Points out that "System" is now left undefined. Indicates how the Spiral of Scientific Method may be used to define a system with the aid of the concept of Fundamental Laws. Traces the progressive cluttering of connecting symbols. Points out the versatility of a Mixed Notation and of Tele-scoping. Isolates some unsolved problems in the Idea Plane and states that the solutions for them could only be found by the further pursuit of the discipline of the Philosophy of Science. Shows how the hitherto unsolved problems of Branch Systems can now be solved with the aid of Zone Analysis and thereby the Canons for Filiatory Sequence can be satisfied.

CONTRACTION USED

(BC) Basic Class
(BSmF) Branch-System Facet
(CC) Colon Classification
(DC) Decimal Classification
(MC) Main Class
(SmF) System Facet
(UDC) Universal Decimal Classification

1 EVAISION OF DEFINITION

We shall begin with Rule 641 of ed 5 (1957) of CC. It reads as follows:-

"641 If a Subject is expounded according to a particular System of Thought, its (BC) must be fitted with an Amplifying Facet of Kind 1. We may call it also (SmF). This definition of (SmF) assumes the definition of "System". But, this term is not defined. It is evidently taken as an 'assumed term'. Its meaning is assumed to be easily seen in the context in which it is used. There is some kind of explanation, however, in Ranganathan's 'Depth classification 12: Organisation of notation in Zone 3', section 21 System, (An lib sc, 2, 1955, 69). There we read as follows:- "An exposition of a subject can only be according to some system. In other words, there can be no document on a (BC) qua (BC). The ideas in a (BC) sans system are ineffable."

11 Help from Enumeration

CC itself relies on the Method of Enumeration to convey the connotation of the term "System". The following extracts from its schedules of systems do that work.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2A</td>
<td>Systems of algebra</td>
</tr>
<tr>
<td>B2M</td>
<td>Boolean</td>
</tr>
<tr>
<td>B6A</td>
<td>Systems of geometry</td>
</tr>
<tr>
<td>B6M</td>
<td>Non-Euclidean</td>
</tr>
<tr>
<td>B6M3</td>
<td>Elliptic</td>
</tr>
<tr>
<td>B6M5</td>
<td>Hyperbolic</td>
</tr>
<tr>
<td>B6N</td>
<td>Line-complex</td>
</tr>
<tr>
<td>CA</td>
<td>Systems of physics</td>
</tr>
<tr>
<td>CK</td>
<td>Gravitational theory</td>
</tr>
<tr>
<td>CM</td>
<td>Kinetic theory</td>
</tr>
<tr>
<td>CM6</td>
<td>Ether theory</td>
</tr>
<tr>
<td>CM65</td>
<td>Electro-magnetic theory</td>
</tr>
</tbody>
</table>
13 An Illusion

The evasion of a formal definition and the dependence on the enumeration in the schedule produce an illusion as if "System" and (SmF) are the creation of CC or at least peculiar to that particular scheme of classification. In reality, however, the concept of "System" is intrinsic to the universe of knowledge itself. "System" and (SmF) exist in the Idea Plane. Literary warrant calls for collecting together all the documents belonging to a particular system. If this is not done, the Canon of Helpful Sequence and the Laws of Library Science themselves will be violated. Therefore, the findings in the Idea Plane in respect of "Systems" should be implemented in the Notational Plane by every scheme of classification.

2 REMOVAL OF THE ILLUSION

The illusion about "Systems" is bad. It must be removed. To remove it, we should look for a definition of "System". We should at least produce a definite objective criterion to distinguish one "System" from another.

21 Help from the Spiral of Scientific Method

We are now in a position to evolve such a criterion. This has been made possible by the concept of the Spiral of Scientific Method expounded in section 814 of Ranganathan’s "Five laws of library science", ed 2, 1957. A schematic representation of this concept is given in the accompanying diagram.

Facts of experience are reduced to empirical laws with the aid of the intellect. Empirical laws are sublimated to fundamental laws with the aid of intuition. With the aid of the intellect, deduced laws are derived from the fundamental laws. All the empirical laws are bound to appear among the deduced laws, but some of the latter will turn out to be different from the empirical laws. Such new deduced laws are tested by reference back to experience. Now and again, it happens that they fail in the test. Or it also happens that new facts are experienced, which are not in conformity to the fundamental
Classification of Systems

III ZENITH
FUNDAMENTAL LAWS

III

INTUITION

3

INTERCECT

4

DEDUCED LAWS

II

ASCENDENT EMPIRICAL LAWS

FACTS

NADIR

1

SOURCES

IV

DESCENDENT

23 Application of the Criterion

Let us now apply this criterion to some of the systems listed in section 12.

221 Systems of Physics

Among the Systems of Physics, the following questions arise. Are the Ether Theory and the Electromagnetic Theory based on truly different fundamental laws and should they be treated as distinct "Systems"? Similarly, is the set of fundamental laws connoted by the Quantum Theory truly different from the set connoted by the Wave Mechanics to justify these two to be deemed to be two distinct "Systems" of Physics? Does Radio-active Theory constitute a "System" of Physics?

222 Systems of Psychology

In Psychology, it needs examination if Experimental Psychology is really a "System" — that is, if it is based on a distinct set of fundamental laws of its own. We should also make sure if the fundamental laws implied in Behav-
tourism are truly different from those implied in Reflexology, to call for these two to be treated as different "Systems" of Psychology. The "Systems" denoted by the terms Psycho-
analysis, Individualistic Psychology, and Typological Psychology should also be exam-
inied in a similar manner.

223 Systems of Economics

The schedule of "Systems" in Economics is perhaps the worst hotch-potch. Surely, Joint Stock Company and the American Trust least deserve to be called "Systems" of Economics. It is not clear how far different "Systems" of Economic Distribution should be taken to be equivalent to different "Systems" of Economics itself. When this matter is cleared up, the whole schedule of "Systems" in Economics will need a drastic revision.

224 Systems of Medicine

The "Systems" enumerated in Medicine imply different sets of fundamental laws so far as Pharmacognosy and Therapy go. Is it equally so in regard to the other branches like Anatomy, Physiology, and Ontogeny? No doubt, literary warrant and the Canon of Helpful Sequence justify their being treated as if they are different "Systems" of Medicine. But, do their respective sets of fundamental laws also justify it?

225 Systems of Basic Classes in Mathematics

As Algebra and Geometry have been developed for long on the basis of explicitly stated postulates and axioms, there is the least cause for anxiety for a classificationist in preparing the schedule of "Systems" in their cases.

3 IDEA PLANE

The difficulties mentioned above all arise in the Idea Plane. Few (BC) are like those in Mathematics. The development of most of them is still meandering in the empirical plane. Many of them have no doubt hit upon some fundamental laws and have thereby entered the Spiral of Scientific Method. But a study of their fundamental laws has not yet been systematically made as the foundations of distinct "Systems", in the case of most of the (BC). The modern discipline of the Philosophy of the Sciences should enter this region and settle the problem of "Systems". Then only the classificationist will be on safe grounds. Till then he will have only to depend on flair subjectively and on literary warrant objectively.

31 Which Fundamental Category?

Assuming that "System" should necessarily be recognised in the classification of many (BC), the question that arises first is "Of which Fundamental Category is a System to be deemed to be a manifestation?". The answer to this question is best sought by the Method of Elimination. We can certainly say that a "System" is not a manifestation of Time, or Space, or Energy, or Matter. According to one of the postulates pertaining to the Idea Plane, every Isolate of any (BC) should be a manifestation of one and only one of the Five Fundamental Categories; Time, Space, Energy, Matter, and Personality. Thus, a "System" of any (BC) should be deemed to be a manifestation of Personality.

32 Which Round?

The next question to be determined is the Round to which a "System" belongs. We have stated in section 1 that we cannot state anything about a subject unless we state it in relation to a "System" of it. This implies that the (SmF) of any (BC) belongs to the First Round.

33 Which Level?

The same consideration leads us also to the conclusion that the "System" should belong to the Earliest Level of manifestation of Personality in the First Round.

34 Naming of Levels

The simplest and the most expressive way of distinguishing the different levels in a round is to name them numerically in the sequence in
which they are best taken. This is the method adopted by CC in its Rule 67. Further, its Rule 670 gives them also expressive and short symbolic names. Here are the Rules:

"67 In each round there may occur more than one manifestation of Personality and Matter. The second, third, etc., manifestations of Personality and Matter in one and the same round are respectively called Second Level Personality, Third Level Personality, etc.; and Second Level Matter, etc.

"670 Symbols like the following may be used:

$[P_2] =$ Second Level Personality Facet;
$[P_3] =$ Third Level Personality Facet; etc.
So also $[2P_2], [2P_3] \ldots [2M_2]$; etc."

To be more truly expressive, the symbol should also indicate the round and the level. For this purpose, we may use $[1P_1]$ for First Round First Level Personality; $[1P_2]$ for the First Round Second Level Personality; \ldots $[2P_1]$ for Second Round First Level Personality; etc.

341 Favoured System

In any cultural epoch, it usually happens that one particular system alone has large literary warrant — very very large indeed when compared to the other systems of an earlier or later date of origin. We shall call it the "Favoured System" of the epoch. It deserves to be called "Favoured" for another reason also. In the cultural epoch concerned, it is the books expounded in accordance with that system which interest most and attract most the generalist readers. These are seldom interested in the books expounded according to any other system. It is only the specialist readers, who are always few in number, that show interest in the other systems. It is therefore helpful to make the books in the 'Favoured System' come on the shelves prior to those on the other systems. A similar sequence is also helpful among the main entries in a catalogue or a bibliography. It is to implement this finding that CC has the following Rule:

"6413 The Focus in the (SmF) should be omitted (ignored), if the exposition is according to the currently Favoured System — that is the system in which the majority of the books is expounded."

342 Illustration

To illustrate, let us assume that Allopathy is the currently Favoured System of the (BC) Medicine. It then follows that the other systems such as Ayurveda and Homoeopathy are non-favoured systems. Then in classifying a book in Allopathy, the (SmF) will be ignored, whereas it will not be ignored in classifying a book in Ayurveda or Homoeopathy. Incidentally, this Rule brings satisfaction to the Law of Parsimony also. For, in the majority of books on Medicine in a generalist library, we can manage as if there were one facet less.

343 \[1P_1\] in Favoured System

An important consequence flows from the omission of the (SmF) in the books of the Favoured System. The surviving or apparent \[1P_1\] of any book in the Favoured System will not be (SmF) but a facet based on a regular train of characteristics. For example in a book on Allopathy in Medicine, the Organ Facet will be the surviving or apparent \[1P_1\]. Thus the majority of the books on any (BC) in a generalist library, will accustom the reader to look upon a Facet based on a regular train of characteristics as the \[1P_1\].

344 \[1P_1\] in Non-Favoured System

To avoid confusion, it is desirable to denote by \[1P_1\] the corresponding facet based on a train of characteristics, occurring in a book belonging to any non-favoured system also. But from what has been said in section 33, (SmF) should have precedence over the facet which we now desire to call \[1P_1\]. Also, according to section 31, (SmF) is a \[P\]. By what symbol are we to denote it? It is obvious that it is \[1P\]. Therefore the question to be answered is "To what level should it be deemed to belong?" As it has to come immediately after (BC), it should be called the Facet of Level 1. But we have stated at the beginning of this section that we should adopt the convention of calling the Level based on a Train of Characteristics the Facet of Level 1. Therefore if at all we should call (SmF) a Facet of
Level 0 — that is symbols, by [1P0]. But even this is not possible on account of another facet having to be interpolated between (SmF) and [1P0], in a certain class of books. In CC this facet is defined by the following Rule:

642 If the exposition of a (BC) is restricted to a limited range only of any of its facets, its (BC) must be fitted with an Amplifying Facet of Kind 2. We may call it also (SpF).

In such a document, [1P0] can only denote the (SpF). By considering a book admitting of (SmF) as well as (SpF), we are led to infer that, if at all, (SmF) should be deemed to be a Facet of Level (−1) and thus be denoted by the symbol [1P−1]. But section 6 and its subdivisions will show that even this is not possible. For according to those sections, it may happen that a Branch-System Facet has to be interpolated between (SmF) and (SpF). In that case, if at all, we may have to denote (SmF) by [1P−2].

345 Alternative Approach

The naming of the level of (SmF) is thus precarious. Who knows that some other facet may not claim to be interpolated between it and [1P1]? All that we can be certain about is that (SmF) will come immediately after (BC)—that is, no other facet will ever be interpolated between (BC) and (SmF). In view of this, can we invent an alternative way of naming the level of (SmF)? The symbolic metalanguage invented should be such as to be extended to all the levels of facet up to what we have agreed to call [1P1]. Such a symbolic metalanguage should also avoid the clumsy symbols of negative numbers for levels. Perhaps, the mixed base of ordinal numbers used in CC will suggest the replacement of negative numbers by the lower case letters. For Rule 025 of CC prescribes the lower case letters as being ordinal numbers of lower value than 1. In that case, since (SmF) is to come immediately after (BC), it may be denoted by [1Pa]. This implies that (SmF) is deemed to be a facet of level "a". Then a Branch-System Facet of the first order may be denoted by [1Pb]. The one of the next higher order may be denoted by [1Pc]. And so on, providing for a reasonable number of orders in branch-systems. But this number is not the same in all (BC). Then to what level are we to assign (SpF)? Perhaps verbal mnemonics may be used here and (SpF) may be denoted as [1Ps].

4 VERBAL PLANE

When there is lack of clarity in the Idea Plane itself, we cannot expect anything better in the Verbal Plane. Indeed, it is all chaos there. Even where everything is clear-cut in the Idea Plane, we find inconsistency in the Verbal Plane. It is therefore no wonder if the terminology used to denote "Systems" is of no help whatever in recognising the existence of distinctive "Systems". This is perhaps so in most of the languages.

5 NOTATIONAL PLANE

While the phenomena in the Idea Plane are quite independent of the Scheme of Classification used, the realisation in the Notational Plane depends entirely on the Scheme. The Facet Analysis has been applied consciously only in CC. Again it is only CC that has consciously recognised (SmF). Moreover, it is the notational system of CC that is sufficiently mixed and sufficiently correlated to the variety of the findings in the Idea Plane, that need to be implemented in the Notational Plane. Above all, it is only CC that gives Schedules of Systems, however tentative they may be. Therefore, the sections of this communication dealing with the Notational Plane are all turned on the CC.

50 Cluttering together of Connecting Symbols

In an analytic-synthetic scheme of classification, one of the clumsy phenomena to be guarded against in the notational plane is the cluttering together of two or more connecting symbols. The history of the CC in the notational plane can be said to be, in one sense, the history of the avoidance of cluttering of connecting symbols. Before going into this history, it must be clearly remembered that the very essence of
an analytico-synthetic classification is the use of
connecting symbols between different facets. 
Probably, it is as well to call them separating 
symbols between the facets of a class number. 
It has been proved that these are essential to 
secure freedom for the isolate in any one facet, 
whatever be its position in the class number, to 
be sharpened to any degree of intension quite 
independently of what happens to the isolate in 
any other facet. In other words, the connecting 
symbols make it possible to maintain Hospitality 
in Chain in each facet and not merely in the last 
of the facets. Without the connecting symbols, 
all but the last of the facets will be locked or 
frozen. It has been further proved that all con-
necting symbols are earlier than any substantive 
symbol, in the ordinal scale. Even the non-
hierarchical notation being experimented on by 
Mr. Coates has not found it possible to dispense 
with the connecting symbols. Both hierarchical 
and faceted notation contribute their respective 
quota to the fulfillment of the Canon of Expres-
siveness. The notation of Coates finds it use-
ful to retain the Expressiveness contributed by 
faceted notation with connecting symbols and 
discards only the Expressiveness contributed 
by hierarchical notation with decimal fraction 
notation used in quite an orthodox way.

51 Stage 1 : Facet Analysis

The chief cause for the designing of Faceted 
Notation — implying Facet Analysis in the Idea 
Plane — was the irritation caused by the Nota-
tion of DC being too rigid to keep step with the 
continuous proliferations in the Universe of 
Knowledge and even with the more specialised 
books appearing beyond the level of the text-
books of old. This was vaguely traced to the 
freezing of all the facets but the last of a sub-
ject in the notational plane, in spite of one and 
all of the facets growing in intension in the idea 
plane, as time advances. It was to remove this 
difficulty that CC was designed. This was in 
November 1924. At that early stage, the design 
was not based on any system of guiding princi-
ples or canons. In fact even the Five Laws of 
Library Science had not taken shape. Most of 
the work should have been guided from the uncon-
scious. To quench the feeling of irritation, what 
was later named "Facet" was vaguely felt in the 
idea plane and a colon was inserted between the 
Facets in a Class Number. It was looked upon 
as a Separating Symbol and not so much as a 
Connecting Symbol. Nor was the ordinal value 
of colon fixed. Cluttering of connecting symbols 
threatened to appear even at that first stage. It 
was as irritating as the freezing of facets in DC. 
The threat appeared systematically in the (MC) 
History. To use current terminology, the Facet 
Formula for it was put down as \( V \{ P \} : \{ E \} : \{ T \} \). But there were many books which were 
multi-focal in \( [ E ] \). However every book in 
History has a Focus in \( [ T ] \). Though there 
was no conscious Rule at that stage on the sub-
ject, a multi-focal facet was left vacant in the 
class number. But in most (BC), it was the 
first or the last facet appearing in the Facet 
Formula — and there were usually not more 
than three facets in that formula — that had to 
be kept vacant. Let us illustrate with the (MC) 
Botany. It is denoted by 1 and the facet formu-
la given was \( I \{ P \} : \{ E \} : \{ S \} \).
But, in the main class History, it is only the middle facet that has to be kept vacant in the books on General History. For there can be no book in History without a focus in [T]. For example,

<table>
<thead>
<tr>
<th>Ser No</th>
<th>Subject</th>
<th>Facet Analysis</th>
<th>Class Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Constitutional history of India till 1950's</td>
<td>V [India]: [Constitutional]: [1950's]</td>
<td>V44:2:N5</td>
</tr>
</tbody>
</table>

This cluttering of colons was irritating. The instinctive method adopted in the first stage to remove this cluttering was to improvise an isolate in [E] in the form "1 General". Then the class number became V44:1:N5. But this method was a violation of the practice of treating, in the idea plane, a multi-focal facet as vacant and omitting the vacant facet in the notational plane. But even such an improvisation could not be made in the case of a few books in the (BC) Engineering, in which two middle facets had occasionally to be treated as vacant. Thus three colons cluttered together in their call numbers.

52 Stage 2: System Facet

Within about ten years of the beginning of CC, the (SmF) was introduced in a few (MC), though it was done without any conscious principle for guidance. In an equally unconscious way, the (SmF) was omitted in the case of the Favoured System. It often turned out that a book in the Favoured System did not present [1P]. Consider the following:-

<table>
<thead>
<tr>
<th>Ser No</th>
<th>Subject</th>
<th>Facet Analysis</th>
<th>Class Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Classical psychology of emotion</td>
<td>S [ ]: [ ]: [Emotion]</td>
<td>S: :5</td>
</tr>
</tbody>
</table>

The cluttering of colons in the third example had to be avoided. For this a special Rule had to be improvised. It was that colon should be added before [1P] only if it was preceded by (SmF). This is equivalent to saying that there is no need to show in the class number that the (SmF) was absent. On the basis of this Rule, the class numbers of the third subject became S:5 and that of the second S15:5.

53 Stage 3: Fundamental Categories and Optional Facets

By 1949, the five Fundamental Categories of Personality, Matter, Energy, Space, and Time, of one and only one of which every facet is a manifestation, were postulated. So also, distinctive connecting symbols were postulated for each fundamental category. Then, the subjects given as examples in History and Psychology received the following class numbers:-
The omission of the connecting symbol comma between the (BC) Number and the \[P\] immediately following it is prescribed by the Rule:-
"In each round, the connecting symbol preceding the first \[P\] should be omitted." This Rule has not been explicitly stated even in ed 5 of CC. It is left to be covered by the facet formula and by other special Rules. This must be set right in the next edition.

54 Stage 4 : Zone Analysis

In 1950, FID formed its FID/CA (= Committee on the General Theory of Classification) and asked me to take charge of it. This led me to think out afresh and objectively about the various problems arising in the Idea Plane as well as in the Notational Plane in all the scheme's of classification. The Fifth annual report (1955) was the result of examining the potentialities of a Mixed Notation — that is, using as the base of notation several different sets of conventional symbols, fixing definite ordinal values to all of them. It was found that CC and UDC had the most Mixed Notation. Of these, CC seemed to have exploited the potentialities of the mixed notation better than UDC, unconscious though it was. The Sixth annual report (1956) was turned on examining whether all the potentialities of the Mixed Notation was fully exploited. This led to the design of the 'Efficiency Table'. This table is similar in form to the one given below. With this table as tool, it was possible to detect all the zones in an array and their respective sectors, which was left fallow. In connection with each fallow sector, the probability for its never being requisitioned in a certain normal way — indicated in the following table — was carefully examined in the Idea Plane. If there was a reasonable certainty that any sector would not be requisitioned in that normal way, it was available for use in some other way. Such an examination sometimes brought to mind the possibility of a sector being used in the normal way too, though it had been lost sight of even in the idea plane. Work along these lines disclosed that the zones and sectors presented by an array had real correlates in the idea plane. Thus, the zones and the sectors are intrinsic in the idea plane itself and not contingent on the notational system used. The following table brings out these correlates:-

<table>
<thead>
<tr>
<th>Zone</th>
<th>Sector</th>
<th>Idea Plane Nature of Isolates</th>
<th>Notational Plane Nature of Digits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Common Isolates by Enumeration</td>
<td>Roman Small</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Special Isolates by Enumeration</td>
<td>Arabic Numeral</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Quasi Isolates by Enumeration</td>
<td>9 followed by Arabic Numeral</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Special Isolates by Alphabetical or Chronological Device</td>
<td>9 followed by Roman Capital</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Special Isolates by Chronological or Alphabetical Device</td>
<td>Roman Capital</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Common Isolates by Subject Device</td>
<td>(, that is Starter Bracket (Packet Notation)</td>
</tr>
</tbody>
</table>
In a (BC) any sector in any array, not needed for utilisation by a special device, can be turned over to isolates by enumeration. The idea is not to leave any sector fallow. The Seventh annual report (1957) has made a good use of turning practically all the sectors of an array to isolates by enumeration in the case of Matter Facet. This was also brought out in my opening address at the International Study Conference on Classification and Information Retrieval held at Dorking, England, from 13 to 17 May 1957. These will be found in the Proceedings of the Conference referred to in Section 14.

55 Stage 5 : Telescopiong of Facets

Column 3 of the Efficiency Table for normal use of sectors, given above, discloses that the same characteristic is not used as the basis of division in all the sectors of an array. This means that we put ourselves on the crater of the volcano of Cross-Classification. But, this danger is totally averted by our consciously treating the different sectors as different facets in disguise. If a document presents an isolate in each of two or more sectors of the \([P]\), its class number will give the isolate numbers belonging to the different sectors in different facets separated by comma in accordance with the rules. This is equivalent to regarding each of such sectors as a distinct level of \([P]\). This means that the levels of \([P]\) stand fanned out distinctively in the class number, but appear in one and the same array in the schedule. It is this phenomenon that is called Telescopiong Facet.

56 Cluttering of Commas avoided

The Zone Analysis ensures that the first digit (or digits if an octavising digit occurs at the beginning) of no two sectors of the array — that is the levels of \([P]\) obtained by fanning out the telescopiong array — will be of the same species. Therefore, there is no need for showing vacant levels in the class numbers. In other words, there will be no cluttering of commas in the class numbers, to indicate the name of the level. Also, invariably, there will be no comma between the (BC) and the first isolate number immediately following it, whatever be the sector of the array in the schedule from which it is drawn. This is a valuable contribution to the elegance of class number made by the concept of Telescopiong Facet which in its turn is a contribution of Mixed Notation. Examples of this telescopiong will be found in the subdivisions of the isolate '9 Personnel management' in \([E]\) cum \([2P]\) in the schedules for "X Economics" in CC. Illustrations of class numbers in which sectors are fanned out as levels will be found in Chapter "X Economics" of the Rules of CC and in Ranganathan's Depth classification 19:Classification of Management (An lib sc, 3, 1956, 33-72).

57 Application to System Facet

The numbering of a focus in (SmF) is prescribed by the following Rule of CC:-

"6412 The focus in the (SmF) should be got by the Chronological Device using the Date of Origin of the System as Epoch." This means that the System Isolates are accommodated in the last octave of Zone 3 of \([lPl]\). This sector is deemed to be more concrete than the earlier sectors of the array, which are containing isolates, got on the basis of special characteristics. This means that, if a document presents an isolate in the system sector as well as in an earlier sector, the isolate numbers belonging to the different sectors will stand fanned out into different levels of facets in the class number. Moreover, since the system sector is declared to be more concrete than the earlier sector, it will form the first level of \([P]\) — exactly as required by the idea plane.

571 Pseudo-Chronological Device

The chronological device is governed by the following Rule of CC:-

"683 The Chronological Device consists in using the appropriate Chronological Number for the formation of a subdivision of an isolate, which is capable of chronological formation, or when the individualisation of the isolates or the sub-isolates may be made to depend conveniently on the period of year of origin or birth or on the year of first investigation or on the year of discovery or on the year of initiation or commence-
CLASSIFICATION OF SYSTEMS

ment or on the year of occurrence, or on the year that may be definitely associated with the respective isolates in any other manner or for any other reason". And as already shown in Rule 6412 quoted earlier, the Date of Origin of the System should be used for constructing the isolate number of a system. But, this is not always practicable; it is impracticable in the case of ancient systems, for which we do not have an accepted chronology worked out. For example, the following five System Isolates are given in the (BC) L Medicine.

LA Systems by (CD)
LB Ayurveda
LC Siddha
LD Unani
LL Homoeopathy
LM Naturopathy

We are reasonably certain that Homoeopathy and Naturopathy came into vogue as definite systems of medicine with literary warrant of their own in the eighteenth century and the nineteenth century respectively. But, little is known — or atleast agreed upon — about the centuries of origin of the three Indian Schools of Medicine listed above. All that is known is that we are reasonably certain that arranged chronologically, they would fall into the sequence in which they are mentioned above. Therefore, the function of the isolates digits B, C, and D respectively used to denote them is no more than that of showing their relative position in the sequence. None of them can be taken to denote the millennium for which they stand in the chronological schedule. Thus, they are not chronological isolate digits in the strict sense; they can only be taken to have been derived by Pseudo-Chronological Device. In general, the isolate numbers of systems originated in the far-off ages are got only by the Pseudo-Chronological Device.

6 BRANCH SYSTEMS

Let us consider the following selection from the schedule of Systems given in CC:-

SM9 Psycho-analysis (Founder: Freud)
SN14 Individualistic psychology (Founder: Adler)
SN2 Typological psychology (Founder: Jung)

It is known that Adler and Jung began as associates of Freud within the System of Psycho-analysis. Later on, differences arose among them, which led each of them to give a distinct name to his respective System. Assuming that the differences are sufficient to deem them to be distinct Systems of Psychology, the question is whether there is not something substantial, which is common between them and Psycho-analysis. Assuming that there is, the Canon of Filiatory Sequence would demand that no other System, totally alien to them, should come between them. But the use of the Chronological Device to get the isolate numbers of Systems is liable to bring in between them some alien Systems. In fact, the schedule in CC has SN Gestalt Psychology and SN Behaviourism in between Psycho-analysis and Individualistic Psychology, and SN Reflexology in between Individualistic Psychology and Typological Psychology. Here the Idea Plane poses a definite problem. But till now, it was felt that the Notational Plane could not implement it. Now that we are able to utilise the versatility of Mixed Notation with the aid of Zone Analysis, a solution appears to be possible.

61 Solution in the Idea Plane

The question suggested in the Idea Plane is that Psycho-analysis should be treated as the Basic or Stem System and that the other two should be treated as its Branch Systems. Each of the Branch Systems should be treated as isolates in a (BSmF). The (BSmF) should come immediately after the basic (SmF). In other words, since the (SmF) is \[[IP_a]\], the (BSmF) should be \[[IP_b]\]. Further, the subclasses of (SmF) based on regular Trains of Characteristics should have precedence over the Branch Systems. To put it in symbolic metalanguage, we should have the sequence:-

\[
S \\
S [IF] \\
S [IP_a], [IP_l] \\
S [IP_a], [IP_b] \\
S [IP_a], [IP_b], [IP_l]
\]
62 Implementation in the Notational Plane and a New Kind of Telescoping

The above finding in the Idea Plane can be implemented in the notational plane by

1. Postulating that \([1Pb]\) is a dependent facet—that is, it cannot come unless it is preceded by \([1Pa]\), both in the Idea Plane and in the Notational Plane; and

2. Telescoping the \([1P1]\) and \([1Pb]\) in the schedule.

In the schedule, the isolates of \([1P1]\) occupy the second Zone. We may therefore accommodate the isolates of \([1Pb]\)—that is, of \((BSmF)\) in the last octave of the third Zone. This can be done though the isolates of \([1Pa]\)—that is, of \((SmF)\) are already accommodated in that very octave. For, as already stated \([1Pb]\) is a dependent facet which must be preceded by the basic facet \([1Pa]\). This is a new type of Telescoping.

63 Isolate Number in Branch System Facet

The fact that the isolates in \((BSmF)\) are to be accommodated in the last octave of the third Zone implies that the isolate numbers in that facet should begin with a Roman Capital. Roman Capital can be had either by the Chronological Device or by the Alphabetical Device. If the Chronological Device is used, there is always the contingency that there will be a second digit in the isolate number and that it will be an Arabic Numeral. To avoid homonym in the notational plane, we must insert the connecting symbol, comma, between \((BSmF)\) and \([1P1]\). If we use the Alphabetical Device, the second digit in the isolate number will also be a Roman Capital. We may then omit the connecting symbol, comma, between \((BSmF)\) and \([1P1]\).

And we can afford to have the second digit as an Arabic numeral if it is an isolate of \([1P1]\) that follows a single-digited Branch System Isolate Number, and as a Roman capital if it is merely the second digit of the Branch System Isolate Number. Then all the documents belonging to a Branch System whose isolate number is a single letter will come together, and then only will come the documents belonging to another Branch System whose isolate number begins with the same letter but is followed by another letter. It is obvious that the Law of Parsimony would prefer the Alphabetical Device, as it would give shorter class numbers.

64 Which Name for Alphabetical Device

One of the necessary conditions for the use of the Alphabetical Device is that the names of the isolates should have international names. Surely, the names of the originators of the Branch Systems are proper names and are therefore eligible for use in Alphabetical Device. If all the Branch Systems are known by the same name in all the languages—that is, if their names are virtually proper nouns—the names of the Branch Systems also are eligible for use in Alphabetical Device. The choice between these two classes of proper names is not easy, except to say that if we cannot be certain that the names of all Branch Systems will be proper names, it will be safer to use the names of the originators for the Alphabetical Device. In either case, I should be replaced by J and O by P. Here are examples:

<table>
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<tr>
<th>Ser No</th>
<th>Subject</th>
<th>Class Number by Name of Originator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Psychology of women in Psychoanalysis</td>
<td>SM9, 15</td>
</tr>
<tr>
<td>2</td>
<td>Adler's Individual Psychology</td>
<td>SM9, A</td>
</tr>
<tr>
<td>3</td>
<td>Emotions in Adler's Individual Psychology</td>
<td>SM9, A:5</td>
</tr>
<tr>
<td>4</td>
<td>Emotion of women in Adler's Individual Psychology</td>
<td>SM9, A15:5</td>
</tr>
<tr>
<td>5</td>
<td>Jung's Typological Psychology</td>
<td>SM9, J</td>
</tr>
<tr>
<td>6</td>
<td>Psychology of women in Jung's Typological Psychology</td>
<td>SM9, J15</td>
</tr>
<tr>
<td>7</td>
<td>Immanuel's Jumper Psychology</td>
<td>SM9, JM</td>
</tr>
<tr>
<td>8</td>
<td>Psychology of women in Immanuel's Jumper Psychology</td>
<td>SM9, JM15</td>
</tr>
</tbody>
</table>
To make the examples bring out all the features, an imaginary Branch System with the name Immanuel's Jumper Psychology is used. Naturally, the sequence of the subjects will be different in the two methods. But there is nothing to say that one is more helpful than the other. But what does deserve consideration is if the use of the Chronological Device will give a more helpful arrangement to the extent of overlooking the rejection of it by the Law of Parsimony.

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Date 18.3.1958

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