali Literature
$893+5=893.5$
(Since notation for Somali language is 935 in Table 6)
Another inevitable use of the Table 6 is at 372.65
Foreign Language skill in Elementary Schools.
Teaching of specific foreign languages in elementary schools is got by adding to be base 372.65 the relevant notation from Table 6 .

Hindi as a second language in elementary schools
$372.65+9143=372.659143$
German as a foreign language in Elementary Schools $372.65+31=372.6531$
Class numbers derived from 372.65 can further be synthesised by adding facets enumerated under 372.3-372.8

Curriculum in German as second language in elementary schools $372.6531+043=372.6531043$
Teaching of German as second language in Elementary Schools $372.6531+044=372.6531044$
Some more examples :
A General Periodical in Hindi $059+9143=059.9143$
A General Periodical in Romanian Language $05+591=055.91$
A General Periodical in Spanish 05+61=056.1
A French Language Encyclopedia
$03+41=034.1$
English Proverbs
$398.9+21=398.921$
Spanish Proverbs
$398.9+61=398.961$
Hindi Proverbs
$398.9+9143=398.99143$
Sanskrit Calligraphy
$745.6199+912=745.6199912$
Calligraphy in Artificial Languages
$745.6199+9999=745.61999999$

LESSON NO. 2.10
DR. M.P. SATIJA

## USE OF TABLE 7 : PERSONS

This table enlists persons by their social, psychological or some other individual characteristic such as health, age, marital status and lastly and largely by their profession. The notation slice 01-08 denotes the former group of persons; while the subject specialists have been denoted mnemonically with the general schedules by the whole gamut of the table viz 1-9.

1. Persons occupied with Philosophy etc.
2. Persons occupied with Religion
3. Persons occupied with Pure Science.
and so on. The person occupied with Generalia disciplines such as bibliographers, library scientists, journalists have been place at 09.

Brief introduction to apply this table precedes the enlisting of persons (pp. $432-452$ Vol. I). This table can be used on instructions given in the main schedule or in various tables; or it can be applied of its own through the ss-088. This table is used when the development, practice or state of the subject is studied in relation to a specified group of persons. In the 17 th edition such a versatility was mostly not possible, but in some cases, it was obtained through divide-like 001-999 or smaller parts of the schedules. This separate table has eased the process and carried it to more depths. For example take social stratification of Baptists.

It is a subject of sociology, where social stratification is placed at 305, and here the social stratification of various religious groups is placed under 305.6. Here as per instructions, we are to add to the base 305.6 the number following 2 in 21-29 from Table 7. The notation for Baptist in Table 7 is 261 , so we will add 61 to the designated base :
$305.661=305.661$ is the appropriate class number.
This derived class number may further be subdivided by area table through the facet indicator 0 (zero) :

Social stratification of Baptists in India
$305.661+0+54=305.661054$
Social stratification of Baptists in Europe
$305.661+0+4=305.66104$
Another official invitation to use the Table 7 is extended at 390.4 Customs of people of various specific occupations. It is to be further subdivided by the Table 7
notation from 09 to 99 . For example :
Customs of Librarians
$390.4+092=390.4092$
Customs of Historians
$390.4+97=390.497$
Where 092 and 97 are the numbers for librarians and historians respectively in Table 7.

Similarly, 704 special topics of general applicability in fine and decorative arts can be extended by the Table 7 notation from 04 to 87 .

Buddhists as Artists
$704+2447=704.2447$
Where 2447 is the notation for Buddhism in Table 7.
Art works by Scientists
$704+5=704.5$
174 is Economic, Professional, Occupational Ethics.
Ethics of some of professions have been enumerated, e.g.
174.2 Ethics of Medical Profession
174.3 Ethics of Lawyers etc.

Ethics for all other professions have been placed at 174.9 , and we have been asked to get the individual class number for ethics of rest of the professions by adding notation 09-99 from Table 7. For example :

Ethics of Librarianship
174.9+092=174.9092

Here 092 has been taken from Table 7, where it means "persons occupied with library and information sciences"

Ethics of Librarianship
$174.9+97=174.997$
In addition to its invited use at various places in the main schedule, the use of Table 7 has also been suggested in various Auxiliary table. For instance in Table 1 (Standard sub-divisions) "024 works for specific types of users" is further extendible by Table 7 for works specifying the type of user :

Library Classification for Philosophers
025.42 is classification (And for a subject of a specific type of users, we have the ss 024 , which as per instructions is further divisible by Table 7. For Philosophers we have the notation 11 in Table 7), Thus the complete class number is : $025.42+024+11=025.4202411$
Similarly :
"Mathematics for Engineers" = Mathematics for specific type of users
$510+24=510.24$

For Engineer, we have the notation 62 in Table 7.
So the complete class number is
$510.24+62=510.2462$
(62 is the number for Engineers in Table 7)
In such cases, it is essential to differentiate between a subject by a specific group of persons and for a specific group of users.

In Area Table, -176 denotes regions where specific religions predominate. Here 176 has been further divided on the basis of some enumerated religions, while all the other un-enumerated religions have been placed at 1762-1769, and we are asked to divide 176 by the number following 29 in 292-299 from Table 7.

For example take "Islamic regions of the World". As per above instructions, we will add to the base 176 the number following 29 in 292-299 in Table 7 , where number for Islam is 2971 . Thus the desired notation for the above area is :
$176+71=-17671$
If say our title is "Libraries in Islamic countries of the world", we will proceed as follow :

General Libraries $=027$
For geographical treatment, we are to add 027.0 (as the base) the area notation for the specified region from Table 2. Number for Islamic regions as already worked out is 17671 . So, the appropriate class number is :
027.0+17671=027.017671

Wages in Islamic Countries
$331.29+17671=331.2917671$
Since all the subdivisions of notation 1 in the Area Table 2 can be added to all the subdivisions 3-9 in the Area Table through the facet indicator 009, so the table 7 is thus admissible in virtually the whole of the area table. For example "Islamic Countries of Europe" will be
$4+009+7671=-40097671$
(Here note that 1 in 17671 has been removed)
Similarly :
Buddhist countries of Asia is
$5+009+7643=-50097643$
Therefore :
Libraries in Islamic Countries of Europe is :
027.0+40097671=027.040 097671

Political Conditions in Buddhist Countries of Asia
$320.9+50097643=320.950097643$
The use of Table 7 also occurs through Table 3A, which itself depends on the use of Table 3. In the Table 3A, 353 is specific kind of persons, as subject/theme
of literature. As per instructions under-352 (in Table 3A) it is to be further subdivided by the notation 03-99 from Table 7 . For example :

Treatment of lawyers in literature
$352+344=-352344$
(Here 344 is lawyers in Table 7)
Similarly :
Treatment of Police officials in literature
$352+3632=-3523632$
Portrayals of Grandparents in literature
$352+0432=-352.0432$
To transform the above numbers in complete examples :
Collection of English Poetry about Lawyers.
$82+10080+$ Notation from table 3A
$=82+10080+352344=821.0080352344$
Treatment of Police Officials in English Drama
$82+200+80+3523632$
=822.008 03523632
Portrayal of Grandparents in English literature
$82+08+0+3520432=820.803520432$
Self-check Exercisse-7
Classify the following titles using DDC, Ed. 19

1. Looking by school childrens
2. Paintings of flowers by poets
3. Treatment of lawyers in english drama
4. Books in gardening for women
5. Art work by Buddhihsts

Further Readings :

1. Satija (MP) and Camaromi (JP) : Introduction to the Practice of Dewey Decimal Classification. Sterling Pub. 1987.
2. Sharma (CK) : Practical Handbook of Dewey Decimal Classification. Atlantic Pub. 2006.

Type Setting :
Department of Distance Education, Punjabi University, Patiala.

## Practice Exercises

1. College Library Building
022.317
2. French Language Encyclopaedia 034.1
3. Library Cooperation in India 021.640954
4. Job Opportunities in Agriculture 331.1243
5. Ethics of Librarians
174.9092
6. Attitude of Budhism towards Crime 294.337833
7. Jain Religious Calendar
294.436
8. Teaching through Audio-Visual in secondary schools 373.1335
9. Research on criminal law in India
345.072054
10. Economic condition of India
324.25407
11. Treatise between India and United Kingdom
341.026654041
12. Comprehensive English-Hindi Dictionary
423.91431
13. Botanical gardens in India 580.74454
14. Satillites of planet saturn 523.986
15. Radioactive Isotope of Radium 546.396588
16. Plastic surgery of face 617.520592
17. Cotton weaving 677.21242
18. Intensive care for heart surgery
617.412028
19. Glucose in the biochemistry of Insects

### 595.701924813

20. Diagnosis of Lung Diseases
616.24075
21. Nutritional diseases in children
618.9239
22. Folk dance in 17 th century 793.319032
23. Drawings of Penguin Birds
743.68441
24. Collections of Punjabi Drama
891.422008
25. Biography of sanskrit poets
891.21009
26. Civilization of Arabs
910.03927
27. Travels in China in early periods
915.1041
28. English proverbs
398.961
29. General periodical in Hindi 059.9143
30. Social status of German speaking people in USA 305.731073

## Answer to self-check Exercises <br> Exercise-1

1. 025.4679282
2. 338.1373
3. 020.5
4. 025.463
$5 . \quad 633.56$
Exercise-2
5. 335.409045
6. 370.11305
7. 570.72054
$4 . \quad 310.1$
$5 . \quad 382.0954094$

## Exercise-3

1. 320.9544048
2. 328.091716
3. 331.40954
4. 332.1095495
5. 647.9554799

Exercise-4

1. 810.601
2. 891.4408
3. $\quad 792.230909355$
4. 891.4310072
5.891 .4415

Exercise-5

1. 443.1
2. 305.79481105
3. 089.91431
$4 . \quad 483.71$
4. 376.917591439

Exercise-6

1. 808.89891411
2. 305.981411
3. 784.769142
4. 155.849144
5. 809.88924

Exercise-7

1. 641.50880544
2. 758.4208881
3. 822.0080352344
4. 635.024042

5 . 704.2447
Type Setting
Department of Distance Education, Punjabi University, Patiala.

