CHAPTER - I

CONCEPT OF CLASSIFICATION

CLASSIFICATION

Classification is usually defined by what it does rather than by what it is. Classification is two things: (i) the act or process of arranging, and (ii) the act or process of defining. Modern classification theory has developed around the principle of synthesis which in many respects bridges the gap between arrangement and definition. The definition most widely accepted today is that presented by the participants of the Elsinore Conference in 1965:

"By classification is meant any method creating relations, generic or other, between individual semantic units, regardless of the degree in hierarchy contained in the systems, and of whether those systems would be applied in connection with traditional or more or less mechanized methods of document searching."¹

¹Elsinore Conference - The Second International Study Conference on Classification Research held at Elsinore in 1964.
Classification is conceived of basically as a systematic, hierarchical structure of knowledge, primarily enumerative and pragmatic by nature. The whole object of library classification is to secure an arrangement which will be useful to the readers. It is a technique involving the systematic grouping of books by subject and is designed to expedite the full use of the knowledge stored in the books and other material housed by the library.

Nature of Classification:

According to Sayers, the term "classification" in one sense applies to the arrangement of individuals, that is, individual objects or ideas into groups according to their degrees of likeness and combining these groups into still larger groups. The process is completed when a single all-embracing group which contains all individuals is reached. It is the simplest method of discovering order in the bewildering multiplicity of nature, a process of sorting; ideas or objects are collected into groups, and these groups stand for certain qualities which its members possess.

Classification is that exercise of the powers of perception and reason which enables us to "assemble things

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according to their degrees of likeness and separates them according to their degrees of unlikeness."\(^3\) It not merely groups things for location or identification purposes; it also arranges them in some sort of consistent order so that the relationship of the things may be ascertained.

We can classify not only tangible objective things; we can also arrange impressions, ideas, notions; we can and must arrange things which exist, have existed, or may exist. Thus classification clarifies thoughts, advances investigation, shows gaps in the sequence of knowledge and promotes discovery; revealing as it should, the relationships of things; it enables a more or less complete survey of knowledge to be made.

Refuting Sayers' definition that "Classification is putting together according to likeness"\(^4\) and that likeness is a quality which makes a group or class of them, Broadfield states that "likeness is not a quality of things, it is a relation between them, not a 'characteristic' of things. The quality of things that 'unites' them is not likeness nor any kind of relation but a characteristic or system of characteristics, the genus, which being variously differentiated in them causes them to be related in various ways."\(^5\)

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\(^3\)W.C.Berwick Sayers, _op.cit._, p.10.

\(^4\)Ibid.

In the words of C. Von Sigmart, "the problem is not merely to combine whatever is similar, but to combine in such a way that the concepts thus formed may be represented as disjunctly co-ordinate according to certain grounds of divisions. For this reason we must always notice both the common attributes and those which are different and opposed. Hence a preliminary to every classification is not merely to discover what agrees in many characteristics but also survey the various characteristics which are opposed on definite grounds of division.

**Book Classification:**

The classification of books is like classification of specimens in a museum. Each is an art; neither theoretically exact. If we attempt to rearrange things strictly according to likeness with scientific exactness, we have to vaporize them so that the elements may be brought together.

According to E.C. Richardson,

"The main fact about the classification of books in brief is the fact that it is an art, not science. The classification or order of things is nature, and is not a human creation. The classification or order of ideas follows the order of this classification. The classification of books, on the other hand, is an art - a human creation, for a human end. The order of sciences is its backbone, but in the adjustment of books in this order there are many practical accommodations to be made, determined by not merely complexity of material but by the end in view."

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Subject classification economizes time and energy, and is constructed in such a way which closely reflects the use made of the literature. If all books and other materials on a subject are assembled together at one place there will be an important saving of time in the obtaining of general view of literature. Scientific classification seeks to formulate a scheme of mutually exclusive and exhaustive categories based on the most important characteristics of the things concerned and on the actual relationship between them. A book is an embodiment of knowledge and thought. In a sense and in some measure the knowledge and thought are "organised". Books and their sources and their writers and readers, constitute an intellectual community of manifold reciprocative influences. Libraries are not merely repositories of books or organizations of knowledge, they are virtual influential centres of such intellectual communities.  

Books differ in manifold diversity in matter and in manner, infinite variety and in complicated relations. How can the librarian bring such wayward books into the bonds of organization? The educator and the scientist agree that data and subject matters must be classified; and every book must organize its subject matter. There must be organization of knowledge, thought and purpose. It must be functional, but

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8 E.C. Richardson, op.cit., p.40.
it must first be structural. It should be as free as possible, but it must be coherent and stable. When we librarians have recourse to a library with a strange classification, we feel frustrated and confused. How much more confusing must the "system" be to untrained readers and students?

To summarize, one of the most classic definitions of classification would be:

By the classification of any series of objects is meant the actual or ideal arrangement together of those which are like and the separation of those which are unlike, the purpose of this arrangement being, primarily, to facilitate the operations of the mind in clearly conceiving and retaining in the memory, the characters of the objects in question, and the recording of them that they may be conveniently and quickly referred to, and secondly, to disclose the co-relations or laws of union of properties and circumstances.9

Hence the essential features of classification is that it saves the time of the reader, reveals the weakness or strength of the collection and makes systematic revision of and addition to the stock possible. In other words, classification is the foundation of all successful modern library work.

PRINCIPLES OF CLASSIFICATION

Classification is probably the simplest method of discovering order in the bewildering multiplicity of nature.

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It is a process of sorting; ideas or objects are collected into groups, and these groups stand for certain qualities which its members possess. In the history of every science, it is the first method to be employed -- so much so that, in a certain sense, every science is a classificatory science. Jevons, assessing the relationship says:

"Science -- is the detection of identity, and classification is the placing together, either in thought or in actual proximity of space, those objects between which identity has been detected. Accordingly the value of classification is co-extensive with the value of science and general reasoning. Whenever we form a class we reduce multiplicity to unity, and detect, as Plato said, the one in the many."¹⁰

A classification schedule is a series of words printed vertically in column. To put it in another way, a scheme is a statement of knowledge in terms. A term is a name for a class, it may be a word or a phrase.

A class has been defined as a group of things brought together by a chosen likeness. The question arises, how do we proceed to make this class and to break it up into sub-classes? It is clear that while such a term as botany is name of a great class, the members of which have all the likeness of insentient life, growth and decay, the class is too vast for any detailed study and must be broken up into its parts.

The first process is one of assembly. A quality of likeness is chosen as the characteristics, by which we assemble things to make our class.

The second process is to sub-divide our class into its parts. In formal phrase, classification proceeds from terms of great extension and small intension, to terms of great intention and small extension. Or, more simply, it proceeds by taking class terms which denote great areas of subject-matter and divide them by gradual steps into terms less and less extensive, until division is no longer possible. The above definition however, depends upon the order adopted.

According to Carveth Read:

Classification may be either deductive or inductive that is to say in the formation of classes, as in the proof of propositions, we may, on the whole, proceed from the more to the less, or from the less to the more general, not that these two processes are entirely independent...11

Extension and Intension, denotation and connotation are words from formal logic representing certain powers and applications of terms. By the extension of a term we mean all the things to which it may be applied. J. Mills12 and some of his successors use denotation in the same sense. The term

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"Man" denotes any human being, "Animal" any living creature, and so on. By the intension of a term we mean the qualities implied in the thing named. Connotation is used as an alternative to intension. In intension "Man" connotes a mammal of upright gait who possesses reason and "Animal", an organised living being, vertebrate or invertebrate with sensation and capable of voluntary motion. The greater the extension of a term the smaller its intension and, conversely, the greater its intension, the smaller its extension.

Aristotelian Predicables:

The constituent elements of hierarchical classification find their classic expression in Aristotelian Predicables—the five predicates that may be affirmed or refuted in a logical proposition.

The Five Predicables are a group of words which indicate qualities which may be predicated of terms. They were an addition to the Aristotelian logic taken in the Third Century from Porphyry's "Isagoge" or Introduction to the categories. They are Genus, Species, Differentia, Property and Accident.

Genus is a group of things which may be divided into sub-groups, or species. Species, then, are the groups into which the genus may be divided. The character which determines

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the division of the genus into the species is the differentia which may be defined as something added to the genus. The species, therefore, is the genus plus some quality or property which is over and above the unifying quality or property of the genus as a whole.

A species, however, may, and does in most cases, itself become a genus; that is to say, if it may be divided into sub-species, so far as these sub-species are concerned, the species is the genus; and again, the sub-species themselves may each become a genus for possible sub-species.

Property or Proprium:

A property is some quality of a thing or class which is common to that thing or class but which is not necessary to the definition of that class. The possession of a heart is a property of man, but is not peculiar to him since reason is his distinctive characteristic and many things possess properties which are not exclusively the possession of the group or class to which they belong.

Accident is a quality which may or may not belong to it, and has no necessary effect upon its other qualities. The size of a man is a mere accidental quality; so is the cut of a man's clothes; etc. Some writers distinguish separable and inseparable accidents. Thus the clothes in which a man is dressed is a separate accident because they can be changed, but his birth-place, his height, his Christian name etc. are inseparable accidents and cannot be changed.
The principles of bibliographical classification expounded in the works of Phillips - Primer of Book Classification and Sayers - Manual of Library Classification have been derived from Aristotelian logic and though their effect is more limited than librarians have conceded, they still have much value. The process of classification-making is described as being one of division, that is the breaking down of the field to be classified according to rules whose purpose is to ensure a systematic procedure and a resulting scheme which satisfies recognised criteria. "The principles laid down in the Predicables govern all classification, for all division proceeds by the addition of differences to the genera."

The application of Aristotle's "Five Predicables" to classification may be illustrated as follows:

The class of things called "Military Aeroplanes" might be divided in many different ways on the principles of "Purpose", "Number of Engines" and "Wing Position". These letters are called the "Characteristics" of division and are the bases by which the "Differences" are derived.

The Summum Genus, that is, the "all inclusive class" is in this case Military Aeroplanes. By the application of the characteristic "purpose" we might derive the differences

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"fighting", "bombing" and "transport". Each of these added to the genus Military Aeroplanes gives us a species of the genus. Thus we have the species "fighters", "bombers" and "transport aircraft". Each of these species now becomes a genus which is subject to further division and on applying the characteristic "number of engines", we arrive at the species "single-engined fighters", "twin-engined bombers", etc. Applying the third characteristic "wing position", we arrive at the "infima species", that is, the final species to be derived -- and we have species such as "twin-engined mid-wing bombers" etc. as illustrated in the following table:

<table>
<thead>
<tr>
<th>TABLE 1.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military Aeroplane (Summum Genus)</td>
</tr>
<tr>
<td>Fighting (species)</td>
</tr>
<tr>
<td>Single-engined fighters</td>
</tr>
</tbody>
</table>

It is essential that one characteristic only be used at each step of the division and this must be exhausted before another is introduced.
Porphyry's Predicables:

Porphyry was also responsible for the Ladder or Tree which is usually employed to illustrate the division of a term and the uses of extension and intension as well as the predicables. What follows is an example of what is called the bifurcate method of classification, or classification branching in pairs and in some ways it is a classification of broad character. Its value lies in its capacity to illustrate terms and to show the inevitable method of dividing terms.

Animate Corporeal Substance is again of less extension and greater intension than corporeal.

Substance (or summum genus) is a term covering everything that exists, it is the most extensive, has the great extension of any terms readily available. "Corporeal substance" is still a term of great extension, but it has less extension, connotes fewer things, than substance; it is, therefore, a term of greater intension, more qualities in it are definable.

Sensibility - The addition of the quality of sensibility continues the process of lessening the extension and increasing the intension. Reason completes the process by bringing us to Man who alone possesses it and who is divisible only into individuals.

TABLE 1.2

Tree of Porphyry

Summa Genus: Substance

<table>
<thead>
<tr>
<th>Corporeal</th>
<th>Incorporeal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td></td>
</tr>
<tr>
<td>Animate</td>
<td>Inanimate</td>
</tr>
<tr>
<td>Living being</td>
<td></td>
</tr>
<tr>
<td>Sensible</td>
<td>Insensible</td>
</tr>
<tr>
<td>Animal</td>
<td></td>
</tr>
<tr>
<td>Rational</td>
<td>Irrational</td>
</tr>
<tr>
<td>Man</td>
<td></td>
</tr>
<tr>
<td>Plato</td>
<td>Others</td>
</tr>
</tbody>
</table>

The tree illustrates the predicables as simply substance is a genus which by the addition of differentia 'Corporeal' (or possessing a body) divides the genus into the two species, corporeal and incorporeal. Leaving aside Incorporeal substance, and, following the biological or living line of subdivision, we add the differentia 'Animation' to Corporeal substance and divide it into two species 'Animate' (the living Body) and the 'Inanimate'. By adding sensibility, we make further species, the 'Animal' and the 'not-animal' (plants etc.); and finally, the differentia 'Reason' is added to the 'Animal' to sort out the Rational Being which is man.

Every great class or literature is a genus which corresponds, according to its extension, with substance in the Tree and must be divided into smaller classes by the addition of differentia.

At every step the extension of the class reduces and the intention increases until the indivisible species, the infima species, is reached.

These principles of division have now been largely abandoned in favour of the newer techniques of classification-making, but familiarity with them is advantageous for the sake of clarity in classification and indexing.
According to John Sharp:

"The newer techniques of 'facet analysis' propounded by Rangamathan, provide a more easily applied procedure for the making of schedules and they have the advantage that the material is first collected and then marshalled in the way best suited to the purpose in hand. Thus every aspect to be dealt with, as far as is known up to the point of compiling the classification maker is not in the difficult position of having to anticipate every requirement by spontaneously thinking of every potential need, as he must if he uses the traditional processes." 18

HISTORICAL BACKGROUND OF CLASSIFICATION

The story of library classification is a long one. Man's attempt to classify, to introduce order into the arrangement of his books and of the records describing them, have been many and varied. From the "brick books" of Assyria and Babylonia and the Papyri of Ancient Egypt, to the books and microfilms of the present, many systems of classification have been devised. Man uses classification in all his affairs and library classification is lent "a part of a larger process of classification which goes back to the dawn of man's thinking." 19

The first and the most distinguished mark between man and the animals is the ability of men to communicate freely and


intelligibly with one another. So long as human beings remained on the animal plane, their communications and records were as primitive as those of animals but when they started living together in groups of families in the early Neolithic age. Some 8,000 years ago, they felt the need of finding out some standardized means of communication in the form of language which can be put into writing, familiar to everyone, able to satisfy all social needs, taught to children, and employed in all human intercourse.20

In the art of writing man found a medium of expressing his thoughts. Through this medium he could record chronicles, results of his discoveries, and wisdom of his culture and civilization. All this he recorded either on clay tablets, or stone or metal or parchment, or paper. These are the records on which civilization has been built up. The task of preserving them, and making them available to posterity became the responsibility of the ancient librarians. It has been established from the evidence available that these records were preserved, classified and catalogued according to the facilities available to the librarians of those days.21

The development22 of the art of Classification, can best be treated by dividing it into the following three

periods: (a) Ancient, (b) Medieval and (c) Modern.

The Ancient East:

The origins of the library are shrouded in the mists of unrecorded past, and of the first collections of graphic records we have only the fragmentary remains of clay tablets to guide us. The Egyptians had a flourishing literature and a virtual monopoly on the cultivation of papyrus, which was the accepted writing surface of the time. On the walls of the library at Karnak was carved the catalog of the library's holdings. The listed variety of subjects such as (i) administration of the State and its functions; (ii) works on magic, myth, medicine and science.

The one great library of which we have much knowledge—knowledge that has survived from the culture that once flourished in the Tigris and Euphrates river valley—dates from about 600 B.C. This was the royal library at Nineveh, inherited and greatly increased by King Assurnipal. This great collection contained works on grammar, poetry, history, science and religion.

Ancient Greece:

The Greek geographer Strabo wrote that, so far as he knew, "Aristotle was the first man to collect books, and to teach the kings of Egypt how to arrange a library. In the
city of Alexandria, Ptolemy I Sotor (0367-283 B.C.) erected a magnificent building near the royal palace, this building was to be used as a museum, a library, and an academy. To this structure was brought not only books, but also botanical and zoological specimens, artifacts, and works of art. It brought together not only Greek manuscripts but also texts in Ethiopian, Persian, Hebrew and Hindi.

Ancient India:

Turning to the libraries of ancient India, they are probably as old as the Indus Valley Civilization. This civilization flourished in India about 8,000 years ago. Unlike the root of the word library in Latin Uker (a book) and in Greek biblas or byblos (papyrus), in India these institutions were known as granthgar, pushtakalaya etc. These ancient libraries stocked a large number of cylinder seals and tablets with inscriptions on them. From what is known from the writings of these recognized authorities one may judge, that the Indus Valley Civilization was highly developed, the people had well-organized libraries to preserve the records of their achievements.

The Vedic Period:

According to Prof. Winternitz, the beginning of Vedic literature goes back to 2,000 B.C. or even 2,500 B.C. This

literature includes the Vedas and the Vedangas, i.e., the upanisads, Brahmanas and the aranyakas. From the grammatical Sutras of Panini who lived in India in the 4th century B.C. it is clearly revealed that the granthas or books in the manuscript form were in existence in those days. Panini himself classified the literature into four classes: (1) Drishtam, seen or revealed; (2) Proktan enounced. The third class of literature is that which is 'discovered' and not handed down by tradition. The fourth class of literature comprises the ordinary compositions of common writers on any subject.25

The Code or Law Book of Manu is one of the most remarkable of literary productions of Brahmanism.26 Manusmrti written by Manu alias Māṇavācārya was the father of mankind for the harmonious existence of a social life. Manu divided the society into four chief classes of men or castes namely Brāhmaṇas (priests), Kshatriyas (warriors), Vaishyas (agriculturists) and Sudras (slaves). It also divides the life of man in four stages or Āshārama - Brahmacharya, Grahastha. Manusmṛti is believed to have been written in B.C. 500.27


Medieval:

The Middle Ages have been defined by some scholars as the Dark Ages. The most important reason perhaps was that in the early part of this period the importance of books and learning seemed ignored by the common man of the time. Since during the Middle Ages the Christian doctrine was systematized by able theologians like St. Thomas Aquinas, monastic communities set an example of civilized Christian living. The Christians, therefore, all over the Roman world in view of organizing and spreading Christianity collected manuscripts of Hebrew text as well as the Greek version of the Old Testament.

The Renaissance gave a new base of life to libraries. Besides the monks, even the kings, princely families and other scholars in Italy, became interested in reading and learning. Well-known scholars like Petrarch, Boccaccio and Poggio, stimulated interest amongst people to search for classical literature. In England, Humphrey, Duke of Gloucester, made a name in collecting books and manuscripts and later he gave many books to Oxford.

Modern:

In the western world printing from movable type, invented by Johann Gutenberg at Mainz about 1450, dramatically affected the development of knowledge and literature. The case with which books could be produced in quantity greatly increased
the supply of books and the books enjoyed wider audience.\textsuperscript{26}

\textbf{TRADITIONAL THEORIES OF CLASSIFICATION}

Classification Systems:

Since man began his long endeavours to distinguish and understand the parts of this universe, he has consciously or unconsciously formed some system in which those parts were related to one another. There can be no doubt about the value of the study of philosophical systems of classification. Modern systems reflect earlier ones, modern terminologies are in the main inherited although their meanings may be extended or narrowed; almost every system, it may be said, in some way, helps the interpretation of every other.

According to Edward Edwards:

"There are library classification systems which have a metaphysical basis, and there are those which are merely practical and convenient arrangements, made without reference to any ideal order of knowledge. A system with a metaphysical origin is clearly based upon a mental, order of the things it covers, existing in the mind of its compiler, or borrowed or adopted from another mind. It is, therefore, one in which its maker has laid out some ideal order of his classes before he began to put books or other material into them."\textsuperscript{29}

Most of the received book systems are the adaptations of philosophical systems; the adaptations being in the nature

\textsuperscript{26} Jagdish Saran Sharma, \textit{op.cit}, p.19.

\textsuperscript{29} Edward Edwards, \textit{Memoirs of Libraries; including a Handbook of Library Economy}. 2 V, Treubner, 1859.
of form classes, common sub-divisions and various tables designed to accommodate certain forms of books. Such systems passed through various stages namely: the Medieval Orders of the Trivium and Quadrivium, which were crystallized in the scheme of Konrad Von Gesner (1548), forming the key to his Bibliothèque Universelle -- the first bibliographical system (1605). Bacon's "Chart of hearing" to his book Advancement of Learning (1605) forms, with inversion, modification and re-interpretation, the basis of Bacon in his Advancement of Learning, Melvil Dewey's Decimal Classification.

The Trivium and Quadrivium:

The above names have been adopted from the Greek word 'Triad', an arrangement of Philosophy into Physics, Ethics, and Logic. It is an order of studies which were systematized in the seven groups, or classes, of the liberal arts, known as the Trivium and the Quadrivium. The seven preparatory studies or disciplines were regarded as preliminary to the highest human studies and ultimately Theology. These studies are:

**Trivium:** Artes or Scientiae Sermocinates -
1. Grammar.
2. Dialectics.
3. Rhetoric.

**Quadrivium:** Scientiae Reales -
5. Arithmetic.
6. Astronomy.
and are preparatory to Theology, Metaphysics and Ethics to which History was added later.

Gesner's Scheme:

The Trivium and Quadrivium appear in varying form in every scholastic and philosophical classification and most strikingly, in the work which is called by some "the first bibliographical scheme,"\(^3\) to the work of the German-Swiss scholar, naturalist, and author, Konrad von Gesner (1516-65). He is known for his *Bibliotheca Universalis* (Zurich, 1545) which is a catalogue of Latin, Greek and Hebrew books and its supplement, *Pandectarum give partitionum universalium Conradi Gesneri Ligurinilibri* (XXI, 1548). In the *Pandectarium*, Gesner classified the entries according to subjects, the system employed is a great advance upon its predecessors.

In his synopsis Gesner has placed at the head of his section, "Partitiones Theologicae."\(^3\)

Sermocinales

1. Grammatica et Philologia
2. Dialectica
3. Rhetorica
4. Poetica.

\(^3\)Quoted from Edward's *Memoirs of Libraries*, V. 2, p. 763.

\(^3\)Ibid.
Mathematics
5. Arithmetica
6. Geometria, Optica, etc.
7. Musica
8. Astronomia

Ornantes
10. De Divinatione et Magia
11. Geographia
12. Historia
13. De diversibus artibus illiteratis, mechanicis, etc.

Substantiales
14. De Naturali philosophia
15. De prima philosophia, sue metaphysica et Theologia gentilium
16. De morali philosophia
17. De philosophia economica
18. De re politica id et civili ac militari
19. De Jurisprudentia
20. De re medica

According to Gesner Philosophy stands for the whole sum of knowledge which is to be approached through Arts and the Sciences. Arts and Sciences are of two kinds -

(a) Primary or preparatory.
(b) Fundamental.

Primary sciences are further of two kinds: (a) necessary and (b) embellishments or enrichments. His necessary arts are (aa) those of discourse and (bb) mathematical sciences and arts.

Ornates, a curious class is clearly a progression of studies through divination and magic, geography and history and to the illiterate or mechanical arts. His great class
substantiales, holds the higher forms of knowledge, and connotes, all forms of philosophy, metaphysical, natural, moral, civil, economic, political, legal, medical and theological. The result is a hierarchy of knowledge of an ideal kind, a great medieval attempt to relate the arrangement of books to the educational and scientific consensus of the day.  

Francis Bacon:

Bacon's The Advancement of Human Learning, appeared in 1605. Almost every scheme from the seventeenth century until the present has been affected in a greater or less degree by the scheme of Bacon. Bacon's method is subjective; he has based his outline on three foundations -- Memory, Imagination, and Reason from which emanate -- History, Poetry and Philosophy. This may be described as follows:

Memory produces History and history of two kinds, one recording the works of Nature (Natural History), the other (Civil History) the works of man.

The second class simply shows the imagination working on the materials provided by our senses, "combining, magnifying and idealizing them at pleasure" from which we get poetry -- Narrative, Dramatic and Parabolical (i.e., fables, allegory).


Philosophy is a human science which springs from the mind of man, not from the Divine Mind. Hence there is no place for Theology which goes under Ecclesiastical History. Natural Theology, however, does lead off the class -- the discovery of God through the mind as distinct from revelation. The class Philosophy covers all those now distinctive sciences which make up that part of knowledge which we call Physical Science, Philosophy, Sociology and Economics.

American Classifiers:

One of the most prominent early American classifiers was Thomas Jefferson, third President of the United States, who introduced the divisions of knowledge of Francis Bacon into this country around 1770.

Jefferson's classification was based upon d'Alembert's modifications of the divisions of knowledge used by Bacon in his *Advancement of Learning, Knowledge and the De Augmentis Scientiarum* (1623). D'Alembert adopted Bacon's main plan but made many variations in preparing his classification for the *Encyclopedie on Dictionnaire raisonne des sciences des arts et des metiers* (1751-1765). He followed the sequence -- History, Science and Poetry and expanded the scope of poetry by including Fine Arts, which Bacon had classed in Philosophy.

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34 Leo E. La Montague, *op. cit.*, p. 17.
Brunet's classification entered Harvard in 1830. His classification was variously known as the system of the Paris Book-sellers, the French system, or, more simply the Brunet. It was Jacques-Charles Brunet who gave the classification its classic form and the name by which it is commonly known today. His "Table methodique en forme de catalogue raisonne" consisted of five main classes — Theology, Jurisprudence, Sciences and Arts, Belles Lettres, and History — and there were over sixty two column pages of sub-divisions in the early editions.

In the long history of library classifications few schemes exhibit more ingenuity than the combined system devised by Jacob Schwartz in 1870. His system represented an attempt to translate the principle of the alphabetically-classed catalog to the arrangement of books on the shelves. Schwartz divided human knowledge into three main classes — History, Literature and Science — and subdivided each into departments, classes, and sub-classes. He is one of the three classification makers mentioned by Dewey in his "Acknowledgements" of the first edition of his Decimal Classification. From the year 1876 a new era of Classification system begins. The principal schemes of Book Classification which were formulated were Dewey's Decimal Classification (1876), The

<table>
<thead>
<tr>
<th>Landmarks in Library Classification Systems</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. System of Konrad Von Gesner</td>
<td>1548</td>
</tr>
<tr>
<td>2. System of Thomas Jefferson (based on Bacon's &quot;Chart of Learning-1606&quot;) modified by d'Alembert</td>
<td>1770</td>
</tr>
<tr>
<td>3. System of Jacques-Charles Brunet (also known as the system of his Paris Book-Sellers, the French System)</td>
<td>1678 (entered Harvard in 1830)</td>
</tr>
<tr>
<td>4. System of Jacob Schwartz (combined system)</td>
<td>1871-72 approx.</td>
</tr>
<tr>
<td>5. System devised by Melvil Dewey</td>
<td>1876 1st ed.</td>
</tr>
<tr>
<td>7. Library of Congress' Eclectic System (under Herbert Putnam)</td>
<td>1904</td>
</tr>
<tr>
<td>8. System devised by Paul Otlet and Henri Lal Fontaine</td>
<td>1905</td>
</tr>
<tr>
<td>9. James Duff Brown's Classification System</td>
<td>1906</td>
</tr>
<tr>
<td>10. Ranganathan's Analytic-Synthetic Classification System (Faceted Classification)</td>
<td>1933</td>
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<td>11. Henry Evely Bliss' Bibliographic Classification System</td>
<td>1935</td>
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Expansive Classification of Charles Ammi Cutter (1891), the Library of Congress Classification (1904), The Universal Decimal Classification (1905), The Subject Classification of James Duff Brown (1906), The Colon Classification of S. R. Ranganathan (1933) and The Bibliographic Classification of H.E. Bliss.