CHAPTER VIII.

SYSTEM ANALYSIS AND APPLIED TECHNIQUES.

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Chapter VIII

SYSTEM ANALYSIS AND APPLIED TECHNIQUES

8.0 INTRODUCTION

The old concept of libraries has radically changed due to the introduction of new technological devices in the modern management of library system. Tremendous progress in science and technology in the modern era, in which man can reach space, necessarily does not suit the old system of recording and retrieving information. Therefore, scientific and technological process should be introduced in the management system of the library. At present high speed and perfection, a library should not confine to a store house of books and recreational centre rather it should stand as an information and mass communication centre of the universe of knowledge.

For efficient and effective service, scientific management system is necessary, in order to cope up with the present day situation. Scientific management is an application of the principles and methodology of modern science to the problems of a administration.
8.1 TECHNICAL KNOW-HOW

Technical service is very much essential for successful implementation of library activities. To provide efficient library service, to the enlightened readers of the present day world it is essential that the technical services of a library should be well organised, with proper demarcation and definition of their field of work. These services include: 1. Acquisition 2. Classification 3. Cataloguing 4. Binding 5. Photographic reproduction and 6. Circulation operation. (1)

Generally the readers have got a very little or faint idea about technical service of the library. It is the expectation of the readers that they should get their searching materials easily, quickly without spending much time and energy. To enable the readers to make best use of the reading materials, the readers should have acquainted with first hand knowledge, which may be described as technical know-how of the library. It is desirable that in every library there must be provision, so that the readers should get some preliminary idea about the library process such as:

1. Understanding the structure of a books e.g. its preface, table of contents, use of contents, index, bibliography and chapter division.
2. Catalogue e.g. how books can be located from the catalogue and hunted out from the shelves.

1. Sarma, J.S. - Substance of Library Science P. 155
3. Use of reference books, like dictionaries, encyclopedias, index of books and index of periodicals.
4. Making bibliography on a particular topic.
5. Taking notes and preparing summary.
6. Proper care of books.
7. Library civics sense, e.g., reading quality, showing courtesy towards the library staff, not to disturb others etc.

The objective of the technical service should be:

(a) The promptness, after publication date which new books are made ready for readers.

(b) The good judgement shown in finding the sensible means between elaborate bibliographical detail and insufficient detail to meet the needs of the great majority of library users and

(c) The cost of the technical services in terms of time and money.

The effectiveness of the Department of technical service can be evaluated from the following:

1. The time lag between purchasing, processing and planning the books on the shelves for use should be the minimum. In other words if the books are acquired immediately on their publication and are processed, for use without any

2. Safai, R. School Administration and Organization P. 194.
The cost of acquiring, processing and putting the books to use should be the minimum. If standardised practices are followed or printed catalogue cards are punched, the cost of processing per book will be very little. Very few staff members will be required to process those books and the services would be economical, efficient and speedy. (4)

According to Wiseman a system is an arrangement of parts or elements, working together to perform a set of operations in the accomplishment of the purpose of the whole. A system is an assembly of procedures, processes, methods, routines or techniques united by some form of regulated instruction to form an organised whole. (5)

In the library there are two major systems: -
1. The data processing system and 2. Informational storage and retrieval system. The data processing system is concerned with the manipulation of data and hence with the methods involved to perform operations necessary to effect the form of content of information needed to satisfy the library's management, requirement and goals. The informational and retrieval systems deal with the storage of information and recovery to satisfy the library's service, requirements and goals. Besides, there are six basic sub-system as follows:

4. Ibid P.191
5. Ibid P.470
1. Acquisition system depends mainly on data processing and operation.
2. Serial Control system.
3. Circulation Control system.
4. Library Administration and planning.
5. Cataloguing system and finally
6. Reference system.

The information storage and retrieval refers things as massages, learnings, facts, knowledge and data analysis, data gathering which are used to set up a model for the system which can be used for future trends and prediction. Therefore, it has felt that extreme importance is emphasised on technical service of the library, for successful implementation and operation of library activities. The problem of information retrieval is so very complicated that even new and sophisticated machineries and methods are being invented and used to cope with it. (6)

8.2 OPEN ACCESS AND CLOSE ACCESS.

The first law of library science deals with books are for use not for preservation. The general aim and objective of the library is to provide reading facilities to its client for their personality development. Of course, facilities are not the same in every library, it varies from library to library, but any kind of library gives —

reation, inspiration and information to its readers. The administrative function of the library is collecting, preserving, preparing and disseminating of knowledge. Dr. Ranganathan in his Manual of Library Science stated that our barriers in between the books and the readers should be eliminated as far as possible. (7)

Open access was the first technique of the library. No doubt this system may result in damage to books and even the loss of a few. To avoid it, the maintenance section should arrange efficient staff members for keeping close watch for all the time, if the open access is to be made a success. Under the open access system readers can go to the shelves, trace and examine books, chose which ever volumes suit them best. This system changed completely the nature and significance of the use of a library.

Open access system is better than the closed one. But its basic units must be observed, if its fruits are to be rapid. The essence of open access system consists of:

1. Putting the book in open rack free from door and lock.
2. Admitting the readers inside the stack room
3. Freedom for readers to walk amidst the books in the open shelves.

5. Guidance to readers by the reference librarian both in anticipation and on demand and

6. Right of readers to takeaway any book to the reading room for study or to circulation counter to get it issued for study at home. (8)

The open access system is open to mischief. Important books are deliberately misplaced by some readers so that others may not use them. In an open access system a huge staff is required for strict vigilance in the stack room, reading room, shelving the books, rectification of shelves, proper placement of books in the shelves etc. In the reference section constant vigilance is necessary, so that, the readers cannot misuse the privilege.

Due to superiority of open access system over the close one and most of the library administrations of to day have introduced it in spite of the danger of loss or mutilation of books.

But the libraries in Assam are facing serious problems due to lack of proper building facilities. Many of the district and all the sub-divisional libraries have no proper building facilities of their own, still with great difficulties these libraries are maintaining open access system.

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The three Universities of Assam are implementing open access system. Gauhati University adopted this scheme in the year 1964-65 after a lapse of twelve years of the opening of a library. The total strength of library staff in 1964-85 was 56 and the total circulation in 31st March, 1984 was 2,03,300. Due to open access system from 1964-65 to 1984-85, altogether 5,212 number of volumes were damaged or lost. The average yearly loss or damage of books comes to 261 volumes.

The Assam Veterinary College, Toklat Experimental Centre, Regional Research Laboratory, are maintaining open access system. The other technical or special colleges like Engineering College, Ayurved College, Medical College, Assembly Library, Bar Library, High Court Library, Reference Section of the State Central Library, are maintaining closed access. All the colleges in Assam have adopted the system of closed access. Cotton College introduced open access, but stopped it due to misuse of this system by the readers.

8.3 CHARGING AND DISCHARGING PROCEDURE.

The maximum use of books a book can carried in two ways. Firstly, the books may be used by the reader within the library and secondly, it may be issued for reading at home. Most of the readers prefer the second one which require certain methods. Thus, charging is a process which
is intimately connected with issues of library materials.

Issue of books and journals are necessary to help the clients who are either too pre-occupied with their work to devote any time in the library, or who do not like to carry on the work in the library. Traditional issue method involved written records of the books.

The development of issue methods is linked with the growth of the public library movement. Keeping of record of the issued books was considered essential and for that purpose a fairly good record was kept. Following are the charging systems.


In every system of charging there are some advantages and disadvantages and it varies from library to library. But the most acceptable system is Brown or Newark system. Almost all the system are of western origin. In India Dr. Ranganathan has introduced Ranganathan's Ticket

9. ibed p.25.
Book/Ticket method in the Madras University Library in the latter part of 1920. But this method is nothing but a modified Browne system. According to him speed and absolute accuracy should characterise the work of the circulation section.

In Assam, in the case of district and subdivisional public libraries the Browne system is followed. The three Universities have also followed the same system. But in Guwahati University, in the case of teacher and research scholars, instead of borrowers card a borrowers book containing two folios are issued on demand to the teachers. At the time of issuing books are foiled containing all information about the book is tagged with the book card and placed in borrower's tray. In some college libraries in the case of issuing books to the student members the Brown system has been followed. In the case of teacher the register system has been followed. It has been noticed that some college libraries have also issued books on slip system or their own system. In one of the oldest colleges of Nalbari District, books are issued on identity cards to the students on yearly basis.

Books issued to majority of the teachers are never returned till their retirement. Sometimes books are taken by some of the teachers from the library either from the assistant or attendents on a plea that the books would be returned within a stipulated time or just after the
class is over. Our experience shows that about 60 percent of the books in such cases are not returned. A bearer or an assistant cannot refuse the issue of a book to a teacher. In that case, the attendants face a serious problem. What he will do? Usually he dare not refuse to issue the book. If he refuses, there is every possibility of untoward happening. Case study reveals that a teacher of a degree college loaned a valuable set containing four volumes of books from one of his neighboring colleges. He did not return the books for a period of eight years. He was reminded, personally contacted, information was sent to the higher authority, yet the book were not returned. Some students damage books by cutting important topics. As the college libraries are running with a very nominal staff it is not possible to verify the books page by page at the time of discharging. In this way a good number of books are damaged by students. The present library administration of Assam are facing with these serious problems.

8.4 BOOKSELECTION

The process of selection and acquisition of books and other materials is fundamental for the efficient running of library service. This actually involves the librarians, his staff, the faculty members and the administrative machinery of the library. It anticipates that an equ-
ally balanced and well rounded collection is developed.

The term book selection is used mainly to denote the idea of adding of books to a library. The practicality of book selection varies to a certain extent, from library to library. Even libraries of the same system differ in their approach to book selection policies.

There are so many methods resorted to for the acquisition of books. These are:

1. by purchase. 2. by gift. 3. by exchange. 4. by institutional membership or as deposit centre. 5. by interlibrary loan. The present trend of the development of knowledge creates certain problems in book selection.

Melvil Dewey upholds the principle that the best reading for the largest number, at least cost. Dr. S.R. Ranganathan adopts two different ways in the selection of books i.e. (a) empirical method as well as by a priori reasoning. According to him the empirical method consists of field of work in libraries while a priori approach relates to the judgement to be exercised in the selection of books either directly to the five laws of library science or to some principles which are derivable from those laws. (10)

Book selection is determined by various factors, financial resources, the readers, their reading needs

and testes and physical set up of the library. It requires skill, ability and knowledge. The quality and success of a library depend upon its selection of right books.

8.5 ACQUISITION

The acquisition of books is a pre-requisite for a library. Following are the general rules of acquisition.

1. A library should acquire and provide all the relevant reading materials to its clientele, so that the basic functions of the library are fulfilled.

2. A library should acquire all other books in the related topics.

3. A library should contain all the reading materials pertaining to the history and culture of a particular country. The main function of acquisition section of a library are as follows:

1. To develop procedure to meet the needs of the library.
2. To handle personally difficult or important correspondence or problems relating to the ordering of books, serials, documents, periodicals, maps, pamphlets, film and other materials.
3. To make recommendations to the faculty concerning book selection.
4. To consult with heads of other departments and divisions concerning book orders.
5. To notify the faculty of the non-expenditure of book funds.
6. To watch carefully auction of rare books and second hand dealers, catalogue for opportunities to purchase items on desirable lists.

7. To have materials, film or otherwise reproduced when they are out of print or otherwise unavailable in original.

8. To interview publishers representatives, book dealers, collectors and others who are interested in building up the university book collection.

9. To read and appraise books and other materials and make recommendations for their acquisitions.

10. To supervise the handling of all gifts and exchanges coming into the library.

Effective acquisitional organisation requires not only that the physical surroundings be planned to speed the flow of work, but also that the principles of administration relating to centralization of homogenous activities, direction, supervision and control be applied to its functioning. (11)

8.6 PROCESSING WORK OF THE LIBRARY.

.61 LIBRARY CLASSIFICATION.

Classification is the arrangement of objects, ideas or information into groups. Each group has one or more characteristics in common. Classification makes things

11. Ibid PP. 193-95.
easy to find and help in the study of objects or information. It is an orderly arrangement of all things. Classification may be based on the following:

1. **Scientific Classification.**
2. **Garbage Classification.**
3. **Group Classification.**

Library classification is a mechanism to arrange books in a helpful sequence. It is also to help mechanise the correct replacing of books returned after use. Again it is to help, fix the most helpful plan for newly added books among those already in the library.(12)

Book classification as defined by W.C. Berwick Sayers is the arrangement of books on shelves in description of them in the measure which is most useful to those who read. It is also the putting together of similar things or more fully described. It is the arranging of things according to likeness and unlikeness. It is sorting and grouping of things but in addition, classification of books is a knowledge classification. With adjustment made necessary by the physical form of books. According to J.S. Mill Classification is a contrivance for the best possible ordering of the ideas of objects in our mind.(13)

Library materials such as books, periodicals, newspapers, pamphlets, sound recording, film slides, pictures, prints, maps, microforms and other media of information and communication are classified according to vari-

ous kinds of characteristics. For avoiding problems of shelving, handling and giving smooth service, they usually separate to a division according to its physical form.

In libraries rare books are often classified according to date and place of publication. Another common characteristics upon which classification is based is specific kind of use, so that reference books, children's books in a particular language, books for popular reading, collection of books of current interest may be set aside in separate groups. But most commonly, either over all or within such categories as those named above, libraries classify works according to subject contents. Such an arrangement is most useful for effective retrieval of the kind of information wanted by a majority of the patrons and the librarians. The individual librarian may develop his own system of subject classification for the collection.

In order to vouchsafe a permanent arrangement the librarians have rightly invented many book classification schemes. All these schemes have their merits and demerits and have got universal applicability but may not suit all conditions at all times in all places. Therefore, it is very essential that while deciding to adopt a particular classification schemes, we should take into consideration various merits and demerits of all such schemes and their applicability to the books of the library in which a particular scheme which is used in various libraries of
of the world. These are:

1. Dewey Decimal Classification.
2. Universal Decimal Classification.
3. Library of Congress Classification.
4. Subject Classification.
5. Expansive Classification.
6. Bibliographic Classification.
7. Colon Classification.

All these schemes of classification except Colon Classification schemes are of western origin and have got bias towards western subjects. While eastern subjects have been ignored to a great extent. In Decimal Classification Scheme 891.45 is the class number of Assamese, Behari (marathi, bhojpuri, maghadhi) Oriya literature. So also 491.45 is the class number of Assamese, Behari (bhojpuri, maghadhi, marathi) Oriya language. The class has got no sub-division. As application of these scheme, all kinds of books on literature such as poetry, drama, fiction, essay, biography etc. manuscripts and old Assamese literature will have to put together in the same class number. So also, all books on three languages (Assamese, Behari, Oriya) will have to put be put in same class number, which create a functional problems to the library administration.

Moreover, almost all these schemes, are enumerative schemes. Bibliographical and colon classification schemes are analytico-synthetic schemes. Out of all these schemes Dewey Decimal Classification Scheme is widely
used in all the countries of the world including India and in Assam. Colon Classification schemes is the most scientific classification schemes derived by S.R.Ranganathan an Indian with internationally reputation for his insight into the various problems of library science. Colon Classification Scheme being of Indian origin gives all subjects including Indian ones in details and his scheme though considered to be difficult in application can suit the needs of all kinds of libraries. Generally speaking, only a tried and scientific scheme should be used which can stand the test of time and efforts should be made to follow the scheme in toto. (14)

Table 8.1 shows the application of classification scheme in different libraries in Assam. Altogether 109 different institutions adopt Dewey's Decimal Classification Scheme. One College adopted Colon Classification Scheme.

62 CATALOGUING.

A library catalogue is essentially a tool. Hence, its parts and details are to be designed so as to make it an efficient tool. The functions of a library Catalogue are:

14. Ibid P.157
1. Disclose for every reader his or her documents
2. To secure for every document its readers.
3. To save the time of the readers and for this purpose
4. To save the time of the staff.

To pursue Cutter's line of approach and restate the purpose in a more specific way, the functions of library catalogue are:
1. Enables a person to find out the
   A. Author. B. Title. C. Subject.
2. Show what the library has:
   D. by a given author, on a given subject, and
   F. in a given kind of literature and
3. Assist in the choice of a book as to the;
   G. Edition and H. Character(15)

Catalogue service is an inventory of the components of library. It is made of listing the titles of the books in the accession sequence, and arranged on the shelves. Library catalogue consists of two parts, one part holding all the components giving information about what the library has on various subjects and the other holding all other components. The arrangement in the form is by call number and class number and this is filatory. The arrangement in the latter is alphabetical as in a dictionary.

The library catalogue in detail are as follows:

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1. The record, each work of in a library by author, translator, editor, illustrator, commentators, series, by person, body or in name, under which a reader might look his desired materials.

2. To arrange author entry in such a way that all the works of one writer will be formed together under the same name- a procedure that makes it possible for readers either to find a specific work or to survey the literary output of an author as presented in the library.

3. To record each work in a library and even parts of work, under the subjects of which it traces.

4. To arrange subject entries so that like topics will fall together and related topics will be co-related.

5. To record titles of works when necessary.

6. To provide a description of each book by a given title, imprint and collection also notes when necessary and

7. To list call number by which books may be located or obtained. (16)

Library catalogue is a tool which gives information about the contents of the library. It is divided into two parts- subject and author. It gives information about the arrangement and the order in which they are lying in the self. It helps the reader to find out his or her desired book- without any loss of time. It saves the time of the readers and the staff. The catalogue acts as a medi-

Like the codes catalogues are of different kinds. They are:

(a) Name catalogue.

(b) Dictionary catalogue.

(c) Classified catalogue.

(d) Alphabetic catalogue.

The Dictionary and classified catalogue are in common use in modern libraries throughout the world.

(a) The name catalogue: It is catalogue arranged alphabetically of names of persons and places, whether used as author or subjects.

(b) The Dictionary Catalogue: It is a catalogue usually on cards in which all the entries (author, title, subject, series) and their related references are arranged together in one general alphabet. The sub-arrangement frequently varies from the strictly alphabetical.

(c) The classified Catalogue: It is a catalogue arranged subject wise according to a systematic scheme of classification. Also called class catalogue, classified catalogue, systematic catalogue, classified subject catalogue, and catalogue raisonne.

(d) The alphabetic catalogue: It is catalogue with entries under broad subjects alphabetically arranged and subdivided by topics in alphabetical order.

The main information given on the card is call number, author, title, editor, edition, imprint,
Collection, series, notes and contents. The reason for providing the above information on the main card and added entries is that a reader would like to know what books by a particular author, on a particular subject and under a particular title a library has. He may be also interested in knowing its edition, imprint and contents. With the help of call number he straight away goes to the shelf and locates his desired books. A good catalogue, therefore, must successfully solve these problems.(17)

Kinds of catalogue entries : - Entry is a record of books, in a library catalogue or list. It is the ultimate unit record in a catalogue or documentation list (C.C.C.). The catalogue record of a book, which may be the main or added entry preparing various types of entries in the catalogue is an essential art of catalogue. In dictionary catalogue classification of entries in the first type of division are as follows : -

Entries are divided mainly into two :
1. Main entry (author entry, collaborator or subject or title entries).
2. Added entries (Secondary entries). The added entries are divided into main different entries : -
   1. Specific subject entries. 2. Subject analytical entries
   3. Joint author entries. 4. Author analytical entries.

17. Ibid. Pp. 150-51
Collaborator entries are sub-divided into six different entries:—
1. Commentators entries. 2. Reviser entries. 3. Epitomiser entries. 4. Editor entries, compiler entries 5. Translator entries. 6. Other collaborator entries (Illustrator) introduction, writer etc.

Reference entries are also divided into three different entries such as:—
1. Name reference entries. 2. Editor of series entries. 3. Subject reference entries.

Name reference entries are divided into three entries:—
1. Alternative name entries.
2. Pseudonyms—real name entries.
3. Variant form of world entries.

Subject reference entries are also made two entries:—
1. See subject reference entries and 
2. See also subject reference entries. (18)

Table 8.1 shows the implementation of the scheme of classification and cataloguing of different categories of libraries in Assam. Thus from the table it is seen that 109 and 124 libraries of different categories are implementing classification and cataloguing schemes respectively.

18. Ibid—175.
Table-8.1

Shows the implementation of Schemes of Classification and cataloguing of different categories of libraries in Assam.

<table>
<thead>
<tr>
<th>Name of Libraries</th>
<th>Number</th>
<th>Open Access</th>
<th>Classification</th>
<th>Decimal Collation</th>
<th>Cataloguing</th>
<th>Documenting</th>
<th>Other</th>
</tr>
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<tbody>
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<td>1 University</td>
<td>3</td>
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<td>3 x</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>x</td>
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<td>2 College</td>
<td>135</td>
<td>x</td>
<td>56 1</td>
<td>71</td>
<td>x</td>
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<td>x</td>
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<td>3 Medical College</td>
<td>3</td>
<td>x</td>
<td>3 x</td>
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<td>x</td>
<td>x</td>
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<td>4 Engineering College</td>
<td>3</td>
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<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td>5 Ayurvedic College</td>
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<td>6 Politechnique s</td>
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<td>7 Teachers Training Colleges</td>
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<td>3 x</td>
<td>3</td>
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<td>8 Regional Research Lab</td>
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<td>9 Assembly Library</td>
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<td>x</td>
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<tr>
<td>10 Administrative Staff College</td>
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<td>x</td>
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<td>11 District Library</td>
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<td>19 x</td>
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<tr>
<td>12 Sub-divisional lib.</td>
<td>11</td>
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<td>11 x</td>
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</tbody>
</table>
With the tremendous growth of information media all over the world, the libraries are increasingly feeling the need for new techniques and in its operation. Books and journals are not only media to store information, film, microfilm, taperecorders, gramophone discs and a variety of other materials are supply information. The traditional method of lending, acquisition cannot cope with the modern demands of libraries and are to make use of automation and mechanisation. (1)

Scientific management at the operating level is aimed at the collection of data through controlled experiments and the analysis of those dates with a view to reduction of cost and expansion of service. The unnecessary repetition of single task hour after hour and day after day constitutes a prodigal waste of talent or at least of mental energy. As such specific techniques are employed for work simplification which includes of certain operations, simplifications of some process and combination of certain operations into a single one. (2)

Automation is the use of machines that control their own operation with little or no human help. Automated machine operates quickly and make few errors. They increase the amount of goods that the workers can produce.

2. Ibed P. 456.
Many persons fear that automation reduces the number of valuable jobs. But even though automation eliminates jobs, it creates new jobs for highly skilled workers.

The term automation was first used about 1950 to describe the increased use of automation machinery in making automobiles. To day the term has several meanings. Some persons use it in the place of the word mechanization to refer to the use of any kind of automatic machine. Other people use the word automation to mean the use of computers to control production equipment.

A computer can control a machine because it can remember things. It stores such information in its memory in the form of electric and magnetic signals. It sends signals to the machines to turn them on and off and to adjust their operations.

Automation is the name given to an automatic system of working, the difference between automatic and mechanization, a related term being one of degree. Mechanization, the substitutions of mechanical power for that can be traced back to antiquity. The object of automation is thus to make the best possible use of valuable resources, man, materials, money and machine. Automation is no exception and the word is sometimes employed in a revision towards it original sense to stand for mechanization or other.

4. Ibid P. 962.
describe on simple, automatic device, machinic handling of a single process with automatic control. These are four distinct system: -

1. The processing system.
2. The machinical handling system
3. The sinning equipement and
4. The control system. (5)

　Comptuer as a term typically refers to an automatic device capable of solving a problem by exacting a prescribed programme or series of institution. Early use of computers in universities were for scientific and engineering calculation. In the tested study the census bureau and military test establishment were among the initial users of computers for data analysis. Soon, industry and business began to use computers for multiplicity of operations. World wide growth in the value and number of installed computers system was rapid.(6).

　Selecting the literature by computers: - The wide spread use of computerized techniques for the storage and retrieval of bibliographical and other data has considerably influenced the research techniques of schools. The use of computer soft wire to store a wide variety of data is of course a feature of modern which has put its impact on the lives of us all. However, the availability of electronic techniques for carrying out literature. Research in most

academic discipline is a very recent phenomenon.

Information Retrieval System: The concept of information retrieval applied to a computerized data base is normally applied to the retrieval of three different types of information. Once the computed data file or collection of data file have been proceeded and stored in machine, readable, forms or magnetic dishes or tabs, they become accessible by another title and or subject in variety of ways.

Reference Retrieval: The reference retrieval is designed to produce full bibliographic citation for all items in a specific topic included in the database.

Documents Retrieval System: Produced the full texts of all such items and fact retrieval system, the most ambitious of all are designed to produce brief and precise answers to specific questions. These facts retrieval system are usually limited to these basis which concentrated on matters in the pure and applied sciences.

A computer is a device which is capable of accepting information data automatically applying a sequence of prescribed process to the information data and supplying the results of these process. It usually consists of input and output devices, storage arithmetic and logical units and control unit.(8)

Data processing: All automation depends on some form of data (information) processing. The processing of feedback data makes automated control possible. Machine that operates by numerical control must process the engineering information that guide them. Such automated system handle both information and materials. However, automated systems used in offices and schools handle only information. These systems are simply automatic data processing systems.

A computer is especially valuable for processing data automatically. It does more than just compute. It provides many services that are essential to the quick, accurate processing data. A computer memory can be store a large amount of information in all small space. It replaces filing by hand and eliminates the need for bulky cabinets use to hold paper records. A computer also can quickly find any pieces of information stored in its memory.

One of the most important services provided by a computer is its ability to help businessman and to make decisions. A computer can solve problems in logic as well as to mathematics. As a result, it can find the best way to get a job done. (9)

Computer technology helps libraries with automated library procedures. Information theory, a branch of science and engineering can be used to analyze the quality and characteristics of system including transmission and use of information. Management supplies

techniques for analyzing and improving library operations. Mathematics provides a means for enacting statement of library problems, and linguistic help in the creation of indexing. Behavioural science help librarians understand how the mind reacts when faced with such problems as typing to find information in a library.

Information science has developed gradually during the 1900's. Today, libraries recognize its importance and offer courses related to the field. Some schools offer doctoral programmes in information transfer and some schools have taken the same school of library and information science.

Library works involving information science is well suited for reasons who have mathematical aptitude, who are interested in computers and their applications and amount to serve an important social institutions. Many practices are available for those who complete academic information science programmes. Some information sciences hold research positions on large public schools, district, special or college or University library staff. They may work on such project as Meddlars or the design of automated system for the cataloguing or distribution of books.

The library profession offers a wide variety of careers because they are many kinds of libraries and services. A librarian had a allied range of choices in the
in the kind of work he or she does within a library. The profession may attract some one who wants to be part of scholarly research them. They increase use of technological devices in libraries in recent years has attracted people interested in technology.(10)

Imputes equipments :- Works with the punched cards magnetic taps, magnetic disc or drums and other kind of records that contain data institution.

Punched card :- Carry information in the form of patterns of holes operators put the holes in the cards with key punch machines similar type writing. A common type of cards has room for holes that represents 80 letters number and other symbols.

Magnetic tap :- Used in computers is similar to the one used in tap recorders, computer tap carries information in the form of small magnetic tap and send it in to memory.

Magnetic disk or drums :- Store information as magnetic spots of a metal surface. A disc storage units holds a stock of shiny metal disc called a disc pack. A device called a data entry machine records information on magnetic disc or taps. An operator use the device in such the same way as key punch machine. A tap machine must read through a whole real of tap to find information store through a whole real of tap to find information stored a disc machine needs to read

10. Ibid p. 228.
only one disk from the pack. A device called a data entry machine records information on magnetic disk or taps. An operator uses the devices in much the same way as a key punch machine.

Output equipment: Includes card and tap punches, magnetic tape units, magnetic disk or drum units, automatic typewriters, high speed printers, catalogue, ray tubes that display information and voice response units. Cards and tape punches put information on punched cards and punched paper tape. Magnetic tape, disk or drum units records data in magnetic form. Output information is put on punched cards, paper tapes and magnetic tape, disk or drums so it can be put back into the computer easily when needed. Generally, automatic typewriters are used to print only small amounts of information because they can type only one character at a time. High speed printers can print a whole time or more than 100 letters and numbers at a time and 1000 times a minute. A cathode ray tube (CRT) display information on screen similar to a teleum on screen.

It is claimed that computers can serve as a penance for all the existing ills of libraries since these can be made use for performing efficiently all sorts of jobs from that of procurement of the reading materials to their organisation and use. In other words these includes the acquisition, classification, and cataloguing and the circulation and use of the reading materials, besides making provision for information and retrieval system.
Abstracting is the process of analysing documents, by picking out a set of words from them which forthfully represents their sense, and indexing in the process of citing bibliographical reference to current books and papers on particular subjects. As such, they give gist or indicate recently published journals, articles and other documents, appropriate to a subject field, and are published in thousands. Standard journals of abstract, are, however, late by months in publishing and mis many items of research necessary for the functioning of organisation.

Research, technical, public and University libraries rendered special service by compiling indexes to local news papers to localised subjects appearing in periodicals to official news appearing in parliamentary proceedings etc. Indexes may be prepared to cover all fields of knowledge from the periodicals received in the library, particularly in University libraries. These are very valuable to research workers. Abstracts may also be prepared from important articles (of regional interest or of interest to research scholars) appearing in learned periodicals. For these purpose statistics are: the number of periodicals indexed and abstracted may be maintained weekly. In most western countries Librarian or Information Officer does this work of abstracting and translating. But abstracting is a specialised work and should be done by a competent person with their

11. Ibed p. p. 234
background of science and technology, the technical persons are the fittest to do the job. The technical persons may also do some other extra works like the editing of house journals, indexing the minutes of conferences of the organisation of which the library is a part besides compiling Information bulletins for the library. But before it entries in to valuable of translating articles from foreign journals or drops its own abstracts, it should consider the economic feasibility of such projects especially when there are available standard abstract and indexes, as well as facilities for translation of foreign literature from outside agencies at nominal cost.

Therefore, standard abstract of professional societies or government sponsored Information Analysis Centres and data reference Services organised by International bodies like UNESCO, Inter Canadian of Science Unions Abstracting Board etc. are to be preferred. But when an organisation's is confident of doing and efficient abstracting service fortnightly on micrographed abstract bulletins, review of literature and indexes may be desirable, where abstracting is not done locally the library generally provides such users, awareness literature as Accession lists, Selected bibliographies and information letters or Bulletins like abstract of books, Table of contents of articles published in current issues of journals, like current contents and science citation index is another kind of current
awareness literature. But indexes are more helpful in locality minute aspects of subject treated in journals. Mechanical manipulations of terms in indexing has further made possible their co-ordination and combination without much wasted efforts as in Kwcic Index (3).

Auto abstracting: Abstract is an abbreviated accurate representation of documents. While an extract defined as consisting of one or more portions of a document selected to represented the whole.

The automatic abstracting of texts is among the most complicated aspects of information-processing by machine. On the other hand it is a most urgent task, because manual abstracting for large attended information retrieval system is an extracting labourous operation.

Types: Abstract intended for the research and retrieval or original documents.

There are abstract which serve substitutes for original documents.

There are abstract which serve substitution of original documents.

Methods: Sum up auto abstracting is based on the information, that can be devided from the source text. The information includes data on the statistical systematics and morphological structure of the documents. The intellectual con-
content® of documents is disclosed through the medium of
statistics. Therefore, these are the main direction of
auto Abstracting.

1. Use of statistical characteristics of books.
2. Use of grammatical and basic data about the text and
3. Use of artificial information. (13)

8.9 DOCUMENTATION

Documentation is the art of collecting,
classifying, and making readily accessible the records of
classes of intellectual activity. It is a process by
which the documents are enabled to put before the creative
specialist the existing literature bearing on the subject
of his investigation in order that he may be made fully
aware of previous achievements. In the subject of investi­
gation in order that he may be fully aware of previous achieve­ments in the subject and thus be saved from the dissipation
of genius upon work already done. (14)

Now a days documentation is a specialized
branch of study still the trend in the development of lib­
rarian ship and documentation are similar.

Librarianship is concerned with very aspec­
t of books while the documentation is to make available the
original information from reports, periodicals and pamphle­ts.
So much knowledge is accumulated that the need of a standard
classification for the use of abstracting periodicals as for

tion Science P. 28.
As for books become indispensable and here classification on which as a branch of librarianship becomes fundamental basis of the process of documentation.

Physical renovation of knowledge or records is a primary object of both the librarian and the documentalist. The developing of central deposit libraries of storage of so much from co-operating institution and agreement among libraries for requiring material in specific subject fields is bringing the library development in close contact with the documentation. Both of them are concerned with acquisition of appropriate materials and their organisation and interpretation for effective use throughout the society. The documentalist require the subject specialisation and theoretical training.

8.10 CONCLUSION.

Twentieth century is not only the age of science and technology, but also the age of explosion of knowledge and information in various fields. Around three lakhs of books, several millions of articles and more than three lakhs periodicals are published every year throughout the world. The growth rate of periodicals, reports, etc. are 200 percent in the time span of fifteen years. Scientific and systematic control over the vast field of knowledge has become necessary. Therefore, automated information and computer based technology is inevitable in the management system of library.
The vistas of knowledge have grown so fast that the serious readers find it difficult to collect information which might be traceable within the library. Hence, documentation and retrieval of information in libraries on internal part of the library activities. The extent of this activity has become so prominent now that the libraries are being called as libraries and information centre are the treasure of knowledge. The source materials of which is usually in the form of film, filmshows, micro film and microdises. Another form of source materials which is becoming widely popular nowadays is the records and castle where in live voice-carttins of educational and information films are also becoming increasingly popular.

Most of the advanced countries of the west have made horrible achievements in introducing modern technology in the library management system. But in India, Automation has been used mostly on business and industrial organisations.

Application of modern techniques in the management system of libraries in Assam are out of imagination in this present stage. Libraries of Assam are very much neglected both by the government and the public, as a result the entire library system suffers a great deal. The highest academic Institutions like three Universities of Assam are not provided with modern technological devices. In Guwahati University Library only a Xerox machine has been provided.
for the benefit of the teachers, students and the Research Scholars. But the machine is used mostly for official works rather for library service.

Assam and the entire North East Region suffered to a great deal for not establishing a documentation centre or full flaged research centre or a National Type of Library. To provide better facilities in the field of special study and research the North Eastern Council should take leading part in this respect.

Open Access system which is most beneficial for the readers could not be introduced in most of the libraries due to lack of proper building provision and staff. Readers could not be acquainted with the modern techniques of the library as there are no provision for users education. The general readers have got no idea what is classification and cataloguing and other technical process of the library. Hence it is expected that special emphasis should be taken for users education.

Selection of books and acquisition system are very much unscientific and defective. Field study reveals that most of the selection and acquisition were made as per interest of the head of the institution. It has also been observed that books purchased from a particular firm given less emphasis in quality, but rather seems just to clearance the stock of the firm. It hampers the objectives
of the library, therefore, the practice should be avoided.

Inter library loan system and other library co-ordinating and co-operation among different libraries is still lacking. Book selection is on discretionary manner or pushing by the agent or by the publishers. Therefore, acquisition of required materials are not up to the proper need of the readers. Biased attitudes and whims are also applied in selection and acquisition of library materials. Processing works are very much technical and it requires proper professional training. Charging and discharging procedure under which the library runs should be strictly dealt with. In any circumstances the acquired materials will be safeguarded after fulfilling the five laws of library science. Classification of libraries which helps the readers for getting materials quickly and easily and to show readers the acquired materials or the collection of the library.

Implementation of recording, retrieving, informational and data base system of libraries has created tremendous change in the modern management system of libraries. Technology can provide various facilities, but on the other hand it creates new administrative problems.