

CLASSIFICATION RESEARCH NO  
 LONGER A TODDLER  
 (DEPTH CLASSIFICATION 47)

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A stock-taking paper. Traces the slow emergence, during the last fifty years, of a discipline of library classification with its own fundamental laws and with its own vista of research. Describes the sixth decade as making the toddler stage in the development of research in classification. Evaluates the advantages of the separation of work in the Idea Plane and the Notational Plane, and of basing classification on some postulates for each plane. Brings out the versatility of a mixed notation and of providing for Empty and Emptying Digits. Refers to the pilot projects for depth classification in progress. Looks forward to the emergence in the eighth decade of the need for solo research as well as team research in classification, as in all traditional subjects.

## CONTRACTIONS USED

(AI) Array Isolate  
 (AIN) Array Isolate Number  
 BC Bibliographic Classification  
 CC Colon Classification  
 DC Decimal Classification  
 [E] Energy Facet  
 EC Expansive Classification  
 (FC) Fundamental Category  
 (IAN) Indo-Arabic Numerals  
 (IF) Isolate Facet  
 LC Library of Congress Classification  
 [M] Matter Facet

(MC) Main Class  
 [P] Personality Facet  
 [S] Space Facet  
 SC Subject Classification  
 [T] Time Facet  
 UDC Universal Decimal Classification

1 PRÉ-GRAMMAR STAGE  
 11 Spontaneous Creation First

"Literature first, grammar thereafter". "Art first, art technique thereafter." These are truisms. These describe the evolution within a subject-complex. The starting point in a subject-complex is Creative Work--sans rules, sans grammar. The medieval Indian author, Vatsyayana, said, "When the creative flow is on, no direction by preconceived rules and no guidance by normative principles". [26]. Spontaneous creation is the first step in any field of knowledge. Extension and improvement controlled by techniques come late. So it has been in the subject-field of Classification.

## 12 Connotation of 'Classification'

By 'classification' is meant not the mere division of entities or sets of entities into groups and not even the association with it of the further step of ranking the groups. 'Classification' includes the still further

step of representing each resulting Ranked Group (=Class) by a Unique Ordinal Number called Class Number. The use of the Class Number is for the preservation of the preferred Sequence of the Classes and its restoration when disturbed, with no more mental effort than that of arranging the Class Numbers. In other words, the Class Number becomes a tool for the mechanization of the arrangement of the classes. To emphasise this, we would prefer to use the term 'Library Classification' [ 5 ] instead of the bare word 'Classification'. Much of the earlier study of the process of classification by logicians and philosophers was short of Library Classification though useful to it. For economy, we shall agree to use the single word 'Classification' hereafter in the sense of 'Library Classification'.

### 13 The First Schemes of Classification

The chief schemes of classification to come out in the pre-grammatical stage were DC, EC, UDC, LC, and SC. The pioneer among these was DC. DC was conceived as a whole, largely through intuition and little regulated consciously by any conventional principles. So it has been with EC and SC. UDC too had a touch of help from intuition. The design of none of these schemes had much of a Grammar of Classification for guidance.

## 2 EMERGENCE OF GRAMMAR OF CLASSIFICATION

### 21 Decade 2

A comparative study of these schemes easily suggested itself during the second decade of the present century. An anonymous society with Wyndham Hulme and James Duff Brown as prominent members was the first to distil a grammar out of these five schemes of classification. Wyndham Hulme's effort in this direction appeared in instalments in the pages of the Library Association record. This grammar was not fully rounded off. It was even lost sight of for several years. Fortunately, it has now been reprinted as a book [3]. A productive concept originated by Hulme was that of Literary Warrant.

### 22 Decade 3

It was W C Berwick Sayers that persistently worked out a grammar of classification. His work reached its culmination in the third decade of the century. His results were carried through three books-- Canons of classification (1915) [23], Introduction to classification (1918) [24], and Manual of classification (1927) [25]. These books used the grammar of their creation to make a historico-comparative study of the chief schemes of classification. But systematic research in classification was not the aim of these books. They only attempted to provide a descriptive formulation.

## 3 SUGGESTION OF CLASSIFICATION RESEARCH

### 31 Climate Favourable to Research

But the pioneering work of Sayers brought classification to the brink of research, as it were. A pre-disposing cause for the starting of research in classification in India may be said to have been the formulation of the Five Laws of Library Science [11] between 1928 and 1930. These Laws based the entire edifice of library practices on normative principles. The existing practices can be seen as implications of normative principles. They have also other implications not yet realized in practice. When these laws are put in relation to newly emerging social demands on libraries, implications not originally thought of will begin to flow out of them. This has set the climate for an attitude of research in library matters. Classification shared this climate.

### 32 Growing Grammar of Classification

Almost simultaneously with the Five Laws, CC emerged. It had certain features not found in DC, EC, LC, or SC. It had been later realised that some of the features of UDC were like incipient forms of the new features basic to CC. Nearly at the same time as CC, BC also appeared. This too had certain of these new features, though not to an equally pronounced degree. These features called for a re-writing of

the Grammar of Classification with its roots running deeper than the schemes of classifications themselves. The grammar began to grow.

### 33 Decade 4

Henry Evelyn Bliss was the first to step into this field. His twin books Organization of knowledge (1929) [1] and Organization of knowledge in libraries (1933) [2] took the roots of the Grammar of Classification into the nature of the universe of knowledge forming the primary universe for classification. Another book of the fourth decade of the century which took the Grammar of Classification to a still deeper level was the Prolegomena to library classification (1937) [18]. This book made a deeper analysis of the process of classification and established a special terminology conducive to clear and unerring communication of thought in the field of classification. All this amounted only to a suggestion that research was possible in the discipline of classification. But none of these books engaged itself in research. They did not even categorically list the problems in classification needing investigation and research.

### 4 STIMULUS OF WAR

World War II gave a stimulus to further work in classification. It was more a war of brains than of muscles. The war was largely fought in the laboratories. The war stepped up the tempo of research to a degree unknown till then. Research under the pressure of war had to be in-series among teams of workers either under the same roof or under different roofs. Avoidance of unintended and unwanted repetition of investigation became a necessity. But the downpour of the results of research overpowered the capacity of the known schemes of classification to organize the results in an efficient way. New techniques of classification became necessary. But the profession was taken by surprise. The society at large was responsible for this. The society had not made the library profession sufficiently attractive for a sufficient

number of persons, with research aptitude and training, to get into the profession. In fact, there was even some muffled ridicule, if anybody talked of Research in Classification or in Library Science in general. But the demands of war asserted themselves. They compelled recognition of the discipline of classification as a fit field for research.

### 5 BEGINNINGS OF CLASSIFICATION RESEARCH

#### 51 Turning of the First Sod

But India was then virtually in backwaters so far as research in most fields was concerned. But curiously, though India was beyond the reach of the stimulus of war in this matter, the first sod was turned in India in the field of classification research when the War was still on. The potency of the concept of the Five Fundamental Categories PMEST--Personality, Matter, Energy, Space, Time--is now being widely realised. This idea first appeared in the Library classification: Fundamentals and procedure (1944) [14]. Bernard I Palmer was with me when this concept was sprouting. He was to go one evening to the Nilgiris for a change. I went to the Central Station (Madras) to see him off. I remember vividly our walking up and down the platform, playing with the PMEST idea almost in ecstasy.

#### 52 Benefactor 1

So far as India is concerned, the chief benefactor to provide opportunity for research in library science in general and classification in particular was Sir Maurice Gwyer, the then Vice-Chancellor of the University of Delhi and retired Chief Justice of India. He opened a Department of Library Science and gave me freedom to develop it. He also brought together a fine set of young men who enjoyed research work. The University instituted the M Lib Sc course. This course included the subject entitled Universe of Knowledge: Its Development and Structure. The exposition of this subject to keenly interested young men amounted to ploughing the universe of knowledge so as to make it fit for the cultivation of classification research. The

seeds of classification research were sown in this course from 1948 onwards.

#### 53 Benefactor 2

In continuous manuring of this field and the nurturing of classification research, India owes to another benefactor. It was Donker Duyvis. The progress of classification research in India in subsequent years owes not a little to his bringing the Indian School of Classification Research into contact with the outside world through the FID. A helpful off-shoot of this contact was the facility provided by the Rockefeller Foundation to spend some months in U. S. A. in 1950. This proved to be a good preparation for starting on a prolonged Programme of Classification Research. A productive off-shoot has been the continuing intercourse with several other persons interested in the pursuit of Classification Research.

#### 54 Decade 5

The first contact with Donker Duyvis synchronised with the establishment of the Department of Library Science in the University of Delhi. It was in 1947. This was soon followed in 1949 by the establishment of the Abgila as a medium for the results of research. Its very first volume contained the first fruits derived from the PMEST concept. All these factors made conditions favourable for classification research. All the same, it cannot be said that anything more than the very beginnings of classification research took shape in the fifth decade of the century.

#### 55 Plan for Organization

The beginnings included a plan for the organization for Classification Research. The first draft of the plan was published in the paper on Classification and international documentation (1947) [7], published in the Review of documentation. A more detailed version of the plan was worked out in the next year. This was incorporated as Chapter 8 of the Philosophy of library classification (1951) [20]. A slightly more detailed version was published in Chapter 38 of the Classification and communication (1951) [6].

## 6 TODDLER STAGE OF CLASSIFICATION RESEARCH

### 61 Organization

By 1950 it became possible for one to speak of Classification Research with some courage and conviction. The following organizations were set up for classification research at the international level as well as at national levels:

S No.	Time	Name
1	September 1950	FID/CA Committee on General Theory of Classification.
2	21 October 1950	Delhi Seminar in Library Science.
3	2 September 1951	Library Research Circle (Delhi).
4	February 1952	Classification Research Group (London).
5	July 1958	Library Research Circle (Bangalore).
6	October 1958	Classification Research Group (Manchester).
7	1958	Classification Research Study Group (USA).

### 62 Achievement

The FID/CA has produced an annual report each year. Each report studied a particular problem in classification. The Delhi Seminar met every week during term time till 1954. Its minutes have been published in the Bulletin part of the Abgila. Some of the problems studied fall in the area of classification research. But they were all isolated. The Library Research Circle (Delhi) met every Sunday during term time. It pursued classification problems in a more continuous way. Its findings were collected together from time to time and consolidated in books such as Depth classification (1953) [21] and Prolegomena, Ed 2 (1957) [19]. A pilot project in the design of depth classification concerned itself with Management. The Classification Research Group (London) has been holding monthly meetings with carefully done minutes. It has also pub-

lished its *Bulletins* in the *Journal of documentation* from time to time. It has stimulated the design of a scheme of faceted classification for subjects such as Packaging, Occupational Diseases, and Soil Science. Some of the results are also reflected in the *Classification and indexing in science* (1958) [27]. The Classification Research Study Group (USA) holds annual meetings and carries out follow-up work between the meetings.

#### 63 Decade 6

Generally speaking, the work in the sixth decade of the century was more like probing or making trial pits in geological explorations. It was characterised by the pursuit of discrete topics rather than by a global and sustained attack on a massive problem. However, it amounted to a true exploration to determine areas requiring cultivation. It also amounted to finding out by trial and error some worthwhile methodology. All the same, the work in the sixth decade of the century was more like the toddler learning to walk than a boy walking with certitude and stability.

#### 64 Increased Faith in Classification Research

By the middle of the sixth decade, there was abundant evidence of increased faith in the value of continued research in classification and in the need for it. There was abundant evidence of this at the International Conference held in Brussels in September 1955. The Plenary meeting on 16 September 1955 adopted the two resolutions brought up by the Group Meeting on Classification [22]. The resolutions are:

\*1 The FID recommends that a deeper and more extensive study should be made of the general theory of classification, including facet analysis, and also of their application in the documentation of specific subjects.

\*2 The commission proposes that in liaison with the FID/CA Committee, a permanent Working Group be created in each country in order to make mutual exchange of theoreticians' experiences and

points of view possible. The rapporteurs shall bring about the creation of such a group and furnish the information and means of work in order that practical results may be obtained in the shortest time, by making mail exchanges easier and more frequent. The scheme proposed by Dr Ranganathan will serve as the basic document".

#### 65 Dorking Conference

At the invitation of Donker Duyvis, a document entitled *International summer school on designing of documentary classification* [13] has been presented to FID some time before the Brussels Conference. At its meeting held on 16 September 1955, the Council of the FID requested the Bureau to convene an International Seminar on Classification. Eventually, this idea materialised into the Dorking Conference (May 1957) organized by Aslib with the co-operation of the Classification Research Group (London) and the University of London School of Librarianship and Archives [4]. This conference gave a distinctive character and agreed lead to future work on Classification Research. During Decade 6, each country has been endeavouring to find some systematic path for the pursuit of research in classification. An attempt is being made to find some firm foothold for the pursuit of research. India's effort will be described here.

#### 651 Foothold 1

##### Separation of the Planes of Work

We had been all along feeling that both the design of a scheme of classification and the few items of research in classification had been bogged by the unconscious and untrouled play amidst different planes in which the work has to be done. In the course of Decade 6, this listless movement from plane to plane came to be observed consciously. This led to the recognition of three distinct planes both in the design of classification and in research in classification. These planes were named Verbal Plane, Idea Plane, and Notational Plane.

## 66 Verbal Plane

It was found that the use of natural language had exposed the work to distortions in communication caused by the homonyms in popular usage. These homonyms have a double effect.

## 661 Technical Terminology in Classification

Firstly, it causes aberration in the communication of thought among classificationists and classifiers. It was felt that one possible remedy to this defect would be the establishment of an Object Language for the discipline of classification, with its own carefully defined terminology. At the World Congress of Librarians and Documentalists held in Brussels in 1955, it was recognised that some of the schools of thought in classification had already developed a classificatory terminology in a casual way. At its meeting on Friday 16 September 1955, the General Assembly of the International Federation for Documentation recommended that a glossary of the terms should be published in the first instance by each School of Thought and that ultimately the FID might collate them and publish a multi-lingual international glossary. In pursuance of this recommendation, the first draft of the classificatory terminology of the Indian School of Thought was published in 1958 [12]. The Documentation Sectional Committee of the Indian Standards Institution used this draft as a basis. It has by now finalized the Indian Glossary of Classification Terms. It is hoped that this glossary will make the communication among classificationists and classifiers free from noise.

## 662 Isolate Term

Much attention has not been paid to the isolate term occurring in classification schedules. Very often, the isolate term consists of several words describing the idea. It is felt that it will be a help if the isolate term is made a noun preferably made of one word. It should be possible to depend upon the Canon of Context and the Canon of Enumeration in avoiding any

homonyms likely to arise among isolate terms. The schedules of CC are being reviewed from this angle. The schedules of UDC need much reform in this respect. The reform is necessary to make possible the derivation of subject headings from class number mechanically with a device such as Chain Procedure.

## 67 Idea Plane

## 671 Intrinsic Problems

During Decade 6, a considerable progress was made in spotting out problems intrinsic to the Idea Plane. The chief effort has been to emphasise the need for solving the problem in the Idea Plane uninfluenced by the limitations imposed by the Notational Plane, as it had been all along. This has been producing some good results.

## 672 Foothold 2

## Postulation of Five Fundamental Categories

The Five Fundamental Categories, PMEST, had been first sensed even in 1944, as stated in Sec 51. But its potentiality was not then seen. It was only early in Decade 6 that the concept of PMEST came to be consciously exploited. Each of the diverse facets of the several subjects, visible in the phenomenal level, was postulated to be a manifestation of one and only one of the Five Fundamental Categories PMEST. This concept gave Foothold 2 for systematic research in classification.

## 673 Round and Level

But subjects often had more than five facets, while there were only five fundamental categories. The difficulty caused by this was met in Decade 6 with the help of the concept of Rounds and Levels of manifestation for each of the different fundamental categories. It was postulated that each manifestation of the fundamental category, Energy, ended one round of manifestations and those which came immediately after it were manifestations of second round. It was further postulated that if the same fundamental category, other than

Energy, manifested itself more than once within one round, each of these manifestations should be postulated to belong to different levels of that fundamental category. These concepts broke some of the fetters preventing the march of research in the Idea Plane.

#### 68 Notational Plane

##### 681 Mixed Notation

CC had from the beginning used a mixed base for its notation--Roman small, Indo-Arabic numeral, and Roman cap. It had also made the last digit in any particular species of digits an Empty Digit and used it as Sectorising Digit. But in spite of it, steps were not taken till late, in Decade 6 to exploit the full potentiality of such a mixed notation. Towards the end of Decade 6, the Starter and the Arrester digits also were brought into use. This added considerably to the length of the base. Along with this, the concept of Efficiency Table [8], developed during the decade, opened up the way for research in the Notational Plane. For, it enables us to see which sectors in an array are left fallow and to find out what findings in the Idea Plane could be implemented by utilising such fallow sectors.

##### 682 Single Connecting Symbol

When CC was first conceived in 1924, the only connecting symbol used was colon. This by itself was unable to allow the Notational Plane to keep pace with the progress of research in the Idea Plane. It was even worse than this. This limitation in the Notational Plane even obstructed progress in the Idea Plane. Actuated by the fear that the Notational Plane did not have the capacity to implement its findings, the Idea Plane often got inhibited.

#### 683 Foothold 3

##### Many Connecting Symbols

One of the important steps taken early in Decade 6 was improvising a different connecting symbol for each of the Five

Fundamental Categories. At the beginning, we could think only of the four connecting symbols: Comma, Semi-colon, Colon, and Dot. This necessitated the connecting symbol dot being shared by space facet as well as time facet. But towards the end of the decade, this handicap was removed by adopting a single inverted comma as the connecting symbol for time facet. This made the foothold 3 for further research in the Notational Plane. It made research much firmer than it was earlier.

#### 7 PREPARATION FOR DIVING DEEP

##### 71 Decade 7

During the last three years of the seventh decade of the century, the new vistas opened up in the latter half of the last decade are being systematically explored. The work is no longer oscillating listlessly from problem to problem. It is consciously directed. This factor may be said to lift research in classification from the toddler's stage to one of firmness.

##### 72 Foothold 4

##### Capacity of an Array of Order 1

The work in the Notational Plane is getting better rounded off by using  $\Sigma$ , 9, and Z as empty--that is sectorising--digits. The capacity of an Array of Order 1 in an (IF) has been measured for the mixed notation of CC. Assuming that an (AIN) should not exceed two digits, the capacity of an Array of Order 1 of any (IF) is 212. Similarly, assuming that the (AIN) should not exceed three digits, the capacity of an Array of Order 1 in a (IF) is 742 [17]. We can similarly calculate the capacity of an array if the (AIN) should not exceed four digits, and so on.

##### 73 Foothold 5

##### Telescoping of Facets

The work on the calculation of the capacity of an array has incidentally brought to light the number of sectors found in an array. If the number of digits in an (AIN) should not exceed two, the number of sectors is 12. If the number of digits in an

(AIN) should not exceed three, the number of sectors is 42. This means that 42 levels of facets belonging to a single (FC) can be accommodated within a single round. It is further possible, without any ambiguity, to represent only the levels of facets actually presented by a subject. This is a tremendous Hospitality among Facets. This hospitality can be further increased, if need be, by converting into empty digits the necessary number of digits smaller than the last digit, in each conventional group of digits. But this should be done very sparingly.

#### 74 Foothold 6

##### Emptying Digit and Interpolation of (AIN)

Another powerful concept hit upon during the seventh decade is that of Emptying Digit [15]. An emptying digit allows the interpolation of an (AIN) at any point in an array. This is a new capacity acquired by the Notational Plane. Its absence had been all along a great handicap. For, its absence disabled the Notational Plane for accommodating a newly emerging (AI) in the helpful position suggested by the Idea Plane. One of the first applications of this new concept has led to the withdrawal of the Greek letters used in the array of (MC) as a temporary measure in spite of the inconvenience caused in typing and printing [16]. This increases the versatility of the Notational Plane enormously. Many new (MC) of a pure variety are now taking shape very fast. They cannot be expressed comfortably in terms of the existing (MC). Each of them calls for its own place among the existing (MC). Their demand can hereafter be met by the Notational Plane. The use of this concept in the arrays of an (IF) has not yet been explored. But there is every chance for this concept to be of use there also.

#### 75 Foothold 7

##### Principles for Facet Sequence

An important advance made to facilitate the work in the Idea Plane has been the formulation of the Five Principles for determining the Sequence among the Facets of a subject [9]. Of these five principles, Principle 2--Wall-Picture Principle--

turns out to be a very versatile one. Its application requires a certain mental discipline which can be acquired by experience. The application of this principle is being experimented upon, with the aid of fresh minds found among the participants of the DRTC. Perhaps there are still a few dark regions which will have to be cleared up in due course. On the whole, it is proving effective. The principle coming next in importance is that of the Commodity-Raw Material-Transformation Principle. It is hoped that this principle will be of help in the classification of the applied sciences generally grouped under Engineering and Technology. Study of this problem is in progress in DRTC.

#### 76 Pilot Projects

With the aid of the seven footholds, some pilot projects in depth classification have been attempted during the last few years. The results were rather crude, But work on them has helped us to learn the ropes, as it were. The projects so covered concerned:

- 1 Time Facet and its Levels;
- 2 Space Facets and its Levels;
- 3 Management Science;
- 4 Library Cataloguing;
- 5 Library Classification; and
- 6 Bibliography.

The last of these, which was attempted only a few months ago, is more satisfactory than the others. The others suffered for lack of a clear understanding of the number of sectors available in an array for any given number of maximum digits in an (AIN). These others should therefore be again re-designed in the light of our having found out the number of sectors and of the experience gained in the Idea Plane in designing the depth schedule for Bibliography.

#### 761 Time Facet

An additional factor which makes the re-doing of the schedules for the different levels of Time Facet is a consequence of having recently adopted inverted comma as a distinctive connecting symbol for Time Facet. We are now in a position to re-de-



sign the schedule with the following as the matrix.

Zone	Sector	Nature of Level
1	1	Meteorological
	2	Diurnal
	5	Lunar
	7	Solar
	9	Periods of other heavenly bodies
	11	Chatur Yuga
	12	Period of contraction and expansion of universe
2	1	Week days
	3	Calendar months
3	6	Century
4	3	Eras

The levels given above are known to occur in one subject or the other. More intermediate levels may occur as research progresses to greater depths in diverse fields of knowledge. But there are enough vacant sectors to accommodate the new levels. It is conjectured that the emergence of new levels will be few and far between. Another problem that requires attention is the use of private era and private unit of time. We have already found it helpful to use (0) to denote the private era of any entity. The private unit that is most suitable for an entity is usually obvious. If two or more units are equally suitable, we shall have to find out some method of denoting the nature of the unit. Hardly any work has begun on the use of the sectors arising in Arrays of Order 2. Of course in Arrays of Orders 2 and 3, the number of sectors available will not be 42, but only 29. This is because the first digits in an (IAN) in Zone 1 will have anteriorising quality and therefore will not be available. It is conjectured that generally speaking Zone 3 of an Array of Order 2 may be used for denoting the scale of measurement adopted--for example, Centigrade, Kelvin, etc for the scale of temperature. Zone 2 of an Array or Order 2 may be used for the number units of measurement when the scale is the favoured one. If this scale is not the fa-

voured one, the number of units will have to be represented in the Array of Order 3.

#### 762 Space Facet

For the reasons given in respect of Time Facet, the work already done on Space Facet is rather crude. It will have to be redone. We are now in a position to redesign the schedule with the following as the matrix.

Zone	Sector	Level
1	1	Altitude
	2	Geosphere
	5	Hydrosphere
	7	Atmosphere
2	9	Horizontal divisions
	1 and 2	Continents and oceans
3	5 and 6	Population cluster

It is found that unlike in other cases, Zone 3 (Population cluster) should be deemed to belong to a later level of space than Zone 2 (Continents and oceans). Probably Zone 4 can be used to denote subject groups of countries, such as Rice-Producing countries, English-Speaking countries, and Communistic countries. These are all conjectures. Things will get settled down only as we proceed to work out the details.

#### 763 Other Pilot Projects

All the other pilot projects done previously may have to be redone at certain points on the schedule. But there are no special points that can be mentioned about them at this stage.

#### 77 Zone 1 in [E], [M], and [P]

All the isolates in [T] and [S] are common isolates by definition [10]. Therefore, there has been no need to make any special mention of Zone 1 in their Arrays of Order 1. But it is not so in the case of [E], [M], and [P]. Here it has been found helpful to reserve the first few sections of Zone 1 for the common isolates which may

be deemed to be manifestations of Energy, Matter, and Personality respectively. The Common Matter Isolates have been taken to be equivalent to Common Property Isolates and Common Value Isolates. The construction of the schedules for the first few sectors of Zone 1 of these facets is being attempted in Documentation Research and Training Centre, Bangalore (DRTC). Experience shows that the common [E] and [M] isolates often appear fused in the Verbal Plane. They have to be separated. We have also to decide the degree to which they should be separated. We are trying to decide these problems by the laborious process of trial and error. For we have not yet been able to hit upon an *a priori* method. It is conjectured that if the Common Energy and Common Matter Isolates are scheduled fairly fully, many of the problems in the depth classification of micro-thought would be easily met.

#### 78 Schedules of Materials

It was pointed out at the FID Conference held in Warsaw in 1959 that another schedule, which can be constructed all by itself, is that of all materials--raw materials, intermediate commodities, and ultimate commodities--and all services. Work on this has not yet been taken up. It was pointed out in the Warsaw Conference that this work would require one hundred man-years.

#### 8 ALL SET FOR STEADY PROGRESS IN RESEARCH 81 Decade 8

It is conjectured that if depth schedules for a number of subjects are constructed in the course of the remaining years of the seventh decade of the present century, we are likely to spot out some more new basic principles pertaining to the Notational Plane as well as the Idea Plane. This will require research work of a fundamental nature. Then will follow routine research.

#### 82 Residual Work

It is further conjectured that by that time, work in the Notational Plane would have made sufficient progress to make that plane versatile enough to meet any demand of the

Idea Plane. Further work on classification will thereafter depend mostly on work in the Idea Plane. This will require on the part of the classificationist as well as the classifier an intimate acquaintance with the happenings in the wave-front of knowledge in every subject field. For the satisfactory design of schedules needed for depth classification of the new micro-subjects that will emerge, the classificationist and the classifier should keep themselves informed intimately about the happenings in different subjects and always be in constant consultation with the specialists in them. It would be difficult for one person to have the necessary intimate touch with all the subject-fields. Therefore, the indication is that, as and when a certain degree of depth is reached, the classificationists and the classifiers should divide the universe of knowledge among themselves, each specialising in a few subject-fields. This will have to happen intensively by the time we enter the eighth decade of this century. Apart from this, it is conjectured that most of the new work will concern itself with the isolates in the personality facet of the old as well as new subjects, that emerge from time to time.

#### 83 Work in Social Sciences

The demand for documentation and depth classification in the field of social sciences has been emerging only slowly. It is only of recent origin. Even the Verbal Plane has not yet clenched itself well in those subjects. As and when they assume importance in research, they will make new demands on the theory and practice of classification. This will call, in all probability, for some further research in the pure theory of classification. The experience gained so far, the footholds we have got already, and the pilot projects now in progress indicate that, research in classification will have to consist, in future, of both solo research and relay research, as in the traditional subjects Solo research, as usual, is not anything that can be made to order. It depends on a man of genius being born. Nor is solo research by itself sufficient, though it is essential. But relay research admits of organisation. Relay research will depend upon team work

by a large group of people of different intellectual removes from the point of being a genius. We are fast entering into the age of relay research in classification. In the eighth decade and onwards, relay research in classification will be a regular feature in many centres of the world. The aim of DRTC is to start even now such relay research in classification and in other associated library techniques. It is hoped that DRTC will do substantial pioneering work in relay research in classification.

#### 84 Impact of Electronics

We are now in the electronic age. Hardly anything escapes the impact of electronics. Library classification cannot be an exception to it. There is a great movement afoot in the design of electronic and other machinery for the rapid retrieval of documents and their entries. It is now being increasingly realised that with a close co-operation between the classificationist and the classifier on the one side and the electronic and other engineers on the other, a much better result can be got than by either party working by itself. As the co-operation between them gets increased in intensity, new problems will arise in the field of classification asking not only for research but perhaps also for new methods of research. Unless research in classification is intensified and better schemes of depth classification are produced, the costly machinery cannot be given work on a viable scale. Further, the extraordinary speed of picking up, which the machinery have, cannot be utilised free from noise or false drops, unless work is continuously in progress in designing a powerful ever-improving scheme of depth classification--which means, unless some persons turn their thought and time to ever-continuing research in classification.

#### BIBLIOGRAPHY

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

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

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

- 1 Sec 33 BLISS (Henry Evelyn), Organization of knowledge and the system of the sciences, 1929.
- 2 Sec 33 --, Organization of knowledge in libraries and the subject-approach to books, Ed 1, 1933.
- 3 Sec 2 HULME (Wyndham E), Principles of book classification, (Lib assoc rec, 13-14; 1911-12).
- 4 Sec 65 PROCEEDINGS, INTERNATIONAL STUDY CONFERENCE ON CLASSIFICATION AND INFORMATION RETRIEVAL 1 (Dorking), (1957).
- 5 Sec 12 RANGANATHAN (S R), Classification and communication, 1951, (Delhi University Publications library science series, 3), Chap 13.
- 6 Sec 55 --, Classification and communication, 1951, (Delhi University Publications library science series, 3).
- 7 Sec 55 --, Classification and international documentation (Rev doc 14; 1947; 154-77).
- 8 Sec 681 --, Efficiency table, (Depth classification, 17), (An lib sc, 2; 1955; 1-8).
- 9 Sec 75 --, Elements of library classification, Ed 3, 1962, Sec N3.
- 10 Sec 77 --, --, Sec P4.
- 11 Sec 31 --, Five laws of library science, Ed 1, 1931, (Madras library association publication series, 2).
- 12 Sec 661 --, Glossary of classification terms, (An lib sc, 5; 1958; 65-112).
- 13 Sec 65 --, International summer school on designing of documentary classification, (Rev doc, 22; 1955; 95-98).

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- 15 Sec 74 -. Notational plane. Interpolation and extrapolation. (Depth classification, 42). (An lib ec, 10; 1953; 1-13). Sec A22.
- 16 Sec 74 -. -. Sec A34.
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- 18 Sec 33 -. Prolegomena to library classification. Ed 1. 1937. (Madras library association publication series, 6).
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- 20 Sec 55 -. Philosophy of library classification. 1951. (Library research monographs, 2).
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- 22 Sec 64 Rev doc. 23; 1958; 139.
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- 25 Sec 22 - Manual of classification for librarians and bibliographers. Ed 3. 1955.
- 26 Sec 11 VATSYAYANA. Kamasutra.
- 27 Sec 62 VICKERY (B C). Classification and indexing in science. Ed 2. 1958.