

## A REFLECTION ON DR RANGANATHAN'S FIFTH LAW

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### INTRODUCTION

I am a new entrant to the profession of library, information and documentation sciences. My entry to this profession came in May 1989 when I took over as the Director of INSDOC. My introduction to Dr Ranganathan is even more recent. It is only a few months ago that I have started reading and learning seriously about Dr. Ranganathan's work, thoughts and contributions. The first thing, I learnt about him was very reassuring. Dr. Ranganathan was a mathematician who was thrust into library profession. In a way, I, who am basically a computer communication engineer, also came into this profession by a strange happening. I would not venture to write here the details of how it happened lest you might consider me very unscientific. But it can be well imagined that there must have been an unusual motivating factor for a professor of computer and communication engineering at the Indian Institute of Science, Bangalore to move to an organisation which was known to have been ailing for sometime to take up a position which offered no material benefits and was in a city which one would rarely choose when compared to Bangalore. In fact, some peer scientists of the country were at a loss to know why I am making this move and went even to the extent of saying that I was making a grave mistake and would feel miserable in my new assignment in two years time. I have already spent three happy years in this profession.

Dr. Ranganathan was a profound thinker and prolific writer. There is not a single aspect of library science and profession that he has not touched. To get a feel for numbers, one of the records states that Dr. Ranganathan has published more than 2,000 articles, authored or edited over 50 works and written scores of reports and several hundred technical notes. It is childish to think that one can read and understand the contributions of this great personality in a few months time. One can spend a whole life time studying Ranganathan's works and yet feel that there is so much more to be explored.

### FIVE LAWS OF LIBRARY SCIENCE

Dr. Ranganathan has expounded five fundamental laws of library science which have become famous now:

- 1) Books are for use
- 2) Every reader his book
- 3) Every book its reader
- 4) Save the time of the reader
- 5) Library is a growing organism

When I first read these laws about two years ago, I thought what kind of a man Dr. Ranganathan had been that he did not even write proper English. What does "Every reader his book" or "Every book its reader" mean? Needless to say, I neither understood nor appreciated these laws at that time. It was only when I read Ranganathan's own exposition of these laws, I realised the profundity of the laws.

Almost all of Dr. Ranganathan's writings that I have read so far have impressed me and continue to influence my thoughts. But one passage struck me like lightning. I quote  
*"A book is like a dry cell containing thought-energy transformed into a portable material"*.

The duty of a library is

*"to help the retransformation of books into thought. This thought may be merely absorbed by many for their own immediate benefit. It may also lead to the creation of new thought by some, for the use of humanity at large"*.

I found many thoughts in Dr. Ranganathan's books that are of immediate use to me. I have already initiated action to implement some of these ideas in the National Science Library at INSDOC. There have also been thoughts in his writings that have set me thinking further. One among these is his exposition on the fifth law, viz., *"Library is a growing organism"*.

### LIBRARY IS A GROWING ORGANISM

Dr. Ranganathan recognises two kinds of organic

growth: Growth as of the body of a child and growth as of the body of an adult. The body of a child grows steadily in size and weight. Whereas, the growth of an adult body consists only of a continuous replacement of cells and tissues. Having recognised these two kinds of growth, Ranganathan compares the growth of a storage or repository library and a service library to that of child and adult respectively.

A Newly started service library grows steadily in the number of its readers, books and staff. After sometime, there can be no appreciable increase in the number of readers or books or staff of a service library. There after, its growth consists of only new generation of readers replacing the old, a new set of books replacing the old and new staff replacing the old.

On the other hand, a repository library continues to have child-growth for ever in respect of books and staff. That is, there can be no limit to the size of its book collection or its staff. It may attain the stage of adult-growth only in respect of its readers.

Dr. Ranganathan then goes on to describe various aspects of library requirements. For example, the building of a repository library should be capable of indefinite growth. The site chosen for it should be very large indeed. Its building, particularly the stack room, will have to be extended in a number of successive phases. On the other hand, the building of a service library need not grow beyond a certain size. The site chosen for it can be relatively small. Perhaps, the building can be erected to its maximum size in not more than two or three phases.

Now, what I am interested in is to see how this organism is likely to grow in the future with the advancements that are taking place in the field of information technology. I visualise information technology as a composition of electronics, computer, telecommunications, artificial intelligence and human-machine interface technologies. All of these will have profound impact on the way libraries grow in the future.

Let us first look at the electronic library which is likely to become a reality in about 50 years time. We see glimpses of the coming electronic libraries in CD-ROMs. Increasingly, information is being published on CD-ROMs instead of printed forms. Even existing printed books are being copied on to CD-ROMs for compact storage and easy transportability. One may visualise the future library with stacks full of CD-ROMs and reading tables

having a computer with a CD-ROM drive. A user may pick a CD-ROM from the shelf and place it in his computer and read. Would this model work? Today a single CD-ROM disk can hold about 50 books. If a reader takes away a CD-ROM from the shelf, he is carrying away 50 books with him. Other readers are now denied access to 49 books which are not currently in use, a problem that we do not encounter in today's libraries.

Is there a solution for this problem? Does a multi-user CD-ROM drive provide a solution? In a multi-user drive, many users can obtain access to the same CD-ROM. But how many users can a multi-user drive system support? Today, a sophisticated multi-user system that can assure reasonable response time supports a maximum of sixteen users. Theoretically, to match today's library flexibility, a multi-user system must at least support as many users as there are books in CD-ROM disk. This is very unlikely to happen in practice. Simultaneous with the increase in the number of users supported by a multi-user system, the density of storage in CD-ROMs is also likely to increase, with the result, the number of users on the system will ever be less than the number of books on the CD-ROM. Thus, the technology seems to have limitation in meeting even the rudimentary facility that a library offers today.

On the other hand, this technology makes possible something that is not possible but desirable in today's libraries. A single copy of a publication can be read by a number of users simultaneously. Now, consider a library which has a provision for 200 readers. How many CD-ROM drives does this library need? Assume a multi-user drive capable of supporting 20 users. Will 10 drives suffice? We are getting into an interesting problem here. Let us suppose that the library has 1,000 CD-ROMs in its collection. With 10 drives only 10 CD-ROMs can be supported on-line. What happens if the reader population is such that what they want to read is on 200 different CD-ROMs. A requirement like this is easily met in today's library. If you want to meet this in an electronic library, we need 200 drives each one capable of multi-user support which is an expensive proposition.

Instead, one may consider CD-ROM jukeboxes. In a jukebox, many CD-ROMs are placed and any one can be chosen at a time for reading. Today's jukeboxes have 12-24 CD-ROM slots. The time for changing from one CD-ROM to another is large in these systems. As a result, if the reader population is such that each one is wanting to read a different CD-ROM on the jukebox, there would be so much of CD-ROM swappings taking place, that

a user would find the response time totally unacceptable. This situation becomes worse if the users are browsing the publications rather than seriously reading through them. In any case, to satisfy 200 users as today's library would do, we need to satisfy the condition:

No. of users per system X No. of CD-ROM slots per system = No. of readers

This is only a necessary condition but not a sufficient condition. Consider the situation, when a user walks into the library and finds that a CD-ROM he wants is already loaded on a system which is fully occupied. But there are other systems which are vacant. He has no way of accessing the publication he wants even though there is enough spare machine capacity. This problem can be solved by making the multiuser jukeboxes networkable. In this case, all the users of the library can get access to any of the CD-ROMs in any of the jukebox systems. Response time problems will crop up in large libraries having such configurations.

There are other interesting problems that arise with regard to this model of electronic library. How do you cluster items on a CD-ROM?

Do you place items belonging to the same subject on one CD-ROM?

How do you assign a call number to a CD-ROM. If a user wants to look at a number of related items, how does he fetch the relevant CD-ROMs?

A CD-ROM contains 50 or more publications. it is manufactured in a factory. Does the manufacturer put the publications in the chronological order in which he receives them without regard to subject, etc.? He may not release a CD-ROM unless adequate material has become available for filling up the CD-ROM. What happens if there is a big time gap, say one year or so, between the first piece of publication and the last piece of publication that go on the CD-ROM? A library may not be interested in all the publications put on CD-

ROM. It may be forced to acquire a large number of CD-ROMs although all its required collections may be placed in a few CD-ROMs. What role the librarian would play? How would he/she help in the process of transforming the contents of CD-ROMs into thoughts? There is a host of other issues that one can think of.

However, Ranganathan's concept of growing organism still applies to electronic libraries. An electronic service library which serves a limited geographical area still follows the concept put forth by Dr. Ranganathan intoto. However, in the case of repository library, the staff may not grow as envisaged by Dr. Ranganathan. Staff requirement may now be more governed by the number of user stations rather than the number of CD-ROMs.

Let us now turn to teleelectronic library or simply telelibrary. A telelibrary permits a user to read a publication from his home or any other suitable telecommunication service point without having to physically go to the library. If this concept becomes a practical scheme, libraries will be organised much the same way as telephone exchanges are organised today. Each library will have a communication subsystem that links it up to other libraries. This would mean that the entire world population becomes users of any library. For example, anyone sitting in the United States can access and read a manuscript collection in the Saraswathi Mahal library of Thanjavur. A semblance of such a development is seen in today's networks. It is possible for one in India to access OCLC or the Australian Bibliographic Network and obtain information about the holdings. Today's networks are primitive. We have a long way to go before they can evolve into fullfledged networks where one library's collection can be perused from another library or from one's home. More and more I think about all this, it appears to me that library is indeed a growing organism, but the growth at this point of time does not concern itself with the physical aspects but more of the meta physical aspects. And in this plane, there is no limit to growth. An adult or a child makes no difference.