



Ranganathan, Shiyali Ramamrita.  
Documentation and Its Facets: Being a Symposium of Seventy Papers by  
Thirty-two Authors  
(Sarada Ranganathan Endowment for Library Science, Series 10).  
Asia Publishing House, 1963.

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**Digitized:** Spring 2007

**Acknowledgments:** SRELS (A. Neelameghan, K.N. Prasad, K.S.  
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*Part B*

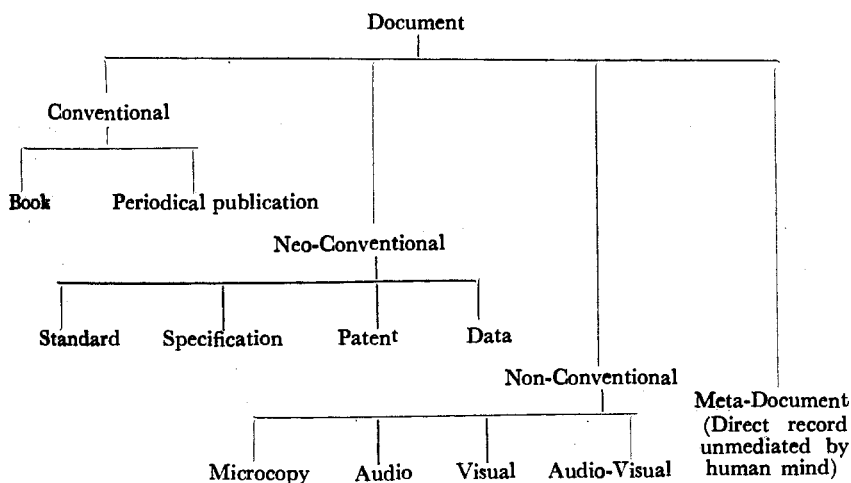
**THEORETICAL APPROACH**

## CHAPTER B1

### WHAT OF DOCUMENTS

S R Ranganathan

#### 0 SCHEMATIC REPRESENTATION



*Note:* The terminology in this and the later chapters has been developed steadily during the last thirty years. These are now being finalised by the Documentation Committee of the Indian Standards Institution in a series of Indian Standards [17].

#### 1 Universe of Knowledge

10 **Universe of knowledge**—Assumed term. Its entities are subjects and isolates.

11 **Subject**—Assumed term.

111 **Knowledge mass**—Subject. Its exposition may extend in print to several volumes at one extreme or to only a single sentence or even a single word at the other extreme.

12 **Thought**—Knowledge mass—that is, subject.

121 **Macro thought**—Subject of great extension, usually embodied in the form of a conventional book.

122 **Micro thought**—Subject of small extension, usually

embodied in the form of an article in a periodical, or of a section or a paragraph in a book, or of a pamphlet.

13 **Isolate**—Entity in the universe of knowledge which is not a subject by itself but whose combination with a host subject gives rise to a subject of smaller extension than the host subject.

## 2 Universe of Works

20 **Expressed thought**—Thought expressed in language, pictures, or symbols, or in any other medium and thereby made communicable.

201 **Work**—Expressed thought.

21 **Sacred work**—Basic work of a religion, generally accepted as such among its followers.

22 **Classic**—Work usually appearing in several versions, and/or having several adaptations and translations, inspiring other works on itself, and repeatedly coming in print even long after its origin.

23 **Literary work**—Work (other than a sacred work) in the form of a poem, drama, fiction, prose, *champu*, or any other literary form with outstanding qualities, such as beauty of form, emotional or intuitional appeal, endless layers of suggestions in regard to meaning, and of intuitive or trans-intellectual origin.

24 **Pedestrian work**—Work which is not a sacred work, a classic, or a literary work, and is not treated as if it were a class or a subject.

241 **Pseudo-classic**—A pedestrian work provoking other works such as appreciations, reviews, replies, and criticisms.

242 **Associated work**—Work on a pseudo-classic.

251 **Integral treatment**—Treatment of a subject in a work in such a way that the treatments of its sub-divisions are not separable from one another or from the whole work.

252 **Disjunctive treatment**—Treatment of a subject in a work in such a way that the treatments of its sub-divisions are separable and admit of each being a work by itself independently of the other sub-divisions and of the whole work.

253 **Multi-focal work**—Work treating several collateral subjects not having a common universe of the first remove.

26 **Title**—Name of a work.

271 **Author (personal)**—Person creating a work—that is, the thought and the expression constituting it.

272 **Author (corporate)**—Corporate body owning responsi-

bility for a work—that is, for the thought and the expression constituting it.

291 **Macro work**—Work expressing macro thought.

292 **Micro work**—Work expressing micro thought.

### 3 Universe of Conventional Documents

30 **Embodied thought**—Record of work on paper or other material, for easy physical handling, transport across space, and preservation through time.

301 **Document**—Embodied thought.

302 **Volume**—Physically independent entity formed of several leaves of paper or other material fastened together so as to be opened at any desired place and forming embodied thought.

31 **Thought-content**—The expressed thought embodied within a document or a volume of it.

321 **Macro document**—Document embodying macro thought in one or more volumes.

3211 **Host document**—Macro document when viewed from the angle of a document forming part of it.

322 **Micro document**—Document embodying micro thought, usually forming part of a host document.

### 33/8 Kinds of Documents

33 **Periodical publication** (Sense 1)—Document with attributes as stated below:

1 **Periodicity**—A volume or a small group of volumes of it, is published or intended to be published and completed normally once in a year or at other regular intervals though irregularity in interval is not ruled out;

2 **Distinguishing number**—Each successive volume or periodical group of volumes, is usually distinguished by the year of publication and/or by a number belonging to a system of simple or complex ordinal numbers. Such a number is usually called a **VOLUME NUMBER**; and

3 **Continuity**—The intention had been to continue the publication for ever, though not actually carried out.

**Periodical publication** (Sense 2)—Any single volume of a periodical publication in the first sense.

331 **Periodical** (Sense 1)—Periodical publication of which

each volume is made up of distinct and independent contributions, not forming a continuous exposition, normally by two or more personal authors and normally the specific subjects and the authors of the contributions in successive volumes also being, in general, different, but all the subjects falling within one and the same region of knowledge, contemplated to be brought within its purview.

**Periodical** (Sense 2)—Any single volume of a periodical in the first sense.

331 **Supplement to a periodical**—1 Periodical associated with another periodical and which it is desirable to put in juxtaposition to it and which may be called a **PERIODICAL SUPPLEMENT**; or

2 A book published in instalments in the issues of a periodical with independent pagination, which may be called a **BOOK SUPPLEMENT**; or

3 An issue, usually extra, of a periodical brought out for a specific purpose or a specific occasion or at specified intervals. This may or may not have independent volume or issue number and pagination. This may be called a **SPECIAL SUPPLEMENT**.

332 **Serial** (Sense 1)—Periodical publication of which each volume, or each periodical group of volumes, embodies more or less similar information, mainly relating to its year (or other period) of coverage.

**Serial** (Sense 2)—Any single volume of a serial in the first sense.

34 **Book**—Physically independent document other than a periodical publication, that is, it has been completed or has been intended to be completed in a finite number of volumes.

341 **Multi-volumed book**—Set of volumes deemed to be inseparable and to form a single book, on the ground that:

- 1 The set possesses a common index; or
- 2 The same sequence of pagination is continued in all the volumes of the set; or
- 3 The thought-content is so distributed among the volumes of the set that it is unhelpful to treat each volume as if it were a separate book.

342 **Supplement**—Volume forming a continuation of a book or a volume of it, making good its deficiencies, correcting its errors, or adding more information.

343 **Composite book**—Book with two or more contributions, each with its own title, distinct and independent, all the contribu-

tions not together forming a continuous exposition, and often, though not necessarily, by different authors.

344 **Ordinary composite book**—Composite book provided with a single, generic title to denote all the contributions collectively.

345 **Artificial composite book**—Composite book which is not ordinary, that is, without a generic title to denote all the contributions collectively.

346 **Simple book**—Book, which is not composite, that is which embodies continuous exposition by a single author or by two or more joint authors.

### 35 BY EXTENT OF CIRCULATION AND COPYRIGHT

351 **Restricted document**—Document intended to be distributed only to selected institutions and individuals. Many governments and international near-government bodies often produce such documents.

352 **House document**—Document intended for use only within the commercial, industrial, or other similar institutions producing it.

353 **Private document**—Document intended for private circulation only.

354 **Secret document**—Document not intended for circulation to beyond a named circle of users.

355 **Copyright document**—Document whose copyright is vested in an individual or a corporate body during the pendency of the copyright and which cannot be reproduced without the consent of the owner of the copyright.

356 **Non-copyright document**—Document free from copyright encumbrance and available for reproduction by anybody.

### 36 CONVENTIONAL DOCUMENT

It has been shown [R28] that ease of physical handling of documents implies a certain optimum weight, durability, size, and shape. These factors have, in course of time, made paper the conventional material to record on. Leaf, cloth, silk, and vellum had been used in the past. Apart from the use of paper, the conventional kind of document has the work recorded on it in the phonetic symbols forming the script of a natural language with or without illustrations used as a help in the communication of thought.

This implies that the thought-content of the document is expressed essentially in a natural language. Further, in the conventional kind of documents, the recording is done by writing, typing, printing, or by some near-printing process. In the extreme end, a document is an independent physical entity by itself—say, a book or a pamphlet. In public library service and academic library service for students, book is the dominant kind of document in use. In business library service and research library service, pamphlet or an article in a periodical or a part of a book is the dominant kind of document in use. All these too will be taken to be Documents of the Conventional Kind.

### 361 REPRODUCTION IN NEAR-NORMAL SIZE

In recent years and particularly after the two World Wars, scarcity of older books and periodicals still needed for current use—scarcity caused by sheer efflux of time or by war damage—brought into vogue reproduction of them by photographic, chemical, and other so-called mechanical processes. At first, the reproduction was more or less of the same size as the original. When the reproduction is of the same size as the original, it is called a facsimile reproduction. A reproduction of normal or near-normal size is taken to be virtually of the same kind of document as the original.

### 362 NON-CONVENTIONAL IN SCRIPT ONLY

A conventional document may be reproduced or recorded in a non-conventional script, such as braille, stenograph, and cipher. But the medium of expression is only a natural language. For purposes of documentation, these also may be taken as Documents of the Conventional Kind.

### 363 MAP OR ATLAS

Map has been in use as a document for a considerable time. It is abnormal in size and shape. But a collection of maps constituting an atlas is often of normal size and shape. On the whole, a map or an atlas is usually admitted into the category of Documents of the Conventional Kind.



#### 4 Hierarchy of Works and Documents

Creators of new ideas are few and far between. A seminal work stems from intuition rather than from intellect. In its original nascent form, it may be totally intelligible to only a select few. To make it reach the others, it is often necessary to restate it and republish it in several documents of successively decreasing standard to reach down to the level of the common man. The documents in this hierarchy may be written by the originator himself or by a hierarchy of other authors. Further a good document in any one language has to be reproduced in many other languages. The assignment of a document to its appropriate standard requires judgement. There is also the question of the number of standards which it is worth-while to recognise. We can recognise six levels of writing suited to six levels of audience in terms of the intellectual scale.

#### 40 VEDIC TRADITION

While I was engaged in the pursuit of the latter problem some twenty years ago, Swami Turiananda Brahmendra Saraswathi, a disciple of Swami Svayamprakasa Brahmendra Saraswathi of Senthamangalam, happened to call on me. He mentioned to me four standards of exposition recognised in Vedic tradition. This put me on a helpful track.

#### 41 SEMINAL STANDARD

Documents of a fundamental nature occasionally emanate from master minds. Such master minds are very few, of course. These are self-centres of illumination. Their creation is spontaneous. Their writing is elusive. It scintillates. It has a message. The message is often found between lines and between words. Its implication has endless layers. It helps the fertilisation of several minds. It forms the basis for a chain of new thought. Only a few top intellectuals can profit from it. It belongs to Standard 1. It is a Seminal Document. It is called *Prabhu Sammita* in Vedic tradition.

Sir C V Raman's paper entitled *New radiation* (1928) which, appeared in the *Indian journal of physics* is such a seminal contribution. Another universally known example is Darwin's *Origin of species*. The formulation of the Five Laws of Library Science and

of the Five Fundamental Categories as the basis of classification may be taken to be of this standard.

#### 42 RESEARCH STANDARD

Next in order come the top-centiles among the intellectuals. They peel out by their laborious research layer after layer of the implications of a work of Seminal Standard. They create new knowledge. For this, they need to feed on the knowledge created by their peers. If the peers are few and live near one another, they commune in person; the whole-man communes with the whole-man; and the benefit is full. But these conditions are not easily satisfied today when new life has burst forth in all sections of humanity—be it in Asia, Europe, Africa, America, or Australia. If the whole fruit is not available we use its essence as a second best. If whole milk is not available, we use milk-powder as a second best. So also, if the whole-man is not available, we have to use his documents as a second best. Documents embodying the results of investigations in specialised fields are produced from time to time by whole-timed or part-timed research workers. Such a document is mainly for circulation among the peers in the field. It belongs to Standard 2. It is a Research Document. It is called *Suhrith Sammita* in Vedic tradition.

The hundreds of papers listed in a Bibliography of Raman Effect are mostly documents of research standard. So are the thousands of papers on evolution and related problems which have appeared in biological periodicals since the days of Darwin. Some of the papers appearing in the *Annals of library science* are of this standard.

#### 43 LAYMAN STANDARD

Then come the needs of the non-specialist. New knowledge should be socialised. This is the insistence of democracy. For wide dissemination, the essence of the documents of Standards 1 and 2 should be dressed in attractive form and re-told in another class of documents. Such a document emanates from time to time from persons with special flair for exposition. It is so illuminating as to light up the field for a man of ordinary intelligence to take interest in the progress of thought in general. This is salesmanship writing. This belongs to Standard 3. It is a Layman Document. It is called *Kantha Sammita* in Vedic tradition.

Raman often achieves success even in this standard. Huxley's writings on Darwinism are of this Standard. So are some of the expositions on Relativity by Eddington and Jeans. Gamow's books are current examples.

#### 44 ELEMENTARY STANDARD

Lastly, come the needs of the teen-agers in the physiological and in the psychological sense. Documents of the other levels have to be re-told for them in an extremely popular way. Such a document is not infrequently in the form of a story. This belongs to Standard 4. It is an Elementary Document. It is called *Sisu Sammita* in Vedic tradition.

An account of the Raman Effect or of the Origin of Species or of Civics in a school or college magazine is of this standard. Books of this standard are now being produced on diverse topics.

#### 45 REPORTING STANDARD

A simple statement of facts and occurrences in the research world is now necessary to alert research workers. Such a document does not give the details of the research involved. It is usually turned on new methods of approach, new techniques of manipulation, new commodities, new raw materials, new services, and new discoveries of any other kind. Such a document is short. It is only an appetiser. It is a document of Standard 5. It is called Reporting Document. It is a new standard of modern times. It has no name in Vedic tradition.

Three well-known media for reporting documents are *Nature*, *Naturwissenschaften*, and *Current science*.

#### 46 MANAGERIAL DOCUMENT

A government, an institution, and occasionally an individual may survey or evaluate an undertaking, or explore or plan for a future undertaking. A record of its results is a document of Standard 6. It may be called a Managerial Document. It is a new standard of recent times. It has no name in Vedic tradition.

### 5 Universe of Neo-Conventional Documents

Standards, specifications, patents, data of properties in natural sciences and their applications, reaction formulae in chemistry,

differential clinical data in medicine, and press cuttings of current opinion and news in the field of social sciences form a new class of micro documents coming to be much in demand. They may be called Neo-Conventional Documents.

## 6 Universe of Non-Conventional Documents

### 61 MICRO REPRODUCTION

Photo-reproduction method can be used to reproduce the original document on a considerably reduced scale. The enormous output of the printing press of the world has begun to create an acute problem in stack-room space. This has led to increasing resort to extremely small-scale reproduction. For example, a book of 100 pages is reproduced on a  $125 \times 75$  mm card. If it is an opaque card, it is called a micro-card. Rider's [R37] book on it is well-known. If the reproduction is on transparent film, it is called a micro-film or simply a film. Film is either in the form of a long roll called film-roll, or in the form of a strip of about 23 cm in length called film-strip. This kind of document does not differ from the conventional kind of document either in the mode of expression or in the script or the symbol used in recording. The difference is only in the size, shape, and nature of the material of embodiment. Moreover, it is of recent origin. It may be called a Non-Conventional Document of the First Kind. Miniature books of about 2 cm height have been produced occasionally all along the past. They are only bibliographical curios. They are not figuring much in day-to-day service. Nor is the size of the script as small as in a micro-card or a film. We may merely regard them as freaks within the conventional kind. The definition of 'Document' given in section 301 admits into itself micro-cards and micro-films. No amendment in definition is called for to include them. To this category of document belongs also the Ceiling Book. This is a book in film-roll served to patients in bed. They project it on to the ceiling and read it while in the lying posture.

### 62 AUDIO-VISUAL RECORD

Any conventional document or non-conventional document of the first kind is essentially dependent on phonetic symbol or script as form of recording, and on natural language as medium for expres-

sion of thought. But recent advances in technology have made practicable and more or less cheap the direct recording of sound vibrations unmediated by script, and the kinematographic recording of expression of thought through the medium of gestures, still and moving scenes, and histrionic action. They have also made practicable and more or less cheap a synchronised combination of these two kinds of records. These three varieties of record are comprehended by the definition of document given in section 301. Their comprehension is made possible by the following wide terms occurring in the definition of "Expressed and Embodied thought":

- 1 Expressed in language or symbols or in any other mode; and
- 2 Recorded on paper or any other material—and by the omission of the term "in phonetic symbol or script" after the word "recorded".

Thus we can speak of Audio Document, Visual Document, and Audio-Visual Document. These three may be taken as varieties of Non-Conventional Document of the Second Kind.

#### 621 AUDIO DOCUMENT

At the early stages, sound recording was largely used only to produce musical records. In recent years, books are being embodied as audio document for the benefit of the blind. Such documents are now being produced by the libraries of many countries. Even more recently, audio document is produced also for the benefit of the illiterate; and to help the neo-literate up the path of literacy, speaking book is being attempted. It consists of the printed book with a companion attachment of the sound-record of the words in it. Loose mentions in his *Report* to FID [L3] that since 1954 the California Medical Association has been sponsoring a medical abstracts service in speech recorded on magnetic tape, in order to obviate the use of eyes for the purpose by busy practitioners. This service is said to cover 600 periodicals in 60-minute recordings. Document in the form of wire record is becoming common. Mahatma Gandhi's historic speeches at prayer meetings are now preserved as audio documents in the National Archives of India. Copies of them can at any time be produced in any quantity. Audio documents are now regularly served by libraries.

#### 622 VISUAL DOCUMENT

Library service to illiterates has begun to include also visual documents such as pictures, diagrams, and histograms. Even

literate prefer the use of such visual documents to the conventional ones. Accordingly, these have been all along interspersed at several places in conventional documents. Ancient manuscripts contain a feast of them. Modern progress in the technology and printing of illustrations has highlighted the visual documents of micro-thought forming part of books and periodicals. During World War II, the newspaper houses of Madras made a heavy call on the Madras University Library for such documents. Due to the absence of an analytical bibliography of micro visual documents, we were put to a considerable difficulty in meeting the demand. The Third and the Fourth Laws of Library Science were ever threatening us of a charge of violation. Still pictures and cinema reels are now becoming forms of visual document lent out by libraries.

### 623 AUDIO-VISUAL DOCUMENT

Since World War II, the use of educational and documentary talking cinema reels has come into vogue. They are naturally proving effective in mass-communication not only to illiterates but also to literates. This variety of non-conventional document of the second kind was first lent out by special agencies often on rental basis. But libraries are now beginning to handle them in the same way as conventional documents, both for consultation within premises and for free loan for use outside the library. This variety of document is particularly effective in the instruction of technicians, working largely with hand, having little chance to habituate themselves to the use of conventional printed documents, and above all often too tired physically to sit up and pore through closely printed matter. Even in advanced university classes, their use has become part of routine teaching technique. Their use saves time and produces a more realistic impression than the conventional teaching technique of the earlier generation. I had opportunity to appreciate the superiority of this variety of document in the communication of specific information, when I happened to visit factories during excursions arranged by library conferences. It has an important role in productivity drive. We should no longer regard audio-visual document to have only entertainment or relaxation value, even as public library service was regarded during the last century. It is an important tool for the enrichment of memory and the sharpening of intellect. It is now available both as macro document and as micro document.

## 7 Universe of Meta-Documents

### 71 INSTRUMENT-RECORD OF PHENOMENA

The chief contribution of Loose's *Report* [L3] to the Brussels Congress was in its putting the library profession on the alert in regard to another kind of "audio-visual material" coming into library collection. It is a material that deviates from the conventional document, not merely in the symbol or the mode of recording and in physical embodiment of the record, but also in what is recorded. A non-conventional document of the first and the second kinds is like a conventional document in that it is a record of thought created and expressed by human mind. But this new audio-visual material is not recording human thought at all. It is a record of phenomena, made directly, unmediated by the human mind, and before they get transformed into thought and even before they get into the human mind. Instrument technology, photography, radar, and various other elements have made such instrument-record of natural and social phenomena possible.

### 72 VALUE OF INSTRUMENT-RECORD

One reason for the increasing importance of instrument-record of this kind is that it gives a permanent record of an ephemeral or transient or even momentary phenomenon, quite free from the bondage of the subjective element of the observer and of the need of the student of his being present and on the alert at the time and place of the occurrence of the phenomenon. No other form of record is equally untainted by the idiosyncrasy of the observer. No doubt the instrument itself and the process of recording may add taints of their own. But these are more measurable and capable of being brought under control than the subjective taint of the observer. Aeronautical and astronautical research depends largely on the instrument-records made with the aid of rapid photography.

### 73 EXTENSION OF PRIMARY SENSES

The recording instrument can be attached to other instruments and apparatus which form an extension of the primary senses. The record made by such an instrument brings within the range of the leisurely study of the happenings in the distant heavenly

bodies. Similarly, microscopic bacteria and ultramicroscopic virus are magnified and recorded in a scale which is within the range of the eye. The seismic tremor in the unreachable parts of the earth gets recorded. Invisible objects up in the distant regions of the sky and down in the depths of the sea are made by the radar to leave their record permanently on a material that can be easily handled, transported, and preserved. The pursuit of subjects, such as astronomy, physics, chemistry, biology, ecology, behaviourism, and sociology, is facilitated by such records. Microcinematograph produces even more helpful records, which make the study of changes in the structures of materials, ontogeny of cells, and faults in the moving parts of machinery, capable of being pursued with profit, at a pace which is comfortable to the mind.

#### 74 GENERALISATION OF THE DEFINITION OF DOCUMENTS

The kind of records mentioned above is in increasing use. They should be taken into the category of document, figuring in documentation work and documentation service organised to help specialists in their work. A record of this kind may be called "Meta Document". To make this possible, the definition of "Document" should be extended so as to read as follows:

**Document**—Record—made on more or less flat surface or on surface admitting of being spread flat when required, made of paper or other material fit for easy handling, transport across space, and preservation through time—of thought created by mind and expressed in language or symbols or in any other mode, and/or record of natural or social phenomena made directly by instrument without being passed through human mind and woven into thought created and expressed by it.

### 8 Non-Document Universe

#### 81 WASHINGTON EXPERIENCE

It was an August evening of 1950 in Washington. A large number of documentalists assembled at the residence of Mrs Ruth Hooker for dinner. Parthasarathy, myself, and a French gentleman were the three non-Americans in the group. A spontaneous chase of "Document" started. The conservatives confined its denotation to a conventional book, periodical, or a portion thereof.



The Frenchman started with the ambitious definition of "any medium for communication"; this led to his accepting a statue as a document and even any exhibit in a museum. Each one tried to talk out every other by citing a concrete example of all varieties of documents on the basis of the definition proposed. That evening gave an exciting experience. Since then I have been chasing the will-o'-the-wisp through a succession of definitions. The closer and more comprehensive the definition reached, the sharper looked the commission and the omission involved, even as cleaner the cloth the more arrestingly it shows forth even the tiniest speck of dirt. I thought that I had got the best result in the definition included in my *Headings and canons* [R17] in April 1955. But this thought had to be given up within six months.

### 82 BRUSSELS EXPERIENCE

In the meeting at the Brussels Congress, devoted to non-conventional documents denoted by the term "audio-visual material"; it was difficult to prevent discussion wandering too wide of the mark. This is unavoidable in a group of thinking minds, unless the universe of discussion is provisionally defined and its boundary is extended, if need be, at later stages only deliberately and in defined terms. The discussion in the Committee on Cataloguing of the same Brussels Congress was prevented from being fruitful because of failure to define the basic terms and concepts. There was even uncritical escapist resistance to work on them. Let us go back to the discussion at the meeting on "audio-visual" material. Radio and television were brought into the discussion. These are no doubt means of audio-visual communication. But they are not documents; because they are not records on materials fit for handling or preservation. Statues, pieces of china, and the material exhibits in a museum were mentioned because they convey thought expressed in some way. But none of these is a document, since it is not a record on a more or less flat surface. "Books in running brooks" can be admitted as a poetic expression or as a piece of rhetoric; it implies, no doubt, a symbol expressing and communicating thought. But it does not answer the definition of "Document" as it figures in library service either to a general reader or to a specialist.

## 83 REFRACTORY CATEGORIES

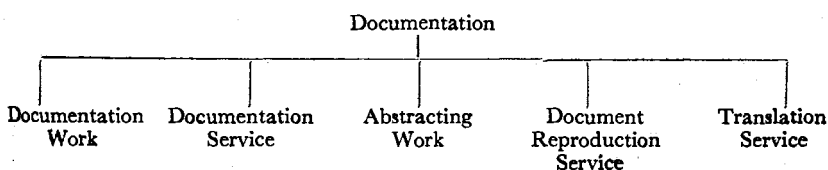
There are refractive materials in the border line, baffling any definition. One type incorporates flat samples of materials or mounted materials built together in the form of a book. If it contains no record other than descriptive labels for the samples, we may decline to accept it as a document. But the letter-press may be more than labels. It may give additional information of a historical or technical nature. This letter-press area may be considerable. Then, it is easy to accept it as a document. But, if the letter-press area is slight or small, the decision is difficult. The Madras University Library was hard put to decide this issue, when it collected a set of volumes discarded by the Connemara Public Library about thirty years ago. It was one of the 50 or 60 sets of volumes on textiles produced by the East India Company to help the Lancashire weavers to copy the pattern and texture of cloth produced in India. The small amount of letter-press gave valuable historical information about the high quality of Dacca muslin produced in pre-British India but suppressed and even wiped out both by governmental action and tariff policy. If the textiles were illustrated by pictures, there would have been no hesitation in declaring the set as a document. But the set consisted mostly of actual samples of cloth mounted on paper, with descriptive and historical information amounting to little more than a mere label. There will arise many other kinds of refractive cases exceeding the capacity of any tight definition and needing *ad hoc* decision.

## CHAPTER B2

### WHAT OF DOCUMENTATION

S R Ranganathan

#### 0 Schematic Representation



#### 1 Basis of Discussion

Documentation is a part of library activities. Therefore, the Five Laws of Library Science govern documentation. These laws were originally formulated in 1931 [R15] in terms of the conventional book. They should now be re-stated replacing "book" by "document". The five laws are then:

- 1 Documents are for use;
- 2 Every reader his document;
- 3 Every document its reader;
- 4 Save the time of the reader; and
- 5 A library is a growing organism.

#### 2 Intensified Library Activity

Documentation is library activity intensified by putting emphasis on:

- 1 Nascent thought, far more than on old thought;
- 2 Micro document, far more than on macro document; and
- 3 Specialist reader, far more than on generalist reader.

#### 3 Nascent Thought

Nascent thought is nowadays embodied quite often in articles in periodicals. It is so embodied as and when it gets created. The time-lag between the moment of creation of new thought and

the time of its reaching the potential users everywhere in the world is being continuously reduced. There are nearly a hundred thousand learned periodicals forming the media of nascent thought. Occasionally, a book too may embody new thought before its nascency fades out. But ordinarily, by the time of embodiment in a book, new thought is no longer in nascent state.

#### 4 **Micro Document**

The emphasis on nascent thought, therefore, implies normally emphasis on micro document also. Till recently, libraries served out only whole volumes and issues of periodicals. In other words, it was left to the reader to turn through the pages of the learned periodicals and find out for himself the articles with a bearing on the topic engaging his attention at the moment. The library staff did not engage itself in organising the articles in the diverse periodicals. But, it has now begun to interpret its function to include the organisation and service of micro thought.

#### 5 **Specialist Reader**

In the past, professional librarians were engaged mostly in public libraries serving generalist readers with books of recreation, inspiration, and general knowledge without too much specialisation. Libraries serving specialist readers were mostly national central libraries, university libraries, and libraries of learned bodies. Service to specialist readers in such libraries was largely self-service. There was seldom a professional staff in such a library. Some scholar specialising in some subject of his own had charge of such a library. As a result of his long experience with the books in the library and as a result of his being a scholar with well-developed intellectual habits, he often had his memory enriched with bibliographical information. And he did give a considerable help of a kind. It was not unusual for a specialist reader to feel, "I wish I could have a shorthand writer for half an hour to take down all the information being given by my colleague in the library". But no objective technique was developed to serve specialist readers with nascent micro thought. The turbulence and the torrent of nascent micro thought gushing out through the press today have become unmanageable without a special technique even to the most industrious librarian with a marvellous memory. He must

have recourse to externalised memory. The organisation of externalised memory—that is documents—for systematic intake and expeditious retrieval is Documentation. Moreover, during the present century—especially after World War I—industries have come to depend more and more on research. A new class of industrial specialists has emerged. The subject coverage of periodicals has been extended rapidly to outside the conventional subjects of old. Service of the micro thought embodied in their articles has begun to need a special technique. It has gone beyond the capacity of even the ablest of the scholar librarians of research libraries.

## 6 Information Officers

But the professional librarians of public libraries have been slow in seizing the problem and developing the necessary new technique to meet the situation to the satisfaction of the Laws of Library Science. This period of vacuum continued for nearly a generation. The vacuum had to be filled at least partly. It was filled by the specialists themselves. A few of the specialists walked from the laboratory or the workshop into the library and attempted to serve the other brother specialists with nascent micro thought. They depended more on their intimate familiarity with the subject-field concerned than on any special technique developed to control and organise the cascade of nascent micro thought. Such specialists taking to library service were called Information Officers instead of Librarians.

### 61 FIRST INVASION ON LIBRARY PROFESSION

This was the first invasion to come on the library profession. It came in the West after World War I. It was made possible by the unprepared snug indifference of the profession to the challenge of a new development in the service expected from it. This is a historical accident. This has created unnecessary difficulties in the library profession in the older industrialised countries. The newly developing countries blindly take on their own heads these unnecessary difficulties of the earlier developed countries. However, there are signs of the profession trying to recover the lost territory. It must succeed in it.

## 7 The Essence of the Matter

Notwithstanding this historical accident, the shift of emphasis to nascent micro thought on the side of documents and to specialists on the side of readers has resulted in the intensification of library activities. Driven by the Five Laws of Library Science and urged by the demand for nascent micro thought by specialist readers, the library profession is now faced with a new situation calling for new techniques, new attitudes, and new forms of service. By way of highlighting this change in technique, attitude, and intensity of activities, the term Documentation has been brought into vogue.

### 71 DEFINITION OF DOCUMENTATION

Documentation may then be defined as:

- 1 Promotion and practice of bringing into use of nascent micro thought by specialists (Law 1); and
- 2 Pin-pointed (Law 2);
- 3 Exhaustive (Law 3);
- 4 Expeditious (Law 4) service of nascent micro thought to specialists;
- 5 In spite of the continuous ever-increasing cascade (Law 5) of nascent micro thought on an ever-multiplying number of specialised subjects, communicated through several thousands of periodicals.

### 72 DOCUMENTALIST

By way of highlighting the taking up of this new responsibility for documentation by the library profession, the term Documentalist has been brought into vogue to denote the section of the library profession specialising in and practising documentation. Documentation does call for specialisation in the intensified library techniques needed in practising it.

### 73 AVOIDANCE OF VAGUENESS

The ineffability of the term "Documentation" has been causing confusion. It has been making our thinking loose or foggy. It has been making communication within the library profession equivocal. It has set up a conflict and confused the issue between the profession of librarians and that of data-specialists [R35]. At

the least, Documentation is taken to be synonymous with intensive bibliography building. Next it is taken to cover also intensive reference service. To this is added translation service. Now it is taken to include also service of photo-reproductions of documents. Occasionally, it is also made out to cover the entire region of Library Service and Library Science. According to a still more ambitious view it is claimed to cover even production of books and indeed the production of every material means for communication of expressed thought—of macro work as well as micro work. We shall confine ourselves to the general definition given in section 26. We shall spell out in section 8 the distinctive facets of documentation. This book is confined to documentation as denoted by this enumerative definition.

#### 74 SECOND INVASION ON THE LIBRARY PROFESSION

Since World War II, a second invasion has been coming on the library profession. This time the invaders are not from among the research workers calling themselves information officers. The present invaders are from among gadget engineers. Their success in saving time with computers of lightning speed has led them to invade the territory of translation and retrieval of information. It is not for us to defend the territory of translation. But it is our duty to examine the factors favouring this second invasion—to trace the cause of invasion—and to remove the cause.

#### 75 CAUSE OF SECOND INVASION

As in the first invasion, the second invasion also has been induced by the unpreparedness of the library profession to meet a new situation. The new situation was created by the joint pressure of the Fifth and the Fourth Laws of Library Science on the retrieval of relevant micro thought from among the mounting millions of micro documents. The library profession was too lethargic to sharpen its own tools of depth classification and class index entries to meet the situation.

#### 76 SURRENDER TO GADGET ENGINEERS

As a result, the gadget engineers are storming the profession. They persuade us to believe that

1 Random arrangement of entries is sufficient; and

## 2 Work on classification is unnecessary.

The library profession appears to stand mesmerised by the electronic speed of the gadgets. The invaders appear to be daring enough to usurp the very term "documentation" and use it to denote almost exclusively their own territory of "machine retrieval". We shall go into this further in chapter P2. In the meantime, we shall enumerate in the next section the facets of documentation lying within the territory of the library profession.

### 8 Facets of Documentation

No doubt, documentation is impossible unless backed by every facet of library activity—from document selection through acquisition, accessioning, classification, cataloguing, circulation work, reference service, and maintenance work to every detail of library management—developed to a higher pitch of efficiency. However, it is possible to recognise and make special mention of the following five facets of documentation:

- 1 Documentation work;
- 2 Documentation service;
- 3 Abstracting work;
- 4 Document reproduction service; and
- 5 Translation service.

We shall next examine each of these five facets in greater detail.



## CHAPTER B3

### WHAT OF DOCUMENTATION WORK

S R Ranganathan

#### 0 Basic Terms

01 **Catalogue**—List of the documents in a library or of a collection forming a portion of it.

02 **Bibliography**—List of documents listed together for some purpose. In the restricted use of the term, the purpose is to bring to the attention of the reader(s) an exhaustive or a selective list of documents relevant to his pursuit of study or enquiry. Originally, it included only macro documents.

An alternative name for the restricted variety is Subject Bibliography.

03 **Documentation list**—New name for bibliography with emphasis on the inclusion of micro documents and on the reader served being a specialist engaged in research, business, deliberation, or administration.

04 **Documentation work**—Work of preparing a documentation list.

#### 1/8 Kinds of Documentation List

##### 1 Kinds Based on Nature of Entry

11 **Bare documentation list**—A documentation list mentioning the author, the title, and either

1 collation and imprint in the case of a macro document; or

2 name of the host document and the exact place of occurrence within it in the case of a micro document.

112 **Indexing periodical**—Periodical giving a bare list of articles bearing on a stated subject and appearing in the current fascicules of periodicals. It may also include bare entries of books currently published.

12 **Annotated documentation list**—A documentation list in which the scope, the standard, and the authoritative nature of a document is indicated in brief terms in all cases found necessary.



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**Acknowledgments:** SRELS (A. Neelameghan, K.N. Prasad, K.S.  
Raghavan, DRTC) and dLIST Advisory Board Member, S. Arunachalam  
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Philosophy of Library Classification (1973)  
Prologemena to Library Classification, Ed. 3 (1967)  
Classification and Communication (1951)  
Documentation Genesis and Development (1973)  
Documentation and its Facets (1963)  
Library Book Selection, Ed. 2 (1966)  
New education and school library: Experience of half a century (1973)  
Reference Service, Ed. 2 (1961)

##### **Other titles**

S.R. Ranganathan's Postulates and Normative Principles: Applications in  
Specialized Databases Design, Indexing, and Retrieval, 1997. Compiled by  
A. Neelameghan.  
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Ranganathan from his various works, 1994.  
Putting Knowledge to Work: An American View of the Five Laws of  
Library Science, 1970. By Pauline Atherton.

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13 **Documentation list with abstracts**—A documentation list in which a brief statement of the essential contribution to knowledge made by a document is given in the form of an “abstract”.

14 **Abstracting periodical**—A periodical giving a list of articles bearing on a stated subject and appearing in the current fascicules of periodicals, each entry being provided with an abstract of the article described by it. It may also include annotated entries of books currently published.

15 **Bibliographical periodical**—Generic term for abstracting and indexing periodicals.

An alternative name is Documentation Periodical (*see* section 86 of this chapter).

## 2 Kinds Based on Structure of the List

21 **Documentation list of contents**—A documentation list giving, in a separate block of its own, the contents of each periodical covered by it.

This is the cheapest form of documentation list. It does not require the continuing help of a classifier or a cataloguer. It is largely a matter of assembling the contents-pages in a prescribed sequence and producing copies.

This is the least helpful form of documentation list. This represents a primitive stage. Its compilation does not require the help of a documentalist or even an ordinary librarian.

22 **Dictionary documentation list**—A documentation list giving in one alphabetical sequence entries of each document both under the name(s) of its author(s) and under its specific subject.

This is more helpful than the “contents” list. This represents a more evolved stage.

23 **Documentation list on broad subject basis**—A documentation list which groups the documents under a few subjects of large extension and arranges the documents in each group alphabetically by author’s names.

This form is more helpful than the dictionary form. Its helpfulness increases with the increase in the number of subject groups used.

24 **Classified documentation list**—A documentation list in which the documents are arranged systematically by their specific subjects. This arrangement requires the use of class numbers to

represent subjects. This is the most helpful form. It represents the latest stage of evolution reached so far. It should be backed by a schedule of class numbers. It will be even more useful if it is backed by an alphabetical index giving in one sequence class index entries and author index entries. The need for this index will increase with the size of the documentation list.

### 3 Omnibus Universal Documentation List

Theoretically, a complete or omnibus universal documentation list is conceivable. It will cover all macro and micro documents of all standards, that is, all the books, periodical publications, articles in periodicals, non-conventional documents, and meta-documents—published in all countries, in all languages, on all subjects, and at all times. This will be too unwieldy for use. For, the books published in the world each year far exceed a hundred thousand; the periodicals currently produced are to be counted in many thousands; and the articles appearing in periodicals during a year mount up to over a million. For the same reasons, the production of an omnibus universal documentation list will be impracticable. It proved difficult even within a century of the invention of printing. It is unthinkable today.

#### 31 RESTRICTION

An omnibus universal documentation list is now replaced by lists restricted on the basis of one or other of several characteristics such as

- 1 Area of origin of the documents;
- 2 Subject of the documents;
- 3 Period of production of the documents;
- 4 Standard of the documents; and
- 5 Service aimed at by the documentation list.

#### 4 Restriction by Area of Origin

Restriction by area of origin usually goes with restriction to books and whole periodicals. It gives rise to national and regional (linguistic) bibliographies. These do not include articles in periodicals, i e, micro documents.

## 41 NATIONAL SUBJECT BIBLIOGRAPHY

It is possible to take restriction by area of origin with restriction to articles in periodicals and other micro documents. It is now coming into vogue. The restriction is usually to a country. It may also extend to a region greater or smaller in area than a country. The *Bibliography of scientific publications of South and South East Asia*, described in chapter F2 is an example.

**5 Restriction by Subject**

Restriction by the subject of the documents is usually free from restriction by area of origin. In other words, many of the subject bibliographies are world subject bibliographies.

## 51 UNSOLVED PROBLEM

The unsolved problem of today is the determination of the extension of the subject which should be provided with an International Documentation List. Is the subject-restriction to be prevented from crossing the limit of one main class? In practice, however, it has been found necessary to have international documentation lists for many sub-classes. As against this kind of need, documentation in any one subject has to include several other subjects forming its auxiliaries; with the result, some of the documents in any one subject have to be listed in the documentation lists of several other subjects. This is true not only of sub-classes but even of main classes. To deny this will amount to a specialist in one particular subject having to look up documentation lists of not only his own subject but of several other subjects. This will violate the Laws of Library Science. On the other hand, to build international documentation lists for each subject including the relevant documents in every other auxiliary subject, in order to satisfy the Laws of Library Science will go beyond economic viability. The history of the *Biological abstracts* has much to say on this point. The *Chemical abstracts* has its own story to tell. This is a second unsolved problem in the coordination of the international documentation lists.

**6 Restriction by Period Covered**

Restriction by period covered is inevitable. For, the documents of the future are unknowable. There are various possibilities in

respect of the documents of the past and present. In documentation lists prepared on demand, the extent of time to be covered is generally given. At any rate, it can be and has to be ascertained from the party asking for the documentation list. It is the documentation list of current documents; produced periodically in anticipation, that needs discussion. The periodicity of the list determines the period to be covered. This period is as small as one month as in *Chemical abstracts* and as great as one year as in *Review of Indian archaeology*. This period depends on the rate of flow of micro literature in the subject-area covered. One year is no doubt a dominant time-unit in our affairs. Accordingly in most cases, the title-page, contents, and index to a documentation periodical are produced once in a year and the issues are expected to be cumulated into a volume once in a year. But the year is found to truncate documentation periodicals quite inconveniently. This inconvenience is sought to be minimised by the publication of quinquennial, decennial, and occasionally even thirty-year cumulative indexes. Thus, time dimension is as resistant to restriction as subject dimension.

## 7 Restriction by Standard

### 71 CURRENT PRACTICE

Another mode of restriction of the documents covered by a documentation list is that of the standard of the document. The definition of Documentation List given in section D13 implies its restriction to seminal and research documents. Still others include also laymen documents. But hardly any includes elementary documents.

### 72 ELEMENTARY LIST

But, the child of today is the adult of tomorrow. The child should therefore be accustomed to the value and use of documentation lists. This implies the need for children's documentation lists. Again, for a child, every venture of his amounts to his own tiny research. And there are today many children's periodicals. Therefore, children too should be helped with their own documentation lists. Further, the subject-scatter of the curiosity of children has a great amplitude. Therefore, children's curiosity can be well satisfied and exploited with the aid

of children's documentation lists. However, the preparation of such lists does not appear to have begun. It is worth beginning as it will give in due course a valuable dividend in the pre-conditioning of the adult specialist to draw the maximum of help from documentation lists and to accept the documentalist as a helpful and equal partner in his research work.

### 73 LAYMAN'S LIST

It is equally desirable to have a regular production of layman's list or list of documents written up with flair to communicate the latest progress in the universe of knowledge to the layman or the non-specialist. A specialist in one subject is a generalist in many others. As a citizen, he must have acquaintance with what is happening in other subject-fields. Thus, the consumer of a layman's list is Mr Everybody. To include the layman's documents in the documentation list for specialists is to irritate the specialist and to make it difficult for the generalist to use it with interest. For, his documents in such a list will be few and far between. It will be tiring to spot them out. That the generalist is interested in layman's documents on diverse subject-fields is evidenced by the wide circulation of *Reader's digest* produced in different parts of the world. But for the services of this enterprise, many a reader will go uninformed to the chagrin of the Second Law of Library Science and equally many a layman document will go unused by as many as can, to the chagrin of the Third Law. Therefore, the layman's list should be started all the world over.

### 74 CONFLICT IN DOCUMENTATION

#### 741 WASHINGTON EXPERIENCE

At the 1958 Washington Conference on Scientific Information, a sense of despair prevailed among some delegates. It was caused by the shower of documents suffocating them year after year. It drove them into the mood of King Canute. It made them cry halt. It made them ask for a prohibition order against all secondary versions of a worth-while original document being published in diverse media. Some acute specialists showed also impatience with long papers. All this implied a conflict between the interests of specialists and their documentalists on the one side and the interest of the humanity at large to make every worth-while thought

reach everybody in a version suited to him. This conflict should be removed once for all.

#### 742 ARISTOCRACY VS DEMOCRACY

This conflict in documentation is the old, old conflict of Aristocracy *vs* Democracy. Here, it is not the aristocracy of birth, which is gone; nor is it the aristocracy of wealth, which has begun to go; it is not even the aristocracy of power, which is now dominant. But, it is the aristocracy of intellect, which will never die and which should never die.

A friend of an Indian author of the seventh century said to him, "Your recent work is too difficult for many". The response of the author was to add a new sentence at the very beginning of the preface. What was the new sentence? "Prayer goes to God that this work should not get into the hands of the dull many."

#### 743 ALLERGY TO LONG PAPERS

The scientific aristocrats today are worried over long papers. They would prefer short papers in epigrams. The fewer the epigrams, the better. According to an Indian tradition, maximum effectiveness in communication is reached at the limiting point where "the eloquence of silence" is the medium. If this ideal could be reached, the service of scientific information will be like snakes in Iceland. Perhaps, such a communication may prevail in the world of men like gods, created by H G Wells. But will such a communication succeed in the field of science—in the mundane intellectual world?

#### 744 ALLERGY TO REPETITION OF PAPERS

Another trouble clogging the machine of storage and retrieval is the repetition of papers. To ease the impeding crises caused by this factor in scientific information, it is suggested that there should be a ban on such repetition. But, it must be remembered that repetition in several organs is necessary, since in many cases a single organ does not circulate it to all. Again, the languages of the world are many. There is therefore inevitable repetition in many languages. There does not, however, appear to be much allergy to this kind of repetition.



## 745 ALLERGY TO RE-TELLING

A more wide-spread aversion seems to be against the same idea being re-told in the same language. Banning of re-telling in varying styles and standards may not prove malefic, if all such re-telling stems from egotism. But it is not so. We have therefore to ask, "Are there valid reasons for such re-telling". The answer to this question will resolve this conflict. Some answer will be found in sections 72 and 73 of this chapter.

## 75 THE RIGHT APPROACH

The right approach to the problem of several versions of a document in several languages and in several levels of exposition is for the documentalist to choose the documents of the seminal and the research standards alone for inclusion in the documentation list. A whole librarian has his responsibility to persons in all levels—to the non-specialist as well as the specialist. No whole librarian will agree to a ban on re-telling at layman's standard and at elementary standard. Nor will he be true in his mission to socialise knowledge if he votes for the publication of a document in one and only periodical in a country and still less in the world.

## 76 NEGLECTED SECTOR

I had to point out to the Washington Conference mentioned in section 741 that it had totally neglected consideration of an important sector. I said, "This conference speaks of storage and retrieval. But little thought has been turned on the selection and rejection of documents at the stage of storing. Why? Is it because there is an overshadowing by the spirit of machine? Selection and rejection of documents, on the basis of the level to which they belong, demand judgement. Machinery may externalise our memory. They may recall what is stored. But they cannot exercise judgement of value, of style, of flair, of standard, or of any other intangible quality of a document. Because the machine cannot do this, it has mesmerised us from looking at this problem and facing it."

## 77 FINDING THE STANDARD

The decision about the standard of an article or a book is not easy. It cannot be totally objective. In regard to current books,

a method of deciding whether a standard is popular or too severe is being experimented upon by H W Wilson & Co for several years now. When I visited them in September 1950, I spent some time in finding out how they selected the title for their *Book review digest*. A permanent staff uses its own experience in making a preliminary selection. Proof-copies of the selection are sent to a large panel of public librarians for their vote to be marked against each item. The slugs for the entries are kept standing till the replies come. After the replies are collated, the slugs of the rejected entries are melted down, while those of the retained entries are struck off and preserved for the successive cumulative editions. This is said to work fairly well for a unilingual bibliography.

## 78 STAMPING BY NATIONAL BODIES

Can a national body—the National Academy of Sciences, if there is one—stamp the articles that should be included in documentation list for specialists?

### 8 Restriction by the Service Aimed at

**81 International documentation list**—A documentation list of more or less exhaustive international coverage of periodical publications and books.

The production of this list is bound to suffer from time-lag.

**82 National documentation list**—A documentation list suited to the exact requirements of the investigations, the industries, and the administrative and scientific work actually in progress within the nation, and confined to the publications produced or received in the country.

This selective list is produced to get over the time-lag of the exhaustive international documentation list. Since the latter involves time-lag in any case, it is found to be an advantage to make it of the abstracting variety. The main objective of the national documentation list being the bridging of the time-lag, it is expedient to make it a bare list. But, the time and energy needed to make it of the classified variety should be given to make it of maximum possible help to the users.

The national documentation list, in a classified form, will put the specialists on the alert and make them look up the new documents relevant to the work pursued by them, as soon as they are released or received in the country.

**83 Local documentation list**—Documentation list prepared in an individual library.

It is severely selective. It is turned exactly on the work in progress among the clientele. It is best confined to the resources available within the library.

**84 Anticipatory documentation list**—Documentation list on a specific topic anticipated to engage the attention of the members of the parent body.

*Example* : In a parliamentary library, on any legislative measure in contemplation. In a university library, on any topic forming the subject of discourse of a special course of lectures. In the United Nations Library, on any topic being brought into the agenda, say, of the Security Council.

**85 Documentation list on demand**—Documentation list prepared on demand by a particular individual.

The two latter species of lists are best done by local service libraries. For, an intimate knowledge of the needs of the clientele is essential for its preparation. It should certainly cover all the relevant materials in the collections locally available. It should also add other items. For this purpose, search in other libraries may become necessary. This will not, however, arise very often.

In some cases, it is best done by the local librarian visiting the other libraries and occasionally even libraries outside the locality.

In some cases, it may lead to national economy if the search is made by a national central agency. But the latter cannot get that intimate knowledge of the exact requirements of the reader as can be got by the local librarian in direct and frequent touch with him. Therefore, the topics, for which national central agency can prepare a documentation list on demand, will be small in number. In most topics, an economical arrangement will be for the local library to send a copy of the documentation list, prepared by itself, to the national central agency and for the latter to supplement it.

**86 Documentation periodical**—Documentation list produced periodically at any of the three levels, listing the documents appearing during the period covered, and without being selected to suit the requirements of a particular reader or of a specific topic under investigation. This is of the nature of a general appetiser. It endeavours to keep the clientele informed promptly of all the nascent thought created in their fields of work and related fields.

An alternative name is Bibliographical Periodical (*see* section 15 of this chapter).

## CHAPTER B4

### WHAT OF DOCUMENTATION SERVICE

**S R Ranganathan**

#### 1 Intensified Reference Service

Documentation Service is the name taken by Reference Service when the emphasis shifts from macro to nascent micro thought and from generalist to specialist reader. It is intensified reference service. Reference service in general is pin-pointed, exhaustive, expeditious service of the documents relevant to the pursuit of the subject engaging attention of the reader or a class of readers at the moment. This shows that documentation service is mostly long-range reference service. This is elaborately dealt with in the companion volume *Reference service* [R26]. We shall mention here only such features that are emphasised in documentation service. These features will figure differently in a local service-library and in a national or regional documentation centre.

#### 2 Local Service-Library for General Service

A local service-library may or may not have general service function. If it has, the frequency of the demand for documentation service will be both small and incident only at comfortable intervals. Moreover, such a library is not likely to have the obligation to do anticipatory documentation service. Nor will it have the obligation to take the responsibility of sending nascent documents—current issues of periodicals—to a reader's work table, collecting them back and sending them on to the next reader.

#### 3 Business or Research Library

On the other hand, a purely business or research library with usually a small number of specialist readers all belonging to its host body will have this kind of work as part of its documentation service. The circulation of the current issues of periodicals can be done by it in one of the following three ways:

1 Circular routing; 2 Radial routing; and 3 Supply on demand.

## 31 CIRCULAR ROUTEING

In the circular routeing, a circulation slip is stuck on the wrapper of the issue of a periodical. On it, are written in succession the names of the individuals and departments, which should have them for rapid perusal. Against the name of each user, the date on which it should be passed on to the next user is marked. There is also a general request at the top of the circulation slip that it should be so passed on. But the frequency of failure on the part of readers to do so and the duration of time for which it is held up by any one party, and even the frequency of complete forgetfulness in the matter are notorious. The library has to chase the periodical and make it move on as per time table. In doing so it has to sail between Scylla and Charybdis. The person sitting over the periodical frets and fumes, even at a gentle reminder. Perhaps, he has misplaced the periodical! In the meantime, the person next to him on the circulation list bitterly complains against the inefficiency of the library. Apart from this unfortunate situation, which cannot be escaped until a higher civic sense dawns on the specialist readers in business and research libraries, the library is unable to know the spot at which the issue had stuck up.

## 32 RADIAL ROUTEING

At least the last-mentioned difficulty can be eliminated by radial routeing. In this method each user should return the current issue back to the library. The library itself controls the movement and the location of issues by a simple "Book-Ticket, Reader's Ticket" charging method. But, knowing where an issue is stuck up is not equivalent to getting nascent documents sent out promptly to everyone entitled to it.

## 33 LOCAL DOCUMENTATION LIST

It is here that a local documentation list comes in handy. The library can issue such a list on a daily or weekly basis depending on its context. The list may contain the entries relevant to the context of the latest arrivals of the periodicals concerned, arranged alphabetically within broad subject headings. The instruction on the top of the list may require each user to send a requisition to the library for the item which he would like to look up. This may

preferably be requisitioned through the standard slips prescribed for asking for loan from the libraries. In this method, everybody knows simultaneously what new micro documents have arrived in the library. It is up to the enterprise of each user to take them out promptly. The library has a recognised method for dealing with simultaneous requests. Gate-crashing, if any, will be localised among the users and the librarian need not get crushed.

It is a paramount duty of the head of every business or research institution to implement the third method and thereby avert creation of bitterness, indignity, and sullenness.

#### **- 4 Procurement of Document**

To fulfil the Second Law of Library Science without going beyond its financial limits, every local service-library will have to procure now and then documents from other libraries for particular users. Naturally, it will try to borrow from another local library and failing that from some other library with the help of the national union catalogue of periodicals. But it may so happen that either the host periodical or the book concerned is not available in the country or even if available, the owning library regards it as risky to send it out. In this situation, it has to seek the help of the national documentation centre.

#### **5 National Documentation Centre**

While the national documentation centre is free from the function of circulating current periodicals, immediately on the receipt of arrival, it will have plenty to do in procuring periodicals by international library loan and then making and supplying photo reproductions of documents. This highlights two special forms taken by documentation service. The quantity of such service, the routine involved in it, and the responsibility going with it are illustrated in the case study pertaining to Insdoc' in parts H and J.

#### **6 Bibliographical Service**

A usual form of reference service is the furnishing of the bibliography or a documentation list on demand to a specialist or a class of specialists. Every local service-library will have to do it. From the point of view of finding out the exact requirements, it is in an advantageous position. But occasionally, it may have

the disadvantage of not having material—regular reading material or bibliographical tool—to render this kind of reference service. In such a case, it has to pass the burden on to a national documentation centre. The work of the national documentation centre in this respect is described in chapter H1.

#### 61 WRONG TREND 1

But unfortunately, a wrong trend is found in local service-library. Undue advantage is taken of the existence of the national documentation centre. A local service-library passes on to it every demand for bibliography without any exertion on its part. This is unfair. This is not the right use of the library grid of the country in the best national interest. This is a wrong trend. The only method of counter-acting it is for the national documentation centre to ask the local service-library to certify that the preparation of the bibliography requisitioned is truly beyond the local source-material.

#### 62 WRONG TREND 2

Individual readers apply to the national documentation centre for bibliography without contacting their local service-library. This is often done without thought. Occasionally, it is also done deliberately. A motive appears to be the gaining of a false prestige. It is believed by some readers that it adds to their prestige if they get bibliographies prepared by national documentation centre. In fact, there are instances of candidates of scientific and technological posts mentioning in their application the fact of their having procured bibliographies and documentation lists from national documentation centre, as additional qualification. The only method of counter-acting it is for the national documentation centre to insist on any request for bibliographical or documentation help to be sent through the local service-library. The local service-library should certify that the demand cannot be met with the local resources.

### 7 Charges for Documentation Service

Who is to bear the charges for the documentation service done by the national documentation centre? The answer is not simple. Perhaps, it will be more equitable if the transport charge of inter-

library loan is borne by the requisitioning party. But, it is certainly necessary for the cost of photo-reproductions of documents to be got from the requisitioning party. However, bibliographical service should be free. For the time being, Insdoc is not recovering the full cost of reproduction service. This is just an incentive to make a research scholar to cultivate the habit of using photo-reproductions without leaving their work incomplete for want of necessary documents. As the demand for the service increases, the overhead charges will be more widely distributed and the cost of supply will be within reasonable limits even without subsidy.



## CHAPTER B5

### WHAT AND WHY OF TRANSLATION SERVICE

**S R Ranganathan**

#### 1 Before World War I

Next to the increase in the quantity of the articles embodying nascent micro thought comes the increase in the languages of exposition. Till before World War I, only a few European languages were the dominant languages for scientific communication. The majority of the users of an article had one of these languages, as their mother tongue. In the case of most of the others the mother tongue was the language which was a near cousin to one of these languages. Further, the research workers were much smaller in number than today. Most of them were, naturally, persons of great ability who could learn two or three foreign languages. They had therefore ability to pick up thought in an article irrespective of the language of exposition.

#### 2 Present Trend

But today, the situation has changed. Several countries are now awakening after long periods of cultural exhaustion and suspension of research. Therefore, the number of languages of exposition of articles has considerably increased. Moreover, they belong to different sub-families or even families. Examples are Russian and other Slavonic languages, Japanese, and Chinese. There is every chance for Sanskritic, Semitic, and Dravidian languages figuring as media for exposition within the next decade or two. Further, the modern research team has to include intellectual groups of further removes from genius than in the past. It is not at all economical to make every research worker learn many languages, so that he can do his own translation. It would dissipate the time and energy of the potential research worker and minimise the chance for him to become an active research worker. For an equal reason, it is improper to ask the librarian or documentalist to learn several languages and play the role of the translator. No doubt, thirty years ago, when the librarian was expected to be little

more than a custodian of books, without the function of documentation, it was common to insist on the capacity to translate from several languages as an essential qualification for a librarian. But today, the art of documentation is an exacting and specialised job calling for a concurrent research of its own. It is hardly possible to produce a linguist-cum-documentalist.

### 3 Division of Labour

A new division of labour has now become necessary. Conservation of research man-power and documentation man-power for its respective distinctive items of work has become necessary. Therefore, there is need for a public organisation for translation of articles on demand. Some countries have begun to publish abstracts of foreign articles in their own languages. This is translation in anticipation at its incipient stage. A more full-fledged translation in anticipation is to publish translations of whole foreign periodicals in the language wanted. For example, USSR publishes Russian translations of about 90 periodicals. Similarly, English-speaking countries publish translations of about 90 Russian periodicals.

### 4 Organisation for Translation

The organisation for translation of articles on demand is difficult. The difficulty is due to the number of languages from which translation has to be made. In the case of a few languages, there may be a continuous flow of demand to make it worth-while to have a permanent staff of translators. The permanent staff can only be maintained to meet the minimum level of continuous flow of demand. On occasions, when the demand is greater, the excess has to be got done by parttime translators. Then part of the time of the permanent staff has to be diverted to edit the translations done by outsiders. In most languages, the demand is too small and discontinuous to have a full-time staff. Part-time staff has to be drawn from a panel.

The differential demand made on Insdoc for translations from various languages is given in section K26.

### 5 Need for Editing

The need for revision and editing of a translation done by a panel member is made necessary by the scientific jargon in each subject being different from the commonly used language. In the past,

a few specialised technical dictionaries proved to be sufficient tools. But, the position has changed today. There is now specialisation in an enormous number of subject-fields creating an equal number of specialised jargons in a language. Each special field has its own special equivalent for a term in foreign language which has different meanings in several other contexts. In the circumstances, the translator of a scientific and technical article frequently finds himself in the position of a watch-maker left only with a hammer and a chisel for his precision work. There is another complication. A learned article is sought by a specialist because of its containing some new ideas in their nascent state. A new idea implies that it has no term to denote it. Therefore, the creator of the new idea has to improvise his own jargon to denote it. Such new terms in the jargon of a subject cannot be found in a published technical dictionary in the field. This leads us to a difficult result. Translation service, forming part of documentation, requires a scientist-cum-linguist for each combination of subject-language-pair. This finding of theory is inexorable. But in practice, such a specialist has not evolved to devote full time to and to specialise in translation service. The situation will be even worse in the social sciences because of the overtones and the undertones going with the terms current in these sciences. In this situation, it is essential to provide for the revision and editing, by a second person, of the work done by the translator. This, naturally, increases time-lag and cost. The difficulty experienced by Insdoc in this matter is described in chapter K3.

## 6 Cost of Translation

The Insdoc schedule of payment for the outside translators is given in section K233. But the amount charged from the reader is at the rate of Rs 3/- per page irrespective of the language of the original article. This low rate is fixed for the time being so as to stimulate in our research workers the habit of acquainting themselves with literature in languages other than English.

## 7 Translation Bank

It is but common sense that a copy of every piece of translation done on a particular demand should be preserved. This may save the work of the translator when a later demand comes for it. This

is now being done in several countries. For all practical purposes, the file of translations in national documentation centres can be regarded as a common translation bank to be drawn from. In USA, the Office of the Technical Services of the Department of Commerce collects and stores translations from all governmental agencies, national and foreign. The Special Libraries Association does similarly for all non-governmental agencies. Under the 1948 Amendment to the Agricultural Trade Development and Assistance Act, about five million rupees are being appropriated for expenditure in India, Indonesia, Israel, Finland, Poland, and Yugoslavia on the procurement of locally made English translations.

### 8 Union Catalogue of Translation

To facilitate drawing from a translation bank, a periodical list of accession should be published. For this purpose, the Special Libraries Association of USA had been publishing the *Translation monthly*. In 1959, it was succeeded by the *Technical translations* published by the Office of Technical Services of Department of Commerce. Such a list is also issued in cards cooperatively for the countries of our Commonwealth, by the British Commonwealth Scientific Organisation (=BCSO).

#### 81 INDIA

The fortnightly *Insdoc list* includes the titles of translations made in India and Australia. Chapter K4 deals with the deposit of the accession cards supplied by the BCSO.

## CHAPTER B6

### WHY OF DOCUMENTATION

**S R Ranganathan**

#### 1 Research

##### 11 SPONTANEOUS RESEARCH IN THE PAST

About a century ago, research was largely spontaneous. It resulted from the inner urge in a few isolated men of genius. Its correlation with social needs or social pressure was remote, slight, and invisible. The application of the results of research to economic ends and social well-being was deferred, slow, and casual.

##### 12 PLANNED RESEARCH TODAY

Today, the imbalance, between increasing population pressure on the one side and the production of natural and near-natural commodities on the other side, is necessitating :

- 1 Intensification of the production of the natural and near-natural commodities;
- 2 Production of the commodities from out of the raw materials not fit for direct consumption or use; and
- 3 Production of artificial commodities.

Further, the unequal and uncorrelated distribution of population, raw materials, power sources, and of industrial centres on the surface of the earth, calls for continuous large-scale transport of materials and men within each country and across the entire surface of the earth. In other words, planned industrialisation within a country and even in the world as a whole has become a universal necessity. Planned industrialisation calls for planned research in the fundamental sciences, technologies, transport, and management. Dependence on spontaneous unplanned research by stray men is no longer sufficient.

##### 13 TEAM RESEARCH TODAY

Today, it has become necessary to organise team research—certainly on the national level and even on the international level.

The team has to include men of various removes, on intellectual and creative scale, from the men of genius. There has to be holistic division of labour among the members of such a heterogeneous team, so that each can contribute his best to the sum total of research output. This division has marked out documentation as one of the sectors for assignment to a new class of specialists.

#### 14 PAYMENT FOR RESEARCH

In the past, research was often a work of joy and private enterprise, not based on profit or even remuneration. Today, on the other hand, the industrial enterprises find it profitable and necessary to pay for research, including the sector of documentation. This allotment for research has been continuously increasing. There are figures available readily for USA [H1]. The industries of that country have been stepping up their research expenditure as follows :

<i>Expenditure in Millions of Rupees in</i>		
1930	1947	1953
500	2,000	6,000

The governments have now entered the field. They have found the necessity of setting up permanent teams of research including documentation for both defence and peace-time development purposes. Indeed, government is now the largest single business enterprise in each country. They now bear the largest percentage of the cost of research including documentation. The shift in the proportion of the cost of research has been as follows in USA [A1] :

<i>Agency</i>	<i>Before World War II</i>	<i>In 1953</i>
University	5%	5%
Industries	60%	40%
Government	35%	55%

The annual expenditure for research, from all sources, is now Rs 13,000 million in USA and Rs 40 million in India.

## 15 INDUSTRY-WISE PAYMENT FOR RESEARCH

There is some informal division of the universe of knowledge among the diverse research teams. The proportion of the sum set apart for research in the different fields of knowledge is not the same. The following table gives the percentage of the sale proceeds set apart for research by the industries in the different fields in USA [H2] :

<i>Field of Research</i>	<i>Percentage of sale proceeds set apart for research</i>
1 Instruments and precision products	3.34
2 Electrical machinery and equipment	2.80
3 Printing trade	2.55
4 Miscellaneous	2.25
5 Transport equipment	2.04
6 Chemical products	1.83
7 Non-electrical machinery	1.67
8 Apparel	1.65
9 Fabricated metal products	1.64
10 Rubber products	1.36
11 Food and beverages	1.15
12 Stone and ceramic products	1.11
13 Textile products	0.95
14 Petroleum and coal products	0.74
15 Paper and allied products	0.72
16 Primary metal industry	0.64
17 Lumber and wood products	0.57
18 Furniture and fittings	0.50
19 Leather and its products	0.44

2 **Communication Problem**

## 21 IN THE PAST

About a century ago, the research output was small. Its consumers were small in number. Moreover, those few consumers were largely self-helpers. About a thousand learned periodicals proved sufficient for the communication of the research output.

The number of learned articles published in a year was of the order of 20,000 only.

## 22 TODAY

Today, the planned research under social pressure has enormously increased the quantity of research output. The number of learned articles published in a year is of the order of 1,200,000. About 50,000 learned periodicals prove insufficient today. This down-pour of new micro thought and micro documents creates by itself problems in storage, retrieval, and service. Further, most of the members of the research team are not self-helpers. They are in need of the stimulus created by knowing the work done by others. This stimulus has to depend on—documentation work, documentation service, reproduction service, and translation service—that is, on documentation.

### 3 Documentation Problem

#### 31 DISSIPATION OF RESEARCH POTENTIAL

Today, the research potential of each nation and the world at large should be conserved with the least dissipation. Unintended repetition of the pursuit of the same problem should be eliminated. A methodology developed in one sector of knowledge should be made available to the workers in every other sector where it may be applicable, in order to eliminate repetition in designing the same methodology. Recently, instances have come to notice of the loss of several millions of rupees due to a useful recorded result not having been known till it was too late.

#### 32 SEEPAGE OF MICRO DOCUMENTS

A realistic picture of the physical strain and the risk of missing involved in spotting out all the relevant micro documents on a particular topic and the extent of their scatter among periodicals in subject-fields of different and unanticipatable removes from the umbral subject-field can be had from the findings [B3] in the next section.



## 321 APPLIED GEOPHYSICS

The accompanying table gives the information about the seepage of micro documents in applied geophysics during the four years 1928-31.

<i>Number of periodicals</i>		<i>Number of articles contained in a single periodical</i>	
<i>Cumulative</i>	<i>Actual</i>	<i>Actual</i>	<i>Cumulative</i>
1	1	93	93
2	1	86	179
3	1	56	235
4	1	48	283
5	1	46	329
6	1	35	364
7	1	28	392
8	1	20	412
9	1	17	429
13	4	16	493
14	1	15	508
19	5	14	578
20	1	12	590
22	2	11	612
27	5	10	662
30	3	9	689
38	8	8	753
45	7	7	802
56	11	6	868
68	12	5	928
85	17	4	996
108	23	3	1,065
157	49	2	1,163
326	169	1	1,332

- Note:*
- 1 Half of the articles are concentrated in 27 periodicals.
  - 2 The other half is dissipated among roughly 300 periodicals.
  - 3 Nearly a fourth of the articles are scattered among 169 periodicals each of which carries only one article on the

subject during the entire period of four years. These are likely to be missed by a busy research worker.

- 4 Nearly one-eighth of the articles are scattered among 49 periodicals each of which carries only two articles on the subject, during the entire period of four years. These, too, are likely to be missed by a busy research worker, and so on.

### 33 CONSERVATION OF RESEARCH POTENTIAL

A careful conservation of research potential is now a social necessity. For this conservation, the nascent thought—usually micro thought embodied in learned periodicals and even documents unpublished—should be promptly ploughed back into the right minds. This plough-back has three phases, prior to a research worker studying in detail any article selected as relevant to his work. The phases are:

- 1 General browsing;
- 2 Locating the more or less relevant articles, exhaustively and expeditiously; and
- 3 Knowing the gist of the relevant articles, in order to select the ones needing detailed study.

### 34 GENERAL BROWSING

The psychology of intellectual stimulus in adults is little known. There is no knowing which article can stimulate whom at what time in what way. Therefore, facility should be provided to the members of all research teams to glance through the articles being currently published. But, today the number of articles published in a year is of the order of 1,200,000, as stated in section 22. This means that a person should glance through an average of 20,000 articles in a week, in order to cover the output of a year. This would involve the physical labour of merely turning through at least 100,000 leaves per week. This will involve waste of too much of the time of the research worker. The avoidance of this calls for a prior reduction in the number of titles of articles to be browsed by a reader.

### 35 REDUCTION OF CHUNKS OF LEAVES

This prior reduction can be made as follows. For definiteness

let us assume, without loss of generality, that out of the 20,000 articles of each week,

- 1 The umbral region of his interest covers only 100 articles;
- 2 The various penumbral regions of first remove cover only 250 articles; and
- 3 The various penumbral regions of further removes cover only 250 articles.

#### 4 **Operational Research on Dissipation of Research Potential**

##### 41 IN CHEMISTRY

The National Science Foundation of USA recently set up a two-year study of the utilisation of chemical-research-man-power. The Operational Research Group of the Case Institute of Technology was in charge of this study [C1]. Here is a summary of its results:

1 Research chemists observed	1,500
2 Industrial houses of observation	45
3 Universities of observation	5
4 Time of browsing, picking up, and reading articles	more than 50%
5 All the other scientific activities combined	less than 50%
6 Amount of published articles read	0.5%
7 Study for general information	50%
8 Study for specific use in the research-in-progress	50%
9 Locus of half the reading	9 periodicals only

#### 5 **Prevention**

This is certainly an uneconomic use of the time of a research worker. Something must be done to release more of his time for actual research. This is the business of documentation.

Investigation should be made of the effect, on all these figures, of the service of :

- 1 Well-prepared documentation list for browsing;
- 2 Abstracts for the articles marked as deserving of study; and
- 3 Producing the articles marked for detailed study after perusal of the abstracts. Confinement to 9 periodicals only would

have been obviated if the chemists had been furnished with a well-classified, well-featured, periodical documentation list of articles published in all the periodicals—including those in the fringe of chemistry but carrying articles of chemical interest.

The advantage of this is examined in greater detail in chapter L3. To get the best result out of abstracting and documentation, it should use a powerful scheme of classification coupled with an equally powerful catalogue code.

#### 51 FIRST FORMULATION ON CLASSIFICATION AND CATALOGUING

The Royal Society Scientific Information Conference, held in London in 1948, stressed the need for an improved classification and alphabetical arrangement and made the following recommendation—"The Royal Society is invited to consider the constitution, through existing organisations or otherwise, of a standing committee on subject classification in science. It is suggested that alphabetical arrangement should come within the terms of reference."

#### 52 FID COMMITTEE

At its Rome meeting in 1950 the International Federation for Documentation appointed a Committee on the General Theory of Classification. I was made its Chairman. Eleven reports have been made by me till now. Each report cleared up some problem and suggested for investigation further problems laid bare by that very clearance. The FID has also charge of the particular scheme UDC.

### 6 Monetary Measure of Appreciation of Why

Apart from these theoretical considerations, it is worth-while to note the trend in the investment on documentation. It is now, generally, accepted that not less than 5% of the amount set apart for research by a nation should be spent on documentation, if the rest of the amount is to bring a full return. Some industries set apart even 10%. This is a measure of the appreciation of the value of documentation by discerning business enterprises.



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**Acknowledgments:** SRELS (A. Neelameghan, K.N. Prasad, K.S.  
Raghavan, DRTC) and dLIST Advisory Board Member, S. Arunachalam  
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