

Library: A growing organism

Dr. S.R. Ranganathan gave the status of science to the library practices. He is most appropriately called 'The Father of Library Sciences' and his five laws of library science are relevant even to this day. Explore the science of libraries through Dr. Ranganathan's laws.

■ G.P. Vinayababu

Is there scope for science in a library?

Nobody ever thought of bringing library into the ambit of scientific analysis. The study of libraries as a discipline was never considered a science. And the approach to collection, maintenance and delivery of books was anything but systematic.

Strangely enough, it was here in the land of spirituality and philosophical excellence, that the library practices gained the status of a science. And it was an Indian who gave the discipline the name 'library science' and went on to become the 'father of library sciences'.

Library in simple terms is a collection of books. But we all know that 'a collection of books' alone cannot make a library. There is a deep-rooted scientific approach to the whole concept of library right from the arrangement, display, cataloguing, accessibility up to issue, renewal and maintenance of books. The science of library is not restricted to books alone but is now relevant to the present scenario of paperless information dissemination and the futuristic real-time multimedia information transfer.

In less than 25 words Dr. S.R. Ranganathan, the great Indian librarian propounded the essentials of library science which brought forth practically every aspect of modern library practices.

Dr. S.R. Ranganathan, was born on August 9, 1892 in a small village in Tamil Nadu. He had his early education in Madras



Dr. S.R. Ranganathan

and completed his master's degree in mathematics in 1916. He first started his career as a teacher of physics, mathematics and statistics. Accidentally, in 1924, due to pressure from a close colleague, he reluctantly applied for the post of first librarian in Madras University. Within a week of his joining as a librarian, he went back to the Principal of Presidency College where he was serving as a lecturer and pleaded, 'I have come with a specific request. I can't bear the solitary imprisonment day after day'. But his visit to England on the Principal's recommendation for a study cum observation tour changed his mind completely. He discovered a social mission in the library profession after that. In 1928,

Dr. S.R. Ranganathan formulated the now famous five laws of library science which were published later in 1931.

Five Laws of Library Science

- (i) Books are for use
- (ii) Every reader his book (every reader should have a book)
- (iii) Every book its reader
- (iv) Save the time of the reader
- (v) Library is a growing organism

These five laws were modified later to suit the ever changing information patterns

- (i) Information is for use
- (ii) Every information user his/her information
- (iii) every piece of information its user.
- (iv) save the time of the information user
- (v) The universe of information is a growing organism

When library study was described as a science and five laws were put forth by Dr. S.R. Ranganathan, it triggered off a major controversy amongst library experts regarding the use of the term 'library science'.

This was not the first time that the term library science was used. One of the earliest evidences of the use of the term is found in the title of one of the first published fascicules of the L.C. Classification - 'Bibliography and Library Science' in 1898. Designations of 'Library Economy' and Librarianship were popular during those

Scientists discover methane ice worms on sea floor

A team of scientists of the Pennsylvania University in the United States, using a mini research submarine had discovered, photographed and sampled what appears to be new species of centipede-like worms living on and within mounds of methane ice on the floor of the Gulf of Mexico.

Although scientists had hypothesised that bacteria might colonize methane ice mounds called gas hydrates, this is the first time animals have been found living in the mounds.

The discovery of dense colonies of these two-to-five-centimeters-long, flat, pinkish worms burrowing into a mushroom-shaped mound of methane seeping up from the sea floor raise speculation that the worms may be a new species with a pervasive and as yet unknown influence on these energy-rich gas deposits.

The researchers speculate that the worms may be grazing off chemosynthetic bacteria that grow on the methane or are otherwise living symbiotically with them.

"The old view that the deep sea bottom is a monotonous habitat needs to be discarded. These worms are the major players in a new unique marine ecosystem", said expedition Chief Scientist Charles Fisher, an associate professor of biology at the university, who discovered the methane ice worms in waters 600 metres below.

The scientists have managed to keep a number of the exotic worms alive in their laboratories for further study. A second leg of the expedition continues through August one.

PTI

New galaxy found in local group

Astronomers in Cambridge have discovered a hitherto unknown galaxy in what is known as the Local Group of Galaxies. It has been named the Antlia galaxy after the southern constellation of Antlia in which it was found.

The galaxy, previously overlooked because it is very dim relative to the background of the night sky, is in a region of space. Until its discovery it had been thought to be devoid of nearby galaxies and it is reckoned to be important to the understanding of the Local Group because this contains very few galaxies which are isolated in this way.

Most of the Group's smaller galaxies are classed as satellites of our own Milky Way Galaxy and the Andromeda Galaxy, which are both much larger spiral galaxies. But being on its own the Antlia Galaxy, has not been distorted by the gravitational field of a much more massive neighbour. It is expected to help astronomers to learn more about the nature of undisturbed dwarf galaxies and about how the Local Group formed and has developed over cosmic history.

In the course of the same study by research students Alan Whiting and George Hau at the University of Cambridge's Institute of Astronomy, working with Dr. Mike Irwin of the Cambridge-based Royal Greenwich Observatory (RGO), they also found a second previously unknown dwarf galaxy just outside the Local Group. Named the Argo Galaxy it lies in the constellation Carina.

The researchers started by searching through 894 large survey photographs of the southern sky taken by the UK Schmidt Telescope in Australia for large, dim, diffuse objects that no-one had catalogued before. Using an instrument at the RGO (the PDS Microdensitometer) they digitised the images of "candidate" galaxies and studied them more closely.

Then they took their final list to the Cerro Tolol Inter-American Observatory in Chile and obtained charge coupled device images with the 1.5 metre telescope there. The results showed two of the objects clearly resolved into stars. Red giant stars in the Antlia Galaxy identified it as a member of the Local Group.

LPS

Supersonic research into new generation concorde

UK research into supersonic flight aims at developing a civil transport aircraft capable of carrying twice as many passengers as Concorde and flying 60 per cent further.

To prevent the disturbance caused by sonic booms, the aircraft will travel at less than the speed of sound over populated areas.

The UK's Defence Evaluation Research Agency (DERA) is carrying out investigations to perfect technology enabling the design of a second generation of supersonic transport (SST) aircraft which would be both economically viable and environmentally acceptable. DERA is assessing the ability of existing computational methods to accurately model the flow about an SST configuration and produce an acceptable aerodynamic shape which produces a reduction in drag. This economises on fuel consumption and increases range. The aircraft will also have quieter take-off and landing. The research programme involves virtually all the major European industrial companies and research establishments. DERA's technology contribution involves the applications of "dual use" (defence and civilian) technology.

The proposed SST also has to meet the needs of the Operational Requirements branch of the Ministry of Defence for evaluation of combat aircraft and the DTT's assessment for civil aircraft. The wing shape for supersonic and transonic conditions will include the design of a high lift device for use during take-off and landing. The result from the computational methods will then be compared with the experimental data from wind tunnel models of the wing shapes. So far initial optimisation of the wing shape for super sonic and transonic conditions has produced an increase in aerodynamic performance.

LPS

A never-ending spiral movement of progressive development, consisting of 4 phases as follows: Table - 1 *

Phase	Activity	Predominant operative Faculty	Outcome
Phase 1	Collection of pertinent empirical facts of experience	Predominantly the sensory faculty aided or unaided-supplemented by the intellectual faculty	Most pertinent 'Data'
Phase 2	Generalisation of all pertinent data for pattern recognition through logical analysis (classification) & consolidation- that is, logical abstraction	Predominantly the intellectual faculty aided by appropriate tools of mathematical and statistical calculi	Empirical principles of successive removes
Phase 3	Ultimate abstraction generalisation of all empirical principles	Predominantly the intuitive faculty supplemented by the intellectual faculty	Factual or normative fundamental principles, as the case may be
Phase 4	Deduction either from the fundamental principles or from? the general empirical principles of higher removes	Predominantly the intellectual faculty with the aid of deductive logic in charging aids from general semantics & appropriate mathematical & statistical calculi	Deduced principles and rules-of-procedures of originating from those

* Reproduced from Ranganathan's philosophy - T.S. Rajagopalan

times. Almost all the libraries in the world were using the term 'Library Economy' coined by Melville Dewey whose decimal classification was used extensively then. Though 'library science' was a known term in 1931, when Ranganathan used it, he was questioned on the science status of the discipline. He took up the case and worked extensively on the question 'What makes a discipline, a science?'

The result of his study was published as chapter 8 in the second edition of his 'Five laws of Library Science' in 1956. Ranganathan arrived at the following conclusions on the philosophy of science:

'An organised and systematised body of knowledge that is amenable to learning through reading, understanding and practicing, teaching, to research and to information analysis and consolidation, can be described as a discipline of science, if and only if it admits the applications of the scientific method to a never ending spiral movement of progressive development.'

The spiral here refers to the cycles of progressive development. Four distinct phases of progressive development were recognised in each cycle. (Refer Table 1).

The famous five laws put forth by Dr. S.R. Ranganathan are relevant to all times.

First Law

Books are for use/information is for use

The message of the first law is to remove restrictions on the use of books by keeping open the library during all the working hours, making library furniture comfortable, opting for open access and appointing qualified staff in proper number with suitable attitude towards teacher. This law is more apt to the book (the physical carrier of information.)

But for the paperless information age the law gets modified into the easy accessibility of information. The law asks for removing all restrictions in the free flow and use of information. It further calls for the use of electronic media for presentation of information, use of online networks to make information easily accessible and providing more facilities including transnational services, for making information easily available for use.

One can easily observe that the internet, the network of computer networks has been able to achieve the objectives of the above law. Also we find that internet and online services would have a profound influence on the future information patterns not only in the case

of this law but the ideas envisaged in the next four laws.

Second law

Every Reader His book/every user his/her information

This law asks for providing books (or information) to all people irrespective of caste, creed, sex, region, religion, age and literacy. It essentially stresses on information reaching everyone. In the computer age, the transfer of information to every user also implies that stumbling blocks such as language barriers, restrictions in the free flow of information should be overcome and transmission costs of information reduced to make information universally available.

Third law

Every book its reader/every piece of information its user

This law advocates the open access, classified shelf arrangement and inner arrangement of library such as to help the book to find out its reader. This calls for cataloging, reference service, publicity and use of such other devices so as to aid the

Dr. S.R. Ranganathan - Summary of chief events

- 1924 Designed the Colon Classification
- 1928 Formulated the Five Laws of Library Science
- 1934 Designed the Classified Catalogue Code; 33 Scientific Management of Libraries
- 1938 Designed Chain Indexing
- 1950 Designed Facet Analysis
- 1954 Editor, Annals of Library Science
- 1957 Founded the Sarada Ranganathan Chair of Library Science, University of Madras
- 1961 Founded the Sarada Ranganathan Endowment for Library Science
- 1963 Developed the Dynamic theory of Library Classification
- 1964 Editor of Library Science with a slant to Documentation; author of 53 books and about 1,200 articles on library science
- 1965 National Research Professor in Library Science

book to reach its reader.

The third law in effect underlines the necessity to maximise the reach of explosive information, devise tools in its light and provide active information service so that information is brought to the notice of its potential user.

Fourth law

Save the time of the reader/save the time of the user

It implies to opt for such devices which save the time of the reader. It implores to explore the use of latest technology in information operation so as to minimise the time spent by the user in accessing information. It involves automated circulation, cataloguing,

indexing, abstracting services and educating the user in the use of information systems.

Fifth law

Library is a growing organism/Universe of information is a growing organism

This law is a classic example of Ranganathan's forethought, brilliance and intellectual acumen. He firmly believed that the library profession would survive and retain its value only if it continues to adapt to changes in its environment. This is the main thrust of the fifth law of library science.

Ranganathan's futuristic vision made him aware of the fact that the change in environment occurs more rapidly with the

Every book - its reader

A survey of the use of collection of university libraries revealed that 40 per cent of the books were never issued out. The findings confirm that every book does not find its reader.

passage of time. He had appropriately accepted that the future may bring revolutionary changes in the way information is disseminated. He explains his fifth law thus:

"What further stages of evolution are in store for the Growing Organism- the library we cannot anticipate fully. Who knows that a day may not come when the dissemination of knowledge, which is the vital function of libraries, will be realised even by means other than those of the printed book in future.

How true he was. Though the printed book remains the most powerful information source even to this day, the latest technologies in the form of CDs, databanks, online services and internet are slowly making a definite impact on the information access patterns of the present and would in all probability take over or replace the printed book.

The greatness of Ranganathan lies in his describing the library as an organism. The organism definitely grows and more importantly adapts itself to its surrounding environment. This is exactly the role Ranganathan wants library to handle.

The internet has been the greatest development of this century which has implications in diverse fields of human activity for which even library is no exception. It is a matter of great pride that Dr.S.R.Ranganathan was responsible for the elevation of library practices into a discipline of science. He is no doubt called the 'father of library science'. The future may see rapid changes in library and information dissemination methodologies. But Ranganathan's laws would remain the eternal guiding principles for the information managers of today and tomorrow. Based on Ranganathan's Philosophy by T.S. Rajagopalan. □

