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RESEARCH IN LIBRARY SCIENCE: ITS NEED AND ITS
  PROMOTION*.
(Development of library science. 4).

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Research is a means of continuously developing a
discipline. It endows a discipline with the ability to
utilise the knowledge generated in other disciplines,
it makes use of Scientific Method, its method admits
of being learnt, and it admits of being organised. Research
in Library Science does not differ in the essentials of its
objectives, methodology, and organisation from research
in any other discipline. Efficiency in library service is
dependent on discovering the changes in the value of
each of the two parameters User and Subjects embodied
in documents. Research helps to recognise and act on
the changes in the value. Considers the role of the teacher
and the steps that he may take in helping a student take
the first steps in research. Research by the teacher and
the provision of opportunity for intensive apprenticeship
by an aspirant to research work are emphasised. The
factors to be taken into consideration in the organisation
of and in assigning priority to different kinds of research
in library science in India, are briefly outlined.

0   INTRODUCTION
      Research in library science does not differ in the essence
of its objectives, methodology, and organisation from research

in any other discipline. Without loss of generality, the essence of research may be stated as follows:

    1 Research helps in the continuous development of a discipline;

    2 Research endows a discipline with the ability to utilise the knowledge generated in other disciplines;

    3 Research makes use of Scientific Method, and it is helpful;

    4 Methods of research admit of being learnt; and

    5 Research admits of organisation.

01 A SYSTEM

    The totality of library work and library service may conveniently be considered to form a system, wherein:

    1 Each component of the system and the system as a whole are to be designed to achieve a common goal;

    2 A change in the value of one or more of the relevant parameters of any component of the system may affect the work of one or more of the other components and/or of the system as a whole, to a greater or lesser degree; and

    3 The change in the value of each of the relevant parameters should be discovered and adjustments and developments brought about in the system such that the deviation from the most helpful path of achieving the goal is at least reduced to a minimum, if not completely nullified.

02 TWO PARAMETERS

    Library service is, in essence, retrieval and dissemination of embodied knowledge to individual members and groups in a community. Therefore, the two relevant parameters, the changes in the value of which may affect library service, are:

    1 User; and

    2 Subjects embodied in documents.

03 EFFICIENCY OF SERVICE

    Efficiency of service to readers is to be achieved by the adoption or development of such tools and techniques that would facilitate the classification of subjects embodied in documents, so as to help their retrieval within reasonable limits of economy. To continue to give useful service, library science must develop to meet the changes in the value of each of the two parameters — the user and the subjects embodied in documents. These two may be distinguished as independent factors. They are, however, very much interdependent. For, on the one hand, at a given point of time, the kind of subjects embodied in documents may be a measure of the level of achievements of the society, and on the other, the progress of the society is dependent on making available pinpointedly, exhaustively, and expeditiously, subjects

embodied in documents to those specialists who can make use of them as the basis for further achievements.

1   RESEARCH AS A MEANS OF DEVELOPMENT

The value of each of the two parameters mentioned in the preceding section does not remain constant. It changes fairly frequently. Sometimes the change is almost imperceptible. Sometimes, it is very significant and the impact is great. Research helps to discover the changes in the value of the parameters. This discovery, in its turn, enables library service to sharpen its tools, design newer methods, and thus adjust itself to meet the changing requirements. Such adjustments bring about inter-action of the discipline with its environment. In a living system such a process of interaction and adjustment of the organism in relation to the environment is generally termed "growth" or "progressive development". And 'development' involves the disclosure of that which was unknown.

Therefore, if the library is to be a 'living organism', it must be a developing one. It is interesting to find even a parallelism between some of the basic ideas relating to the interrelationship between living organisms and their environment in the biological world and those associated with the development of subjects and of the library. The following are some examples:

1   The environment of a particular organism at a particular time is not the same as that some distance removed in time or space.

2   Data obtained in a particular context cannot be trans-posed in time or in space without examination.

3   Environmental effects observed on an individual cannot be applied without question to the population or the species as a whole.

4   Data obtained in a green-house unnatural condition cannot be used for interpretation of the same organism growing in its natural environment.

5   The vertical as well as the horizontal gradients are of far greater significance than point measurements of environmental conditions.

In our study of the development of subjects and the library as a living system, ideas similar to the above are helpful [14, 42]. Therefore, if the library is to be a 'living organism', it must be a developing one.

2   INTERACTION WITH OTHER SUBJECTS

As a method of discovery, research sets no boundaries to the subject of investigation. In the process of the development of a subject, its interaction with the environment becomes more and more extensive as well as intensive. It acquires the capa-

bility to utilise and assimilate the knowledge generated in other disciplines. This leads to the mutual enrichment of the subjects, the development of new specialisations, recognition of new problems, further research, and so on. Thus the development in the subject is accelerated through such cross-fertilisation of ideas.

21 SOME DEVELOPMENTS IN LIBRARY SCIENCE

In Library Science, the areas for cultivation are vast. Thanks to the work of the great pioneers like Melvil Dewey, Charles Ammi Cutter, Wyndham Hulme, J D Brown, E C Richardson, Berwick Sayers, Henry E Bliss, Donker Duyvis, S R Ranganathan, and Fremont Rider, what was three quarters of a century ago a mere bundle of techniques, is today a discipline with its own fundamental laws, empirical laws, and methodology for development [35]. Further, continued research in the last three decades has endowed library science with the capability to utilise with advantage the work done in several other subjects. A few such areas of mutual enrichment between library science and other subjects are mentioned in the succeeding sections.

211 UNIVERSE OF SUBJECTS: ITS DEVELOPMENT AND STRUCTURE

The study of the structure and development of the universe of subjects — that is, the patterns of subjects and their mode of development — has helped the researches in the methodology for the classification of subjects embodied in documents. In a more general way, such a study forms the very basis of the work in library science at all levels.

212 LINGUISTICS

Studies in certain branches of linguistics have helped in the selection, naming, rendering of multiworded names, and control of subject headings.

213 EXPERIMENTAL PSYCHOLOGY

Some of the findings in experimental psychology have given clues to the mode of formation of concepts and the kinds of associations among them. These have been helpful, for instance, in the development of principles for the sequence of facets and the sequence of array isolates.

214 GROUP BEHAVIOUR

Studies in individual and group behaviour help to understand how and at what stages different specialist groups — those engaged in theoretical researches, the design engineer, the production engineer, the bench worker in the laboratory, the manager, the group leader, and the public relations man — make use of recorded knowledge. This, in its turn, helps to provide library service appropriate to each kind of user.

215 HOUSING AND STORAGE

In the problems of housing, storage, and access to documents, the librarian has to draw heavily upon the work of specialists in different subjects — the architect, the building engineer, the electronic engineer, and the specialist in reprography.

216 MATHEMATICAL BASIS

In recent years, attempts have been made to formulate mathematical models of document retrieval systems and to use probability theory, information theory, matrix theory, combinatorial theory, numerical analysis, and mathematical logic, for the purpose.

217 OPERATIONS RESEARCH

Modern managerial methods including operations research and linear programming have been utilised for the design of productive search strategy in document retrieval.

22 CONTRIBUTION OF LIBRARY SCIENCE

In its turn, library science, particularly its branches Classification and Cataloguing, have provided several helpful guidelines for the study and development of other disciplines.

221 UNCULTIVATED AREAS IN THE UNIVERSE OF KNOWLEDGE

The technique of facet analysis and phase analysis of classification help in the arrangement of the documents and the entries for them in a helpful way. In general, classification is a means of conveniently handling 'organised complexities'. The Apupa Pattern of arrangement given by a good scheme for classification helps the subject specialist to discover uncultivated areas in the universe of subjects and to envisage new association of ideas.

222 DATA SERVICE

The data-specialist as well as the librarian handle units of thought. Therefore, the coding — that is translation of data or names of specific subjects into a system of written symbols suitable for coding in the form of patterns of pinholes, punched holes, photographic spots, magnetic spots, etc, which may be searched or associated by machine — already developed by the library profession should serve both classes of workers. As the work of the data-specialist too must be based on a detailed analysis, the analytico-synthetic classificatory language can be developed jointly by the two professions to serve their respective purposes. The synthesis of the elements resulting from the analysis will be the end-product for the librarian, while their association and correlation will usually be the end-product for the data-specialist [33].

223 ORGANISATION OF FILES ETC

The organisation of office files, drawings, and objects

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can be conveniently based on an appropriate scheme for classi-
fication, and the techniques of cataloguing developed by the
library profession.

224 EXPOSITION OF A SUBJECT
    The guiding principles developed for an analytico-synthetic
scheme for classification are of value in the systematic exposition
of a subject, to suit the requirements of different kinds of readers.
In other words, they are of help in the technique of writing, the
arrangement of ideas, and the presentation in a book or an article
[13, 18, 24].

3   RESEARCH USES SCIENTIFIC METHOD

In order to ensure systematic investigation of a subject,
it has been found helpful to adopt in research a procedure gene-
rally named "scientific method". An orderly process of investi-
gation, the exercise of analytical thinking, and a critical approach
to the study and development of a subject is made possible by it.
It generally leads to publicly verifiable conclusions. The objective
of the method is to examine and discover facts, without being
vitiated by personal prejudices and hopes. Scientific Method
thus provides a means of self-correction for a discipline at each
stage of its development. In laying the foundation of a dis-
cipline and in developing it, the adoption of such a method in
research is essential. For, it helps in reducing to a minimum,
the number of faulty steps in an investigation. Further, the use
of the method helps to develop in the investigator the scientific
attitude and the habit of systematic thinking. Therefore, a dis-
cipline that is cultivated on the basis of the Scientific Method
acquires a certain amount of consistency and reliability in its
structure and function as it develops.

31 NEVER-ENDING SPIRAL, EVER-CONTINUING DEVELOPMENT
    In the development of a subject, the use of Scientific
Method brings into play the sensory, intellectual, and the intuitive
experiences of man. It is convenient to consider the method to
take the form of a never-ending spiral, consisting of experiment,
observation, and collection of data, intellectual analysis of the
sense-data, abstraction of empirical principles with the aid of
inductive logic, statistical methods and other modern techniques
useful for the purpose, further generalisation to derive fundamental
laws with the aid of intuition, followed by derivation of deduced
laws with the aid of deductive logic and semantics, further observa-
tions in the realms not previously attempted, discovery of areas
not in conformity to the fundamental laws, further researches
followed by newer empirical laws which are in turn followed by
more comprehensive fundamental laws, and so on. The Spiral

of Scientific Method [31] being a never-ending one, the develop-
ment of a subject is never complete, but ever continuing.

4   RESEARCH ADMITS OF BEING LEARNT

The ability to sense a problem, respect for truth, the
correct attitude for objective investigation according to the
scientific method, and a capacity for hard work, are indispensable
minimum requirements to take the first steps into research work.
However, given the necessary intellectual, mental, and physical
capabilities, the aptitude for research can be generated and deve-
loped in an aspirant.   Research methodology can be learnt through
emulation and education in an environment conducive to the
purpose.

41   THE ROLE OF A TEACHER

In this context, a special responsibility rests with the
teacher in the library school, particularly that which purports
to impart advanced training in the subject.   Education in library
science is devoted to

1   Teaching the knowledge and skills used in the organisation
of documents to facilitate document retrieval and service to readers
in conformity with the Laws of Library Science; and

2   Developing the objectives and methods appropriate to
the study of the still unknown factors that affect library service.

Therefore, teaching, in its widest sense, and research should
go hand in hand.   The environment wherein the unsophisticated
but oriented mind of the student meets the mature but perhaps
relatively more rigid attitude of the teacher is a fertile ground
for new ideas to germinate and develop.

411   INTRODUCTION OF THE STUDENT TO RESEARCH

In such a set-up, as an integral part of the teaching pro-
gramme, the teacher should:

1   Adopt measures to orient (or reorient) the student's
thinking to systematic methods conducive to research work;

2   Intimately study the aptitude and handicaps of each
student through personal contact, individually as well as in small
groups;

3   Organise tutorials, group studies, and colloquia, to
encourage and facilitate cooperative endeavour and learning the
productive use of human and document resources;

4   Introduce small pieces of investigation — for example,
as class assignment or term paper or dissertation — to help a student
take the first steps into research;

5   Introduce the student at the appropriate stages and in
the appropriate measure, to different methods of approach in
finding solutions to different types of problems;

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6 Avail of opportunities in the class-room as well as out-
side it, to inculcate in the student the right spirit, correct attitude
and open-mindedness to research;

7 Help, guide, and encourage small research efforts by the
student including associating him in the research done by the
teaching staff; and

8 Continue to give such help, guidance, and encouragement
in the appropriate measure, even after the student has left the
library school.

412 RESEARCH BY THE TEACHER

Over and above these steps that the teacher may take,
two other important factors require special attention:

1 It is essential that the teacher himself does research; and

2 An aspirant to research should have an opportunity for
intensive apprenticeship for a period ranging from two to three
years in an institution doing research in the subject.

413 ANNOTATION 1

Unless the teacher himself does research, it will not be
long before his knowledge becomes stale and stagnant. And it
would be such out-dated knowledge that he will be imparting
to the students. The result will be a crop of librarians with a
lower level of professional competence, feeling frustrated due to
the inability to see and seize in the daily work problems challenging
research work on their part, and out of tune with the advances
in library science. Research by the teacher is, therefore, essential to

1 Keep himself abreast with the wavefront of knowledge
in the subject;

2 Inspire the student to see beyond the text-book knowledge,
to get glimpses of the great potentiality of library service, and
the challenges it possess for investigation by the best of the
intellectuals;

3 Set a good example for emulation by the new entrants
and the younger members of the profession;

4 Provide scope for the cooperation of the trainee;

[However limited the student's contribution may be, it will
help to induce in the latter a desire to do research, or at least to
maintain his interest in the subject.]

5 Make his own contribution to the advancement of the
discipline, and thereby

6 Raise himself to higher levels of efficiency and creativity;
and

7 Keep himself young in mind and in spirit.

414 ANNOTATION 2

Apprenticeship in an institution, conducting research in

library science, may mark a turning point in the career of an aspirant to research. For,

1 He will have an opportunity to find for himself the area of work in which he can do his best;

2 He will experience, be guided into, and informed about what cannot probably be learnt in a formal course even on research methodology; and

3 The apprenticeship period will help to lay a sound foundation for his future work whether it be research, teaching, or service.

415 ANNOTATION 3

The pre-formal course apprenticeship is largely for the purpose of orientation, acquiring certain necessary practical skills, and experience of the routines of library work through observation and apprenticeship in a good library. This would help in making the formal course more productive [26]. On the other hand, the apprenticeship for the research student is a post-course one. He would have already gained certain maturity of thinking, been introduced to systematic methods of doing things, and acquired necessary professional competence.

5 RESEARCH ADMITS OF ORGANISATION

51 SEMINAL RESEARCH

In each discipline, over a period of a century, a few men of genius, two or three perhaps, make outstanding seminal contributions. Such work will be concerned with the fundamentals and basic foundations of the subject. It will be charged with a high degree of intuition. It will make a great impact on the course of development of the discipline, give rise to several lines of applied and developmental research and attract upon itself a large number of works from its own as well as other fields.

511 SOCIETY'S RESPONSIBILITY

Research of this kind cannot be done to order nor can it be directed. Any such attempt may harm rather than help. However, it will be helpful if society takes upon itself responsibility of the following kind:

1 To spot out such men of genius in the community;

2 Ensure that the solo research done by them is not interfered with or pressurised, but that each is allowed to dream undisturbed, scintillate, and radiate at his own time and place; and

3 To reduce to a minimum

1 The environmental handicaps, (For example, difficulty of access to documents); and

2 The expenditure of intellectual, mental, and physical energy on the necessary routines associated with the work, (For

example, such routines can be taken care of through the provision of research assistants, fellows, and secretariat staff. Incidentally, the research assistant or fellow will benefit from the association).

52 TEAM-RELAY RESEARCH

In its early stages of growth, that is before it discovers itself and society discovers it, a discipline may have to depend largely on the work of a few men of genius. When society discovers the value of the work, the kinds and number of demands on the discipline increases, and thereby the number of practitioners of the profession increases. The need for a wide application and full exploitation of the findings of fundamental research for utilitarian ends will call for several lines of work. For example, it may be one or more of the following kind:

1   Working out specific procedures for application to particular pieces of work;

2   Analysis, testing, and evaluation;

3   Devising suitable methods for productive utilisation of the findings of fundamental research;

4   Developing techniques for progressively reducing the dependence on mere flair; and thereby

5   Making the work more and more objective.

These would largely be based on intellectual work. It will be wasteful to depend upon and engage for this purpose the few men of genius. Team-relay research among intellectuals would be the more productive form of organisation in such a context. It will also help in bringing to bear on a problem specialised knowledge in different branches of the subject and even from other disciplines. However, team-research would call for proper division of labour, co-ordination of the work, and avoidance of wastage of effort.

The last three decades of research in Library Science was largely a solo research period. Men of genius have had to do both fundamental as well as applied and developmental research. The stage is now set for applied and developmental research on a variety of subjects by several teams of intellectuals in different centres in the country. Some steps in the organisation of research in Library Science in India are briefly discussed in the succeeding sections.

6   PLANNING FOR RESEARCH IN LIBRARY SCIENCE IN INDIA

For the purpose of working out a plan for the organisation of research in Library Science in India, it will be helpful to

1   Distinguish between three categories of research—fundamental, applied, and developmental research;

2 Take into account the areas of library service needing research in India;

3 Take into account the areas of the subject in which research is conducted in other countries;

4 Mark out the areas of research into those of local, national, and international interests;

5 Work out a scale of priority for research projects in the different branches of the subject; and

6 Encourage co-operative effort in research.

The immediate scope of research in Library Science in India has been indicated in broad outlines in the UGC Review Committee Report [47]. It can be added to and further details worked out.

61 FUNDAMENTAL RESEARCH

Dividing research broadly into the categories fundamental, applied, and developmental is a help in the organisation of the work at different centres for pursuit by various teams, and at the same time to avoid unintended duplication of effort and resources. Obviously, the number of centres and the number of persons engaged in fundamental research will be far fewer than those engaged in applied and developmental research. Fundamental research is usually spontaneous and is not amenable to organisation.

62 APPLIED AND DEVELOPMENTAL RESEARCH

Applied and developmental research can and should be done in the libraries throughout the country. A person at the service point will be in daily contact with the changing world of readers and the equally changing world of reading materials. Therefore, he will be confronted with a number of problems of practical importance. This situation affords the right context for the evaluation of the existing practices and to investigate the newer problems that may arise from time to time.

63 SENSING THE PROBLEMS FOR RESEARCH AT SERVICE POINTS

A librarian at a service point should sense the problem that arises; he may work out a provisional solution to meet the local need so that the day-to-day work goes ahead; a more permanent solution would be attempted in due course after fuller consideration. He should have an opportunity to discuss the problem, if necessary, with colleagues in his library and outside it.

631 PROBLEMS OF LOCAL INTEREST

Opportunity for the former kind of consultation usually arises at periodically held technical or staff meetings of the library. Opportunity for the latter kind can be created through organised but informal meetings of librarians such as Research or Study Circles.

632 PROBLEMS OF NATIONAL INTEREST

Certain problems may be of more than local interest and may concern several libraries in the country. Problems of selection and procurement of documents, inter-library loan, development and use of schemes for classification, organisation of documentation work and service, management of libraries, study of document-usage by different categories of readers, are some questions of this kind involving and to be cooperatively examined by several librarians. The examination will have to be a continuing one. Opportunity for exchange of ideas on such subjects arise at conferences and seminars organised on a nationwide scale. Problems of a fundamental kind arising out of the applied and developmental research may be referred to the national centres for research in Library Science.

633 PROBLEMS OF INTERNATIONAL INTEREST

Problems for and results of fundamental research may be of more than national interest. They may be the concern of the librarians in several parts of the world. Further, in a country there may only be few persons engaged in such deep, fundamental research. One may have to establish contact, discuss, and exchange ideas with persons in other countries. Such international contact may be through correspondence. But person-to-person discussion may be more helpful. The Retreat Method for discussion among a small number of peers pursuing similar lines of work would be fruitful. International conferences may be necessary to bring such specialists together. Facility to do research or to discuss with persons in an institution engaged in similar lines of work in another country should also be provided for.

Publication of results of research and of the deliberations of conferences help to disseminate the findings of research to the members of the profession.

64 ASSIGNMENT OF PRIORITY

In order to conserve the research potential of the country, it is helpful to assign priority to the research projects. In doing so, it is helpful to take into account the

1 Immediate needs and later needs of library service in the country, arranged in a seaquence of priority;

2 Practicability of the implementation of the developmental work in the context of the economic and social conditions in the country; and

3 Trend of development in the subject.

A study of the trend of research in Library Science in other countries would help each country to learn from the experience of others, avoid unintended duplication, plan for a proper division

of the research effort according to the specific immediate needs
of each and promote a holistic integrated development of each
branch of the subject. For instance, it is unhelpful to transplant
into this country the practices in other countries without exa-
mining their suitability in practice in the prevailing conditions
here. Such a careful planning will help each country to effectively
participate in the advancement of the discipline and to discover
its position in this international effort.

7   INDIA'S ADVANTAGEOUS POSITION AND SCOPE FOR RESEARCH

Over the last three decades, India has made important
contributions to the different branches of Library Science. Some
of these contributions have not only found wide acceptance by
the practitioners and research workers in the subject, but they
have given a lead to further research and development in the
subject in this country as well as outside it. A few highlights
of India's contributions in Library Science are mentioned in the
succeeding sections.

71   NORMATIVE PRINCIPLES

The Five Laws of Library Science were enunciated first
in 1928 and published in 1931. For the first time. the prevalent
practices could be explained and evaluated and the new deve-
lopments in each of the divisions of Library Science could be
predicted on the basis of these Laws. Specific basic Laws peculiar
to each of the divisions have been derived as implications of the
Five Laws. These are called Canons for distinction from the
fundamental laws of Library Science. The Laws have made a
great impact on the development of library thought in the world.
In the teaching in the post-graduate classes in India and also in
the United Kingdom, the Five Laws are used as guiding principles
for expounding the different divisions of Library Science. There
is also now evidence of the beginning of their influence in the
United States of America and other countries.

72   CLASSIFICATION

When the Colon Classification was published in 1933,
it was the first full-fledged faceted classification. It made a marked
departure from the then known schemes for classification of
subjects embodied in documents. Edition 7 of the scheme is
now being planned. The theory forming the basis of classification
was embodied in the *Prolegomena to library classification*, first
published in 1937, with a second edition in 1957, and a third one
in the press. It is a profound work that has influenced classi-
ficatory thought throughout the world. Since 1956, considerable
research has been done to develop schemes for the classification

of minute subjects such as those embodied in articles in periodicals.
Such a depth classification is helpful in documentation needed
in the industries, research laboratories, etc. In 1963, a break-
through in fundamental research yielded a helpful methodology
on the basis of stated postulates and principles. This has opened
up avenues for large-scale, continued, developmental team research
in the subject. The Freely-faceted analytico-synthetic methodo-
logy on which the Colon Classification is based, is now being
used and exploited by research groups in India. In the United
Kingdom, depth schedules are attempted on the basis of the earlier
rigid version of the faceted model. Edition 3 of the *Prolegomena*
is a completely rewritten book and embodies the results of
research in classification done in India during the last ten years.
It also suggests several areas for fundamental as well as applied
and developmental research [36, 37].

73 CATALOGUING
In 1934 Dr Ranganathan designed and published what is
s iid to be the first complete code for the preparation of a classified
catalogue. In 1938, a new method of choosing, rendering, and
writing subject headings — known as Chain Procedure — was deve-
loped. This was applied on a large scale in the volumes of the
British national bibliography. It was found helpful. The *British
technology index* uses this method. The Canons of Cataloguing,
the Classified Catalogue Code (Ed 5, 1964) based on them, and
the Chain Procedure technique have influenced considerably
world thought in subject cataloguing and is practised and investi-
gated upon in several libraries and documentation centres. The
newer developments in the publishing world, the coming in of
newer kinds of documents, and the developments in depth classi-
fication and subject indexing are posing problems for investigation
[25, 27, 30].

74 DOCUMENT USAGE AND REFERENCE SERVICE
Taking into consideration the diversity in the intellectual
make-up, in the subject-approach of readers, and the idiosyncrasy
of published documents, a theory for the provision of assistance
to readers was formulated in the 1930s and first published in 1940
as the *Reference service*. This is a piece of applied research
where psychology and classification meet. The theory was
examined in the light of the five normative principles of Library
Science. An enlarged version of the book was brought out in
1960. Studies in the psychology of readers, the reaction of
reference librarians to different kinds of questions of the readers
and the methods of reference service, offer scope for further
research. There have been a number of studies in document-
usage by readers, the 'information-gathering habits' of specialists,

and the 'transfer of informatioin' in different contexts. More of such studies with different categories of readers and correlating the findings with the kind of library service will help to improve upon library service and conform it to the Laws of Library Science [1-11, 15-17, 23, 28, 29, 40, 41, 43-46].

75 DOCUMENTATION
In several of his contributions, Dr Ranganathan has made a clearer statement of the objectives of documentation. This has helped in formulating its core and fringe subjects. In turn, this has helped a proper organisation for documentation and drawing up a suitable curriculum for the training of documentalists. Some of the areas for research in documentation have been marked out [34, 38]. Newer ones will continue to come up. The use of machine for document retrieval. preparation of documentation lists, abstracting, and translation work is now being experimented upon in USA. USSR, some European countries, and in Japan. The intellectual and judgment part of documentation work has to be improved upon to fully exploit the capability of the machine and make its use viable for different purposes [32].

76 LIBRARY MANAGEMENT
Ranganathan's *Library administration* (1959) is a remarkable piece of applied research. It analyses the thousand and odd routines in a library. A general Theory of Management was formulated. The work analysis and job analysis of each library routine in the Madras University Library was based on this theory. The Staff Formula, the Three Card System, and other procedures are used in India and abroad. The application of the Principles of Management to the work in particular kinds of libraries and documentation centres. and the use of machinery to do the routine and repetitive work taking into account the particular local conditions has to be done to deduce helpful principles.

77 LIBRARY ORGANISATION
With their base in the Five Laws, more than a dozen plans — one for the development of the library system for India as a whole and the rest for the Constituent States of India — have been worked out. The first Model Library Act was framed in 1930 and later revised in 1942, 1950, and 1957, to suit the independent status of India. Draft library bills have been drawn up for several of the Constituent States and two for the Union Government of India [12]. The planning, organisation, and development of a viable and productive public library system, in conformity with the economic structure and prevalent tax pattern in each of the

Constituent States is a challenge to the best of our social scientists and planners. So too is the planning and development of a school library system, a college library system, a university library system, a specialist library system, and integrating all the systems into a productive library grid for the country.

Or again, library service has the potentiality to bring about a revolution in our educational programmes. A change from the largely prevalent textbook-centred, classroom-centred, partial, passive, and transmissive educational method to a library-centred, dynamic and student-participating method will go a long way in achieving, in a comparatively shorter period of time, the ideals of a good society. Here is an area in which the librarian, the educationist, the psychologist, and the government have a co-operative role to play.

78 LIBRARY BUILDINGS, FITTINGS, AND FURNITURE

Again, based on the Five Laws, anthropometric, psychological, and comfort factors, and considerations of economy, standards for the primary elements in the design of library buildings and the diverse pieces of library furniture and fittings, have been established. The Indian Standards Institution have published two standards on these subjects [19, 20]. Applied and developmental researches to examine the suitability of the standards for the odd sizes of reading materials — neo-conventional, non-conventional, and meta documents — have to be done.

791 TECHNIQUE OF WRITING

Guiding principles for the preparation of the text of a book and of an article in learned periodicals have been formulated on the basis of the Principles of Helpful Sequence used in classification [18]. Their suitability for the arrangement of different kinds of ideas and factual data to suit different standards of readers and for different purposes, and the formulation of guiding principles for the choice from among the several principles, are areas for investigation.

792 STANDARDISATION

Several standards in the field of documentation, book production, technical terminology, etc, formulated by the Sectional Committee on Documentation of the Indian Standards Institution, have become the basis for international standards. There are several areas in library science and book publishing that need examination for the purpose of formulating guiding principles to achieve uniformity and consistency in library practices, to draw up standards wherever necessary and helpful, and to mark out areas not amenable to standardisation [31].

793 PROFESSIONAL EDUCATION

In regard to the education of librarians, barring USA, India has been the first to establish full-time post-graduate courses in the universities. It has also taken the lead in the Common-wealth to establish courses leading to the Master's Degree and Doctorate Degree in the subject. In the UK, courses leading to a Master's Degree in Library Science are now being initiated. There is also considerable scope for applied research in teaching the different branches of Library Science. A tentative estimate of and plan for raising the man-power required to staff the public and academic libraries in the country has been worked out [21, 22]. Problems may arise in the actual implementation of the plan. The plans will have to be revised in the light of the developments in society and in educational methodology. Plans for raising the man-power for other library systems — specialist libraries, for example—have to be worked out.

8 CONCLUSION

The establishment of centres for research, chairs of library science, and the institution of scholarships and fellowships for the promotion of research in library science, are also noteworthy developments in India. In several subject-fields, industries and other organisations sponsor research by way of financial assistance and the institution of scholarships. Once our industries realise and get the benefits of good library service, they will be second to none in sponsoring research in library science also.

The creation, by the Government of India, of a National Research Professorship in Library Science, is a testimony to the high value our society has placed on Library Science and Library Service.

The unique and advantageous position that India today occupies in the map of the world of Library Science enjoins a responsibility on the members of the profession not merely to keep up but also to carry forward and improve on that position. In this endeavour, the past achievements of the pioneers should be an inspiration for sustained efforts.

Careful planning and sustained effort at all levels are essential to maintain high standards of education in Library Science con-ducive to the promotion of research in the subject and to secure efficient library service.

To summarise, Research in Library Science must be encou-raged and fostered at all levels. For,

1 Research does good to the research worker;
2 Research does good to the discipline; and consequently to the profession; and
3 Research does good to the society.

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