CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE PROBLEM

Library is a collection of books and other reading and audiovisual materials, organised, arranged and recorded in a systematic way for effective use by users. A well organized and efficient library service enables scholars and other categories of library users obtain optimum utilization of library collection. The purpose of the library is to collect, organize and disseminate recorded information to the users according to their requirements for study, research, planning, decision making and also for immediate factual knowledge.

Library is a growing organism; its growth is manifold. Library collection, library users, library functions, etc, are increasing. At the same time, the demands of users have become more and more specific, varied and sophisticated which are to be satisfied immediately and sufficiently. The situation is aggravated due to enormous growth of publications in different fields and in variety of multidisciplinary fields as a result of explosion of knowledge. Besides individuals, academic and research institutions like universities, government departments, learned societies, business and industrial concerns and others are continuously bringing out publications which have created problems in order to acquire them all as well as have access to information specifically and instantly. Due to various limitations in manual methods as practised in library operations and services and also limited number of staff and such other related factors, it becomes difficult to meet the basic objectives of a library establishment. Libraries are now under pressure to provide better and efficient service with the existing
limited infrastructural facilities. They are now under constant search for certain means in order to maintain and upgrade their services to the full satisfaction of users.

It has, at present, become imperative for automating the library for satisfactory service. Computer has now become a source of strength for library managers to maintain and improve their services, so also their image. Lovecy (1984: 102) has rightly stated that "Library automation is a major undertaking which requires a positive operational justification. On examination of the pros and cons and a realization that it will, in the course of time, change the whole nature and approach of the library". The process of library automation has begun in United States of America and in United Kingdom practically during 1970's and 1980's respectively. Presently, libraries of these countries have adopted information technology in their day to day library activities which makes the services efficient and expands access to information tremendously. These libraries are witnessing establishment of infrastructures for implementing the plan of library automation at almost all levels. Main works in library automation include inhouse operations, bibliographic searches, inter library loan and resource sharing, etc. Such positive experiences in developed countries are the key factors for the use of computers in libraries of developing countries in order to automate their library operations and services.

In India, there are at present 216 universities including deemed universities (Appendix 1) with a wide range of academic programmes. State universities have been established with the enactment of legislation by respective state governments and by the Central Government of India for the central universities. These universities are guided mostly by the University Grants Commission for their academic programmes. Number of institutions of higher education including universities are increasing in India to cater to the needs of the country. Because of the population growth and thereby students' growth, also due to emergence of new...
disciplines either independently or bifurcating from the already existing disciplines. It has become rather imperative for the country to introduce new subjects in the existing universities and increase the intake capacity of students in the existing departments, besides establishing new universities to meet the requirements.

In order to provide adequate required services to these growing academic community, librarians are facing enormous difficulties with the existing pattern of works. Librarians are to manage the growing workload in different spheres and for varied forms of users' specific demands with the existing infrastructural facilities. Although there is increasing demand for various sophisticated service, librarians are not in a position to satisfy them because of limitation of manual methods practised, financial constraint, and such other factors.

Introduction and use of information technology in automating the operational activities and information storage and retrieval services of the libraries of developed countries and their effectiveness have given a moral boosting to the library managers of developing countries like India for application of the technology in their library activities also Ravichandra Rao (1986:2) suggests "In India, as in developed countries, libraries have been growing in complexity and size during the last three decades. Interestingly, several academic and industrial libraries have bestowed attention on their collection development, programmes to suit with different information requirements and different user categories. As a result, acquisition, processing and circulation of documents have become specialized functions demanding a high degree of efficiency". These efficiencies have been achieved by the planned use of information technology in the libraries of developed countries.

Besides other factors, due to primarily two great hurdles in library finance in India - the increased cost of publications particularly foreign publications due to regular increase of foreign exchange rates and also the static or marginal increase of library budget - it is difficult
to provide effective library service. The noteworthy fact is that the major portion of the library budget is being flown to staff salary the increase in dearness allowances, incremental benefits, pay scales, salary budget rises. This creates a situation that libraries have to limit the services drastically.

In the changing situation, where infrastructural facilities for library automation are at the door steps in India, availability of components of information technology is at very near place to each locality, some university libraries of India are sincerely planning to introduce automated system in their library activities. Those libraries opting for automated system can get much help from the experience of those having the automated system in operation in India. We have seen the proper development of software packages in various different fields, but this is not diverted towards library operations. Hardware requirements are available both indigenously and also being supported by a number of commercial farms like PCI, WIPRO, HCL, etc.

University libraries in India are now under pressure from the users to go for automation. This is due to growing nature of library collections, inter-disciplinary nature of documents, readers specific demands, limitation of existing manual method for instant and sophisticated service, limited number of staff and finance. Because of a number of factors including the institution of the magnificent plan of University Grants Commission's INFLIBNET (Information Library Network) project, academic libraries of higher institutions specially universities and colleges are now actively considering for introducing computers in their library operations and services. The INFLIBNET programme which is proposed in the line of JANET (Joint Academic Network) of United Kingdom has received active support from the Government of India. The programme has completed a number of steps including feasibility study, identification of participating libraries, co-operating actively for the development of
infrastructural facilities and organizing training programmes for selected library staff at various levels of the participating libraries, etc. INFLIBNET has also been extending financial grants in phased manner to its participating libraries to meet the different requirements like procurement of computers and other related items for establishing infrastructural facilities.

Besides, comparatively decreased cost of computer hardware and software due to competitive market growth, availability of technical hands for working in computer environment are also encouraging to go for automation in libraries. In such a situation, we have to be very cautious in giving steps towards this changeover in order to make the system for achieving desired results.

Library catalogue being the basic information retrieval tool of the library collection in a particular library or group of libraries, proper weightage is required to be given to cataloguing system in this changeover situation. Creation of a computer readable database and its prospective use for various other house keeping operations and other purposes is the first requirement in the process of automation. Catalogue is the original form of prospective database prepared, maintained and used manually. When the library goes for implementing automated library procedures, it needs to be started with cataloguing system only. This would enable in gathering experience also by both library staff and library users to be utilised in other operations step by step. This experience would enhance skill and confidence to proceed with the project and thereafter extend automation to other applications. Further study and research would be required in order to provide for proper guidelines for extending automation in other areas of the library.
1.2 CONTENTION

Library functions are consisting of areas like acquisition, processing, administration, circulation, reference and documentation/information services, etc. All these areas are to be studied in depth for introducing automation in different fields. Experience shows that a phase-wise implementation of automation in these areas instead of covering all areas simultaneously is rather advisable. In fact, libraries of developed countries like the United States of America and United Kingdom have also changed over from one area to another in the processes of automation and ultimately implement it in all areas. The planners have to decide which area needs to be automated first and what next. It is found that cataloguing system is to be automated first as it is the basic component for all other library activities. When automation is introduced in the cataloguing work of a library, it would be developing a machine-readable database which would be the base for all other housekeeping activities of the library as well as information retrieval and documentation/information services for users.

This study has been undertaken on the prospect of automated cataloguing system in the university libraries of Assam. While changing over to automated cataloguing system from existing manual cataloguing system, necessary steps are to be undertaken systematically in the midst of prevailing working conditions. To make the study practical and effective the three university libraries of Assam, i.e. the Gauhati University Library, the Dibrugarh University Library and the Assam Agricultural University Library have been identified as case studies as these institutions have already spent long years with manual systems. The two Central Universities, Tezpur University (Tezpur) and Assam University (Silchar) and the Indian Institute of Technology (Guwahati), which is also a deemed university established only recently (1994) are comparatively much recent ones. Hence, there is no such need to study the process of automation of these newly established institutions.
Particularly, in North East India, the public in general and even special readers are less aware of the potentialities of library services. Primarily it is because, even the university library service in the region is far from being satisfactory. As such, the question of users being oriented to library services and facilities is not at all popular. If automation is introduced in library activities and the public comes to know about its utility, then the concerned authorities will also take interest in developing the library services orienting the users to its different facilities. Introduction of the INTERNET (International Network) in a number of institutions in India and in a few institutions in Assam have already made the users conscious about the tremendous service which could be offered by the libraries in the matter of information retrieval and resource sharing. As such, the library automation based on automated cataloguing in university libraries of Assam will initiate a proper library environment which would benefit tremendously this region, the academic community in particular.

1.3 LITERATURE SURVEY

Literature survey is essential in order to be aware of the findings and principles of different aspects involved in planning and implementing automated catalogue. Different forms of literature both macro and micro, viz. books, periodical articles, proceedings, reports etc. covering all possible organizational, administrative and managerial, technical, and other relevant fields of university library system have been surveyed. Literature depicts the state of higher education in India during ancient, medieval and present time. These documents have presented a true picture of the existence of libraries in higher seats of learning during ancient and medieval periods in India, although they concentrate on general field of education rather than library and information service. Library and information science is a newly developing subject although there were famous libraries in medieval time.
It is very encouraging to note that Education Records of Government of India, Part 1, 1781-1839 have cited the existence of libraries in India during eighteenth century. With the establishment of first three universities in India, i.e. Calcutta, Bombay and Madras universities in 1857, India achieved a major goal of higher education programme. Report of Indian University Commission (1902) is one of the earliest and important documents discussing the modern university library situation in India.

Libraries along with library science education is marching towards its development in a very systematic and satisfactory way. This is found in Indian scene also. The year 1924 is a year of great importance in the history of library movement in India because of entry of Dr S R Ranganathan, father of library movement in India, to the profession as librarian in the university of Madras. His contributions in the world of library classification, library cataloguing and establishment of five laws of library science besides in other fields have given him a unique distinction. His contributions have placed India in a respectable position in the world in the field of library science.

The survey report by Carl M White (1965) on the library system of university of Delhi and the UGC report prepared under the chairmanship of Dr S R Ranganathan (1965) on University and College libraries have categorically mentioned the library services and management. A large number of publications in various forms are being published in India inviting attention to the existing situation and prospects for development and upgradation of library and library science education in India.

The second half of the present century shows a marked growth in publications of library related literature covering various aspects. Mention may be made on the publication of University libraries by Wilson and Tauber (1976), a publication discussing various aspects on the university library organization. Among Indian publications, one on University libraries o-
India by Ojha (1980) and the other by Srivastava and Verma (1980), Development of library services in India by Agarwal (1988) and seminar collections like National policy on University libraries edited by Inamdar and Ramaiah (1989), National Information policy edited by Raghavan (1990), etc, are some important publications during the period. However, there is almost no publication stating and discussing the conditions of the university libraries of Assam, barring few brief descriptions here and there. Particularly in respect of cataloguing system, there is not yet any detailed survey made or published on preparation, maintenance and use of library catalogues in the three universities, i.e. Gauhati University, Dibrugarh University and Assam Agriculture University.

It is now the time when consideration on use of computer in library operations and services are gaining momentum. Libraries in developed countries have already experienced using automation in their day to day activities. Those libraries with automated system have experienced optimum utilization of resources in a very systematic and scientific way.

are some of the classic examples deemed fit to be mentioned.

Among the micro literature, Small revolution in micro computers and libraries by Ertell
(1984), Innovate, automate or evaporate by Marrifield (1986), Library automation in British
and how university library automation by Deogan (1987) are important additions in this
direction.

Cataloguing is an area of library science which has been getting tremendous importance
by the library experts for its preparation, maintenance and use Rules for a dictionary
catalogue by Cutter (1876), A primer of cataloguing by Norris (1952), Cataloguing Rules
by Library Association (1953), Cataloguing by Sharp (1956), Information indexing and
subject cataloguing by Mectcaff (1957), Subject catalogue by Coats (1960), Principles of
Cataloguing by Jolly (1961), Information storages and retrieval tools by Becker and Hayes
(1963), Report on International Conference on Cataloguing Principles by IFI A (1963),
Classified Catalogue Codes by Ranganathan (1964), Cataloguing and Classification by
Mann (1966), The subject approach to information by Fosket (1971), Cataloguing by
Sengupta (1971), Subject retrieval in the seventies by Welligh and Wilsom (1972),
Cataloguing by Hunter (1974) another one by Hunter and Bakewell (1975), Anglo-
American Cataloguing Rules (1978), Cataloguing and classification by Wynar (1980),
Topography by Piggot (1986), etc. may be mentioned as the important works in cataloguing.

Among the important micro literature on cataloguing Development of authorship entry
by Pattee (1933), Crisis in Cataloguing by Osborn (1941), Time study of manual cataloguing
by Aurby (1972), Cataloging: periodicals by Chand (1972), Cataloging its nature by Giannin


During 1980's and in the present decade, book publishing in different areas like online searching, Software packages, networking, etc are found to be very much encouraging. The online catalogue by Hildreth (1984), Public access online catalogue by Mathews (1985), Designing an online public access catalogues: OKAPI by Mitev, Vennar and Waker (1985), Online searching by Hartely (1989), JANET OPACs by University of Sussex (1991) are basic examples. Of the micro literature, Online catalogues and library users by Beckman (1982), Online catalogue vs card catalogue by Lohman (1983), The Online catalogue revolution by
Kilogour (1984), Development of BLCMP's OPACs by Foster and Welling (1989) are few examples.


Certainly, these documents have not influenced much in Indian context and most of the documents have discussed experiences of automated system of libraries of developed countries. Presently, we have noticed in India that there are growing trends of discussions, conferences, seminars, book publications on library automation. Annual conferences of the national professional associations in library science like Indian Library Association (ILA), Indian Association of Special Libraries and Information Centers (IASLIC), etc are giving maximum importance in library automation covering various relevant aspects of library automation in the annual conferences as seminar topics. The Indian Association of Teachers in
Library and Information Science (IATLIS) has also concentrated their annual conferences discussing library automation and application of IT in libraries. The pre-conference seminar volumes of these organizations give clear and noteworthy picture for the study of library automation and its implementation. Organizations like Indian National Scientific and Documentation Center (INSDOC), Documentation Research and Training Center (DRTC), Defence Research and Development Organization (DRDO), National Information System for Science and Technology (NISSAT), etc, besides being engaged in other activities are also engaged in manpower training to enable young library professionals to work in automated environment. These organizations are regularly bringing out journals wherein library automation is found to occupy a conspicuous position.

In additions to the above cited Indian publications, there are some more books and periodical articles and also seminar papers reflecting the trend of developments in library automation in Indian context. Planning Commission Working Group (1985) on Modernization of library resources and informatics is one of the landmark document added in the area. Automation of University library by Chopra (1980), has stressed on the need for automating university library activities. Computer application in libraries IR and networking edited by Parthasarathy (1986) is a major work in the area discussing details of library automation and information retrieval.

The advantageous points in library services, operations and management for the application of computer technology in developed countries have encouraged Indian librarians for introducing this technology. Pressures are also mounting from every corner in different directions for introducing automation in Indian libraries. Realising the need of the hour, organizations like ILA, IASLIC, IATLIS, and such organization at various regional and local levels have rightly decided the topics of different seminars that fall in the automation line.
Modernization of libraries' by ILA at Tiruchirapally (TN) in 1987 (the author presented a paper in this seminar on automation of cataloguing) is one such examples.

Information technology: industry and works (1987) is a title of one such work of a series of works edited by B M Gupta and other. P S G Kumar's- Computerization in Indian libraries (1987) and P K Mahapatra's- The computer in library services (1988) are few books discussing basic aspects of library automation.

Several articles have been published on application of CDS/ISIS in library and information activities in recent times. Development of Database with CDS/ISIS by Sin and Choudhury (1994) is a landmark addition in the area. In IASLIC Bulletin, DESIDOC Bulletin, ILA Bulletin also a number of research articles appears on CDS/ISIS and other related aspects of library software packages, besides a number of papers published in the periodicals like Herald of Library Science, Journal of Documentation, etc.

The UGC report by working Group on INFLIBNET is one of the important document covering feasibility study for automation of different University, College and other libraries devoted to Research and Development works. The report deals also on manpower requirements, technical and financial aspects, etc.

So far, most libraries are working for automation on trial and error method. Software used are either CDS/ISIS or from commercial farms like LIBSYS, Dbase-3 plus, Baseplus (Techlibplus), etc. To gather knowledge on the new technology by way of acquaintance and working experience is another requirement of library professionals in change over for library automation.

However, till this date, we could not identify a single document that may be taken as a guide in adoption of automation in any university library, particularly in selection of software package, resolving financial constraints, training programme, resource sharing, etc.
case of local environment. It appears that each university library is unique in its existing conditions, environment, problems and prospects which needs intensive and exhaustive study in order to make it compatible to adoption of automation at any stage and of any character. Hence, a study on the "Prospect of automated cataloguing in the three university libraries of Assam: based on users' satisfaction under major catalogue codes" has become an essential necessity to be completed at an early date.

1.4 OBJECTIVES OF THE STUDY

The objectives of the study are:

1. To study the university library system in Assam and to find out how far the present systems are satisfactory in providing service to the users.

2. To study automated library system and to find out the merits in introducing automated system in the libraries of Assam.

3. To study automated catalogues and to find out its advantages in having access to information.

4. To find out the advantages in meeting readers' needs with OPAC (Online Public Access Catalogue).

5. To study the present manual card catalogue system practised in the university libraries of Assam and to find out to what extent these catalogues could reflect the actual potentiality of the library.

6. To find out whether existing card catalogues could satisfy readers in meeting various approaches under - author(s), title, subjects, etc.

7. To find out whether different entries in manual catalogue system help in locating and retrieving documents successfully from library collection.
8. To find out whether users are satisfied with preparation, maintenance and functioning of manual catalogues by the libraries.

9. To find out the deficiencies in existing card catalogues in meeting its stated objectives in order to retrieve information specifically, sufficiently and instantly.

10. To find out bibliographic standard for creation of bibliographic database of the library collection in the University Libraries of Assam.

11. To find out and suggest a phase-wise scheme for introducing automated catalogue system in the University libraries of Assam.

12. To study the different existing conditions regarding management, finance, staff, collection, users, etc. and to find out the ways to deal with these aspects in the process of automation.

1.5 METHODOLOGY

In order to make the study comprehensive and purposeful, data are collected from the following:

Primary sources and direct personal observation

1. Reports of the committees/commissions, annual reports of libraries of Gauhati university, Dibrugarh university and Assam Agricultural university are taken as primary sources for the study.

2. Survey reports based on questionnaires despatched to:

(a) the three university libraries of Assam, i.e. the Gauhati university, the Dibrugarh university and the Assam Agricultural university in order to collect data related to the present functioning, requirements and future plan of the libraries;
(b) to the different categories of users of these three university libraries to collect data about their satisfaction of library service and other related aspects with special emphasis on the cataloguing activities of the libraries in question.

3. Interviews, interaction are made with library managers, library professionals and beneficiaries of the university libraries.

4. Personal experience on the operations and services of existing manual catalogues practised in the three university libraries of Assam and also automated catalogue practised in the university libraries of Sheffield (UK) and Hyderabad (India).

5. Records on hands on experience on the working of automated cataloguing at the university library of Sheffield (UK) and University library of Hyderabad (India) and interaction with the library computer staff of these libraries as well as experience in the NEC-sponsored Bibliographical and Documentation Project on N.E. India for preparing a computer readable database, undertaken by the Department of Library and Information Science, Gauhati University under the directorship of Dr. Alaka Buragohain.

In order to propose introduction of automated catalogue for effective service, it is necessary to study the functioning of the libraries where automated cataloguing is practised and the author had visited a number of libraries in United Kingdom practising automated cataloguing. Discussions with the professionals handling technicalities of automated cataloguing have been made for identifying problems they have encountered in the process of automation. In all cases the author received very positive manual and technical responses which may be applied for planning an automated cataloguing system in the three university libraries of Assam.

The author visited a number of university libraries in India also to make the study more effective and to suggest means for solving problems. The author has also got hands on
experiences with the working of the computer at his study place in Sheffield (UK), also at his working place, Guwahati (India). It may be mentioned here that the Department of Library and Information Science, Guwahati University is now engaged in creation of a machine readable North East India database supported by North Eastern Council, Shillong. UNESCO's CDS/ISIS package has been accepted for creating this database and fields have been created compatible to CCF (Common Communication Format).

**Secondary Sources**

Secondary sources like books and periodical literatures have also been consulted.

Professional as well as practical experience of the author as a College librarian for more than eight years and as a faculty member in the Department of Library and Information Science, GU for more than ten years and also visiting United Kingdom for advanced study course in Information Studies in the University of Sheffield with a British Council's scholarship have helped in identifying the problems likely to be faced by the university libraries of Assam at different stages of implementation of automated cataloguing.

### 1.6 CHAPTERIZATION

The study has been divided into seven chapters including the Introduction and Conclusion: observations and recommendations. Besides, bibliography and appendices are also attached.

In the first chapter Introduction, the subject has been introduced wherein background of the problem, contention, literature survey, objectives of the study, methodology have been discussed.
In the second chapter, a discussion on the university libraries of Assam, the state of the art report has been made highlighting relevant areas. A detail discussion on the existing situation of manually operated library card catalogue system of the three university libraries of Assam, i.e. the Gauhati university, the Dibrugarh university and the Assam Agricultural university has been made on the basis of an analysis upon two survey reports.

In the third chapter, Library automation is introduced and library functions that can be automated in order to achieve accuracy, proficiency, speed and primarily a knowledge management system to have expansion of access to the increasing volume of multi-faceted recorded information resulting out of explosion of knowledge has been discussed, aimed at meeting the needs of increasing demands of users with their specialized needs. Possibility of application of computers in different areas of library house keeping operations and services phase wise for an integrated system in order to meet the basic objectives of library system have been indicated in this chapter.

In the fourth chapter, a study has been made on the advantages of automated catalogue and its various requirements like hardware, software, humanware, infrastructural facilities, structural design for data input, data manipulation and retrieval and data display including different formats (MARC, UNIMARC, CCF, etc). An experience in the form of users interface on the OPACs of the three university libraries of United Kingdom and also experience of working in creation of machine readable database on N.E. India in the Dept of Library and Information Science, GU has been discussed here.

In the fifth chapter, a detailed discussion on the use of existing manually operated library card catalogue system of the three university libraries of Assam has been made on the basis of an analysis upon one survey report: on the practice adopted in cataloguing system by these
university libraries and on users' satisfaction on the use of existing card catalogues indicating users' preferences on the various access points of different records.

In the sixth chapter, different aspects have been investigated for the prospect of automated cataloguing in the three university libraries of Assam, based on the system analysis including structural design, infrastructural facilities including its impact upon financial administration, manpower planning, selection of hardware and software, etc.

In the seventh chapter, a summary of the principal observations of the study has been made and suggests measures to be adopted for prospective implementation of automated cataloguing as a knowledge management system with indication of application of information technology for future networking system for resource sharing at local, regional, national and international levels which may be taken further study and investigation in application of computers in other areas of library house keeping activities.