

DOCUMENTATION IN PERSPECTIVE

(DOCUMENTATION IN MANY LANDS, 9)

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Reviews Documentation and its facets*. Lays bare the misconception, sometime current, that library science and documentation are disciplines exclusive of each other. Traces briefly the history of document bibliography, analyses the apparent schism between the two professions towards the end of the nineteenth century, and indicates their present identity of objectives in serving the scholar. Documentation is viewed as a result and as a necessary product of social pressure. It is a necessary concomitant to the division of labour between the users of documents and the library profession. The training of documentalists, - where, in what manner, and to how many in the country - is discussed. Points out that in recent years there has been a rethinking on the capabilities of mechanised document retrieval, and that the organisation of the thought contents of documents in a helpful filiation sequence is an intellectual process not amenable to automation within economic limits. Standards of terminology and other standards of interest to documentalists are mentioned. The development of documentation in India and its present practice in Madras are reviewed. Discusses the suggested plan for the expansion of documentation work, service, and research in India in particular and the world in general. Concludes with an

evaluation of the symposium as a contribution to the literature on documentation.

0 INTRODUCTION

It appears, prima facie, in the fitness of things that this voluminous document on a subject currently engaging the attention of so many librarians and others concerned with the dissemination of recorded thought in different parts of the world, should have been contributed by India. For, this country has already given to the world of library science the basic laws of library science, and new and rational theories and practices in classification and cataloguing. All the same, it is ironical that this is so. For, high level, effective, and commendable library service is to be found only in patches in the country. Library service in the country as a whole is yet to reach up to such a level.

01 Objectives

The overall pattern emerging from the grouping of the 70 papers of this symposium is as follows: A dip into the historical de-

* Ranganathan (S R), Ed. Documentation and its facets. Being a symposium of seventy papers by thirty-two authors. 1963. Asia Publishing House. (Ranganathan series in library science, 10).

velopment of documentation, a detailed description of its present practice in a national documentation centre in India, and a peep into the future of the subject. In painting the picture in this fashion, the following objectives have been achieved in a greater or lesser degree:

- 1 To dispel certain misconceptions about documentation;
- 2 To view documentation as a result and as a necessary product of social pressure;
- 3 To evolve a terminology of the subject;
- 4 To provide a practical manual on documentation;
- 5 Incidentally, indicate the lines of co-operation in the organization of the country's library resources for better bibliographical service; and
- 6 To spell out certain lines of fruitful developments and research in the subject consistent with the country's needs, and economic feasibility.

1 DOCUMENTATION AND LIBRARY SCIENCE

11 Change in Parameters

The first misconception which is dispelled is the idea, sometime current, that documentation is something alien to library work. The question is clinched by substantiating that the Laws of Library Science are equally valid in every facet of documentation. A clear definition of the term is given such that the work falling to the share of the library profession is clearly mapped out and the confusion with the work of the other professions such as the information officer and data specialist is laid bare. At the same time, the close relation and point of contact with those areas of work are also indicated. The universe of documentation concerns itself primarily with micro-documents and specialist readers, while the older practices in library were mainly concerned with macro-documents and generalist readers. When the change in the two parameters -- document and reader -- is recognized, then the Laws of Library Science

can be seen to comprehend the different situation. In the context of the documentalist, the Laws read as:

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

12 Library Service includes Documentation

Library service began with service to the scholar. After shifts and changes in emphasis through the centuries, it is again emphasis on service to the scholar, only with greater intensity. A historical approach also indicates that until about the latter half of the nineteenth century, the very purpose and philosophy of librarianship included documentation in action.

13 History of Documentation Work

The term 'documentation' in its technical connotation was introduced in the library field by such pioneers as Paul Otlet and Henri La Fontaine about the end of the nineteenth century. The areas of documentation which fall to the share of the library profession are indicated as documentation work, documentation service, and abstracting work. Arranging to obtain copies or reprographs and of translations of documents required by the readers are other necessary auxiliary functions of the documentalist. Documentation work is identified with the work of preparing a documentation list. The term 'documentation list' is only a new name for the older term 'bibliography'. But emphasis is placed on the inclusion of nascent micro -- documents and the needs of specialist readers -- a research worker, a business man, or an administrator. The techniques of organization of reading materials and the preparation of bibliographies for the use of specialists are not altogether new to librarians. They can be traced to the sixteenth century if not earlier.

131 Sixteenth Century

The sixteenth century marks the advent of true subject bibliographies. Printing from movable types multiplied the records of human thought and experience. Learning and education spread. The need for systematisation of the documents to facilitate their use resulted in libraries organising their growing collection--classification of the documents in greater detail and supplementing it with catalogues and subject bibliographies. The book-sellers and auctioneers were among the first to feel the need for organising and listing their wares. Considered as lists of publications from a place, or on a subject, or by an author, these sale catalogues were the forerunners of modern national and subject bibliographies. In these developments, we note the evolution of techniques of classification, cataloguing, and bibliographical organization, the same techniques on which effective documentation depends.

132 Seventeenth Century

The seventeenth century was a period of significant intellectual achievements and growth of the sciences and the arts. These were paralleled by the achievements of bibliographers. To quote just one example of a bibliography prepared for the use of specialists, we may consider the *Bibliotheca realis universalis* (1679-85) by Martinus Lipenius. It had most of the elements of a modern bibliography. The entries were arranged by subjects. The authors were listed alphabetically by surname. An index to the authors, compilers, commentators, etc was provided. To resolve homonyms, the authors were identified by the place of birth or profession. Composite works were analysed. Cross references were provided from subject headings not used to those used, and from forms of names of authors not used to those used. For convenience of the users, the bibliography was printed in two columns in large quarto size. Letter guides were provided at the head of each column to indicate what was included in the column. Subject headings were given in the middle in all capitals, and the author's name was set off in italics. Although

Lipenius did not include articles from periodicals which were just then coming up, in the revision of the bibliography seven years later by Merklin, society transactions were included.

133 Rise of Periodicals

The seeds of the difficulties which the documentalist is facing today was seen even in the seventeenth century. This was the advent of the learned periodicals in 1665 -- a boon to the researcher of that period, but a menace to the scientist and documentalist of today.

134 Abstracts and Digests

With the formation of scientific societies and the rapid developments in research, particularly experimental research, more persons came to be engaged in scientific work. The researchers were seeking a medium for exchange of views and publication of results of their work. Therefore, the periodical was just the thing they wanted. There was no more need for the researcher to wait until he had collected material sufficient for a book or a tract. Shorter communications, regular publication at specified intervals, wide dissemination of information among peers, and a larger number of people contributing to the pool of knowledge became possible. Literature in languages other than Latin came up. Methods of teaching changed. The new trend was to compare with new reports rather than mere dependence on the writings of one person. It became increasingly difficult either to document or to study even a small proportion of the growing number of documents. This led to the compilation of guides, digests, and abstracts for students; compilation of critical bibliographies with annotations, abstracts, and the marking of important papers as an aid to the selection of items for perusal; and above all, the restriction of the coverage of bibliographies by space, time, subject, or a combination of any of these characteristics. Other interesting developments were the publication of supplements to retrospective bibliographies, or the publication of the bibliography as a serial, with a

view to keep up with the growing number of documents. It was also realised that information pertinent to a subject gets scattered in many sources some of them apparently unrelated.

135 German Abstracting Plan

Among the earliest of the abstracting periodicals in science was the Pharmaceutisches centralblatt (1830-) continued down today by Chemisches centralblatt. This apparently fulfilled a great need for in 1834 came out Schmidt's Jahrbuecher der in- und auslaendischen gesaemten medizln, which ran into 336 volumes until 1922. Since the 1850s, many abstracting and indexing periodicals have come into existence and there are now an estimated 3,500 of them for the sciences. Till about World War II, the German abstracting periodicals were among the foremost in the field. One reason was that the typical German abstracting plan consisted of three kinds of periodicals giving full coverage of the documents. A Zentralblatt or Berichte is a frequently published periodical containing good classified abstracts of documents. It is provided with detailed subject and author indexes. An index to this periodical is published yearly and often called Jahrbuch or Jahresberichte. It listed all the documents, some with annotations and some referring to the original entries in the Zentralblatt or Berichte. The third part of the system consisted of a narrative bibliography or review called Ergebnisse containing reviews or literature trend report of some important topics in the subject with extensive bibliographies.

136 Developments in Library Practices

The increase in the number of documents particularly in science and technology called for the development of adequate techniques and library practices for better use of these records. Therefore, from about the middle of the nineteenth century, there were rapid developments in library practices in general and library techniques in particular. For instance, the British Museum Cataloguing rules were drawn up in 1841; library associations were formed from about 1850 onwards; conferences for

the exchange of ideas and advancement of the profession were organized; library acts were passed; and union catalogues were prepared. Dewey published his Decimal Classification in 1876; then came Cutter's Rules and his Expansive Classification, the LC's Classification scheme and its distribution of printed catalogue cards. All these developments for bibliographical organization were considered nothing alien to library work. Even the subject analysis and the compilation of indexes to periodical publications (e.g. Pooler's Index) were considered to be within the scope of library work. However, about the end of the nineteenth century, some of these methods of bibliographical organization were not followed up as part of library practice. The reasons for this may be traced to certain social changes.

137 Changes in Library Objectives

Mercantalism has gained considerable strength; democracies were coming up on the Continent and the U. S. A.; many changes were brought about by the industrial revolution in England. The resultant of these forces was the emphasis on mass or universal education as the key to social progress. The library, as a social institution, had to follow the society's new enthusiasm. The primary functions became providing help to self-education, the harnessing of leisure time, help to make democracy safer, the promotion of economic awareness, and international amity, among generalist readers. With this change in emphasis, the objectives and techniques of library work developed in the earlier years were left off by librarians to be taken up by others, often by subject specialists and non-librarians.

138 Science and Society

Further, science began to emerge as a decisive force controlling the advancement of society, influencing every aspect of life. Access to scientific information became necessary not only to scientists and technologists but also to governments, group leaders, and managers.

139 Failure of Classical Techniques

The conventional book as a source of information receded into the background and its place was taken up by articles in periodicals, reports, data sheets, factory manuals, etc. Splitting up of science into sub-specialties and the spiralling growth of scientific documents made extensive coverage of these documents difficult and intensive coverage of the subject important. Yet the very nature of science necessitated the recognition of the interrelation between the specialities and influence of the advances in one field on the practice of another. It was at this stage that the classical library techniques of classification and cataloguing based on the whole book as the unit broke down in dealing with micro-thought. Thus began the schism between library science and documentation.

14 Nineteenth Century

141 Cooperative Bibliography

Efforts at bibliographical control of scientific documents through the preparation of extensive bibliographies were continued. The nineteenth century was a transitional period. The first half marked the gradual decline of the golden age of individual bibliographers and in the second half the production of bibliographies became a co-operative effort--a change from the hand-tool to factory scale production. It was characterised by the need for larger capital investment, the hiring of workers who work under the direction of a few men who lay down the policy, and together they achieve more than can be done individually. Faced with the complexities of scientific information, the Royal Society's Catalogue of scientific papers, a project initiated by Joseph Henry, the Secretary of the Smithsonian Institution, and the later International catalogue of scientific literature, were heroic efforts. As pointed out in the book, these efforts failed after a few years mainly because of the high cost of production as a result of the increase in the number of documents. It was no more possible just to depend on the resources of a single institution or on voluntary donations. Secondly, there was also a need

for a qualitative change in the indexing techniques. The Royal Society was employing low skilled indexers who were not competent to deal with the micro-documents and the newly emerging subject fields.

142 Index Catalogue

John Shaw Billing's drew a lesson in the failure of the Royal Society's projects. Back in the Library of the Surgeon General's Office of the U. S. Army, he decided on a monumental retrospective bibliography for medicine covering up to a certain period and to keep the bibliography up-to-date with a periodical documentation list. The result was the Index catalogue of the Library of the Surgeon General's Office, U. S. Army, and the Quarterly cumulative index medicus. The latter was taken up by the American Medical Association. The Army Medical Library (now the National Library of Medicine) began the Current list of medical literature in 1941, expanded its scope in 1950 and changed the title to Index medicus in 1960.

15 Change in Concept of the Library

While these events were happening in the bibliographical front, the concept about the library has been undergoing gradual change. To achieve its primary objective, and to serve its clientele adequately, open access and reference service became the most effective techniques of the librarian. With the growth of specialist libraries, and special subject collections even in the public libraries, intimate contact with the individual users to know their requirements of the moment became essential. To meet these requirements, detailed analysis, adequate organization, and new methods of dissemination of information contained in the documents, became prerequisites. This brought into the library field certain specialist librarians--the documentalists--who had a good subject background and a thorough knowledge of the techniques of bibliography. Thus, in documentation work, with its emphasis on service to the scholar or the researcher, library work finds certain identity of objectives and

techniques with the bibliographer. Thus the cleavage between the two professions which appeared about the latter half of the nineteenth century was only an apparent surface phenomenon, and not any deep rooted difference.

16 Further Attempts to Organise Bibliography Internationally

Despite the failure of the two large scale bibliographical enterprises, attempts to organise bibliography internationally continued. The Brussels Institute, the Concilium bibliographicum, the International Institute of Intellectual Cooperation the League of Nations, the FID, and IFLA, are landmarks in this story.

2 DOCUMENTATION AND NATIONAL DEVELOPMENT

National development depends on the efficient utilization of past experiences. This implies that the records of thought and experience should be made available at the right time to those individuals and groups who can use the information contained in them as the basis for new achievements. Since World War II there has been tremendous developments in the sciences. The output of microdocuments has been doubling every ten years; it is becoming unmanageable. All the same the need for proper bibliographical organisation of the documents has become all the more greater.

21 Social Pressure

Each one of us is experiencing social pressure in the form of population pressure. Natural resources are inadequately and unevenly distributed with respect to population concentration. But man, basing his calculations on the past achievements of science and technology, expects to convert near-natural and artificial commodities into consumable commodities in order to feed, clothe, shelter, and transport the teeming millions. This places a great responsibility on the scientist and the technologist. They have to be more productive.

22 Productivity

Productivity demands the efficient utilisation of all kinds of resources -- princi-

pally human resources, natural resources, and the thought resources of science and technology. Human resources we have in plenty but they have to be more efficiently utilised. In material resources we are trying to harness the available, and science and technology can provide more.

Advances in technology depends on applied research. Applied research, in turn, depends on fundamental research. These links in the chain only emphasise the fact that there are now more and more people engaged in research and development and that they are adding more and more documents to the already overflowing pool.

23 Team Research

Today's society expects science to deliver the goods quickly. Its demands are so pressing that it cannot depend on the sporadic though at times outstanding, contributions of a few men of genius alone. Research itself has to be scientifically managed to avoid any waste of human efforts and talents. In this perspective directed cooperative team research is the more effective form of research management. Other factors also favour the team approach. The disciplines, though broken into specialities and sub-specialities, are so intermingled that advances in one have repercussions and applications in another, sometimes apparently unrelated field. As a corollary, a fair proportion of the information on a subject are found seeped in documents on a variety of other subjects. Further, the fast expanding horizon of science makes it possible, even for the best scientists, to see only up to a distance. He can know but a small fraction of even of his specialised field of interest.

24 Division of Labour

While it is impracticable to stem the rising tide of documents, the waters must at least be properly channelised, if we are to avoid unexpected and unintended duplication of research and development efforts. How can we achieve this? It needs the knowledge of the subjects and knowledge of the techniques of the proper organization of the documents to ensure adequate utilisation.

tion of the thought embodied in them. The scientist, of course, knows the subject best. But we do not have sufficient number of scientists to carry out the essential and urgent research and development work. The research potential of the country has to be carefully conserved. Further, the organisation of the documents and their service is now a highly specialised discipline requiring as much talent, capacity, intensive specialised training and research as needed to do good scientific research and development work. Hence there is need for a division of labour. The scientist is to be freed of the job of hunting and keeping up with all the current information on his subject by the documentalist. This is the why, the what, and the social background of documentation.

3 NATIONAL DOCUMENTATION CENTRES

31 Establishment

Two points emerge from the discussions in the preceding paragraphs. To develop documentation at the national level requires large capital and the technical know-how. Documentation being a vital link in the chain of activities helping the country's development, it has become the concern of such bodies as the Unesco. In the last decade the specialised agencies of the United Nations and more particularly the Unesco, has provided financial aid and expert advice for the establishment of national documentation centres in several countries in South and South-east Asia, the Middle East, and South America. As a continuation of the earlier efforts to organise bibliography internationally, it is hoped that when national bibliographies come into existence in all the regions of the globe, taken together they may form the nearest approximation to a universal bibliography.

32 Training of Documentalists

The second point which emerges is the question of the qualifications and training of a documentalist. Is he to be a mere subject specialist, or one merely trained in library techniques, or a gadget engineer, or a translator, or one versed in repro-

graphic methods? The problem naturally arose at the time of selecting personnel to staff the Inadoc when it was established in 1952 with Unesco aid as the first pilot national documentation centre in South-east Asia. Initially it was necessary to select those who have had at least library training and experience. They were given in-service training in foreign documentation centres. Other personnel received guidance from them and from the experts provided by Unesco. Then subject specialists were recruited and given in-service training in Inadoc. The book discusses the question. The solution proffered is that a documentalist should have a fairly wide subject background and a thorough knowledge of library techniques such as classification, cataloguing, and intensive reference service. One who is able to facet analyse the reader's mind and match those facets with the facet-analysed arrangement of documents would be the most successful documentalist. The content of the course for a documentalist is also outlined.

4 CENTRE FOR RESEARCH AND TRAINING IN DOCUMENTATION

The question arises as to where, in what manner, and to how many in the country is this training to be imparted. Good educational techniques demand that the teacher-pupil ratio in a post-graduate and research course should not be higher than 1:5. Statesmanship demands that there should not be an oversupply of highly trained personnel with inadequate employment. Based on these considerations and the availability of teaching personnel, only one national training centre is recommended at present, but regional centres may be established in due course as the situation warrants.

41 D R T C

The International Congress of Libraries and Documentation Centres (Brussels, 1955) recommended the formation of special groups at higher technical establishments to train documentalists. Even as early as 1950, Prof P C Mahalanobis, Director, Indian Statistical Institute, while working

out the Second Five Year Plan, saw the need for effective documentation as an essential concomitant to national development. He requested Dr Ranganathan to establish such a centre in India. But at that time it was felt that India was not ripe for it. Again in 1956, Prof Mahalanobis renewed the request. In 1960 as a member of the Working Party of Scientists, Dr Ranganathan felt that the time had almost come for that institute. Since then many new laboratories and industries have come into existence in India. Documentation should be an essential service in the libraries attached to them. This need combined with the difficulties experienced by Inadoc in recruiting well trained documentalists, placed the question in bold relief. Since the writing of the book has been completed an all-India Documentation Research and Training Centre has been established in Bangalore.

5 MECHANIZED DOCUMENT RETRIEVAL 51 Viability

To readers accustomed to finding a great deal about 'mechanised information retrieval' in current writings on documentation may find this book severely silent on this subject. The reasons for this silence may be summarised as follows. While the speed of the machine is welcome in handling routine and repetitive work, its efficacy in dealing with the intellectual problems such as subject analysis and categorisation, is yet to be established. Further the viability of mechanised document retrieval taking into account the total economy of the system, that is at the input as well as at the output stages, is to be fully investigated. And such studies have to be made on the conventional systems of document retrieval and the results compared, basing the comparison on appropriate experimental designs and criteria for evaluation. In the Aslib-Cranfield project a beginning has been made in this direction. User reaction to speed and different methods of presentation of information are other important factors for consideration in this connection. The Case Institute of Technology operational research study, Columbia University Social

Science survey, Saul Herner and Company's investigations, the evaluation of Western Reserve metallurgical information service, and other similar studies sponsored by the National Science Foundation of the United States, provide useful information. When we have more factual data from appropriately designed studies it may be possible to make more firm assertions as to the viability and place of hardware in document retrieval.

52 Three Lines of Approaches 521 Concentrate on input

As the situation obtains today, there appears to be three lines of thinking in subject analysis and categorisation, an essential element in any document retrieval system. One school of thought considers subject analysis of documents as the most important aspect of the system, and the better it is done the output or search cost would be proportionately reduced and the documents retrieved will have greater relevance to the user's needs. This line of thinking is exemplified by Chemical abstracts Index, and the Indian school which suggests depth classification and facet analysis of the document as well as the reader's queries.

522 Concentrate on Retrieval

At the other extreme we have the protagonists who point out that subject analysis of documents and categorisation are the costliest stages in the whole system. Yet after complete analysis of all the documents in the collection, only a small percentage of the documents get used. They suggest concentration of efforts at the retrieval stage. This line of thinking is exemplified by uniform Indexing and KWIC Index. Here no time-consuming human decisions are involved in the analysis of the documents. They further argue that if there are shortcomings in the analysis, the specialist user knows about them and, therefore, can make necessary adjustments in his line of approach.

523 Best of both Worlds

The third group tries to make the best of both worlds -- a combination of adequate

indexing based on a carefully drawn up specialised vocabulary for narrow subject fields, with the high speed of mechanical handling.

53 Return to Classification

Which of the approaches will be most fruitful and at what levels - international, national, or local - will each one be viable, can be clear only after several comparative studies, as mentioned earlier, have been made. However, after a decade of some experience with hardware, it is beginning to be realised that the machine is no panacea for all the ills of the information problem, that it can give only to the extent and at a terrific speed what has been put into it, and that the intellectual process of efficient subject analysis cannot be economically supplanted by automation. To quote one current approach to this subject even in the United States:

"All of the systems, both conventional (that is, library solutions) and non-conventional (documentation solutions), suffer from the weakness that too much attention is paid to means, too little to ends. Nine hundred ninety-nine separate rules to 'classify' entry still do not make library books easy to find. Hardware belongs in a hardware store until we are intellectually capable of using it - and this has not happened yet. The specific problems to be solved in any kind of retrieval system are still basic philosophical ones: What is the best way to organize knowledge? How can the system devised accept constant and unlimited changes in this knowledge? How do we know the overlapping, inter-related, multidimensional nature of modern knowledge? Solutions to these problems are vital to successful dissemination of scientific information, particularly of the type necessary for further major advances". (Richmond (P A). What are we looking for? (Science, 139; 1963; 739)).

This is in conformity with the line of thinking propounded in the book in respect of classification, its role in document re-

trieval, and the mechanisation of document retrieval.

6 STANDARDS

61 Terminology

In any rapidly developing discipline, especially where there are several schools of thought, one is apt to find discrepancies in terminology in the literature on the subject. Such discrepancies include imprecise terminology, use of the same term to mean different things, and the use of different terms to mean the same thing. All these tend to confuse the reader. The communication between the different schools of thought often fails because the terminology used by each school not being same. On the other hand there will be precision and economy in thinking and communication if there is well defined and standard terminology for the subject. As research in documentation becomes more and more intensive and international, a common terminology for the specific concepts in the subject has become absolutely necessary. In a paper presented to the Tenth All-India Library Conference (Hyderabad, 1953), Vickery drew up a glossary of the then current terminology in classification. This glossary had full representation of the terminology developed in India. J D Mack and R S Taylor presented a paper entitled "A system of documentation terminology" to the Western Reserve University Conference on Documentation in 1956. This incorporated some of the terms in Vickery's earlier list, and a sizeable number of terms from the language of the computer technologist. Landau's Encyclopaedia of librarianship (1958) is another useful dictionary. In the American documentation for April 1960 Frank S Wagner Jr gave a "Dictionary of documentation terms". The paper also cited 42 other lists of terms relating to the subject. The British Standards Institution has published a glossary of terms in automatic data processing. In the book under review, Chap B1 on "What of documents", Chap B2 on "What of documentation", and Chap B3 on "What of documentation work", each begin with a set of defined terms as used in the book. A more comprehensive glossary of terms in classifi-

catory thought of the Indian school is under publication by the Indian Standards Institution. All these glossaries should now be synthesised into a standard international terminology.

62 Documentation

Standardisation helps scientific management. It aids effective use of resources--men, materials, and money. Fortunately the Documentation Subcommittee of the Indian Standards Institution has been one of the earliest established committees of ISI and it has been active since its inception. Therefore, India has been able to contribute not only to standardization of terminology relating to documentation but also to several other standards of interest to the documentalist. Particular mention may be made of the standard for abstracting based on the Canons for abstracting, standard for subject bibliography, standard for abstracting periodical, and standard for bibliographical references.

To facilitate arriving at the correct entry element for name of person in cataloguing a book, ISI has recommended the printing, on the back of the title page, of the entry element in the name (s) of author(s) in bold face and the secondary element in ordinary type. A similar practice for the names of authors of articles in periodicals, etc should prove useful.

The figure on the evolve of standards for documentation (Page 493) shows the areas amenable to standardization, subjects in which standardization is not possible, that is, areas wherein creative thinking and art are involved, the subjects in which the ISI has already drawn up standards, and the subjects in which standards are still to be worked out. This is a useful summarised picture which, incidentally, shows the interrelation between the various elements involved.

7 DOCUMENTATION IN INDIA

71 Asiatic Society

When Sir William Jones in association with John Wilkins founded the Asiatic So-

cety in 1783, he had two principal objectives in mind: Firstly, to stimulate study and research in Indology, and secondly, to build up an extensive collection of source materials for such studies. He recommended that

"... if each one of us were occasionally to contribute a succinct description of such manuscripts as he had perused or inspected with their dates and names of their owners and to propose for solution such questions as has occurred to him concerning Asiatic art, science, and history, natural and civil, we would possess without labour, and almost by imperceptible degrees, a fuller catalogue of oriental books than has hitherto been exhibited, and our correspondents would be appraised of these points, to which we chiefly direct our investigation".

The Society's periodicals provided the earliest media for communication of research results in the country. The lead given by and pioneering role of, the Asiatic Society of Bengal in the development of scientific research and education in India is of such importance as to accord the society a pride of place in the annals of progress of science in the country. Until the time research became part of the activities of the first Indian Universities, the Asiatic Society provided the necessary stimulus for research. Later came the various Surveys of India, again at the initiative of the Society. The earlier attempts at documentation in India have been briefly surveyed by B Sen Gupta (J Indian Lib Assoc 1, 3; 1956 April; 38-52) and T S Rajagopalan (An Lib sc. 9; 1962; 68-83).

72 Insdoc

721 Job Analysis

Over a decade ago, the Insdoc was established as a pilot national documentation project. Considerable experience has been gained by it in documentation work and service at the national level. Members on its staff have provided a detailed analysis of the several items of work that they are concerned with. Over fifty per cent of the book

consists of a log book of the work done in Inadoc. This detailed description and analysis of each job has at least two beneficial results. Firstly, it provides a practical working manual of immediate value to other national documentation centres just beginning to function in several of the South-east Asian and Middle East countries. These centres will have problems more similar to those faced by Inadoc than those met with in the documentation centres in the highly developed countries of the West. Particular mention may be made of the preparation of the advance documentation list--Inadoc list. The technique of obtaining by air mail microfilm copies of the contents pages of periodicals through the co-operation of documentation centres in other countries, is not only economical but also enables the publication of the list simultaneously with the receipt in this country of the periodicals indexed in it. The policy of selection of periodicals for coverage by the documentation list is to choose such of those which normally contain papers relevant to the research work in progress and planned in the country. In this way, the list is expected to be of the greatest use to the largest number of research workers possible in the country. Such a service naturally implies Inadoc's very close co-operation and liaison with the research laboratories and industries in the country in order to be kept informed of the research work in progress and planned. The Centre should also conduct surveys once in a few years to assess the usefulness of its service to those who receive it and locate the points to which its services have to be extended. This feed-back system should be maintained and improved upon.

722 Cooperation from Publishers

Although the Bibliography of scientific publications of south and south-east Asia is mainly intended as a record of the scientific documents published in this region, the delay in the inclusion of publications in it will be greatly reduced if publishers of periodicals co-operate. They can send to Inadoc contents pages at the final proof stage. It will be the ideal situation when prenatal classification, that is assigning of class

numbers according to a standard depth classification scheme to each of the articles even at the stage they are printed in a periodical is achieved.

723 O and M Study

The second benefit that accrues from the analysis goes to Inadoc itself. Having followed and routinised certain methods and techniques in the last ten years, standards can now be evolved for a number of the routine operations, forms, etc. On the other hand, if the procedures are found uneconomical or if better methods have evolved during the period, the necessary changes should be effected.

724 Interlibrary Cooperation

The chapter on "National grid of scientific libraries" analyses the types and available scientific library resources of the country. It recommends co-operation between the libraries such that duplication of acquisition of less used material is minimised, while the available resources are made to go the longest way through a system of inter-library loans. It is high time that the libraries in the country adopted an inter-library loan code and evolved standards for the routines and forms involved. Such a code and tentative standard forms could have been a useful chapter in the book.

725 Union Catalogue

Inter-library co-operation stems from a knowledge of the available resources. This brings into the picture the union catalogue. Over forty pages of the book are devoted to the mechanics of construction and methods of maintaining a union catalogue of periodical publications. While the union catalogue should be available in each of the libraries, that is it should be printed, it becomes out of date no sooner it comes out of the press. The printed catalogue is to be kept up-to-date on cards by Inadoc, of course, through the co-operation of the libraries in the country and revised editions are to be brought once in five or ten years.

7251 Classified Arrangement

A union catalogue need not be a locating device only. It can usefully show the

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strength and weakness of the library resources of the country in various subject-fields. This will help in filling up the gaps in the collections. For this purpose, a grouping of the periodicals by the subject with which each of them primarily deals, will be more helpful. The books give details on how to compile such a classified type of union catalogue. The principles are the same as those on which the Union catalogue of learned periodical publications in South Asia, V 1: Physical and biological sciences by S R Ranganathan and others was compiled. A useful change is that in the printed catalogue, which will naturally be a frozen bibliography, the index number in the alphabetical part will be the serial numbers assigned to each entry in the classified part. This is a convenience to users.

7252 Library Number

Another useful technique prescribed is assigning a meaningful code number to each of the libraries in the holdings section of the entry. The number is so constructed that libraries in a State and in a city within that State file together. Further, the number indicates the type of the library--university, college, etc, and also the subject specialization of the library. Such a grouping facilitates choosing libraries for inter-library borrowing, and in co-operative acquisition of periodicals.

726 Document Procurement Service

The time and work analysis of the document procurement service has more than one purpose. It shows the demands of the country; it indicates in what subject the Insdoc's own collection need strengthening; and it points out for what types of documents and for what reasons we have to procure from abroad. It is true, however, we get only a partial glimpse into the problems involved, for, all documents needed in the country are not procured through Insdoc. Many are obtained by direct negotiation between the libraries or other institutions within as well as outside the country.

727 Translation Service

Translation and reprograph service can be considered as two other aspects of docu-

ment procurement service. The panel system of translators partially overcomes the dearth of good translators in various languages. The establishment of a translation bank, that is filing of a copy of all translations made in the country in a central location and providing facilities to draw the documents from this store or to make available copies of them, will be economical in the case of repeat requests for a translation. It is also possible for Insdoc, through the co-operation of the libraries in the country, to keep an index to the translations of documents available in the various libraries in the country. The Commonwealth Index of Scientific Translations, and the Eurpean Translation Centre are good examples of such co-operation and pooling of resources. The chapter on translation service also focusses attention on the fact that a good translator should not only know thoroughly the translated-from and the translated-to languages but also should have a good subject background and knowledge of the technical vocabulary of various subjects.

728 Reprography Equipment

In respect of reprography equipment, we depend to a great extent on foreign imports. This has disadvantages. It is a drain on our limited foreign exchange, and servicing and spare parts are difficult to procure locally. It would appear that vigorous steps should be taken to produce indigenous reprograph equipment, and necessary protection for this industry should be ensured. Attention is also focussed on the problems arising from not using standard microfilm sizes, from not taking adequate care of the processed films say in mailing, etc. International standards in these respects will facilitate the work in documentation centres. They will economise time and reduce cost of service.

729 Theses Index

The need for an adequate index to the theses accepted for the higher degrees in the universities, etc in the country, has been felt for some time now. Occasionally, for want of such an index, theses subjects have been repeated in the same university!

This is obviously wrong and wasteful. While the *Insdoc* is prepared to do the indexing, there appears to be lack of cooperation on the part of the universities, except in a few cases. Their reluctance to provide information on the theses accepted by them is based on wrong interpretation of copyright privileges, secrecy of the contents of the documents, etc. On the other hand, the proper thing should be for each university to file with *Insdoc* at least a microfilm copy of all theses accepted by it. This facilitates preparing a proper index of the theses and making available information about them to all bonafide research workers.

8 Future of Documentation

So far we have dealt with the past and present of documentation as discussed in the book. The rest of the book takes a peep into the future of documentation in India in particular and the world in general.

81 Expansion of *Insdoc*

During the Third Plan period, a six-fold expansion of all activities of *Insdoc* is envisaged. Two important recommendations are the establishment of a national central science library, and a division for research and training in documentation. In due course, when national documentation centres are established in the social sciences, and in some of the major branches of science, e.g. medicine and agriculture, *Insdoc* will retain to itself only the residual subjects for documentation and the function of co-ordinating the activities of the national documentation centres in various subjects. The production of publication of the Indian science bibliography, Indian science abstracts, and Indian theses abstracts will remain with *Insdoc*. In short, a federating type of organization is recommended for *Insdoc*. The establishment of a Documentation Research and Training Centre in Bangalore is taken to have fulfilled the plan programme of establishing a research and training centre in documentation in the country.

82 Model for International Documentation

On the international scale, adequate documentation is hampered by several

barriers. They are principally the scatter of information on a subject in a variety of documents--books, periodicals, reports, standards, specifications, unpublished documents, patents, etc; the extensive seepage of information on a subject in documents primarily devoted to other subjects; the need for slants in abstracts to suit the requirements of different kinds of research workers and research workers in different subjects; and the existence of documents in a large number of languages, one or two of which are known to a research worker. There have been several suggestions to replace the periodical as a medium of research communication. But each plan raises its own serious problems so that the periodical is thriving better than ever. Dr Ranganathan has given a model plan to overcome some of the problems of international abstracting and dissemination of information. The model was worked in an incipient form in 1947. A fuller version has been detailed in three papers presented by him to the first DRTC Seminar (1963). They are ideal plans which can work only when certain conditions stipulated are realised. Just the same, they are ideals to strive for.

83 Areas for Research

The last chapter spells out the areas for research. Greatest emphasis is, of course, placed on research in depth classification for document retrieval. For, the proper organization of the expanding multi-dimensional universe of knowledge depends on sharpening our classificatory tools. These techniques have to grow with the universe of knowledge. Machinery or no machinery classification is necessary. The better and more effective it is in organizing the thought content of documents, the more efficient will be the conventional as well as mechanised document retrieval systems. A succinct case is made out in Sec P264 supporting filitatory arrangement, enumerating the various benefits accruing out of such helpful arrangement of entries and of documents. Areas for fundamental and routine research in the Idea, Verbal, and Notational Planes are chalked out. Construction of schedules of common isolates for Energy, for Property, and for Raw ma-

terials and Commodities, is the immediate task. Problems arising from the application of chain procedure to class numbers arising from the depth classification of micro-documents, and the sequence of subject heading terms in languages other than English, need investigation. Other subjects needing continuous research are "on the technique of expeditious procurement of documents, on the micro or paper reproduction of a flawless kind and their preservation, the television projection to distant centres, of the entries in a catalogue tray and of the pages of a document, the problems of eliminating what appears to be now an unavoidable time-lag in the supply of translations of documents".

We may add the following to the list. Survey and assessment of the available library resources and adequacy of documentation work and service in the country. The formation of dormitory collections of less used materials. Reaction of different users to various methods of presentation of information. The viability of India publishing Indian science abstracts, and her production as a part of international effort, of comprehensive bibliographies in certain subjects beginning with Indology. Standardization in reprography techniques and services, and book production techniques such that they will help reduction in time and cost of documentation work and service.

9 CONCLUSION

The symposium is a welcome addition to the literature on documentation. The contributors have several years' experience in the subject each has written upon. The

papers cover the whole spectrum of documentation--theory and practice, of all the facets of work including the auxiliary subjects of reprography and translation. It has specific value to documentation centres in the fast developing countries in Asia, Africa, and South America, where Unesco is aiding efforts to establish national documentation services. It also provides food for thought for documentalists in general. These are the chapters outlining the areas for research, the model for international organization of abstracting periodicals, and the rethinking on mechanised information retrieval.

There is little to criticize. One may complain that much of the book is devoted to documentation in the sciences. Little is said about documentation in the social sciences and the humanities. This is perhaps a reflection of the current situation here and the world over. However, the general principles are basic to documentation in any subject. Documentation of patents, press cutting service, etc are given comparatively brief treatment. Here again the authors do not have extensive experience in these subjects to give any more details of the techniques. A shortcoming of the book is that the description of the practice of documentation is mainly confined to that practised in a national documentation centre. At the local level, the techniques may not all be applicable. Local modifications and variation of procedures may be necessary.

Printing errors are few and the get-up of the book is pleasing.