Encyclopaedia of Academic Library System

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Preface

The basic function of the academic library is to aid the institution in carrying out its program. Each kind of academic library—junior college, college, and university—in addition to the characteristics which it shares with all academic libraries, serves certain purposes and has certain features and problems peculiarly its own, which grow out of the particular character and scope of its parent institution. In general the name "college" is given to an institution of higher learning which offers a four-year curriculum leading to a bachelor's degree in arts and science; requires graduation from an accredited secondary school or its equivalent for admission; and is not divided into separate schools and faculties. This definition does not cover the wide variation among colleges as to control, purposes, programs, and size. There are liberal arts colleges, amnay of which emphasize specialization is given fields rather than liberal education; colleges for the preparation of teachers, and technical and agricultural colleges. Some colleges offer a fifth year leading to the master's degree; some call themselves universities before they have developed a sufficient number of professional schools or faculties with the quality of advanced teaching and study to merit the title. Colleges may be under state, municipal, or denominational control; or they may be privately endowed and controlled. Enrollments range from fewer than 500 students to more than 10,000. At the turn of the century, college libraries entered upon a period of growth and expanded rapidly after World War I. In most cases their major concern was to acquire and to preserve materials rather than to major concern was to acquire and to preserve materials rather than to encourage and facilitate their use since at that time, the textbook was the chief method of instruction. As more general and specialized knowledge became available, dissatisfaction with the textbook as the core of the teaching process became widespread, and increasingly, in the thirties, the college library was give the requirement and the opportunity to select and evaluate learning materials to support the teaching program and to aid students in their use.

The role of the library, as an essential part of the educational program of the parent institution, has included "collecting the records of civilization

and documentation of scientific pursuit," and providing programs which teach users how to retrieve and interpret these records and documents. The library's collection should include all types and forms of recorded information, including print materials in all formats, audio and visual materials, sound recordings, computer materials, graphics, microforms, machine-readable reports, government documents, archival materials, and the equipment needed to utilize these materials. The collection should be selected and development on the basis of the institution's educational philosophy and objectives, the extent an nature of the curriculum, the methods of instruction, the size and nature of the student body, the size of the faculty and their needs for research materials, and the range of services required by the library's users. The library should make materials easily accessible physically through open shelves or other efficient means, and bibliographically through catalogues, bibliographies, and indexes; given special assistance in the use of specific materials as well as formal instruction in library resources and use; borrow needed materials on interlibrary loans from other libraries; make database searching available; and provide adequate and comfortable physical facilities for study.

In order to be able to offer such a program of service, the staff of professional librarians must be educated in library and information science with a degree from an ALA-accredited program and have some subject specialization as well as language proficiency. They must keep up with trends in higher education, curriculum developments, methods of teaching, and new materials and sources in order to be able to participate actively in the instructional program of the college. The college library is organized and administered by the director or chief librarians. The organization should be suitable to the needs and programmes of the institution and should encourage the fullest and most effective use of the library's resources. Theoretically, the size of the professional staff will be determined by the type of organization within the library, the college enrolment, the size and character of the collection, the teaching methods in use, the number of hours the library is open, the arrangement of the building, the range of services, and the amount of funding.

The present publication has been designed to approach this subject in a simple and lucid style. The method of presentation is very clear and lucid, which can be easily followed by the students.

—Author

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Introduction

Academic libraries have a close relationship with learning and research and have influenced these things as well. Their history is one of evolution and change that parallels the history of their parent institutions. Leaders and innovators championed features of libraries that are now taken for granted. Responsiveness to student and faculty needs, quality of service, and resilience have been hallmarks of academic libraries in the US. A chronological review of the literature demonstrates these characteristics. This paper is divided into the major periods of the history of US academic libraries: the Colonial period, the Nineteenth Century, and the Twentieth Century.

Included in this review of the literature are journal articles, books, and dissertations published between 1980 and 2003 that discuss historical aspects of the library in four-year colleges and universities in the United States. Histories of individual libraries are usually omitted. Histories of libraries in two-year colleges, architectural history, conference proceedings, and editorials have not been included; nor have publications on specialized libraries in academic institutions such as medical, law, or music, or research collections that are not a part of an academic institution (Library of Congress, Centre for Research Libraries). Citations were identified by exhaustive searching of the *Library Literature, ERIC, America History and Life, Digital Dissertations*, and *WorldCat* databases. Bibliographies of those citations were reviewed to identify additional sources. Key authors were identified and author searches were then performed in the databases listed.

Mirror of Higher Education

That the history of academic libraries mirrors the development of higher education implies a process of growth, assimilation, and diversification (Shiflett 1994). The role of the library has evolved as the

priorities of the institutions have evolved. At the same time, academic librarianship has developed into a distinct profession with its own set of ideals, objectives, and commitments within the academic community (Wiegand 1983). Shiflett's work on the origins of academic librarianship is a classic and an excellent summary of the literature and research on this topic that was published before 1980. He states that it is necessary to understand the history of American higher education to truly comprehend American academic librarianship. The library "prospered or suffered in proportion to its value to the college" (Shiflett 1981) and the status of the librarian was directly related to the library's place in the college. He concludes that academic librarianship has failed to become fully defined because it lacks a body of theory and research (Shiflett 1981).

Libraries "can be viewed as information systems that both reflect and influence, and even help to create, paradigms and authority, for they set limits in various ways on the ideas and information available to users" (Dain 1990). Due to a process called *transparency*, in which an entity is taken for granted and not well understood, the contexts and institutional structures of libraries are for the most part explored only in the library literature by librarian-historians. It is a disturbing indicator of the relative invisibility of libraries in higher education that there are few articles or books about them in the literature of that discipline. Their role in acquiring and producing knowledge within intellectual, institutional, and social contexts needs to be developed with a research base and disseminated in the literature of disciplines that are related to and affected by them.

Colonial Libraries

Until the American Revolution, most books were imported from England. Local presses produced materials such as pamphlets, school texts, newspapers and business or legal forms. From 1639 to 1776, they produced about 60 books per year. After 1776, there was an increase in publications produced in America. An 1804 catalogue listed 1, 338 American publications in print (Hanson 1989).

When John Harvard donated approximately 300 of his books to Harvard University, he created the first academic library in the colonies. The colonial college libraries were characterized by small, eclectic collections of donated books. There was no funding from parent institutions to systematically purchase materials to supplement the colleges' programmes. Libraries were vulnerable to fire because the buildings were made of wood. They were open for only a few hours per week and were operated by a professor who was assigned to be caretaker of the library as part of his teaching responsibilities. In some colleges, he had to pay for books that disappeared from the inventory himself.

Since a classical curriculum was fixed, there was little need to read anything but textbooks (Shiflett 1994). Most books in libraries were theological works, as well as some classics and standard treatises in philosophy, logic, and history. There was no standard way to categorize books so they were arranged either by size, donor, subject, or author until the adoption of the Dewey Decimal classification scheme in 1876. The library usually consisted of one or two rooms of books located in the main building or in the chapel. Harvard constructed the first freestanding library building in 1841 (Hanson 1989). Before the late 19th century, "academic libraries, with the exceptions of Harvard and Yale and a few others, were as undistinguished and arid as the colleges themselves" (Dain 1990).

Nineteenth Century

Changes in scholarship and learning during the late nineteenth and early twentieth centuries greatly affected libraries. The emphasis on publishing results of research during this period led to a proliferation of journals and scholarly monographs and the need for primary source materials (Shiflett 1981). Serial publications gained in importance in the early 1800s. There were fewer than 100 periodicals other than newspapers published in 1825; by 1885, there were 9, 000. Due to the difficulties inherent in such business ventures, they had a life expectancy of about three years (Hanson 1989).

First Endowments

Harvard and Yale were the first libraries to establish endowments during this period. This created a more stable financial base for those libraries. John L. Sibley began working in Harvard's library in 1841 and "was indefatigable in building the collections, enormously resourceful in attracting gifts and had never a doubt as to the vital importance of amassing the published and written record of all events and discoveries, great or small" (Hamlin 1981). He increased the library hours from one hour per week for freshmen and sophomores and two hours per week for juniors and seniors to seven hours daily Monday through Friday.

Literary Society Libraries

College libraries during this period were not adequate for the students due to their limited hours of operation and limited collections. From 1800 to 1880, literary society libraries flourished. Members paid dues that supported their libraries and selected the books that were bought for the collection. The books were in English and encompassed fiction, drama, history, political science, biography, and travel. They were scholarly and classical and included encyclopedias, dictionaries, and other reference

works. The libraries were open to all students and faculty and sometimes to alumni and townspeople. These libraries could be considered the predecessors of present day undergraduate libraries (Dain 1990). The literary societies declined when the natural sciences became more prominent in the curriculum, graduate instruction increased, and the course elective system came into existence. As literary society libraries declined in importance, college libraries correspondingly increased.

When Johns Hopkins University was established, faculty used the German seminar method for instruction instead of the recitation method. This created new demands for library services and materials. The librarians responded by keeping the library open longer, building stronger collections with primary and secondary sources, providing bibliographic instruction and reference service, and erecting multipurpose buildings designed to accommodate people as well as services (Wiegand 1983). As a result, there was a tremendous growth in collections. College libraries assimilated the student literary society libraries and gifts increased. Departmental libraries, rather than one centralized college library, predominated. The metaphor of the library as the "heart of the university" is assumed to have been first stated by Charles Eliot, longtime President of Harvard, in 1873.

Growth in Collections

The number of volumes in the collection at Harvard increased by an average of 63% per year from 1856 to 1876; from 1776-1856, the number had only increased by 7.5% per year. This occurred concurrently with the course elective system, an expanded curriculum, the rise of graduate schools, and new instruction methods. "By the end of the nineteenth century the typical small college library could be characterized as containing 6, 000 to 20, 000 volumes comprised mainly of donations. Emphasis was primarily on supporting the curriculum rather than research" (Hanson 1989).

Improved Use

At the end of the nineteenth century and into the twentieth, there was a definite shift in emphasis from conservation and protection of books to making them accessible and encouraging students and faculty to use them. There was recognition of the need to provide effective and personalized service as well as instruction in the use of the library and reference materials. It became accepted that books should be classified according to subject and not according to fixed shelf locations. Each book was to be listed with an adequate bibliographic description and this information was to be made easily available to users by author and subject. Cooperation with other libraries was seen as advantageous for borrowing materials (Hamlin, 48-9). Hours were extended and facilities improved to provide

a comfortable work environment for students from early morning to late evening on weekdays and for some hours on weekends. Financing the library became an accepted responsibility of the parent institution. Placing books on reserve for use by students in a particular course was a new practice. Book catalogues of materials held by individual institutions or by groups of libraries were published to facilitate the sharing of resources (Dain 1990).

Gender Bias

Almost all research university library directors were male, as were most deputy and assistant directors. This demographic only began to change in the 1970s (Dain 1990); however, a noteworthy regional phenomenon occurred in the Midwest. Bailey discusses the great increase and influence of female academic librarians in the Midwest during the last quarter of the nineteenth century. Students from this period required better library resources to support the changes in curriculum and teaching methods. The Midwest accepted coeducational institutions before other parts of the country. "The availability of college-educated women in conjunction with the low status accorded academic librarianship enabled women to enter college and university library work in growing numbers" (Bailey 1986). Faculty wives sometimes served as librarians because they were seen as "cultured, conveniently available, and an inexpensive source of labour" (Bailey 1986). Some of the dedicated women who led these libraries founded state library associations or published articles and books. One-third left their jobs when they married; one-quarter remained in their jobs for 20 years or more. Although not formally trained in library practices, they learned by observing other libraries, attending conferences, and reading the professional literature (Bailey 1986).

Beginnings of Research Libraries

Wiegand believes that "the role the research library assumed in the scholarly communication system fostered by the modern American university in the last quarter of the nineteenth century in large part determined the way the research library profession defined its responsibilities to the research community" (Wiegand 1990). He explains that the ideology of reading at the time was that it should be done for a purpose and it should be done systematically. There were many lists of recommended reading. "Because institutions and their instructors did not regard independent reading very highly, college librarians felt little pressure to build large collections. Instead, they merely guarded collections donated from estates of deceased faculty members or alumni" (Wiegand 1990). After the publication of Darwin's *Origin of the Species* and the establishment of land grant colleges, education adopted a philosophy of scientific inquiry.

As universities became interested in finding and communicating new knowledge, libraries began to build supporting collections.

Collection Building

Competitive collection-building was characteristic of academic libraries of the late nineteenth and early twentieth centuries. Yale's library was the second largest and third oldest in the country. Yale was the first American college to award a Ph.D. in 1861. An 1871 faculty report emphatically states the importance of a comprehensive library and so the library participated in the transformation of the college into a university (O'Connor 1987). Since no library could have a "complete" collection of all published works, libraries began to specialize. Libraries in large cities could cooperate with each other in acquiring and sharing materials; however, Yale was an institution that was isolated from other research libraries and so tried to acquire as comprehensive a collection as possible. Rare books were acquired through alumni donations (O'Connor 1987). Libraries achieved distinction because of donations of unique or rare collections. They were evolving from storehouses to workshops for research (O'Connor 1987).

Leaders in Librarianship

Several highly influential and innovative figures in academic librarianship appeared during the nineteenth century. Justin Winsor was appointed head librarian at Harvard in 1877. He served in this capacity for twenty years and brought about evolutionary changes and a new role for the library. Winsor is said to have humanized the library. He was recognized as a scholar, innovator, national leader in professional concerns, and builder of the Harvard library (Hamlin, 50-56).

Archibald Cary Coolidge became director of the Harvard Library in 1910. He had been a chair of the history department and had travelled extensively, all the while formulating a vision of what the library should be. He identified his priorities as finding space for the collections and research, addressing a patchwork cataloguing and classification system, and building a quality collection.

He provided vision and leadership and also encouraged teamwork and shared responsibility (Byrnes 1982). He aggressively built an outstanding collection of foreign research materials and donated much to the library himself. Because of his efforts, the Widener Library was constructed, which "remains the physical and spiritual centre of the university a base and a centre for research and instruction at Harvard." Coolidge "helped make the library an essential part of the university organization, an intellectual symbol of the university. The skill with which Coolidge anticipated future needs of the collection and the library as a whole created

a magnet that has helped Harvard to attract and retain scholars and thereby to make it a great university" (Byrnes 1982).

In 1883, Melvil Dewey became head librarian at Columbia University. His approach there was described as "revolutionary". Some of the changes he implemented were: extending library hours from 10 per week to 84; permitting students to access the shelves; invention of the card catalogue system for locating materials; lecturing on the use of the library; organizing the first reference department to "counsel and direct readers;" making available writing paper and ice water for the students; setting aside an area of the library where readers could talk; instituting a suggestion box to obtain feedback; and hiring six female Wellesley graduates as library assistants (Hamlin 1981).

During his tenure, the acquisitions budget doubled, the personnel budget quadrupled, and book circulation increased by 500%. "His initiatives were being copied by other academic (and public) libraries across the country and around the world" (Wiegand, 1996; 108).

In 1887, Melvil Dewey opened the first library school at Columbia University with seventeen female and three male students. Before this event, academic librarians learned their profession by trial and error or by learning from other librarians. He moved the school to the New York State Library in Albany in 1889 because Columbia objected to admitting female students (Wiegand 1996). By 1900, a library school degree or certificate was necessary to be a chief librarian of a university. Students who graduated from Dewey's school formed small enclaves in different parts of the country to share professional training. Some of these developed into library schools (McElderry 1976).

Twentieth Century

By World War I, most academic libraries had reference departments. Their purpose was instruction and guidance of the library user. The goal of reference work was to foster the independence of the user in locating research information. There was a trend toward specialization in reference service by subject (*i.e.*, art librarian), type of material (*i.e.*, rare books librarian; government documents librarian); and function (*i.e.*, reference librarian or cataloguing librarian) (Wiegand 1996). Library services to undergraduates were a focus.

In 1947, Harvard opened the first library building dedicated to undergraduate services. Shortage of seating and collection space combined with the difficulty in accessing and using large research collections accelerated this trend. In the 1970s, more than 40 institutions had separate undergraduate libraries. That number has decreased to 25 in 1987 primarily due the cost of duplicating collections and services (Person 1988).

Evolving Criteria for Library Performance

From 1906 to 1941, the Carnegie Corporation of New York gave grant funding to 248 college libraries to develop book collections for undergraduate students and to 108 institutions for library buildings. The foundation decided to award funding only to those institutions that were willing to support their libraries adequately. Data gathering done by the foundation staff determined that teachers' college libraries were especially deficient and so they had priority for funding. Several significant publications resulted from the work of the Corporation. As a result of the influence of the Foundation's Advisory Group on College Libraries, a list of recommended books for undergraduate libraries was developed and became a measure of the quality of library collections. This authoritative guide to purchasing books became known as the "Shaw List" and was a "landmark of the greatest importance" (Radford 1984). The Advisory Group then tackled the issue of defining standards for college libraries.

Library Innovators

Louis Shores was a significant figure in academic librarianship in the twentieth century. His comment to a colleague, "You're too worried about the what and the where of libraries when you should be thinking about why libraries matter" is an indication of his philosophical perspective (Shiflett 1996). He was a leader in the area of reference librarianship, in his advocacy and development of the concept of "bibliographic instruction, " and as a library educator. He became the director of the Fisk University Library in Nashville, Tennessee, in 1928 and attempted unsuccessfully to establish a library school for African American librarians there.

He was a supporter of racial integration. He became head of the library school at Peabody College for Teachers in 1933 and received a Ph.D. from Peabody College for Teachers in 1934. His dissertation on the history of the colonial college libraries became a "cornerstone in the historiography of American library history" when it was published as a book (Shiflett 1996). He was influential in the launching of the *Journal of Library History* in 1966. He was the founder of the innovative Library College movement of the 1960s. This was an attempt to "mate librarianship and education to produce a hybrid that would be greater than either" (Shiflett 1996). He believed that library-centred education was necessary for a good undergraduate education. In this model, teachers would work with students in the library during time that would have been spent in the classroom.

Evolution of Staffing

Orne reviewed the evolution of staffing in the academic library. He relayed a historic desire by librarians to be accepted equally by faculty,

but concluded that "acceptance of librarians by the academic community has not improved very much" (Orne 1980). The first instance of union participation by library staff was in 1940 at the Library of Congress. Whether scholarship should be a required qualification for a library director is an unresolved issue (Hamlin 1981). Academic librarians have struggled with their professional role in colleges and universities. There has been ongoing debate about whether librarians should have faculty status and whether they can claim the same academic freedom rights as teaching faculty (DeVinney 1986). College library work in the 1970s was described as simple, traditional, and changing little. In university libraries, complex organizational dynamics resulted in "a progressive reduction of the ability to obtain hard decisions on matters having to do with improved performance" (Orne 1980).

Organizational Models

Kaplan's review of the history of participative management in academic libraries revealed a 40-year delay from the time that the concept originated in the business world to its adoption by libraries. "Pioneer" librarians during the latent period published articles that tried to convince colleagues of the benefits of participative management. But the idea did not gain the attention of the profession until the social upheavals caused by the egalitarianism of the New Deal and the rebellious sixties occurred. Even then, the hierarchical structure of libraries was so strongly entrenched that widespread change in management style occurred slowly (Kaplan 1988).

The twenty-five year history of a successful model of management at Dickinson College Library described collegiality and flexibility with a rotating chair. It is based on a group decision-making model with shared responsibility. In 1975, a holistic model of librarianship was implemented that eliminated artificial barriers between technical and public services. Librarians were expected to be highly competent in a number of areas. Although considered radical at the time that it was adopted, the new model is now described as a system that works very well in a small to moderate size academic library (McKinzie 2000).

Growth in Research

After World War II, federal funding stimulated increased research. Libraries had to deal with a great increase in the volume of published materials. As a result, the government provided support for research libraries to build their collections. The Cooperative Acquisitions Project for Wartime Publications resulted in the purchase of almost two million European books (Dain 1990). The Farmington Plan was a programme of cooperative acquisition of foreign publications that was established by the

Association of Research Libraries in 1948 and terminated in 1972. Its original goal was that at least one copy of every newly published book that had research value would be acquired by at least one American library. This was the result of the recognition of a need for information during World War II and the corresponding dearth of foreign publications in the U.S. Agents in each country acquired monographs and distributed them to the appropriate library. There was an underlying assumption that library collections were a resource of value to the country, not just the parent institution (Wagner 2002).

Consortia

Library consortia have a long history of cooperation in sharing collections or technical processing. They experienced their greatest growth in the 1960s and 1970s. Their greatest advantage is economy of scale. Certain items did not need to be purchased by every library. Consortia have led to different relationships with vendors and publishers and have redefined library collections and services (Bostick 2001).

Resilience and Creativity

Miller's review of issues related to electronic resources cited the serials pricing crisis of the early 1980s as the catalyst for a new model that favoured access to materials rather than ownership of them. She believed that librarians must continually reassess what they do and why they do it, creatively move forward, and set standards, not merely react. She said that the literature showed that librarianship is "impressively resilient" and is willing to question, to reorganize, to build on its past, and adapt to change (Miller 2000). The library of the Dine College, a Navajo tribal college, is an example of this resilience and creativity. The library addressed an information need and the desire to make accessible a source of knowledge that is not in a standard written form. Hurley (2002) describes the issues in collecting and preserving knowledge of the Navajo Nation. Communication of history and tradition through oral stories is common to North American Native people. Providing access to those stories is a challenge because there may not be a written form of the language and because different people tell different versions of the same stories. Capturing the stories in a static document loses the dynamic, context-driven, and fluid aspects that are essential (Hurley 2002). The library is determining how to make this rich source of information available while respecting the concerns and communication preferences of the tribe.

Libraries in Historically Black Colleges and Universities

The story of the libraries of nine historically black colleges in Texas concluded that black academic libraries never became the "heart" of the

institution. They were not a priority for the college administration "and almost never catalyzed the intellectual life of their communities. As adjunct activities, library operations failed to figure prominently in institutional reports." The librarians did not have allies among the faculty who could influence improvements because of high turnover among the professors (Olbrich 1986). The first freestanding library was built in 1907; the others followed after World War II. The Southern Association of Colleges and Secondary Schools began requiring relatively stringent quantitative library standards. Owens stated that there have been no comprehensive in-depth analyses of the libraries of historically black colleges and universities or of the quality of the collections (Owens 2001).

Computerization

The Ohio College Library Centre (OCLC) was founded in 1967 by the colleges and universities in the state of Ohio. Its purpose was to develop a computerized system that would allow the libraries of these academic institutions to share resources and reduce costs (OCLC website). In 1972, OCLC offered online cataloguing data to subscribing libraries. OCLC began as a shared cataloguing resource based on a central catalogue for the Ohio college libraries. It was also highly useful as a union catalogue for all member libraries (Maciuszko 1984). The OCLC database now includes the holdings for almost every library in the country and also some international libraries. Interlibrary loan requests are sent electronically to libraries that are listed as owning the material, saving time and providing great efficiency. The database is called "WorldCat" and can be searched by anyone in subscribing institutions. It is an unparalleled resource for finding citations to published and much unpublished material including books, journal titles, newsletters, audiovisuals, theses, government reports, and conference proceedings.

Future of Libraries

A review of articles that predicted the future of libraries from 1990-2000 included sections on the issues of envisioning and planning the future of libraries; visions of digital libraries and new theories for information management; access/ownership and the transformation of scholarly communication; the arrival of the information society in 2000; and the Internet and new meanings for library collections. There were many articles that speculated on the future of libraries during the period from 1975 to 2000. This was evidence of a changing and uncertain profession. The author finds that by 2000, there were few articles that predicted the demise of traditional libraries (Sapp 2003). A possible area for further analysis was postulated by Dain, who speculates that libraries tend to reflect rather than create intellectual trends. She states that it would be

interesting to study the intellectual origins and impact of library collections and operations through time and across disciplines and institutions (Dain 1990).

Summary

The literature on the history of academic libraries was explored for three important periods in the evolution of higher education in the United States. Libraries in the Colonial period were minimal and peripheral to the college function and mission. In the nineteenth and early twentieth centuries, academic libraries developed a formal structure and became more integral to the mission of the university, serving students and faculty in supporting more diversified curricula and research. These trends blossomed following World War II when increases in funding allowed libraries to acquire larger collections and become important resources in research and teaching Changes in technology beginning in the 1970s caused major changes in availability and use of electronic resources. Since the 1980s, increased economic pressures on university administers has caused some to question the role and function of the traditional library. Throughout U.S. history, libraries have changed in response to external influences. As they find ways to connect with the mission of their parent institutions, the academic library will continue to be considered the "heart" of the university.

A Comparative Study of National Public Library

Through an analytical and comparative study, this paper examines the development and current status of the United States' and China's national library statistical systems, their natural functions and key system characteristics, usability of performance measures, and each system's strengths and shortcomings. A distinction is made between government centred and profession centred systems. Four factors are identified influencing the systems' characteristics. By finding commonalities and discrepancies between the two countries' statistical systems, the article provides library professionals, governmental administrators, and educators with the opportunity to learn from each other's practices and experiences, to conduct further investigations into the purpose and characteristics of the statistical systems, and ultimately, to improve nationwide library planning and evaluation in their own country.

Paper

National statistical measures of library operations have been used in both the United States and People's Republic of China for over half a century. These national systems of statistical measurement provide a variety of information concerning service effectiveness, operational

management, staff administration, national planning, and professional competitiveness.

However, compared with the efforts expended in collection and dissemination of the numerical information, analyses of the differing character of national systems or of the contributions of these systems have rarely received attention. A study that compares characteristics of these systems can increase understanding of the function of each and can suggest approaches to improving their effectiveness.

Objectives of this study therefore are fourfold. First, the national statistical system in both the U.S. and P.R. China are described. Second, key characteristics of these system are examined. These include system function, data manipulation, and standardization and implementation. Third, the relation of the data utilization and library performance measures is discussed. Initial comparison between two countries of the national systems is supplied, and is based on the latest information on each system that I can find. Finally, an attempt is made to provide some insight into possible future developments as well as a system assessment.

Description of the National Systems Government Centred versus Profession Centred Systems

With long library histories and large populations of public libraries, both countries have a natural need to trace meaningful numbers about libraries. In the U.S., plans to collect library statistics on a national basis began approximately one hundred years ago. The first milestone in public library statistics occurred in the end of 19th century. In a matter of nine years, after the establishment of the U.S. Office of Education in 1867, "a massive report, Public libraries in the United States, containing descriptive and statistical data was issued" (Adams, 1990). In P.R. China, public library statistics can be traced back to the beginning of this century. The first nationwide library survey authorized by Ministry of Culture of China was distributed in 1950 (Li, 1988). This was just one year earlier than the dispatch of a very simple questionnaire from the UNESCO Office of Statistics in 1951. The practice of collecting national public library statistics in both the U.S. and China preceded the UNESCO's request for international collaboration on library data collection (Thi, 1987).

After years of efforts to find a better way to report useful and up to date data on public libraries, librarians in both the countries have built up their own unique statistical systems on national public libraries. Such systems, this study's subjects, can be categorized as government centred systems or professional or non governmental systems. The distinction between the two kinds of systems is based on the clients served by each system and their missions.

The Systems in the United States

Formally started in 1988 (Lynch, 1989), the current U.S. government public library data system is funded by the National Centre for Education Statistics (NCES), U.S. Department of Education Office of Educational Research and Improvement, and conducted through the Federal State Cooperative System for Public Library Data (FSCS). The support of the system includes the local public librarians who provide the data; the FSCS State Data Coordinators who collect and verify data at the state level; the Chief Officers of State Library Agencies; the American Library Association (ALA); and the National Commission on Libraries and Information Science (NCLIS) which collects data disks from Data Coordinators. To run this system, NCES is the executive agency and funds the programme; FSCS is responsible for questionnaire design and definitions of standardization. Over ninety five percent of public libraries anywhere in the country respond to the system yearly. Its clients include governmental officers, legislators, and professionals. As of 1995, the system issues the U.S. public library data on paper, diskette and the Internet each year.

The Public Library Data Service (PLDS) is the major public library professional system of the United States. The system, in which data were collected starting in 1987 (Johnson, 1993), is supported by Public Library Association (PLA), a division of American Library Association (ALA). Its executive agencies have included School of Library and Information Studies at University of Wisconsin Madison, and Library Research Centre at the University of Illinois at Urbana Champaign. As a voluntary data collection project this system annually collects data from public libraries of all sizes, almost covering libraries serving more than 100, 000 population (79.8% were included in 1995). Data collected in February/March are published in an annual report in June. Clients include public library directors and library educators. The system is designed by the public library profession for its own use. Running for eight years, this system has become an invaluable reference for librarians, trustees, governmental officials and the media.

The Systems in People's Republic of China

As a part of the statistical system on national social cultural affairs, statistics on public libraries in China are officially reported by the Ministry of Culture. The Ministry gathers library data through local government agencies and reports the data to the Bureau of National Statistics, the national statistical office. Data obtained at the end of each year are reported early the next year, and are published in The Annual Report of Public Library Statistical Records (PLSR). This government funded system was established in early 1950s, and has been continuing for four decades, although information during Cultural Revolution is fragmentary.

Using the basic pattern of data design in PLSR, the National Library and Bureau of Library Administration (a unit of the Ministry of Culture) have conducted national public library survey and published Overall Conditions of China Public Libraries (OCCPL) irregularly every several years starting in 1959 (OCCPL, 1989). Statistical information published includes not only numerical data of the libraries but also narrative descriptions of the history and physical facilities. The summerized accounts were only for provincial or city public libraries. The purpose of this system is to report the current development of public librarianship and to serve the public library profession. Its clients include library administrators and researchers. Responses rates varied from year to year, and usually lower than PLSR.

System Characteristics, Commonalities and Discrepancies

Built on different social cultural backgrounds, the statistical systems contain their own unique features. In some aspects, such as central organization and relationship between central organization and local participation, variation of national systems may make comparison difficult. However, on the other hand, some characteristics, such as system functions, data manipulation, standardization, and publications, have international concerns and commonalities that can be analysed for the comparison.

System Functions

Both of these systems include functions that address the following needs or issues:

1. *Accountability:* By tracking movement over time and historical trends/accounts, the intention is that the development and evolution of libraries nationwide can be traced through a national system.
2. *Feasibility and Measurability:* Data elements can be established and measured to reflect library key conditions and services that were particularly considered when the US systems were founded (Zweizig, 1979). Data established should have generizability and also serve accountability.
3. *Comparability and Uniformity:* Data can be used within and between libraries for library quality control and service improvement, and commonly to exchange information. "As states achieve greater uniformity of data, there will be greater comparability of data" (Adams, 1990).
4. *Reliability and Validity:* Accuracy of data reported is emphasized.
5. *Accessibility:* Data are open to public. NCES data were available through Web and Gopher starting last year.

Although the aims of all these systems are to support administration and decision making, their individual objectives are not really quite the same. In China the government system tends to use statistical data for making budget guidelines or for library information exchange.

The U.S. professional system on other hand intends to use these data for library professionals to make observations on the effectiveness of library services, to demonstrate accountability, to identify staff development needs, and to improve service design. NCES conducts its surveys in fulfilment of its legislative mission "to collect, and analyse, and disseminate statistics and other data related to education in the United States and in other nations" (USCA, 1988). It intends to primarily serve federal government executive and legislative needs.

Data Manipulation

The differences between the U.S. and Chinese systems on data manipulation illustrate the systems' intention and expertise, and are often seen within many aspects such as elements structure, survey instrument, data treatment and statistical techniques used. Basically, contrasted to Chinese systems, information selected in the U.S. systems includes not only a public library and its service, but also its communities served.

Data in the U.S. systems are treated analytically, not only as input. Relations between library resources and service (what a library has and what is used) are reported by percentage distributions, and relations between library output and communities served are calculated as per capita figures. Statistical analysis is these systems' important feature.

The data element as a crucial part of the statistical system embodies and condenses a system's platform and guidelines. NCES includes a total of 44 items collected from each library 33 basic data elements including population of legal services area, service outlets, staffing, collection, circulation, visits and facilities; and 11 identifying items including name, address, interlibrary relationship and administrative structure.

There are also an additional 12 items collected on each public library outlet and state library outlet. PLDS has more than 50 data elements that are arranged into five categories: Library Identification, Financial Information, Library Resources and Community Measure, Annual Use Figures, and Output Measures and Role Selection. Additionally, a sixth category changes from year to year (*e.g.*, 1995 was Technology in Public Libraries, and 1994 was Children's Services Survey). Each category is formed by three parts: instruction, data elements, and summary table and comparison charts. Formulas used to derive numbers, notations used in summary tables, and the questionnaire used to collect these data are listed as appendixes. Software used for data manipulation in both U.S. systems

include DECPLUS (Data Entry, Conversion, Table, Output Programme), LOTUS, dBASE, and Fourth Dimensions.

Data elements used in the Chinese systems, as in the U.S. systems, cover basic resources (funding, building, and holdings) and key services of each public library, but unlike the U.S. systems, do not cover population of the community served. The 48 data elements grouped within 18 categories in PLSR, include library name, number of staff, annual circulation, number of seats, and great detail on collections and expenditures. With almost the same categories of data as PLSR, OCCPL has only 11 data elements in its 1989 publication.

Methods of statistical analysis and techniques for comparing detailed percentages have not been used as much as the U.S. systems. Some data elements such as size of library facilities are useful and valuable to show how resources are allocated. To communicate the nature of service provided in China, the number of seats and size of reading rooms can be major indicators for these closed stack libraries. Opposed to this, the U.S. systems don't report these items because their stacks are open and seats do not appropriately express the use of libraries.

Standardization

A legitimate usability and comparison of data are based on quality of standards used for data collection. To keep data consistent and reduce error and confusion, U.S. systems use standardized definition to define each itemized element. During the preparation for developing a comprehensive national system, FSCS conducted a pilot project in 1985 to standardize the collection of public library data. The definitions used in this system are from the National Information Standards Organization (NISO) manual Z39.7 (NCES 1995 and 1991). PLDS was designed in conjunction with the Public Library Development Programme by the New Standards Task Force of PLA (PLDS, 1988). Terms used in its questionnaire were carefully defined. As a check list of the standardized definition, Entity Data Element Definitions are published with data in both systems' publications. Code systems accompanying each data element ensure data quantification.

Use of Statistics for Measuring Performance

Library statistics generated are expected to describe and compare effectiveness and efficiency of libraries. Even though endeavours of library performance measures in both the U.S. and China can be traced back to 1960s (Zhu, 1994; Kaplan, 1964), the natural use of library statistics to support improvement and facilitation of management in public libraries was really recognized only in the past decade. In particular, PLDS was initiated to play a role of measuring library output nationwide with uniform

measurements. Five major measures adopted in PLDS include circulation per capita, registration as a percent of the population, library holdings per capita, collection turnover, and reference transactions per capita (Johnson, 1992). These had been identified as useful in promoting efficiency, cost effectiveness and increased comparability in public libraries by a number of contributors, such as DeProspo et al. (1973), Zweizig and Rodger (1982) and Van House et al. (1987). Systems designers who worked for both NCES and PLDS developed the national systems with the uniform measurements in order to make them a powerful tool for performance measures in public libraries nationwide.

The measurements reported in NCES also concentrate on uses and the services a library provides for its community. Its focus is "what a public library delivers to the community it serves" (Lynch, 1990). Example measures are percentages of registration of population and per registered borrower, in library use, rates of reference completion, and title filled. Facilities or non service related information such as library funding and staff salaries is measured, but the emphasis is on effectiveness and efficiency of uses and the services a library provides to its community. Instances of these measurements include per capita holdings, per capital operating expenditures, and per capital library operating income.

Focuses of measures in Chinese systems are based on their management intention, which includes not only how well a library is used, but also how well a library is developed. PLSR was designed to determine investment of government resources in library development. Measurements are basically functioning the same as data elements. The main measures, such as number of seats and volumes, size of library stacks and reading rooms, and annual book purchasing budget are examined and used to compare quantity and quality of library development. OCCPL was originated to play the role of measuring effective use of a library. But measuring each library's resource in order to study the use of library funds also plays an important role. The different focuses between the two countries' systems reflect social cultural backgrounds and level of library developments.

During 1992 to 1994, a national assessment of public library work was made in China. To give a series of national criteria to the appraisal, the Library Bureau of Ministry of Culture issued The Appraisal Indicator Series for Provincial Libraries (AISPL), and Appraisal Standards for City/ County Libraries (ASCCL). The purpose of the national evaluation is to promote level of professional work and quality of library service, and to accelerate development of public librarianship nationwide. AISPL comprises six categories and seventy two indicators 55 quantitative indicators and 17 qualitative indicators. These indicators comprise aspects from library service, to professional work, to library facilities, and are intended to be

employed as standardized performance criteria used for public libraries with different roles, such as provincial, city, county and children's libraries. A main feature of the assessment is the use of quantified measurements to promote library development by allowing comparability cross libraries on a number of dimensions. Over 2000 public libraries nationwide participated this activity. AS a result, 1144 libraries received awards and were designated as advanced units at one of three levels. AISPL and ASCCL together with OCCPL comprise a complete professional system of performance measures for public libraries of all sizes and functions.

Because of the great differences between the data elements collected in the U.S. and in China, and between the services designs of each country, possibilities for comparing statistics indicating library operations between the countries' public libraries were extremely limited. Comparative totals or averages by per head between the two countries would be easy to see if the key source, community served, was originally included in China's public library statistics.

Conclusion: Issues and Trends

Four factors appear to influence the system characteristics in these two countries:

1. *System's Background:* Genesis of a system affects its later development. The social and cultural environment influence the system's evolution;
2. *Funding Sources:* The organizing and executive agencies determine the system's properties;
3. *Programme Goals:* Government statistics serve government needs. Professional systems centre on the use of measures for library professionals;
4. *Data Manipulation:* Government systems have a higher response rate therefore a greater authority of statistics. Data are collected systematically moving from local to central. Professional systems have to conduct their national surveys for data collection directly from each outlet. Great focus on questions of professional interest and emphasis on measures of performance are beneficial to public library colleagues.

As a trend, the parallel systems in both countries, reflecting modern needs for statistics support of library performance measures, will continue to serve the management needs.

Efforts made by both governmental officers and library professionals in library statistics have been rewarded with the development of comprehensive statistical systems in both countries, in which statistics

can be readily used for management to examine and appraise library characteristics. The system does not have the power to promote effectiveness and efficiency of library service on its own, b ut it does have the power to illuminate the policy of the service and to support the development of librarianship by means of statistics if they are appropriately used. The statistical systems used to examine library progress have evolved over time as a result of a variety of impulses and not as a result of a coherent strategy or plan.

Strengths of the US systems include sophisticated data manipulation, extensive standardization, and strong statistical analysis. Important library characteristics are represented well through statistical elements. Data reported are made easy for public to access. A weakness in NCES is the delay of at least two years in reporting data after collection. On the other hand, higher response rate in P LDS is only from libraries that serve large communities. Both Chinese systems have a lack of statistical analysis and information about the community served. The information shown in these systems in both countries has not been effectively used in research on library performance.

Further investigation. Social economic background is different for the two countries, but the needs for statistical information appears to be the same. Most functions of these statistical systems and their problems and issues faced are also not different. Questions that a system administrator may ask, including what data should be included and relation between cost and effectiveness of data collection, still remain. Understanding these systems' development and function is hampered by their being considered "inevitable" and "natural" when in fact they have developed to serve unstated but definable purposes.

Study of two comparable systems from strongly contrasting cultures can reveal obscure characteristics and functions. Similarities and differences regarding the above categories can illuminate the inherent characteristics of the national systems, and will be worthwhile for understanding of the role and impact of nationwide library planning, evaluating, and service performance measures.

2

General Introduction to the Library

The purpose of this text is to provide an introduction to public services for library media technical assistants and other paraprofessionals. Any library work that deals directly with patrons is a public service. Some activities and services usually considered public services include circulation, reference, interlibrary loan, collection maintenance, public relations, and reserve collections. The materials presented in this text provide the foundation for understanding the purpose of public services and an introduction to some basic reference materials.

Reading this text *alone* will not provide sufficient background to allow the paraprofessional to assume major responsibilities in a public services operation. To successfully assume major responsibilities—beyond those of a library clerk—requires not only "book learning," but several years of work experience under the supervision of a librarian or experienced paraprofessional.

Role of the Library Media Technical Assistant

In the last two decades the library profession has devoted much effort toward defining the various levels of library personnel, their duties, and the educational requirements for each level. As a result of these studies, librarians are continually redefining professional duties. The most important way of freeing librarians to perform professional duties is to give clerical and paraprofessional tasks to trained library clerks and trained paraprofessional.

An important study of library personnel and their duties and training requirements was prepared by Lester Asheim in 1968. Five levels of staffing are recommended ranging from a senior librarian with advanced graduate degrees to a clerk with post-high school training. The level of work expected from the paraprofessional support staff ranges from typing

and filing for a clerk to preprofessional levels of reference work and cataloguing for the library technical assistant and library associate.

The levels of personnel central to this text are the clerk, library technical assistant, and library associate. Ideally, staff at each level would have some library science training. The level of duties, training, and titles for library staffing are only recommendations. In practice there is a great deal of variation among libraries.

In this text we are concerned with the work usually performed by the library associate, the technical assistant, and the library clerk. The term Library Media Technical Assistant (LMTA) has come into popular use. It reflects the expanded role these personnel have in library work, especially in community college libraries, public libraries, and school libraries. The term "LMTA" will be used in this text to refer to a person who has completed at least two years of college, with some training in library science. The term "librarian" is used to denote a college graduate who holds a master's degree in library science.

Whenever the term library is used, without specific modification as to type (school, special, public, or academic) and size, the reader may assume that the reference is to a medium-sized public or academic library. By medium-sized the author means a library with a collection of between 100,000 and 500,000 volumes and a staff of 15 to 50 employees. This large range reinforces the view that there is no average or typical library. Because each library combines a number of different objectives, functions, and services, it is impossible to identify any given library as typical.

The United States Office of Education has published a comprehensive study on the role and training of LMTAs. The study goes into detail on the types of positions and activities in a library to which the LMTA can expect to be assigned. Because the report is comprehensive and national in scope, we will quote extensively from it:

> *Graduates of this programme can expect to find employment in many types and sizes of libraries requiring a variety of responsibilities. Most graduates will further develop their abilities by continued study on a part-time basis to keep pace with new developments in their fields. The following listing shows a sampling of only a few of the job opportunities for library technical assistants, as described by employers. Some are beginning positions, others are attained through work experience or further study, or both…*

1. Library Technical Assistant I—May perform one or more of the following: assist readers in locating books and using the public catalogue; supervise shelving and other tasks performed by student

assistants and clerks; supervise the maintenance and distribution of special collections and equipment; assist in the cataloguing department; and, may be responsible for the reproduction of media materials.

2. Library Technical Assistant II— May perform all of the duties of the Library Technical Assistant I, as well as one or more of the following: supervise the work of Library Technical Assistant I; assist in the preparation of bibliographies; develop displays; supervise multiple book stack areas; and, be responsible for the production of media materials.
3. Library Technical Assistant III— May perform all duties of the Library Technical Assistant II, as well as one or more of the following: be responsible for supervision of all other library technical assistants and clerical staff; prepare special bibliographies; do basic uncomplicated cataloguing; provide reference services on information desks and answer reference questions of an uncomplicated nature; supervise circulation, interlibrary loan or periodical services; and, assist with special community projects and services.

The classifications and degrees of responsibility may vary somewhat depending on the objectives and size of the particular library, and the clientele it serves. Library technical assistants work in a great variety of libraries. These include public and private school libraries, academic libraries, public libraries and special libraries such as medical, business and governmental.

Besides technical skills, some of the positions in a particular library may demand other traits and related skills. For example, a knowledge of medical terminology or a strong background in science and mathematics may be required for effective employment in a special library. A wider background in general education, literature, humanities and communications may be necessary to be an effective employee in a small public library system or a school library. A course in young adult and children's literature would benefit the student who is interested in working with young people.

In addition to the technical courses, general education courses and related technical courses which comprise the suggested two-year curriculum, it is desirable that the library technical assistant have some basic clerical skills. For example, typing skills, while not a prerequisite for entry into a programme, should be acquired by the student, either through additional course work or self-study before he enters his intership and graduates from the programme. Although typing is a clerical skill, the student may find himself in a position where he has limited clerical assistance or none at

all. It is no uncommon for small libraries to have only on to three full-time staff members. This necessitates the acquisition of skills at all operative levels below the technician level, including clerical skills. A minimum typing speed of 35 words per minute is recommended.

Skilled technical assistants must have both technical competence and the ability to react positively to a variety of situations encountered in their working associations with librarians, other technical assistants, clerical employees and, most important, the clientele of the library.

Technician education programmes must provide students with opportunities to gain knowledge of the hardware, processes, procedures, techniques, materials, and tools of the library. It must provide educational experiences that will develop a person with the ability to communicate with professional and to serve as delegates or assistants to them. Some indication of the special nature of technical programmes may be obtained from detailed analysis of what technical assistants must know, what special abilities they must possess and what they must be able to do in their daily work.

Special Abilities Required of Technical Assistants

Technical assistants must have the following special abilities:

1. A thorough understanding of and facility in the use of the materials, processes, apparatus, procedures, equipment, methods and techniques commonly used in the technology.
2. A broad base of general education courses to include communications, social sciences, humanities, physical sciences and mathematics.
3. An expanded knowledge in a specialized area such as medical terminology, special libraries, children's work, art, literature or science to provide the student with an individualized programme consistent with his career objectives.
4. Business skills, especially typing competency, are advisable, but are not included in the curriculum.
5. Personal qualifications which include an aptitude for library work; ability to communicate clearly and to understand and follow written and oral directions; and, the ability to effectively supervise the work of others.

Activities Performed by Technical Assistants

General speaking a technician bridges the gap between the clerk or aide and the professional. He is part of a team. His skills vary widely with training and experience, but some generalizations can be made about the

level at which he works. The main thing which separates the technical assistant from professionals—the level above him—and clerks—the level below him—is the way in which he approaches his work. The clerk receives very explicit instructions and has a definite work pattern set up for him. The professional has very vague instructions for work and must often create his own procedures to solve a problem. The technical assistant falls between these two extremes. His output is specified in general terms and he has a set of procedures to choose from to produce this output. He may choose a procedure, modify it somewhat, or synthesize two procedures into one to reach his goal. But the basic emphasis is the same as the technical assistant level: a stated goal with a number of routines to reach that goal with enough discretion given for him to choose this own work pattern to meet the goal. Research in job analysis tends to confirm this distinction between clerk or aide, technical assistant and professional and the distinction holds true from one work field to another.

Technical assistant's duties are related to a variety of library functions. Depending upon the size, type and service philosophy of the library, these functions may be very general or very specialized and departmentalized, or both.

1. *Administrative Services.* Assists in administrative duties such as recommending new supplies and equipment; preparing specifications for the purchase of equipment; handling inventory responsibilities for the library collection, supplies, and equipment; compiling and tabulating data for statistical reports; training clerical staff, student aides and volunteers; assigning work distribution to the clerical and student staff; preparing reports on work programmes; and, applying libraries' policies, rules and instructions.
2. *Technical Services.* Assists in technical services doing bibliographic work in the preparation of entries for acquisition. This would include verifying data, searching trade journals, catalogue and other reference tools; supervising the preparation of orders and the maintenance of order files; supervising the maintenance of records of serial publications; initial checking and revision of printed cards, and either temporary or preliminary cataloguing and original cataloguing in brief form; cataloguing duplicate titles, and supervising preparation of additional catalogue cards; supervising filing of catalogue cards; removing catalogue cards for material which has been withdrawn from the collection; supervising the replacement of damaged catalogue cards; and, assisting with interlibrary loan of materials.
3. *Public Services.* Assists in public services including supervising circulation routines and controls, and applying the circulation

policies of the library; maintaining special and reserve collections; and, assisting in compiling reading lists, bibliographies and other selective lists of materials.

4. *Data Processing Services.* Assists with or supervises data processing operations.
5. *Related Media Services.* Supervising the maintenance and operation of audio-visual equipment, and processing, shelving and filing microforms, tapes and recordings, films and filmstrips, slides, prints and photographs.
6. *Media Production Service.* May be involved in media production services of the library which might encompass photographic production and reproduction, audio recording and duplication, and graphic design and illustration.
7. *Publicity and Public Relations Services.* Responsibility for publicity functions such as compiling and distributing acquisitions lists, and developing and preparing bulletin boards, displays, posters and special reading lists.
8. *Information Services.* May be responsible for answering directional or factual questions, explaining use of bibliographic tools to patrons and answering basic reference questions.
9. *Housekeeping Services.* Has the supervisory responsibility for shelving and filing functions; inventory; shelf reading; transfer of materials to storage; and, discarding of obsolete materials.
10. *Implementing Clerical Services.* Compiling statistics; assisting in the development of procedures manuals; handling the supervision of mail and routing correspondence; maintaining vertical and correspondence files; handling reproduction services; and, preparing purchase orders for library supplies and equipment.

A two-year programme to educate library technical assistants must concentrate on primary or fundamental needs if it is to prepare students for responsible technical positions in the modern library. It must be realistic and pragmatic. The programme suggested in this guide has been designed to provide maximum technical instruction coupled with a broad general education background in the time allotted.

To those who are not familiar with this type of educational service (or with the goals and interests of students who elect it), the technical programme often appears to be inordinately rigid and restrictive. While modifications may be necessary in certain individual institutions, the basic structure and content of this programme should be maintained as closely as possible in order to develop the highest level of skill, both operative and cognitive, in the time that is available in a two-year

programme. The specialized technical courses in the programme are laboratory and field-oriented. They provide time for the application of principles, methods and skills concurrently being taught in the courses in the technical field.

The general education courses must be coordinated carefully with technical courses at all stages of the programme. This coordination is accomplished by scheduling the communications, humanities, and science courses concurrently with technical courses during the first three semesters. In the third and fourth semesters the student is permitted to select appropriate career electives to prepare him for further specialization in the library service of his choice.

Although general education courses and career options are relatively unique to technical programmes, the heavy concentration of these courses is justified on the basis of the preculiarities of this programme. Since the programme is library centred, the student who is to assist in the acquisition and dissemination of knowledge, in a service capacity, must be familiar with the various disciplines of modern society. He must not only be able to help others attain knowledge, but also must be able and anxious to seek and find the answers himself. Although the student may have a general education background when he enters the programme, this base must be extended if he is to be an effective agent in disseminating knowledge to others.

The LMTA in Public Services

An overview of pubic services tasks and the levels of personnel likely to perform the work. The table is a guide, not a presentation of "how it should be." The types, sizes, and functions of libraries are too varied to permit any rigid rules for assignment of personnel without close study by librarians in a specific library. For example, in a small public or school library the LMTA may be the only person on duty a good part of the time and must perform all aspects of public services work. In a large library, however, an LMTA may supervise a single department, such as a circulation department. The function of the LMTA, regardless of the library, is to assume the clerical and paraprofessional duties so librarians can perform professional-level work.

Public Services Operations—An Overview

The two principal operations of public services are circulation and reference. Both operations have direct contact with library patrons and both are responsible for satisfying patron needs. The only reason for the existence of most libraries is to serve a specific group of people. In the final analysis a library is judged by patrons on the performance of its public services operations. This should never be forgotten.

The circulation operation has four fundamental tasks: (1) charging out materials to patrons, (2) checking in returned materials, (3) returning materials to their proper places in the library, and (4) carrying out the housekeeping tasks necessary to keep the collection in good order.

Reference service is concerned primarily with answering questions asked by the library's patrons. The questions asked will range from the simple directional "Where are the restrooms?" or "Where is the card catalogue?" to research questions that require several hours or even days of a librarian's time. Other responsibilities of the reference service may include interlibrary loans, instruction in using library resources, compiling bibliographies, establishing vertical files, and preparing displays, bulletin boards, and exhibits.

Responsibilities of Library Work

All library personnel should be aware of the library's unique place in our society. The library, considered one of the basic institutions of our democratic society, is the one place where people can find material presenting different viewpoints on all subjects. The best statement of a library's responsibilities is the "Library Bill of Rights":

1. Books and other library resources should be provided for the interest, information, and enlightenment of all people of the community the library serves. Materials should not be excluded because of the origin, background, or views of those contributing to their creation.
2. Libraries should provide materials and information presenting all points of view on current and historical issues. Materials should not be proscribed or removed because of partisan or doctrinal disapproval.
3. Libraries should challenge censorship in the fulfilment of their responsibility to provide information and enlightenment.
4. Libraries should cooperate with all persons and groups concerned with resisting abridgment of free expression and free access to ideas.
5. A person's right to use a library should not be denied or abridged because of origin, age, background, or views.
6. Libraries which make exhibit spaces and meeting rooms available to the public they serve should make such facilities available on an equitable basis, regardless of the beliefs or affiliations of individuals or groups requesting their use.

While it is the librarian's responsibility to carry out the policies stated in the "Library Bill of Rights," all library personnel must be depended upon for assistance. This is particularly true of paraprofessionals who

have contact with the public. The professional ethics demanded of librarians in performing their duties are similar to those of other professions. While they may apply directly only to librarians, they will nonetheless have an effect on the conduct of all library personnel.

The library's patron puts trust in the library to perform its duties completely, and the librarian makes a claim to be able to do this best because of special training. The patron must depend on the library to offer good service, since he or she is often in no position to judge the quality of that service.

In reference work every inquiry is treated equally and every patron is entitled to expect reasonable efficiency. The setting of priorities is a librarian's decision. Every reasonable effort should be made to help the patron as soon as possible. Any time a paraprofessional is asked a question that he/she cannot answer, there is an obligation to refer it to a librarian. There is no place here for ego-building or wounded pride, since the patron has every right to expect that the information received will be correct and that it has been obtained from an authoritative source. Library personnel, including librarians, who feel obligated to answer every question personally and who are reluctant to seek help will probably not be suited for a position of responsibility in public services.

All library personnel have an obligation to keep library matters confidential. A patron has the right to assume that any questions asked and any material charged out will not be subject of conversation outside of the library. Just as the physician has a duty to keep patient matters confidential, so does the nurse or any other employee in the office who may see the records. The librarian has this obligation, but so do all persons working in the library. The best example this obligation might occur in the special library of a company. It is likely that library personnel will be familiar with the research being done on new products under development. Loose talk outside the library might reveal important information to the competition. This type of information could involve millions of dollars of the companies involved.

All library personnel have a right and an obligation to offer constructive criticism about library matters. Such criticism, however, must be channelled to the proper library administrator. To express any criticism to a patron is improper and might subject the offender to disciplinary action. Lastly, the library is not the private domain of the library personnel. The patron must be served first. Library personnel must be cautious about checking out material and depriving the patrons of its use. For example if one library employee after another checks out a book that happens to be on the bestseller list, together they can deprive library patrons of its use for weeks or months. Common sense and good judgment are essential.

Circulation Services: Patron Registration

Most libraries require patrons to register and to obtain a special identification card to charge materials out of the library. Applying for this library card is often the patron's first contact with a library. This is usually true in a public library. In academic and special libraries, however, a general identification card used for many purposes may also serve for a library card. When a library does require the patron to register, the procedure should be simple and trouble-free.

Library personnel at the registration desk must be familiar with registration procedures and prepared to answer questions about the library's services and resources. The importance of first impressions at the registration desk cannot be overstated. Library personnel who cannot answer simple directional or informational questions or who seem annoyed with patrons' requests create a negative impression of the library that is hard to overcome.

There are several important reasons for requiring patrons to register: (1) to identify persons who have the right to withdraw materials, or in some cases the right to use a library; (2) to give a patron some special form of identification necessary to charge out material or use a library—a borrower's card; (3) to obtain statistical data on the ages, occupations, interests, and geographic location of the library's users to help plan for service and acquisition of materials; this last reason applies especially to public libraries. It is important for a library to know whom it is serving and, equally important, whom it is not serving. Registration of patrons can produce useful information.

Patron registration can be handled by library clerks with overall supervision by a LMTA. The levels of personnel used for registration in a particular library will vary depending on the library's size and the attitudes of the librarians. The remainder of this chapter is an overview of registration procedures. Because daily work details vary greatly among libraries, they are not discussed here but are left to when they are best learned—while working in a library.

Public Libraries

Registration work is probably more important in a public library than in an academic or special library. As the patron's first contact with a library, the registration procedure offers an opportunity for creating good public relations. The LMTA should be aware of this opportunity and should make certain that other library personnel under his or her supervision also realize this. An irritable, unknowledgeable, or uninterested staff member can give the patron a negative impression of the entire library.

The first step in registration is to fill out a registration form. The information requested may include the patron's name, current address, phone number, occupation, and employer.

Registration for juveniles may require a different form and ask for different information. A parent or guardian may be required to sign the application form and accept the responsibility for library materials charged out by a minor.

In recent years many libraries have formed library systems or entered into cooperative agreements to enable a person to charge out materials from all libraries in a geographic area by registering at any cooperating library. In at least one state a person registered in a public library can take material from any public library in the state by presenting his library card. Similarly, in some library cooperative systems registration in any library in the system gives the patron privileges in all libraries in the system.

Libraries using automated circulation systems may be able to register patrons by entering information directly into the computer memory. The patron's name, address, and other information is entered using a keyboard terminal. The patron is issued a borrower's card with a unique bar code (also called zebra code) or OCR (optical character recognition) label used to identify the patron. This is an example of a registration system being required to conform to the needs of a circulation system.

Some libraries have eliminated registration and library cards. Instead, the patron uses standard forms of identification such as a driver's license, credit card, or social security card. In small libraries, the library staff can even rely on recognizing patrons. Eliminating registration and library cards, when possible, can free much clerical staff time for other activities.

Another group of patrons to be provided for are non-residents. This includes student in local colleges and universities or people temporarily working in the area, such as military personnel. Nearly every public library makes provisions for these patrons. The same registration procedures can be used, the difference being that the library card may be dated to expire sooner than the resident's card; the card may be a different colour or have other special characteristics for immediate identification. Sometimes non-residents pay a special fee, which may be refundable.

A public library may keep its own file of registered patrons or there may be a centralized file for an entire library system or geographic area. In either case an important clerical duty is to keep these files current, eliminating inactive names. Most library cards expire at regular intervals, so that people are required to register again. Files are updated when those people who do not register again are removed from the file. Some libraries

have eliminated file updating by using lists of registered voters in lieu of registration, and the latest list of voters is also the list of registered library patrons.

Academic Libraries

The primary responsibility of the academic library is to provide service to the institution's students, faculty, and staff. Faculty and staff receive identification cards when hired and have library privileges because they work for the institution. Students are granted library privileges when they register for classes. Students usually need one of two forms of identification in order to charge materials out of the library: (1) an identification card issued when the student registers for the academic term, or (2) a receipt for fees paid for the academic term. As a backup system, the library may have a list of currently registered students. The list is also helpful if a student does not have an identification card or receipt.

Academic libraries have other special categories of users who must be registered through the library. These special users may include local school teachers and school administrators, alumni, businessmen, military personnel, and students at other institutions. The handling of each of these groups depends on local circumstances. For example, local school teachers may be allowed to charge out materials, while students from other institutions may be allowed to use materials in the library but not allowed to charge out materials. When the librarians develop a policy for non-institutional users, they always keep in mind the institution's responsibility, which is to serve its own students, faculty, and staff. The services offered to special users, therefore, are based on two factors: (1) the resources of the institution and its ability to support use by many groups, and (2) the number of special borrowers expected to use the library's resources.

Most academic libraries allow special users to use materials in the library; many do not allow them to charge out materials. There are many variations of this policy. For example, some users, such as local school teachers, are often given full library privileges, which includes charging out materials. Some academic libraries charge a fee to obtain a special borrower's card. The fee is sometimes refundable when the borrower turns in his card. The LMTA should be aware that policies for special users are not arbitrary but are based on many factors. Because the LMTA will have to answer questions about special borrower's privileges, he must be familiar with the library's policy and the reason for the policy.

Cooperation among academic libraries is helping to make their collections more easily available. One procedure is that whereby all students and faculty in an educational system are given an identification card that allows them to use any library in the system. The California State University

allows students registered on any campus to have library privileges on all 19 campuses upon presentation of a valid campus identification card.

The second development is the use of cooperative agreements among academic libraries in a geographic area that allow a student registered at any institution to use the library in any other cooperating institution. Some of these cooperative arrangements include public libraries as well as academic libraries. To borrow from any library the student presents his current identification card. Sometimes a special cooperative system identification card is issued to students.

Special Libraries

Special libraries usually serve a limited clientele. A special library can be either an independent library or part of a larger library. A special library of a company is one kind of independent library. A rare book library or music library can be part of a larger library yet can restrict its services to a limited clientele.

Registration of patrons for special libraries can take a variety of forms. Employment with a company or government agency will give a person library privileges. Registration as a general library user in a public or academic library may also include privileges to use a special library that is part of the institution. Also, a borrower's card may be issued for a limited time to persons needing to use a special library. The temporary cards are often issued only to scholars and specialist in a particular field. There are thousands of special libraries and, of course, numerous variations in the manner of patron registration.

Circulation Services : Circulation Control System

Charging out materials from the library is a primary function of public services. For many patrons the only direct contact with the library is at the circulation point where materials are charged out. It is essential, therefore, that circulation department staff be aware of the need for good public relations. The library's circulation control system should be easy to use, since a cumbersome or complex system can be an obstacle to good service. To provide the best service, all circulation staff must understand the circulation control system.

The reason for circulating materials out of the library is to allow the borrower the convenience of using materials whenever and wherever is desirable. Most libraries, however, have certain materials that are not allowed to circulate, or that have only limited circulation. This may be because of the rarity, the value, or the format of the materials; for example, non-circulating items might include rare books, reference materials, or reels of microfilm.

Charging out materials is only "the tip of the iceberg" of all the work performed by a circulation department. Other duties may include discharging (checking in) materials, overdue and fine work, reserve book control, shelving, general shelf maintenance, shelf reading, shifting materials, inventory control, and interlibrary loan.

The material in this chapter will cover the purposes and characteristics of circulation control systems. Several of the most popular systems will be described. Although some general duties will be discussed, not many details of the daily routine work will be included, since there is no set pattern for these daily routines and great variations exist among libraries. Different libraries using the same circulation system can have very different ways of handling materials. The best way to learn the operation of a circulation system in a library is to work in the circulation department. The operating routines can usually be mastered in a short time.

Selection of a Circulation Control System

Selecting a circulation control system is one of the first decisions made when establishing a library. The system selected must be coordinated with processing of materials for use. Before material can be made ready for use, it must be known whether the circulation control system will require a book pocket and book card, a date due slip, a punched card, or a bar code. The method of circulating books affects other library operations. Careful study is needed to select a circulation system, because once it is operating any change or major modification will be costly and time-consuming. Many considerations are involved in the selection of a circulation control system. Four of the most common factors are discussed below.

The first is the size of the library collection and the expected volume of circulation. Some systems, well suited to a small volume of circulation, would be inadequate in a larger library. And, of course, the opposite is also true: an automated system may be needed in a library circulating 500,000 items a year, but may be unnecessary in a library circulating 50,000 items a year.

A second factor is the cost of the system. Three elements are involved here: (1) the initial cost of processing and equipment; (2) the cost of ongoing processing, equipment maintenance, and supplies; and (3) the cost of personnel needed to operate the system. This kind of analysis is complex and requires detailed research. A carefully selected circulation system may save many thousands of dollars each year.

A third factor is the type of patron the library will serve. The basic decision here is the kind and amount of borrower participation built into the system. Some systems require that the borrower merely hand the material to library personnel, who do everything necessary to charge it

out. Other systems require that the borrower fill out cards with the author and title of the item, the borrower's name, and his identification number. In a public library, where patrons range from the semi-literate to the university graduate, the circulation control system must accommodate a wide range of abilities. To avoid errors in borrower participation, a public library might use a system in which the patron hands over the material and the library personnel do the actual charging out. At the other end of the spectrum is the academic or special library. Since it serves a select clientele from whom relatively error-free participation can be expected, the library may save personnel by letting the patron do as much as possible.

A final consideration is the quality of service given to the patron. To some degree all of the preceding factors must be balanced with the library's standards of what constitutes good service. The circulation control system must be compatible with the needs of the library's users and the overall purpose of the library. The least costly system, for example, might not be selected if it would not be suitable in a particular library.

Characteristics of Circulation Control System

A circulation control system has unique characteristics that determine its value to a library. The characteristics discussed below are found, in varying degrees, in all systems. When a system is being selected, the importance of each characteristic for a library's operation must be considered.

First, the system must be easy for the patrons to use and for library personnel to operate. A complex or cumbersome system may result in poor service and poor public relations if the patron views it as an obstacle to his needs rather than as an aid. Simplicity and ease of use might be the most important quality of any circulation control system.

Second, the system should allow the library to identify the borrower, the material borrowed, and the date material is due to be returned. All systems can provide this information, but vary in the speed with which it can be retrieved. In some libraries this information may not be needed instantly. In academic libraries, however, one requirement might be that the borrower's name and the due date of materials charged out must be available immediately.

Third, the system should provide a record of overdue materials. This information is needed for sending overdue notices, for providing a record for fines, and for developing a list of materials for possible replacement. All circulation systems can provide this information, but they vary in the speed with which the information can be retrieved. Some libraries must identify overdue material daily, while other libraries need to do it less often.

Fourth, the system should provide easy and accurate retrieval of reserved materials when they are checked in. Patrons often request materials already out on loan. The patron should be able to leave a request to be notified when material is returned and available for further use. The request is called a "reserve" or "hold" request. At some point the system must allow for returned materials to be checked against reserve requests and held for the next borrower. Reserve work is an important service; when it is well run, it can be a good public relations tool.

Last, the system should allow easy retrieval of statistics required by the library. For some libraries a manual system provides sufficient statistics with minimal effort. Other libraries my need sophisticated statistics on reading patterns or collection-use requiring a computerized system.

Selected Circulation Control Systems

About 30 different circulation control systems are currently used in American libraries. Most of them, however, are not widely used. Four systems are now in general use. They are: (1) Newark system, (2) Gaylord system, (3) Photographic systems, and (4) Automated computer-based system. Our discussion will be limited to general description of these systems.

The reader should remember that each library has special needs and may alter a circulation system to meet those needs. Even libraries using the same system may have variations in operating details. For this reason the following descriptions are general and do not cover operating details. As with so many library functions, the best way to learn is through practical work experience under the guidance of an experienced LMTA or librarian. The reader would benefit from visiting libraries to see various systems in operation.

Newark System

The Newark circulation control system is the most widely used system in the United States. It is simple to use for patrons and staff and is suitable for both small and medium-sized libraries. The system requires no expensive equipment. There are two variations of the system: (1) "self-charge," which requires borrower participation, and (2) "staff-charge," with no borrower participation.

When the "self-charge," method is used, the borrower removes the book card from the book pocket and writes name, identification number, or other required information on the first available blank line. The borrower gives the book and book card to the library clerk, who stamps the due date in the book and on the book card. At this time the borrower may be asked to show a library registration card or some other form of identification.

The book card is then ready to be filed by due date and call number or only by call number. One variation files book cards by author instead of call number. In this case it is necessary to have the call number, author's name, and title on the book card and book pocket. This is an example of how the method of processing material in technical services is determined by the circulation system.

The "staff-charge" method requires a library staff member, not the borrower to fill out the information on the book card. The borrower gives the clerk the material to be charged out and his or her library card. In this method each library card has an identification number, and this number is placed on the book card instead of the borrower's name. The staff member would not sign the patron's name; the patron could later claim the signature was forged. The remaining steps are the same as in the "self-charge" method. "Self-charge" is more expensive to operate because of increased staff time, but it should reduce the number of errors.

When material is returned, the book card is removed from the file. This ends the borrower's responsibility. The book card is placed back into the book pocket, and the material is ready for circulation.

A library using the "self-charge" variation needs to maintain a file of registered borrowers by name. However, for the "staff-charge" variation it is necessary to maintain two registration files-one filed by identification number and one filed by borrower's name. Since only the borrower's identification number is on the card, the second file must be used to identify the borrower if material is overdue or if other problems arise.

Gaylord System

This circulation control system is named for the manufacture of the electric book charger used in charging out materials. It is similar to the Newark system except that a machine is used to fill in the information on the book card, which frees both the borrower and library personnel from this time-consuming task. This system requires no borrower participation. When the borrower registers with the library, he or she is given a library identification card with an identification number embossed on a metal plate. One variation of the charging machine allows the use of a plastic identification card, which can print directly on the book card.

If the identification card with the embossed plate is used, registration files of borrowers by name and identification number will be needed, since only the identification number appears on the book card. With the plastic identification card, the borrower's name can be printed on the book card eliminating the need for a registration file by identification number.

To charge out material the borrower presents the material and identification card to the attendant. The book card is removed from the

book pocket and inserted into a slot in the charging machine. The identification card is inserted into another slot and the machine automatically prints the information—borrower's name or identification number and a due date—on the book card. Then a predated date due card is placed in the book pocket. The book card is now ready to be filed by due date and in order by call number or author.

Material is discharged by removing the book card from the file and placing it back into the book pocket. When the date due card is removed from the pocket, the material is ready for reshelving.

Photographic Charging

This type of circulation control system is characterized by the use of a camera to photograph each transaction on microfilm and the use of a transaction number to identify it. Many different companies manufacture equipment for this types of circulation control system, and each piece of equipment may have a unique quality suitable to a particular library. Below is a general description of photographic charging. The reader must realize that the details of operating the systems will vary with the equipment used and with the requirements of a library.

The borrower presents the material to be charged out, along with an identification card, to the attendant. In this circulation control system the identification must carry the borrower's name, but it will not necessarily be a library card.

The identification could be a driver's license or some other kind of identification. The material is placed under the camera with the book pocket in position to be photographed. Then the borrower's identification and the dated and numbered date due card—the transaction slip with the transaction number—are placed on the machine in position to be photographed. The photograph will include all the information needed to identify the material, the borrower's name, and the due date. If the author, title, and call number are not on the book pocket, a book card with this information will be necessary.

The numbered transaction slips are used in sequence and will be in numerical order on the microfilm. The micro-film is not referred to again unless the material becomes overdue and it is necessary to locate the chare—out information.

To complete the charging-out procedure, the attendant inserts the dated transaction slip into the book pocket. Material is discharged when transaction slip is removed from the book pocket.

These are several methods of checking which material has been returned and which overdue. One way is to use a serial-number sheet. The

attendant checks the due date on the transaction slip and matches it with the corresponding due date on the serial-number sheet. As material is discharged the transaction slip number is crossed off the serial-number sheet. After a time the numbers not crossed off will be considered overdue. The microfilm record—in sequence by transaction number—can be checked for the borrower's name so that overdue procedures can be started.

In a library with high circulation, it may not be feasible to use a serial-number sheet. In this situation it is possible to have the transaction number keypunched into the transaction slip. When the material is returned the keypunched transaction slips are sent to a computer center. The computer can be programmed to print out lists of transaction numbers for materials not returned.

Automated Circulation Control

The newest circulation systems are computerized systems. If the LMTA were to make assumptions based on the number of articles, seminars, and professional discussions about automated circulation, he or she might conclude that every library was automated! This is not true. In 1983 probably less than 1,000 libraries in the United States had operating automated circulated systems. This is less than 5% of all libraries.

Two factors have been primarily responsible for the low number of operating systems: (1) Relatively high costs to purchase a system for a small or medium-sized library. In 1980 the average cost was $100,000 plus any required building modifications. And, (2) To be cost effective a library needs approximately 400,000 or more transactions annually. Manual systems usually work well with less than 400,000 transactions. The latest developments in microcomputers coupled with lower cost for hardware, however, may mean more affordable systems will be widely available in the next few years.

In 1983 a dozen or so companies were offering automated circulation systems. Each system operates in the same general manner with certain unique features. The description that follows covers only the basic procedures common to most computer-based systems.

Computer circulation systems require little or no patron participation. Each library user is assigned a unique identification number that appears as a bar-encoded number (also called zebra number) that can be read by a light pen or a laser scanner. Anyone who shops in a grocery store will recognize the bar-codes, which are similar to those that appear on most grocery items. Similarly each item in the library's collection is also given a unique bar-code. These requirements will affect technical processing procedures when materials are prepared for use; and they will affect registration procedures.

To charge out an item the patron presents a special identification card with the bar-code and the material to be charged out to the attendant at the circulation desk. The clerk "reads" the bar-code on the identification card with a light pen or with a laser scanner. The computer automatically checks the patron's status to see if he or she is eligible to borrow materials (i.e., no current excessive overdue fines, currently enrolled in school, etc.). If the patron's status report is satisfactory, the clerk "reads" the bar-code on each item to be charged out. The information about the patron and each item charged to the patron is now recorded in the computer's memory. The identification card is returned and the transaction is completed.

To check in returned material the light pen or scanner is placed in a discharge mode. When the bar-code on the item is "read" it automatically clears the record from the computer's memory. The patron's record is cleared and his or her responsibility ends. If another patron has a reserve (hold) on the item this is indicated on the CRT (cathode ray tube) terminal and the clerk can take appropriate action.

Some systems allow information to be entered by a keyboard terminal with a CRT to display information. At least one system has a portable unit with an independent power source that allows materials to be charged out at remote locations such as on a bookmobile, or that can be used during a power failure.

The brief description above presents only the bare essentials of an automated system. The day-to-day operation can be relatively complex and on-the-job training is essential. The manufacturers of these systems generally offer training programmes and provide detailed operating manuals.

Computer-based systems also allow multibranch library systems or cooperating independent libraries to communicate circulation and library collection information to each other using ordinary telephone lines. This is a valuable enhancement of service and is especially useful for interlibrary loans.

Below is a list of tasks most computer systems can be programmed to perform. Each of these tasks is labour intensive and costly in a manual system. If these tasks can be performed by a computer a library can improve service and, perhaps, even save money:

(1) Identifies delinquent borrowers who have overdue material or owe fines or both.

(2) Displays the reason for the delinquency.

(3) Alerts staff to lost or stolen identification cards when one is presented.

(4) Indicates when a reserve(hold) has been placed on an item.

(5) Displays all items checked out to a borrower.
(6) Allows placement and cancellation of reserves (holds).
(7) Calculates fines and fees for overdue items.
(8) Automatically prints recall notices.
(9) Automatically prints fee statements.
(10) Indicates whether a particular item is already checked out or is temporarily unavailable—i.e., at the bindery.
(11) Records a variety of statistical information concerning collection use and circulation activities.

Because these systems are so flexible a library can tailor the functions cited above meet its specific needs. The only way to really understand an automated circulation system is to see one in operation. A visit to a successful operating system is far more useful than just reading a description.

Circulation of Non-book Materials

The circulation control systems we have described are capable of handling all kinds of library materials, nonetheless many libraries choose to handle certain non-book materials separately. This, however, does not tend to be true in libraries with automated circulation. Borrower participation is usually required. Also, the loan periods for these materials may be different from those for books. Libraries develop their own special forms for charging out non-book material. To charge out such materials the borrower fills out a special charge card for whatever kind of material is involved.

While it may be possible to use the same circulation control system for both special materials and books, many libraries choose not to do so. The cost of controlling these special materials is often lower using a separate system. The circulation of special materials is often too low to justify anything but the simplest and least costly system.

Loan Periods

Limits are set on the length of time a borrower can keep library materials. These limits are established so that the materials will be returned within a reasonable time and made available to other users. The length of the loan period depends on the size of the collection, amount of circulation, purpose of lending materials, and the clientele served. Loan periods for most materials are one to four weeks. Special materials (such as periodicals, pamphlets, phonograph records, or films) are usually lent for shorter periods of one to seven days. These periods, of course, vary depending on the library.

Libraries with smaller collections and high circulation tend to have shorter loan periods in order to make material available to as many borrowers as possible. Libraries with larger collections may allow longer loan periods. The librarian will take all of the aforementioned factors into consideration when establishing loan periods.

Some libraries limit the total number of items a patron may borrow at one time or the number of items that may be borrowed in any one subject area. This is common in smaller libraries where one patron could deplete an entire subject area unless limits were set. The larger the collection, the less need there may be to limit the borrowing.

Theft Detection Systems

Theft detection systems are in general use in academic and public libraries. The purpose of the system is to reduce theft and other types of unauthorized removal of library materials such as the patron who innocently forgets to check out material. Theft detection systems are available from several commercial vendors.

The systems operated by placing a sensitized strip or "target" in each item of library material. When materials are charged out the "target" is "desensitized" with a special piece of equipment and the patron exits normally. When a patron does not properly charge out material the sensitized "target" is detected by a sensing unit and an alarm is sounded (or a flashing light) and the turnstile gate is automatically locked. The sensing unit can detect sensitized targets even if the material is concealed.

Libraries with a theft detection system will have a policy outlining the procedures to follow when someone is caught. Because the person caught is in a "sensitive" situation, and because of possible legal consequences, library policy must be strictly followed.

The LMTA should be aware that several problems may result from the installation of a theft detection system. First, circulation staff must be aware of any materials that cannot be placed in a "desensitizing" or "sensitizing" unit. Some detection systems, for example, will scramble audio recordings (phonograph records, sound films, tapes, cassettes, etc.) when placed in the desensitizing or sensitizing unit. The LMTA must be thoroughly familiar with the system used by the library. And, second, some libraries report that mutilation of materials increases after the theft detection unit is installed. Mutilation is usually impossible to prevent, but some steps can be taken if the staff is alert to the possibility.

Libraries with theft detection systems must not fall into a false sense of security. The system is meant to stop the occasional dishonest patron and the forgetful patron. The person determined to steal or the professional thief can probably defeat most security precautions.

Circulation : Collection Control

Charging out and checking in library materials is only one aspect of circulation work. Most library users, familiar with charging out materials, have no conception of the less visible but equally important work performed to make materials available. The personnel involved in charging out material represent only a fraction of the effort related to collection control.

This chapter will discuss the other activities involved in circulation control. These include discharging materials, overdue procedures, reserve materials, reserve material collections, reshelving, shelf reading, shifting, inventory, and general maintenance.

Our concern in this chapter will be the importance of and reasons for each activity. The specific details of how each activity is performed in a library is beyond the scope of this text. The diversity of methods used in collection control work makes it difficult to describe daily routines. Again, the best way to learn work routines is by doing the work in a library.

Discharging Materials

The various ways to discharge (check in) borrowed materials were discussed in the chapter on circulation systems. Regardless of the circulation system used, the result of discharging is the same—the record of a loan is cancelled and the borrower's responsibility ends.

Once material has been discharged, it is inspected for wear or damage. If it is badly damaged, the borrower may be charged a fee. This is the point where damage is easily spotted. Torn pages, loose bindings, and missing labels must be repaired before the material circulates again or the item may be damaged beyond repair. When repairs are needed, material may be placed on a special repair shelf and a mending slip inserted in the item.

The importance of good public relations must not be forgotten when evaluating the discharging process. Few things are more irritating to a borrower than mistakes in the discharging process. For example, borrowers resent receiving overdue notices for materials already returned. The fact that there may be a shortage of personnel or a heavy workload will be of little concern to the patron; his impression will be that the library is inefficient. The LMTA who supervises a circulation department must be aware of the possible effect of each step in the operation. Such awareness is particularly important if the operation has direct dealings with library patrons.

Reserve Materials

Patrons often request that materials be held for them when returned by another borrower. One of the characteristics of a good circulation control system is its ability to identify holds—reserve requests-when

material is returned. Patrons usually fill out a hold or reserve request, and when the material is returned it is held until it can be picked up. The hold/reserve card is usually attached to the charge-out record so that the material can be identified in the discharging process. In an automated system the hold information is entered in the computer memory and displayed when the item is discharged. When material is returned, the hold/reserve request card is mailed (in some cases, the patron may be phoned). The material is reserved for only a limited time—usually a few days—and then if the patron does not pick up the materials the next person wanting the material is notified or it is returned to the shelves. Some libraries mail the material directly to the patron who requested a hold instead of sending a notice and requiring the patron to come to the library.

Overdue Material and Fine Procedures

Libraries handle overdues and fine procedures in a variety of ways. In recent years there has been a trend to lower or eliminate fines in many libraries. During this same time, however, some libraries have reinstated or even increased fines because a fineless system failed to work.

Libraries that levy fines should be sure that information about them is easily available to the borrower. The fine rates can be printed on the borrower's card, on the transaction card inserted in the book pocket, or in the library handbook. They may also be posted on a sign at the circulation desk. The fine policy is not always established by the library; it may be set by the library's governing body. In a public library the librarian may make recommendations on a fine policy, but the library board of trustees has legal authority to establish the policy. In a college or university the librarian makes recommendations to the president or other governing body with authority over the library. Fine policies are not arrived at haphazardly but are based on many factors. Few libraries have complete freedom to set policy; instead, they must conform to the desires of various governing bodies.

Fine rates vary for different types of loans. For example, fines for short-term loans are often higher than for longer-term loans. There may be a different fine schedule for children or juvenile borrowers (usually lower than the rate used for adults). Some libraries have a policy of rescinding fines for borrowers who are unable to pay. Some libraries have tried moratoriums to encourage the return of overdue material. If the overdue material is returned within a specified period of time, the fine is cancelled.

Remember, the purpose of fines is not to punish borrowers, but to protect the rights of all library patrons. Fines are used to encourage the

timely return of material. When overdue material is identified, a notice is mailed to the borrower. The way overdue material is identified, of course, depends on the circulation control system. If the borrower does not respond to the first notice, second and third notices may be sent as deadlines expire.

The number of notices is a matter of library policy. Records are maintained on notices sent and on the eventual resolution of the problem. A bill is made out when a fine is charged, and a receipt is issued when it is paid. If the fine remains unpaid, legal action may be taken. The decision to take legal action rests with the librarian. Public libraries may work with the city or county legal department to take action against borrowers who fail to respond to overdue notices. Libraries sometimes take action against borrowers guilty of flagrant violations in hopes of deterring other patrons from committing similar violations. Academic libraries may work with the registrar or business office to withhold transcripts or degrees from students with unpaid library fines.

Collection of Fines and Fees

Collecting fines and fees is an important responsibility because it involves handling money. Fines must be calculated carefully; a fine is a poor public relations device and miscalculation of the fine will only exacerbate the situation. In some libraries, usually academic, the fine money is not collected by the library. Instead, a bill stating the amount of the fine is issued by the library and the fee is paid at the business office or other appropriate agency on campus. Fines for overdues often do not revert to the library but go to a general fund of the governing body of the library. A library also collects fees for lost books. Generally the borrower is charged the original cost or the replacement cost of the material, and a set fee to cover the expenses of replacement. A lost book that cost $4.95 to replace might be billed at $5.95—the cost of the book plus a replacement fee of $1.00. The replacement fee may be suspended for inexpensive materials, and sometimes the patron is not charged at all for low-cost items.

Many libraries have special fees for rental collections. Some academic libraries have rental reserve collections and some public libraries have rental collections of currently popular materials. If multiple copies of particular works are needed but funds are limited, the library might purchase multiple copies for rental and thereby recover the cost of the material. Rental fees must be calculated correctly and collected. When libraries have rental collections, the fees are usually collected in the library. Although the LMTA may not do the collecting of fines and fees, he or she will probably supervise the operation, and therefore must be

aware of library policy and be able to solve problems that may arise. Just as important, the LMTA must know when to consult the librarian to resolve difficult problems.

Shelving Materials

Shelving materials is one of the most important functions of collection control. A library must have an accurate and efficient shelving operation or good library service will be impossible. Backlogs of unshelved materials will cause delays in service and require staff time to locate material. Misshelved materials are the same as lost and are of no use until located. In larger collections it may take days of searching to locate misshelved materials.

Materials to be shelved come from several sources:

(1) new acquisitions,

(2) circulated materials that have been returned and discharged, and

(3) materials used in the library and not reshelved by the patron. Most libraries discourage patrons from reshelving materials.

Mistakes caused by patron reshelving are common for two reasons:

(1) patrons may not understand the importance of accurate shelving and approach it haphazardly, and

(2) they may not understand the system used to shelve material.

The work details in a shelving operation vary among libraries. Materials may be brought to a central location where they are sorted and placed in order. Some larger libraries may have shelving and sorting areas on each floor. Books are usually placed in rough order on shelves and then placed in exact order on book trucks just prior to shelving.

Most library materials are shelved in call number order. The format of some material (such as microfilm, slides, or films) may require a different method of shelving, but these materials will have a classification or accession number to allow for orderly shelving. Some books require special handling even if format is no problem (such as rare books, special collection materials, and oversized books).

The LMTA must be familiar with all of the special shelving problems. Although the LMTA should do little or no shelving, clerks and student assistants must be trained and supervised to handle all phases of the shelving operation.

The two most common classification systems are the Dewey Decimal Classification and the Library of Congress Classification. The Dewey Decimal Classification may present more problems in shelving because of the numbers to the right of the decimal point. It is important to remember

that, since those numbers are decimal-fractions, .16 is smaller than .9 and will file before the latter. The classification numbers below are given in the order in which they will appear on the shelves:

581.21	581.3	581.31	581.4	581.498	581.5
D4	E73	A4	A47	R3	J6

Notice that .498 files before .5 because in a decimal system it is the smaller decimal. The second line is a book number used to keep items with the same classification number in alphabetical order. For example:

	512	512	512
	A3	A47	D6

The Library of Congress Classification is arranged first by the letters and then by the numbers. The third line is the book number that, like the number used with the Dewey Decimal Classification, serves to keep material in alphabetical order. Notice that the book number in the examples below is treated like a decimalD47 is shelved before D5:

L	L	LA	LB	LD	LD
7	7	96	3063	4701	4701
D47	D5	G5	R71	R19	R2

Some Library of Congress classification numbers have two sets of letter/number combinations. When this occurs, the filing continues line by line, and the numbers are treated as decimals:

DC	***DC***	***DC***	***DC***	***DC***
801	801	801	801	801
A96	A96	A96	V57	V57
G3	G68	H7	G5	H9

The LMTA must train shelvers to understand the classification system and its relation to shelving materials. Also, staff who do the shelving must understand the importance of correct shelving and how it relates to good library service. Shelving is a tiring and dull job if performed for lengthy periods; the supervisor must establish schedules so that one person does not shelve too long and become careless.

Reserve Material Collections

Reserve collections are usually found in academic libraries. These collections are composed of materials reserved by the faculty for their classes. Because a course must be completed within a limited period of time—a semester or quarter—the materials cannot be lent for the regular loan period, or few people in a class could use them. If a class of 40 people

must read a chapter from a particular book, the loan period of the book must be restricted. To place materials in a reserve collection, the faculty member fills out a form listing the material.

These lists should be sent to the library well in advance of the starting date of the class so that the material can be located. Items are removed from the shelf; if they are in circulation, they are recalled.

When material is placed in a reserve collection, this is noted in the library catalogue. If the library uses a card catalogue, a special clear plastic cover can be placed over the cards for a particular item. At the top of the plastic cover the word "Reserve" will be printed, informing the patron that the material will be found not on the shelves but in the special reserve collection.

A special circulation control system is often used for reserve collections. Depending on the projected demand for the materials, the loan period may vary from days to hours. The faculty member who places the material on reserve will also set the loan period; different items on the same list may be assigned different loan periods.

Reserve materials are set apart from the regular collection, usually in a reserve book room or on special shelves in the circulation area. Some reserve material collections are kept on closed shelves, and the borrower does not have direct access to them. In this case the patron gives the desk attendant the author, title, and call number of the desired material, which is paged and given to the borrower. In some libraries reserve collections are kept on open shelves but materials cannot be removed from the reserve room.

A popular way to shelve reserve materials is to group them under the name of the faculty member reserving them. As stated above, reserve materials are often charged out using a special circulation control system. To charge out material the borrower gets the material from the shelves or, if closed stacks are used, requests material from the library attendant. The patron signs his or her name or identification number on a special charge card, although in some systems the author and title of the material must also be noted. The date due is stamped or written in on a date due slip. The charge card is then filed by call number, by author, or by the loan period. Because of the short loan periods, these files may be searched frequently for overdues. If books are lent for two-hour periods, it may be necessary to check the file for overdues every two hours.

In academic libraries the reserve materials operation can be quite large; however, once a reserve policy is established, a librarian has little to do with the daily routines and the LMTA will play an important supervisory role.

The 1976 Copyright Revision Act has affected the operation of reserve material collections. A faculty member may not place on reserve photocopies of materials the use of which will exceed the "fair use" limits imposed by the copyright law.

The exact meaning of the restrictions created by the law are still being discussed. At a minimum all photocopies on reserve should have the following statement: "Notice: this material may be protected by copyright law. In some instances the statement will identify the copyright owner and date of copyright. All decisions relative to copyright restrictions will be made by a librarian or the legal counsel of the institution. The LMTA must not interpret the copyright law independently.

The LMTA must remember to distinguish between a collection of reserved materials and a *reserve request*. A reserve request is when a patron asks that a hold or reserve be placed on an item currently checked out to someone else. It was stated in the chapter on circulation systems that all circulation systems should be able to allow patrons to request reserves. When a reserved item is checked in the patron placing the reserve is notified the material is available for use.

Shelf Reading

To maintain the library collection in good order it is necessary to check regularly the arrangement of materials on the shelves. This is called shelf reading. Shelf reading is accomplished by reading the call numbers on the material to see that each item stands on the shelf in proper relation to other items. A collection with material out of proper order is difficult to use and wastes a lot of patron and staff time locating materials.

As the clerk or student assistant reads the shelves, misshelved items should be placed in correct order. The shelf reader should also look for damaged material and loose or defaced labels and remove this material for repair.

The LMTA will probably do little shelf reading, except perhaps to revise work of new personnel. The LMTA will establish schedules to insure that the collection is shelf-read at regular intervals. Some of the more heavily used parts of the collection require frequent shelf reading, while other parts of the collection may need to be checked only occasionally. The LMTA must be familiar with circulation statistics and in-library reading patterns in order to identify the more heavily used parts of the collection.

Needless to say, shelf reading is tedious work. Shelf readers can maintain accuracy, and perhaps some enthusiasm, for 30 to 45 minutes. When scheduling personnel to do this work, the LMTA must consider these limitations.

Shifting Materials

As a collection grows, the shelves in some areas may become full and require shifting of materials. When shelves become full, the shelves should report this to the person responsible for shelf maintenance. Also, an LMTA or other staff responsible for shelf maintenance should check the shelves regularly for crowded areas. A shelf should be considered full at 70-75% of capacity.

Shelving is not arranged randomly; it requires planning by the librarian. In formulating such plans the librarian may consider some of the following:

(1) placing more frequently used materials in easily accessible places near circulation areas,

(2) keeping related materials together,

(3) placing little-used materials where they do not occupy the most valuable floor space, and

(4) placing periodical indexes near the periodical collection.

Although it is the librarian who makes shelving decisions, the LMTA must be aware of the rationale behind the decisions. The LMTA should be alert for shelving problems, and these problems should be reported to the librarian with recommendations for their solution.

Inventory and Search Routines

A complete inventory of a library collection is costly and time-consuming. Only a few years ago many libraries carried out an inventory every two or three years; this is often no longer the case. Relatively low book losses in libraries with theft detection systems may require less frequent inventories. In fact, some libraries do not inventory at all, but only search for material that cannot be found on the shelves by a patron.

While complete inventories are often avoided, many libraries take a continuous partial inventory. At regular intervals the shelf list for a particular subject area is compared with the material on the shelves. Usually the subject areas inventoried are the most heavily used, where lost material should be replaced as soon as possible. The lesser-used parts of the collection will be inventoried less often.

Regardless of the frequency or scope of inventories, the methods used by libraries are similar. The shelf list is compared to the materials actually on the shelves. Missing items are noted and then checked against the circulation files listing the materials out on loan.

If the material is neither on the shelves nor on loan, it is considered as probably missing. It could, of course, be in use in the library, in the

shelving area, at the bindery, or misshelved. The missing items will be listed on special forms, noted in the shelf list, and searched for again—a procedure that may be repeated several times. Then, if the item has still not been located, it is declared missing and the cards are removed from the card catalogue. A list of items declared missing is compiled and the more important items will be replaced.

Libraries with automated circulation systems can use somewhat different procedures to take an inventory. A portable terminal with a light pen can be used to scan the bar-code label on each item on the shelves. This information can be used to produce a list of material on the shelves. This list is compared to the material charged out and to the shelf list. Missing items are noted and search procedures can be started. Inventories using automated procedures may be performed more frequently because they can be carried out quickly and much less expensively than with a manual system.

When a patron requests material that cannot be found on the shelves and that is not on loan, a search procedure is undertaken. The sane search procedures may be used if the borrower claims to have returned an item that library records show as still on loan. The call number, author, and title are written on a search form and a search is conducted. The patron's name and address will be written on the search form so that he can be notified if the material is found. However, it is an important service, and libraries make every effort to locate missing material.

Statistics

All libraries keep circulation statistics. Some may keep statistics of the number of items loaned; other libraries break down the circulation statistics according to classification, type of borrower, format of material, or a combination of these.

Libraries using automated circulation systems can easily produce statistics of the type shown in the forms above. Daily, weekly, or monthly print-outs of circulation statistics can be produced on demand with no manual record-keeping. Complex reader profile analyses (who reads what, their educational level, grade point average, residential district, etc.), which can be performed quickly by machines, would require a prohibitive number of hours if performed manually. In any case, statistics of one kind or another are kept in all libraries using either a manual or computer-based system.

Scheduling

An LMTA often has supervisory duties in circulation work. One of the more important duties is establishing work schedules to see that all work

is performed on a regular basis. In addition, library staff must be assigned to circulation desks during all hours the library is open. Scheduling can be a complex job and is usually done in cooperation with the supervising librarian. A typical library schedule below shows the great number of hours a library is open and the special periods that present scheduling problems.

Another task that requires scheduling is shelf reading. The LMTA sets up a schedule of the call numbers to be read and assigns clerks or student assistants to read them on a regular basis. By careful scheduling, the LMTA can be sure that heavily used areas of collection are checked regularly.

3

Academic Libraries

Libraries in institutions of higher learning are as varied and distinctive as the institutions which they serve. Under the umbrella heading of "academic libraries," they cover those libraries found in junior colleges; four-year liberal arts colleges; teachers colleges; agricultural and mechanical colleges; men's colleges; women's colleges; technical schools; schools of theology, religion, law, and other professions; and the central libraries in universities and the more specialized libraries in the colleges within the universities.

The legal basis for institutions of higher education is found in the charters granted by special acts of the state legislatures for the establishment of specific institutions or in the articles of incorporations granted under the educational or corporation laws of the states. Public institutions are controlled by state or local government; private institutions are usually governed by a corporation. Both public and private institutions of higher education are administered by a board. The legal status of the library in academic institutions may be determined by the charter or by the articles of incorporations, but, in general, it is established by the bylaws of the board.

Development of Academic Libraries

Among the forces which have played vital roles in the development of institutions of higher learning and thus of the libraries in these institutions are the regional, state, and professional accrediting agencies; professional organizations; private philanthropy; Friends of the Library groups; and federal legislative programs.

Accrediting Agencies

Ever since there have been schools, there have been standards of some kind which were prescribed by or for a given institution. As early as 1784,

the Board of Regents of the State of New York had responsibility for maintaining standards in institutions of higher education in the state. The state department of education, the state university or some other state agency is usually given the responsibility by the state legislature for developing standards and criteria for evaluating junior colleges, four-year colleges, and colleges of teacher education. A number of state agencies either accept the accreditation of regional or national agencies as the basis for their approval of institutions or adapt the criteria developed by these agencies to their own use.

A major influence in the development of higher education has been the nongovernmental accrediting agencies, the regional associations of schools and colleges. An accrediting association is "the cooperative venture of a large number of institutions who are earnestly seeking first to ascertain what are the best standards of college work and, second, effective ways and means of bringing these standards to the attention of the institutions within its constituency."

To combat certain critical problems facing both secondary and higher education, regional associations of educational institutions began to appear during the last two decades of the nineteenth century. Standards were needed on the college level for admission, program, facilities, graduation requirements, transfer of students, and preparation of faculty. These associations did not begin to accredit colleges immediately. The North Central Association initiated accrediting procedures for institutions of higher education in 1910, the Southern Association in 1917, the Middle States Association in 1921, the Northwest Association in 1921, the Western Association in 1949, and the New England Association in 1952, Accreditation, "a phenomenon peculiar to the United States," is the recognition accorded to an educational institution that meets the standards or criteria established by a competent agency or association. The process of accreditation includes establishing minimum standards or criteria by the accrediting agency which an institution must meet in order to be accredited; examination of the institution by the agency to determine whether it has met the standards or criteria; publication of a list of institutions which meet the standards and are therefore accredited; and periodic reviews to ascertain whether the accredited institution continues to meet the standards or criteria. The influence of the regional associations upon the development of academic libraries has been of major importance, for they have always included the library as a major area to be considered in the accreditation of an institution. Early criteria for evaluating the library were quantitative, measuring such aspects as the number of books in the library and the amount of reading space per student. Although these quantitative standards were opposed by many educators administrators

to the substandard condition of their libraries and forced them to provide financial support of at least minimum adequacy for improvement so that accreditation would be granted.

New criteria adopted in 1934, by the North Central Association, and later by other associations, stressed the importance of evaluating an institution in terms of its own objectives, with emphasis upon qualitative rather than quantitative standards.

Other accrediting agencies, in addition to state agencies and regional associations, include the national associations or councils made up of institutions and/or organizations which are related in purpose or interests, such as the National Council for Accreditation of Teacher Education; associations of schools which prepare profession, such as the Association of American Law Schools; and organizations of members of a profession, such as the American Library Association.

Professional Organizations

The Association of College and Research Libraries, representing research and special libraries and libraries in institutions of post-secondary education, including those of community and junior colleges, colleges, ad universities, became a division of the American Library Association in 1938. The mission of the Association of College and Research Libraries (ACRL) is to "foster then profession of academic and research librarianship and enhance the ability of academic and research libraries to serve effectively the library and information needs of current and potential library users." It contributes to the professional development of academic and research librarians, promotes and speaks for their interests, and encourages study, research, and publication relevant to academic and research librarianship. The association publishes *College and Research Libraries* and *Colleges and Research Libraries News*.

In 1990, ACRL approved "standards for Community, Junior, and Technical College Learning Resources Programs", which apply to two year or three-year academic institutions that award an associate degree or certificate. "Standards for Colleges Libraries," adopted by ACRL in 1986, apply to libraries which serve academic programs at the bachelor's and master's degree levels. "Standards for University Libraries," adopted in 1989, set out the role of university library and include areas to be considered in the evaluation of a university library.

Of the other professional organizations and groups which contribute directly or indirectly to the advancement of academic libraries, notable examples are the Association of Research Libraries, an organization of the largest research libraries in the United States, the majority of which are university libraries; the Special Libraries Association, which includes

certain aspects of academic librarianship in its range of concerns; and the American Association of Community and Junior Colleges which provides leadership and services for community, technical, and junior colleges.

Private Philanthropy

At the same time that Andrew Carnegie and later the Carnegie Corporation were making grants for public library buildings, they were also financing library buildings on college campuses. After 1917, the emphasis in the Carnegie Corporation's program for the development of academic libraries moved from buildings to the improvement of services, and between 1921 and 1935 endowment grants were made to 11 institutions for general library uses or for salaries for librarians. Eventually grants totalling $667, 500 were made to 21 colleges and universities for library development.

In addition to the Carnegie Corporation, other philanthropic organizations aided in the development of college libraries in the first half of the twentieth century, notably the Rosenwald Foundation, which contributed to the improvement of facilities in libraries of Black colleges in the South; and the General Education Board, which made, grants to libraries of small colleges—especially in the South—for library materials, equipment, and personnel.

Founds given to academic institutions by philanthropic foundations for scholarships, fellowships, and research development contribute both directly and indirectly to the growth of libraries in those institutions. Outstanding contributions for these purposes have been made by the General Education Board of the Rockefeller Fund, the United States Steel Foundation, and the Ford Foundation.

A significant contribution of the Ford Foundation to all libraries was the establishment in 1956 of the Council on Library Resources to aid in the solution of library problems and to conduct research, develop, and demonstrate new techniques and methods for the improvement of library organization and service. The Council has supported the Publication of selection aids for college libraries, such as *Choice* and *Books for College Libraries,* projects undertaken by individual libraries, and studies of specific library activities and functions.

Friends of the Library

Since the beginning of academic libraries, there have been individuals and groups who have aided them by giving money, books, and effort toward furthering the library's aims and programs. These Friends of the Library groups, as they are usually called, are made up of alumni and friends of the institution who continue to work on behalf of the academic library by

making individual or group gifts and donations; bequests; memorials in the form of endowment, buildings, equipment, and special collections; and who influence interested individuals, organizations, and foundations to make contributions. Friends of the Library groups may be formally organized, and they may issue promotional and informational publications.

Federal Legislation

The National Defence Education Act of 1958, amended in 1964, provided funds to improve the teaching of science, mathematics, and modern foreign languages; to train modern foreign language teachers and counselling and guidance personnel at summer or academic year institutes on college campuses; to operate short-term or regular-session institutes for teachers of English, reading, history, and geography; for school librarians and school library supervisors; for educational media specialists; and for teachers of disadvantaged youth. Academic libraries were strengthened to support these programs.

The vocational Education Act of 1963 made available funds for salaries of librarians, library books and other materials, construction, and equipment for department or divisions of a junior college or university which offered courses in vocational education.

The Higher Education Facilities Act of 1963 authorized federal grants and loans to institutions of higher education for construction of various facilities, including libraries. The Higher Education Act of 1965 provided financial aid to libraries for materials, special equipment, research projects and demonstrations relating to libraries and the training of librarians. Re-authorizations of the act have added various provisions. The five-year extension authorized by Congress in 1985 includes the following: funds for college library resources; library career training programs and re-training programmes; fellowships for bachelor's, master's, post-mater's and doctoral candidates; and research and demonstration.

Characteristics of Academic Libraries

In the past decade there has been a steady increase in the number of academic libraries and an enormous growth in library collections. In 1964-65, there were an estimated 2, 175 libraries, with a total of 240 million volumes. By 1988, the number of academic libraries had grown to 4, 824 (including college, university, and junior/community college libraries) with collections ranging from under 50,000 volumes to one million and more.

Function

The basic function of the academic library is to aid the institution in carrying out its program. Each kind of academic library—junior college,

college, and university—in addition to the characteristics which it shares with all academic libraries, serves certain purposes and has certain features and problems peculiarly its own, which grow out of the particular character and scope of its parent institution.

The Junior College Library

The American junior college had its beginnings in the small two-year private colleges, the two-year curricula of the normal schools and fouryear colleges, the one-or-two year technical and business institutes, and the two-year extensions—the thirteenth and fourteenth grades—of the public secondary school. It has had various names: city college, technical institute, business school or college, junior college, and—more recently—community college. Some junior colleges are privately endowed and controlled, but more than two thirds are maintained and controlled by the public.

The number of community colleges has grown to more than 1,250 in 1988 with a total enrolment of more than eight million students. There are public junior colleges in each of the states.

Purposes and Programs of the Community College

Less expensive and more convenient than the four-year college or the university, the community college provides the first two years of college work for students who will transfer to college or university at the junior level. It offers a liberal arts program, general education, vocational and technical education programs to update occupational skills or retrain for new jobs, and various continuing education opportunities. The community college library may be called the learning resources center, or it may be a part of a larger unit that includes a library, audiovisual center, computing center, and a telecommunications center. The role of the community college library (learning resources program) must be consistent with the mission of the parent institution and must be related to its educational goals, curricula, size and complexity and diversity of resources.

The learning resources program should make available a collection of materials including various forms of print and non-print media, computer software, optical storage technologies, and other formats. It should provide books, periodical publications, pamphlets, and audiovisual and other educational resource and materials in each area of emphasis in the several curricula. It should include bibliographical Addis; professional and other materials for faculty use; and recreational materials for reading, viewing, or listening by both students and faculty.

The community college library serves students and faculty by making materials available for assigned and voluntary reading and study in the library or at home; by giving formal and informal instruction in the use

of the library; by encouraging wide reading through easy accessibility of materials, reader guidance, displays, and book discussions; and by providing bibliographical information and special materials for the faculty.

An adequate and effective program of library services for such a varied clientele and instructional program calls for a staff which understands and supports the purposes and objectives of the community college idea in general and those of their own institution in particular and is knowledgeable about all types and forms of materials and services. A broad educational background, an acquaintance with the literature of the subject fields, and an ability to identify and appraise resources for the diversity of course offerings and the varying abilities of the students are desirable qualifications for staff members. Professional staff should have degrees and/or experience appropriate to the position requirements.

The College Library

In general the name "college" is given to an institution of higher learning which offers a four-year curriculum leading to a bachelor's degree in arts and science; requires graduation from an accredited secondary school or its equivalent for admission; and is not divided into separate schools and faculties.

This definition does not cover the wide variation among colleges as to control, purposes, programs, and size. There are liberal arts colleges, amnay of which emphasize specialization is given fields rather than liberal education; colleges for the preparation of teachers, and technical and agricultural colleges. Some colleges offer a fifth year leading to the master's degree; some call themselves universities before they have developed a sufficient number of professional schools or faculties with the quality of advanced teaching and study to merit the title. Colleges may be under state, municipal, or denominational control; or they may be privately endowed and controlled. Enrollments range from fewer than 500 students to more than 10,000.

At the turn of the century, college libraries entered upon a period of growth and expanded rapidly after World War I. In most cases their major concern was to acquire and to preserve materials rather than to major concern was to acquire and to preserve materials rather than to encourage and facilitate their use since at that time, the textbook was the chief method of instruction. As more general and specialized knowledge became available, dissatisfaction with the textbook as the core of the teaching process became widespread, and increasingly, in the thirties, the college library was give the requirement and the opportunity to select and evaluate learning materials to support the teaching program and to aid students in their use.

In the forties and fifties, such educational emphases as education for democratic living and for world affairs; subject specialization; the teaching of science, mathematics, and foreign languages; and the importance or using a variety of materials called for new courses and new methods of instruction. The library endeavoured to support the new curricular and instructional programs by longer hours of service, larger collections, open stacks, flexible circulation policies, new attention to instruction in library use, acquisition of various kinds of print and nonprit materials, and the provision of carrells and listening and viewing facilities.

In the past two decades, public pressure for higher education for all, coupled with the enormous increase in high school graduates, has resulted in tremendous growth in college enrolment. New curricula, new areas of specialization, and new methods of instruction have been introduced in an effort to meet the needs of the great number of students. Advances in science and technology have called for additional specializations and additional innovations in curriculum and in methods of instruction.

Purposes and Programs of the College Library

The role of the library, as an essential part of the educational program of the parent institution, has included "collecting the records of civilization and documentation of scientific pursuit," and providing programs which teach users how to retrieve and interpret these records and documents.

The library's collection should include all types and forms of recorded information, including print materials in all formats, audio and visual materials, sound recordings, computer materials, graphics, microforms, machine-readable reports, government documents, archival materials, and the equipment needed to utilize these materials. The collection should be selected and development on the basis of the institution's educational philosophy and objectives, the extent an nature of the curriculum, the methods of instruction, the size and nature of the student body, the size of the faculty and their needs for research materials, and the range of services required by the library's users. The library should make materials easily accessible physically through open shelves or other efficient means, and bibliographically through catalogues, bibliographies, and indexes; given special assistance in the use of specific materials as well as formal instruction in library resources and use; borrow needed materials on interlibrary loans from other libraries; make database searching available; and provide adequate and comfortable physical facilities for study.

In order to be able to offer such a program of service, the staff of professional librarians must be educated in library and information science with a degree from an ALA-accredited program and have some subject specialization as well as language proficiency. They must keep up with

trends in higher education, curriculum developments, methods of teaching, and new materials and sources in order to be able to participate actively in the instructional program of the college.

The college library is organized and administered by the director or chief librarians. The organization should be suitable to the needs and programmes of the institution and should encourage the fullest and most effective use of the library's resources. Theoretically, the size of the professional staff will be determined by the type of organization within the library, the college enrolment, the size and character of the collection, the teaching methods in use, the number of hours the library is open, the arrangement of the building, the range of services, and the amount of funding.

The University Library

A university is an institution of higher education which has a liberal arts college; offers a program of graduate study; usually has two or more professional schools or faculties; and is powered to confer degrees in various fields of study.

Before the Revolution, all institutions of higher learning in America were called colleges. Following the Revolution, new state institutions called universities were organized and some of the private colleges were reorganized in order to assume the broadened university functions. The state university made its appearance in the late eighteenth century, but these early institutions received little financial support from the state and the instruction given was hardly advanced enough to qualify under modern standards as university teaching. The University of Virginia, established by Thomas Jefferson in 1825, has been called America's first real state university. Deliberately planned as a public enterprise and completely undernomination, it offered a broader selection of subjects and more advanced work than existing colleges and predecessor universities.

In the course of wesward expansion, universities were established under the leadership of educators from the Eastern states, and by the time of the Civil War, 21 state universities and several municipal universities had been founded. Most of the municipal universities, however, appeared after the war with the development of large urban centres; they were planned to provide publicly supported free higher education for the people who lived in the cities.

One of the major influences on American higher education in the nineteenth century was the German university. Great number of American students went to study in Germany, attracted first by the advanced level of teaching and later by the German idea of scholarly research. The first American university to be founded in the true German tradition was Johns

Hopkins University in 1876. "Non-sectarians and dedicated to the unfettered search for truth", it did not attempt to duplicate existing colleges, but aimed to supply the needs of the United States in certain special learned fields. Following the example of Johns Hopkins, certain of the firmly established private colleges such as Harvard, Yale, Columbia, and Princeton were reorgainzed and expanded into universities along the lines of the German tradition.

The German-educated scholars of the latter half of the nineteenth century brought back such new instructional techniques as the seminar, the laboratory method, and the lecture. These new methods influenced not only the development of university organization and program, but also the development and use of great university libraries.

In the twentieth century, the university has added many new fields of graduate education as well as research programs for the benefit of the university; the local, state, or federal government; and business and industry.

Purposes and Programs

"The mission of the university library is to provide information services in support of the teaching, research, and public service mission of the University." Since the range of the total program of the university extends from the freshman to the doctoral candidate engaged in scholarly research, the university library must try to offer resources and service of comparable range.

The university library will offer a general collection of materials in all formats as required to support the academic programs, including the most recent editions as well as those of historical value; general and specialized reference, curricular, and research materials in both English and foreign languages; rare materials, such as incunabula, first editions, manuscripts, papers, letters, museum objects, broadsides, and historical maps. Also, newspapers and periodicals in English and foreign languages; federal, state, local, and foreign government publications as well as those of the United Nations; special materials, such as results of research, theses, dissertations, archives, and microforms,; and diverse forms of materials and equipment, such as disc and tape recordings, films, sound tacks, language laboratories, videtapes, listening and viewing apparatus, and, increasingly, computers and auxiliary machines.

The physical organization of the university library will be determined by its administrative organization and the costs involved. The library may be centralized in one building or divided into departmental or college libraries. Some universities provide a library for undergraduates in a separate building with all the materials, facilities, and service necessary

to meet their basic needs. Access to the collection within the library is gained through catalogues, indexes, and bibliographies. Needed materials outside the library are made available through online access to various databases, telefacsimile transmission, and other forms of information transfer.

Services and Staff

The university library provides ready access to materials, facilities for uniterrupted individual study, interlibrary loans, translation assistance, typing facilities, and photocopying device; it participates in cooperative undertakings in bibliographical service.

The library director must have the training, ability, and skill to develop and administer this highly complex part of the institution's intellectual life; to interpret the library's program to society in general, to users, and to the staff; and to secure financial and other support. The professional librarians should have a broad general education and training in library and information science and in each specialized area of service offered by the library, such as specialists in subject fields, languages, materials of instruction and special types and forms of materials, reader guidance, research, and all forms of technology. The must be competent both as librarians and as educators. The size of the professional and support staff depends on the number of programs offered, the physical organization of the library, the number of services provided, and available funds.

Problems

Some of the problems of academic libraries grow out of developments within the institutions the libraries serve: increased total enrolment; the growing number of graduate and undergraduate programmes new comprehensive areas of study, such as non-Western countries and civilizations, and literature of ethnic and minority groups, which require resources that are expensive, scarce, and difficult to acquire; the trend. Major problems derive from the curricular changes in all institutions of higher education and particularly from the scholarly and research undertakings of university libraries, which require extensive and highly accessible collections of books, journals, and reports as well as other kinds of materials in a diversity of forms and languages. Pressing needs are for more space for the library's active collection and for storage of little-used materials; larger and better trained staff—especially in more subject competencies—to explain resources, prepare bibliographies, and located materials in other libraries. The rapid expansion of knowledge in every field, which has resulted in a deluge of new publications in many forms, has brought another set of problems. Since on library can acquire only

small percent of these materials and some materials—though soon obsolete—must be kept by some institutions, the problems of what to acquire, what to keep, what to store, and how to store it are urgent. Other problems are how to reduce the size of the collections; how to curb growth of the collection; how to reduce the time and cost of processing and cataloguing each items; and how to describe accurately each items by word or number so that it can be retrieved and made more easily and quickly accessible to users.

There are problems within the library: centralization vs. decentralization—when, where, and whether to establish branch libraries; how to evaluate the effectiveness of the undergraduate library to determine whether the advantages outweigh the disadvantages; in a time of stable or declining budgets, how to meet the rising cost of all publications; how to answer the demand from outside the library for more accountability; how management can provide a working environment and adequate rewards for those who work in libraries and at the same time respond satisfactorily to the needs of users; what responsibility the library must assume regarding photocopying under the present copyright restrictions; in view of the high cost of automation, whether to automate, and if so, what functions; which of the newer technologies the library should offer; whether to charge fees for the newer services; and when, with whom, and to what extent the library should participate in cooperative arrangements.

Problems relating to library personnel involve the need for librarians with advanced preparation in a subject area; faculty status for librarians; the changing tasks of professional librarians resulting from the new functions and services of the libraries; the movement toward unionization in libraries, which began with nonprofessionals and now includes the professional staff; and discrimination against women, minorities, and other.

Problems relating to the collection are the physical deterioration of library materials from theft, mutilation, fire, flood, and other disasters.

Overarching problems in all academic libraries are how to communicate more effectively with the clients and how to secure greater use of the library by the people for whom it was planned.

Trends

In spite of these problems, and in answer to some of them, there are encouraging trends in academic libraries. Some progress is being made in achieving full faculty status for academic librarians. Participative management is being tried in a number of libraries with representatives of the staff working in groups to recommend possible solutions of library problems to library administrators. Staff development activities in the form of seminars, staff exchanges, travel, performance evaluation, time off

for courses, and so on are increasing. There is a strong recognition of the need for total integration of traditional library services and a wide range of new educational technology; this recognition is reflected in the standards for junior college libraries and in the college library standards. Interest in bibliographic instruction is evidenced by workshops, the development of new materials, and the attention paid to it in all standards for academic libraries. The use of nonprofessionals is both a trend and a problem since a tight job market gives rise to concern among professionals that nonprofessionals may be given their jobs. There is renewed interest in specialization—subject, function, and type of material.

Aid is solving some of the problems mentioned earlier is available through cooperative measures. Academic libraries participate in local, regional, and national cooperative arrangements, including multitype networks and consortia. Cooperative activities include: making union lists and catalogues; centralized purchasing and processing; interlibrary loans of unusual or out-of-print materials for graduate students, faculty, and other qualified researchers; reciprocal borrowing privileges, cooperative storage; cooperative reference service; photocopying services; and cooperation with other types of libraries—public, special, and research.

Unions are becoming stronger in academic libraries, and in some instances have brought substantial benefits to library personnel, such as higher pay, a shorter work year, and better working conditions.

For some time, the computer has been used in circulation, acquisition, and making book catalogues. Many libraries are providing access to their own and other library collections through online catalogues. Computer searching of various databses is available in many libraries by librarians or by patrons. The use of the newere electronic technologies, CD-ROMs, and others in library operations is increasing.

Research Libraries

> *Every man is a valuable member of society who, by his observations, researches, and experiments, procures knowledge for men...it is in his knowledge that man has found his greatness and his happiness, the high superiority which he holds over the other animals who inhabit the earth with him, and consequently no ignorance is probably without loss to him, no error without evil.*

Emphasis on research, not only in the sciences of nature but also in the behavioural and social sciences and the fields of humanistic study, has been increasing steadily for generations in technologically and industrially advanced countries. This emphasis has accelerated radically since World War II, largely as the result of a widespread judgement that information

and knowledge issuing from research constitute the basic ingredient in economic growth and prosperity. The result has been a very great expansion of research facilities and resources in universities, with a marked shift of research responsibilities from specifically skilled and motivated individual scholars to faculty members at large; a growth of research resources in government agencies and in large public library systems; an increased development of independent private research libraries and centres; and an expansive development of library resources and services to support the research activities of private industrial and commercial companies.

In 1964, the president of the Council on Library Resources stated that "the essential function of the research library...is to provide access in bibliographic and in physical terms to the records of human communication." In terms of this function, research libraries cut across standardized group classifications such as school, academic, public, and special.

Consequently, there is not a precise category into which research libraries can be placed; they may be classified as "specialized" or "general" according to the fields of knowledge covered by their collections and services. Moreover, there are not any published precise quantitative standards by which to evaluate all research libraries. The forms and the subject content of the collection of research materials will vary with the particular mission of a specific library. The quantity of materials will vary with a particular library's decision regarding the extent to which it will attempt to be locally self-sufficient; that is, the extent to which its own collection will provide all, or at least the most significant part of, the materials and resources which its users need as against depending on effective access to resources other than its own.

For example, the collection of an independent research library which specializes in science—such as the John Crerare Library in Chicago or the Linda Hall Library in Kansas City, Missouri—will differ from the research materials of a university in that the collection will be predominantly scientific, whereas the university will provide materials of research in the humanities and social sciences as well as in the pure and applied sciences. Also, the collections of the university's research library will be built upon the resources of the university's central library. The same type of difference aplies in comparing the research collections of a university with the research materials of the Henry F. Huntington Library in San Marino, California, and the Newberry Library in Chicago—both of which are privately endowed libraries emphasizing literature and history.

Although quantitative comparisons of research collections are not feasible, quality and service standards for academic research libraries are promoted actively by two national professional organizations, the Association of College and Research Libraries, which was discussed in the

preceding chapter, and the Association of Research Libraries. The Association of Research Libraries (ARL) was formed in 1932 with 44 member libraries for the purpose of studying the common problems of scholarly libraries and improving cooperation among the group as a whole. The Association has 119 members; and although most of them are university libraries, also included are privately endowed research libraries, public, and national libraries. Membership in association is by invitation and is limited to the largest research libraries in the country.

The member libraries of ARL are not the only ones in this country which fully merit being called "research libraries"; however, a general understanding of the basic purposes, functions, and cooperative activities of the association's member will be adquately indicative of all research libraries. In this chapter, therefore, the discussion will be limited to the *types* of research libraries represented in the association's membership. The numerous libraries and library services in business, industry, and government, which are maintained in support of technical and scientific inquiry, experimentation, and research, will be discussed in the next chapter, "Special Libraries."

Availability of Resources

The resources of a university research library are available to the students, faculty, university research staff, and visiting scholars. The materials and services of a research library in a public library system are open to the public under the regulations and conditions established by the particular library. Use of some independent research libraries is restricted to advanced scholars and is permitted only by special arrangement; other are open to the public under regulations limiting the locale in which the materials can be used. The research resources and services of the three national libraries—the Library of Congress, the National Library of Medicine, and the National Agricultural Library—are available to scholars; to student; to the research staff of government agencies, businesses, and industries; and to the general public under regulations regarding the form and nature of the materials, the time and place of their use, and the nature and importance of the particular project on which the user is working.

Functions

According to Title II, part C of the Higher Education Act, "a research library is one that makes a significant contribution to education and research, is broadly based, and has national or international significance for research; and is in demand by researchers."

The common basic function of all research libraries is to provide the resources and services to meet the research requirements of their users in the form needed and at the time required. In light of this purpose, the

research library has a special responsibility to keep its clientele up to date and intellectually stimulated by providing pertinent literature, not only in areas of immediate concern, but also in areas of emerging and developing importance within the scope of the particular library's mission; and by contributing to the preservation, transmission, and accessibility of new knowledge.

Collection

The collections of research libraries are comprehensive, ranging from clay tablets and papyrus scrolls to the latest technical reports and today's newspapers, and including materials in all forms of human communication on every conceivable subject.

The forms of materials will vary with the fields of research interest included in the library's purpose. For example, a collection the areas of science and technology will include reports of original research, mongraphs, abstracts, handbooks, tables of formulas, microforms, conference proceedings and reports, and certain types of laboratory materials, as well as journals and materials in traditional book form.

The production of information and knowledge materials in scientific and technical fields is currently so massive that most of the materials in the holdings of the science research library may be of very recent date.

Collection of research libraries devoted to the humanities and social sciences will have many of the forms of materials which a science collection includes. In these fields, materials will not be as new as they are in science and technology, nor will they go out of date as rapidly. In all fields of research interest, there will be materials in several languages.

Cooperative arrangements are maintained with other research libraries and with academic, public, and special libraries to extend and supplement the resources of an individual collection.

Services

The research library will offer, in addition to many traditional services, such specialized services as: acquiring, organizing, and preparing for use need and pertinent materials *without delay;* examining new materials and providing information about them to appropriate users, in the form of review, abstracts, tables of contents, and photocopies of excerpts; maintaining highly specialized reference files and indexes: conducting literature searches; translating publications wholly or in part; providing quick reference and referral service, person-to-person and by telephone; operating a delivery service, on occasions; and extending the limits of it own resources by interlibrary loans and through such methods of bibliographical cooperation as union lists and catalogues and the exchange

of catalogues and bibliographies, and through the use of various electronic technologies such as telefacsimile.

Cooperative Activities

Early attempts at cooperation among research libraries were the Farmington Plan and the Center for Research Libraries. The Farmington Plan, administered by the Association of Research Libraries, was initiated in 1947 to ensure that at least one copy of each new foreign book and pamphlet that might be of interest to a research worker in the United States would be acquired by an American library, promptly listed in the Union Catalogue at the Library of Congress, and made available by inter-library loan or photographic reproduction.

Some 60 research libraries participated in the plan and each one accepted responsibility for collecting the literature of a given subject area from a particular country or region, using assigned book dealers in the country or region both for selection and distribution. Beginning with Western Europe, the plan was extended to Africa, Australia, Latin America, the Far East, South and Southeast Asia, and the Middle East. All fields of knowledge were covered. The Farmington Plan ended December 31, 1972.

The Midewest Inter-Library Center, incorporated in 1949 by ten universities, became the Center for Research Libraries in 1965. It now has 97 members. Its primary purpose is to increase the library research resources available to cooperating institutions. Its activities include housing for common use the infrequently used materials held by each participating institution and infrequently used research materials not already available to the participants, such as doctoral disserlations from foreign universities, new foreign scholarly journals and other scholarly periodicals; centralized acquisition and cataloguing of materials acquired by the participants for their own collections; and coordination of acquisitions to avoid unnecessary duplication.

Cooperative projects developed by the Library of Congress include: the *National Union Catalogue,* which is a record of publications held by LC and 1100 other libraries; the Cooperative Conversion of Serials Project (CONSER), as 500, 000-title computer catalogue describing the serials held by eight major North American libraries; Cataloguing in Publication; and the National Program for Acquisitions and Cataloguing.

Federal Legislation

In preceding chapters, federal programs, legislation, and services of potential benefit—financial and otherwise—to practically all types of libraries have been pointed out. Provisions of legislative programs of value to research libraries include.

1. The National Endowment for the Humanities, a part of the National Foundation the Arts and the Humanities Act of 1965, is authorized to provide nonmatching grants and loans for research, fellowships, training, the publication of scholarly works, and exchange of information in the humanities.
2. Title, II, Part C, of the Higher Education Act, Strengthening Research Library Resources Program, provides funds to strengthen research library collections and make their holdings available to other libraries and to independent researchers.
3. The National Program for Acquistions and Cataloguing (NPAC) became operational in mid-1966. Prompt cataloguing of materials acquired from foreign countries is made possible through the cooperation of foreign national libraries, who make available to Library of Congress cataloguers the entries for their national bibliographies. LC accepts the cataloguing used in these entries as the basis for its own cataloguing of these materials. More than 90 libraries in the United States are participating in this shared cataloguing program.
4. In 1973, the Library Services and Construction Act was asmended to include within the definition of "public library" certain independent research libraries, provided they make their services available to the public free of charge, have extensive collections not available through public libraries, engage in the dissemination of humanistic knowledge, and are not an intergral part of an institution of higher education.

Staff

The qualifications of the professional staff of a particular research library are implicit in the specific purpose and functions of that library. Obviously, the subject specialists will vary with the areas emphasized and served. The size of the staff, both professional and nonprofessional, will depend upon the volume of work involved in serving a particular library's clientele; the methods, techniques, and organizational system employed in serving the library's users; the funds available for personnel; and the availability of qualified personnel.

Certain qualifications should be common to the professional staff of all research libraries, including thorough specialization the areas of knowledge emphasized, and in some cases, especially in the pure and applied science, specialization in the subdisciplines; facility in the appropriate languages; sufficient training in scholarly investigation and in the most effective bibliographical methods to be adept in literature searching and, thus, capable off giving clear, accurate, and adequate

information on demand; proficiency in selecting and evaluating materials; ability to work effectively with subject specialists and research teams; and an understanding of the interrelationships of the subject fields. They should have an understanding of the library's new services created by automatic and the changes in quantity and forms of information. The director is the manager and planner of the research library and must have the education and training necessary for carrying out these duties.

Problems

Among the problems facing the research library are.

1. How to provide bibliographical access to the vast and ever-increasing quantities of recorded materials in all areas of thought, knowledge, and experience in order to enable the inquirer to become aware of, to identify, and to locate a particular items of information in whatever formate it appears.
2. How to shorten the period of time between the publication of research materials, their acquisition by the library, and the cataloguing of these materials.
3. How to improve techniques for the description, organization, and maintenance of the research collection, including the storage of little-used materials.
4. How to increase and make more effective cooperative activities in the sharing of library resources.
5. How to conserve and preserve materials. This problem is shared by all libraries whose collections include books published since the mid-nineteenth century when acidic alum rosin sizing was introduced into the manufacture of paper. Preservation projects include development of deacidification of whole books and improved permanent/durable paper.
6. How and where to secure funds to cover the high cost of traditional materials, new materials and services accompanying automation, networking, and other increased costs.

Trends

Several trends are wothy of attention:

1. *Management.* In 1969, the Council on Library Resources made a grant to the Association of Research Libraries to support a study of the problems of research library management. As a result of this study, the Council on Library Resources continues to support studies of library economics, library management, until costs in library operations, and the application of research and development to libraries.

2. *Cataloguing in Publication*. An important step in the effort to catalogue materials without delay was the agreement made in July 1971 between the library of congress and the American publishing industry providing for standardized cataloguing data on the copyright page of current titles, thus making possible immediate cataloguing of materials. This cooperative arrangement continues.
3. *Automation.* The major changes in the character of the research library are caused by the new technologies. New computer and telecommunication technology are resulting in improved service to library users and in more efficient library operation. Integrated library systems handle circulation, cataloguing, technical processes, bar coding, and the public access catalogue. Other technologies in use in research libraries include computer networks, online database searching, optical disc data storage, telefacsimile transmission of documents, electronic publishing, telecommunications, and CD. Rom technology.
4. *Cooperation.* No single library can have the materials for research. New computerized networks have widened access to library materials. Research libraries cooperate in various consortia and/ or networks. Most research libraries belong to one of the bibliographic networks, OCLC, RLG, WLN, SOLINET, or others.
5. *Preservation and conservation.* Major attention is being given to preservation and conservation of deteriorating library materials. Numerous organizations and agencies are giving time and funds to the solving of these problems. Among these groups are the American Library Association, the Library of Congress, the Council on Library Resources, the Special Libraries Association, individual libraries, professional associations, the federal government (HEA Title 2-c), and corporations.

Special Libraries

The term "special" as currently applied to libraries has various meanings. At times it is used as an omnibus term to apply to all libraries that are not school, academic, public, or research; at other times it is used more inclusively to cover certain privately endowed specialized collections such as the John Career Library. It is often applied to subject branches or departments of public or university library complexes, such as the business branch of a public library or the industrial relations library of a university library system. It is also used to designate certain types of agencies called "information centres."

Article II of the bylaws of the Special Libraries Association defines a special library as "(a) a library or information center maintained by an

individual corporation, association, government agency, or any other group; or (b) a specialized or departmental collection within a library, for the organization and dissemination of information, and primarily offering service to a specialized clientele through the use of varied media and methods."

At the turn of the century, public libraries began to extend special service to business and industry. In 1909, a group of 26 librarians under the leadership of John Cotton Dana, a distingushed pioneer of library service to business, founded the Special Libraries Association, which had as its objective "to promote the interests of the commercial, industrial technical, civic, municipal and legislative libraries, the special departments of public libraries, universities, welfare organizations and business organizations."

Since that time, thousands of libraries which call themselves special, or are given that label by others in referring to them, have been established in the United States and Canada. The principal growth has taken place since World War, II, stimulated by the tremendous increase in the number of scientific, technical, business, and industrial research and development organizations; the flood of technological and scientific materials being produced; and the accelerating widespread interest in the transfer of information and knowledge having an immediate utilitarian value.

Growth of Special Libraries

Technical innovation has become recognized in recent decades as a necessity, not an option, since every new advance in mechanization adds to the ability of inventors, engineers, and scientists to design and develop newer and more efficient machines, which in turn speed up the design and development of still further advances in mechanization.

Long ago, specialization proved its effectiveness as a method for producing new and usable information, with each generation, research and learning have become more specialized and fragmented, not only in the fields of science and technology, but in all major fields of human experience. Such parent sciences as chemistry, biology, and physics have been divided and subdivided, and within subdivisions, there emerge specialized "specialities" such as microelectronics as a subspecialty of miniature electronics. In other areas of knowledge and professional practice, there are also multiplying specialities and subspecalities.

Out of the research in these fragmented areas of knowledge, and numbers in recent years, reports and monographs, as well as articles in journals and other periodicals, on highly precise topics and problems. Not only has the production of materials on very specific topics and problems accelerated to dizzy pace, but the time between the production of these

materials and their practical application has so markedly decreased that those who have need for the information want to know about its existence much earlier and want access to it much faster than at any time in the past.

In answer to this need, there has been a rapid and large growth of libraries and information service agencies dedicated to indentifying, collection, and providing the specific and accurate information and knowledge that specialized users require. More than 18,000 special libraries and information centres are in operation at the present time.

Distinguishing Characteristics

Among the thousands of special libraries are those which serve historical societies; newspapers; schools of law, law films, and state bar associations; officials and agencies of federal, state, county, or municipal governments; airlines; medical schools, hospitals, and medical societies; divinity schools, churches, and religious organizations; museums; military installations; prisons; learned societies; music organizations; banks, insurance companies, advertising agencies, publishing firms, and other businesses; and industries, large and small.

Each library is a unit of an agency, organization, institution, business, or industry—private or governmental—with the sole purpose of providing the information and knowledge resources that are vital to the parent organization's clientele in the achievement of the organization's specific objective, product, or service.

Since the clientele is a limited one in terms of interest and work and since the objectives of the library are specific rather than general, the collection of books, periodicals, and other materials in relatively narrow in scope, with emphasis on a single specific subject area or a group of related subjects which meet the requirements of the supporting organization.

In addition to the fact that the people who use and are served by special libraries usually are specialized in their interests and skill, some special libraries are most easily distinguishable from other types of libraries by the highly specialized form of the materials assembled and make available for use, as in the case of map libraries and picture libraries.

Special libraries vary in form and size, and although some have collections numbering into many thousands of items, the majority tend to be small and employ only a few persons.

The kinds of libraries may cover education, scholarly research, aesthetic appreciation, and recreation in their objectives. The distinctive purpose of special libraries, however, is to provided information for immediate utilitarian application and to bring together users and information—in

whatever form available—in the most effective way possible, at the time when and in the place where it is needed. The emphasis, then, is on *information services.*

Collection

The special library acquires, organizes, and maintains informational materials in fields pertinent to the work of the organization, for use by or on behalf of its clientele. The collection includes all basic, frequently used, and potentially useful materials to meet both current and anticipated needs of users. Depending upon the nature of the supporting organization, the collection may contain a variety of forms: books, pamphlets, translations, dissertations, periodicals, newspapers, press releases, transactions, reports, archival materials, yearbooks, directories, research and laboratory notebooks, patents, trademark specifications and standards, audiovisual materials, sheet music, recordings, manuscripts, clippings, abstracts, maps, blueprints, punched cards, magnetic tapes, tables, photocopies, microforms, and computer hardware and software. The size of the collection is determined by the purposes of the library and the availability of materials in its special area; it may contain works of permanent or historical value or literature which is only currently useful.

The determining factor in the organization of the collection is the necessity for quick and efficient access. Traditional systems of cataloguing and classification can sometimes by used, but modifications and adaptations of these systems are often necessary. Efforts may be made to devise an entirely new system of bibliographic access, including a new classification scheme, printed checklists, indexes, computer printout catalogues, and electronic data-processing equipment.

Services and Staff

The "special" librarian is called information specialist, information manager, or by some other title using "information" rather than librarian. This specialist serves a clientele or specialists by examining all new literature which comes into the library, evaluating it, and making certain that it reaches the right persons; providing quick reference service, using photocopies as needed; making literature searches and providing bibliographies, abstracts, summaries, and translations if necessary; using interlibrary loan to provide additionally needed materials; providing selective dissemination of information (SDI) and document delivery service; maintaining company archives; encouraging the use of the library through displays, lists of new materials, and liberal lona policies; and developing programs to retrieve information through the use of computers.

The information specialist must have an understanding of the structure and policy of the organization or agency the library serves; knowledge of

the subject speciality of the library, the supporting literature, and the techniques of reference and information service; a familiarity with the entire collection and the particular interests of the clientele, and the ability of match literature and client; an understanding of the basic principles of classification in order to adapt or devise systems to meet the needs of the diverse materials and forms of materials; an acquaintance with outside sources useful in locating need information; ability to perform such special series as indexing, editing, abstracting, translating, and database searching, or knowing where these services can be procured quickly. The information specialist must be able to work well with people and with an organization.

The staff of the typical special library is small, often consisting of one professional librarian together with clerical assistants. However, some special libraries have a number of specialists on the staff, such as a translator, an abstractor, an indexer, or an information systems specialist. The information specialist should have a degree from an ALA-accredited program in library and information science.

Special libraries engage in cooperative activities and participate in most forms of cooperation: storage of certain materials, including on microfilm, microfiche, or optical discs; interlibrary loans; directories; cooperative cataloguing and acquisition; duplicates exchange; union lists; and shared resources. Larger special libraries are members of OCLC or another bibliographic network. In addition to computers, many special libraries utilize CD-ROM technology, telefacsimile transmission of documents, telecommunications, and other electronic technologies.

Professional Associations

The special Libraries Association, which began in 1909 with 26 members, had membership of 12,000 professional librarians and information specialists by 1988. The objectives of SLA are to "provide an association of individuals and organizations having a professional, scientific or technical interest in library and information science, especially as they are applied in the recording, retrieval, and dissemination of knowledge and information in areas such as the physical, biological, technical and social science and the humanities; and to promote and improve the communication, dissemination and use of such information and knowledge for the benefit of libraries or other education organizations."

SLA is organized into 44 regional chapters which elect of officers, issue bulletins or announcements, and hold program meetings during the year. It is further organized into 26 divisions representing broad subject fields or types of information-handling techniques. Membership status is granted on the basis of education and/or professional experience and provisions are

made for student members. In addition to its official organ, *Special Libraries,* publications include source books, bibliographies, periodicals, monographs, and directories.

Librarianship and Information Science

From the preceding chapters it can be seen that libraries have always endeavoured to serve the needs of the societies of which they were a part. As the needs of these societies increased and changed, libraries, too, changed—in the number and forms of materials acquired, the methods of organizing and making them accessible, the number and kinds of services offered, and the kinds of facilities and equipment provided.

Admittedly, change in library practices has often been slow, seldom—if ever—dramatic, reluctant in most instances, and too late in some cases, with the result that some other agency, institution, or professional group has taken over. Such was the case with audiovisual media now administered by professionals called media specialists.

The Electronic Digital Computer

Since the early 1940s, the increasing value and use of information as a commodity demanded the development of faster and more efficient facilities and processes for identifying collecting, and analysing, evaluating, and disseminating it. Beginning in government and industry, where the need first presented itself to organize more specifically and speedily the recorded information of a narrowly defined subject field in support of intensive scientific research, the need has now spread to all disciplines. During the past four decades, emphasis on the importance of information as vital to economic and national development has resulted in the proliferation of information services: databases, bibliographic utilities, information professionals (translators, indexers, abstractors, managers, etc.) utilizing an increasing number of electronic devices, notably the computer and computer-like technologies.

There is general agreement that the electronic digital computer is the most versatile and helpful of all the machines, instruments and devices which have been produced to assist humans in carrying out important tasks. The multiple demonstrated capacities of the computer and its assumed potentials are so highly regarded that the "age of automation" is usually thought of as dating from the time when the first of these electronic devices, ENIAC, was switched on in 1946 at the Army Proving Grounds in Aberdeen, Maryland, for the purpose of providing high-speed computational assistance in the national defence program.

Discovery of new uses for the computer and auxiliary machines has continued steadily since that time and today few, if any, areas of life have

been left untouched by these machines. Along with the development of new uses, there has come a steady improvement in the performance and capabilities of computers in their calculating speed, storage capacity or memory, compactness and flexibility, and economy of operation.

Over the years, various technologies have offered libraries more efficient ways of acquiring, organizing, storing, and/or transmitting information and knowledge, including the telephone, typewriter, paper tape, punched cards, copy machine, microforms, audio, visual, and audiovisual forms. Introduction of the computer into library operations has come slowly. The reparative and routine library tasks have yielded most readily to mechanization. Computers have proved most useful in such traditional operations as the acquisition of materials: the performance of bookkeeping, payroll, and accounting work; maintaining in ventories of supplies and equipment; developing and updating patron registration files; preparing catalogues; recording circulation; expediting serials work; and keeping track of faculty reading and research interests.

In the early 1960s, the Library of Congress began to study the possibility of using computer technology in the cataloguing of library materials. By 1966, a pilot program was initiated for the distribution of cataloguing data in machine-readable form to selected libraries. From this pilot program, Machine Readable Cataloguing (MARC), has come computerized cataloguing, the establishment of cooperative cataloguing databses, and bibliographic utilities such as OCLC and RLIN, and the online public access catalogue now in widespread use.

Even with the success of MARC, utilization of the computer in the storage and retrieval of information did not come easily or quickly to libraries. Lack of trained staff, patron and staff resistance to machines, unwillingness to change from established and familiar practices and formats to something "new and strange", inadequate space, inconvenience, the time required for the change, and the high cost of electronic equipment encouraged opposition.

However, many factors influenced the adoption of the computer in libraries: the attention given to the new technologies—notably the computer—in library schools and in library and information science literature during the past decade; increasing familiarity with the computer in daily life; the proven capabilities of the computer and other electronic devices in performing library functions; additional funding from state and federal governments and industry for advanced technological equipment and training; pressure from administrators, patrons, and staff; availability of more trained personnel; competition from nonlibrary agencies; development of more economical microcomputers; availability of integrated systems; and perhaps lastly, acceptance of the inevitable. Now, more and

more libraries are finding the computer a necessary tools with unlimited potential for performing library operations.

Information Science

A major function of librarianship has always been to organize whatever types of materials have been available at the time; to recover, find, or retrieve information and knowledge from these materials; and utilizing any and all available methods, to transmit them in some usable form to those needing or requesting them. However, when librarianship was not ready or able to satisfy *all* the additional needs involved in managing the tremendous volume of information, a new discipline began to emerge. First called information retrieval, then documentation, it is now known as information science.

There is no consensus regarding a definition of information science, but there is agreement about what it does. According to the American Society for Information Science (ASIS), information science brings together and uses the theories, principles, techniques, and technologies of a variety of disciplines in solving information problems including computer science psychology, mathematics, logic, information theory, electronics, communication, linguistics, classification science, library science, management science, and economics.

In the broadest sense, the basic objectives of librarianship and information science are the same. Both are concerned with the acquisition, storing, and retrieval of information for use. However, there are major difference of emphasis in the techniques employed, especially the emphasis of information science on the use of computers and other electronic devices and on the interdisciplinary foundations of information science. In addition, library science is associated with a specific institution, the library, while information science is concerned with the creation, storage, retrieval and dissemination of information independent of any specific environment.

With the growing volume of information, librarians and library educators became increasingly aware of the need to find more efficient and rapid ways of managing it. In 1950, Ralph Shaw, head of the U.S. Department of Agriculture Library developed the Rapid Selector, a complex device designed for searching recorded information, using electronics, optics, and photography.

The Center for Documentation and Communication Research was established at Case Western Reserve University in 1955—the first information science research organization to be located in a university library school. Emphasis was on bibliographic organization, information storage and retrieval, indexing, and abstracting as they related to librarianship.

Various experiments in informations transfer were undertaken during the 1960s. An example was INTREX (Information Transfer Experiment) at MIT, a project directed toward the development of new methods for handling technical and scientific information, utilizing an online computer-based complex of devices easily accessible to users.

In 1966, the Library of Congress began the distribution of cataloguing data in machine readable form to selected libraries.

By the 1960s, library schools began to add the word information to their title and offered courses in areas of information science, such as computer programming and library systems analysis. Then, as now, in many instances new courses were devoted chiefly to some aspect of the computer and its use in libraries with little, if any, attention given to the science of information.

Information science is not computer science. The focus of computer science is on computer programming, data processing, and mathematics. Information science, as stated above, is concerned with solving information problems using the technologies of various disciplines, computer science being only one. It is also concerned with the nature of information—its generation, organization, processing, and distribution, and with all information activities.

Information activities include many traditional library functions: collecting, classifying, recording, storing, providing bibliographic and physical access to information through reference service and, more recently, on-line bibliographic and databse searching. Other information activities, some of which are carried on in special, research, and large public and university libraries include interpreting, analysing, evaluating, translating, abstracting, indexing, and creating information. Still others involve teaching information professionals and developing and marketing information products.

The emergence of many occupational groups concerned with the organization and dissemination of information and knowledge has given rise to dire predictions about the future of the library, e.g., "the library as an institution housing a physical collection" will eventually become obsolete and print on paper will be replaced by electronic publication. Some persons believe that the basic function of the library will not change as we move into the electronic environment, but that the ways in which these functions are carried out will change. Others feel that to date no technology has replaced the printed word, but suggest that the usefulness of the printed page may not last.

In the preceding chapters, it has been shown that many libraries have adopted new technologies, such as the computer, videcassettes, CD-ROM,

and various forms of telecommunications and are utilizing them in library operations in their efforts to provide better service for their clienteles. Most libraries are in various stages of introducing and/or adopting some of the electronic technologies for the same purpose.

In state, public, school, academic, special, and research libraries, the influences of the information age are apparent in their standards, operations, services, planning, and cooperative arrangements. Library schools are accepting the responsibility for preparing librarians/information professionals who can perform in many different information environments by designing curricular offerings which include such interdisciplinary offerings as library science/management, library science/communication, library science/business, and library science/computer science.

Education and Training

The volume and complexity of information and the continuing development of more and more sophisticated electronic means of managing it have created the need for persons devoted to studying and understanding all of the activities involved in producing, acquiring, processing, analysing, evaluating, and distributing this information.

The educations and training of information professionals is a growing concern of schools of library and information science education and considerable attention is given in the literature and in numerous conferences, meeting, and seminars to designing course and model curricula. Attention is also being directed to identifying the skills and competencies which information professionals should have. Some of these competencies are considered basic in librarianship, such as subject specializations, ability to use materials and technology, and skills related to each specific activity performed in the library.

Information workers should also have a knowledge of the structure and format of information; of the individuals, organizations, and institutions constituting the information environment, of what is required to provide service and produce products; and of what services and products are needed. In addition to a thorough grounding in library science, the information professional should have a background of study in certain disciplines, such as philosophy, linguistics, mathematics, and/or the social and behavioural sciences.

Education and training of information professionals are provided by library schools whose graduates are employed in numerous information environments other than libraries; by other schools and divisions in colleges and universities, such as colleges of business or engineering whose graduates work with computers; in accounting, and in various aspects of information management; and by government agencies and industry.

Professional Organizations

The professional organization for information professionals is the American Society for information Science (ASIS). Founded in 1937 as the American Documentation Institute, its initial interest was in the development of microfilm. In 1968, the name was changed to American Society for Information Science emphasizing its members concern with all aspects of the information-transfer process.

ASIS defines its purposes as "the provision of knowledge, leadership and development opportunities for information professionals and organizations to enhance and advance the state of the art of information science and its applications".

It provides a variety of services to its members, including conferences, meetings, continuing education programs, and publications. Among its 4000 members are information specialists from such fields as computer science, engineering, management, linguistics, librarianship, and education.

Other professional associations concerned with information activities are the American Library Association, Special Libraries Association, and Association for Library and Information Science Education.

The National Commission on Library and Information Science has the responsibility for developing and recommending plans for meeting the library and information needs of the people of the United States.

Additional contributions to information science have been made by the federal government, the National Science Foundation, the Council on Library Resources, and industry through grants and other financial support to further research in specific areas.

A growing body of materials—textbooks, monograph, journals, conference proceedings, dictionaries, encyclopedias, audio, visual, and audiovisual materials research reports, etc.—produced, by the various groups concerned with information—keep the formation professional up-to-date.

4

Academic Library Materials Expenditures

Introduction

This article analyses the impact of the rising cost of materials on academic libraries. While a number of papers discuss a particular library's difficulties or aspects of the problems faced by libraries, this article attempts to analyse the pressures and resources of academic libraries as a group, reflected in Association of Research Libraries (ARL) and Association of College and Research Libraries (ACRL).

Trends in total library expenditures and materials expenditures are compared with inflation indexes, the consumer price index (CPI), and the more specialized library price index (LPI). Inflationary trends and the impact of journal proliferation on library collections are discussed. If present trends continue, the cost of supporting a first rate library-one with on-site access to a wide range of current journals, a rich selection of recent monographs, and other reference and research materials especially in technical and scientific fields-will grow at a pace which is insupportable in the long run.

Data Sources

Much of the statistical data comes from one of four sources. ARL Statistics is an annual publication of the Association of Research Libraries, a federation of over 100 major libraries across the United States and Canada. ACRL University Library Statistics is an analogous publication of the Association of College and Research Libraries which is published approximately every other year. In general, ACRL libraries are smaller than the ARL libraries but are similar in purpose. Price index data are extracted from Inflation Measures for Schools and Colleges: 1993 Update,

an annual publication of Research Associates of Washington. Price data specific to the library world are from Library Journal's "Periodical Price Index."

Data Organization

The difference of scale between the typical university ARL library and ACRL library is such that they are best treated separately, although it will be seen that they are generally subject to the same trends and respond in similar ways. Connecticut and Brandeis are medium-sized members of the ARL and the ACRL, respectively. Connecticut, with 2.3 million volumes and a total budget of $13.1 million, swamps Brandeis, with 900,000 volumes and a budget of $3.8 million. In addition to university libraries, the ARL counts as members a dozen other research libraries. These libraries, listed in the end notes, are distinct from the university research libraries in that they are tasked to serve not just an academic circle but a community of national, if not international, scope. Unlike university research libraries, these are often directly funded by the federal government in the United States or Canada. Finally, there are also two nominally municipal libraries-Boston and New York Public-which transcend, with a combined total of 13 million volumes, the confines suggested by their geographic names. These libraries, whose activities are in some respects unique, are excluded from the analyses since the focus of this article is academic libraries.

Total Library Expenditures

The aggregate ARL library expenditures stood at $720 million by 1982, nominal expenditures more than doubled to over $1.5 billion in 1992. ARL library expenditures have increased between 5.69 percent (1991) and 10.26 percent (1985) per year during these ten years (except in the recession year of 1992, when expenditures climbed by only 3.65 percent). ACRL library expenditures seem to follow the same general trend, though at a lower level.

The ACRL did not publish statistical abstracts for 1983, 1985, 1987, 1990, or 1992. No projection is made for 1992, and the expenditure values for the gap years are interpolated estimates. Still, it is evident that the nominal expenditures of the ACRL libraries have grown substantially, if not to quite the same extent as the ARL libraries. To allow for variation in the number of member libraries over the decade (especially in the ACRL, where fifteen new libraries reported total expenditure data in 1989), it is possible to look at total expenditures on a per library basis. On this basis, ARL expenditures have climbed from $7.12 million in 1982 to $14.1 million in 1992, a 98 percent increase in ten years. ACRL expenditures have increased from $2.63 million per library in 1982 to $3.52 million in 1989, a 34 percent increase in nine years.

The percentage growth in annual expenditures in the ARL and ACRL libraries with the consumer price index (CPI), the general measure of inflation, as well as a specialized library price index (LPI) for each year since 1982. The library price index is a measure of inflation as it affects libraries and is influenced by changes in pay scales for librarians as well as by changes in serial and monograph prices. The percentage increase in total expenditures for both the ARL and ACRL is generally greater than the CPI or LPI. Prior to 1987, ACRL expenditures generally kept even with inflation but grew faster than LPI in 1987, 1988, and 1989. Since 1989, however, expenditures have been in decline. On the whole, real expenditures in ARL and ACRL libraries have been increasing.

This is not to discount the fact that some libraries are falling behind, and the aggregate certainly hides the horror stories. At California Polytechnic State University, the library has dropped 330 current journals (of 3,313) over the last five years while increasing the journal expenditure by 82 percent to $700,000 per annum (Walch, 1993). Staffing levels have been reduced by 24 percent over the last five years, from 70.5 FTE to 57 FTE, and monograph purchase has ground to a halt without a single new book being bought in three months. Roger Noll (1993) remarks that even Stanford, while able to purchase monographs, did not have the resources to catalogue and shelve the new books. Thus they sit in the basement, inaccessible and unused. But these are exceptionally unfavourable circumstances and do not reflect the norm.

In ARL libraries, as the total expenditures have increased, so too has the proportion devoted to materials. In these libraries, the materials share has risen every year since 1982, steadily expanding from 31.10 percent of the total expenditures to 33.86 percent in 1992 (Association of Research Libraries, 1992). The steadiness of the increases in a population of over 100 libraries suggests a fundamental shift in group activity. Among ACRL libraries, such a shift of additional resources to materials is not apparent. This is, perhaps, because they are already so heavily committed to materials that there is no additional money for reallocation to materials. In absolute numbers, ARL libraries' material expenditures have climbed from $224 million in 1982 to $516 million in 1992, an increase of 130 percent. ACRL material expenditures are up by 84 percent. In contrast, the CPI has increased only 47 percent and the LPI by 72 percent during this period.

Serial and Monograph Expenditures

This expanded materials expenditure is increasingly devoted to serials. Figure taken from ARL Statistics, 1991-92, displays the increased relative weight given to serials. Funds allocated to purchase serials are growing swiftly and consistently. Since the graph is in constant 1982 dollars, a

horizontal line indicates expenditures just keeping pace with inflation, and a downward slope indicates real decline. Serials expenditures started an explosive growth around 1986 and grew faster than total expenditures for nonserials materials. By 1992, serials show the greatest percentage increase of any category reported. Moreover, while total library expenditures and nonserial materials show signs of stabilization in the last year or two, serials expenditure continues to climb. Indications are that journal prices will continue to climb. Faxon and EBSCO have estimated 6.2 percent and 7.0 percent price increases, respectively, for journals in 1994. EBSCO had originally estimated a 10.5 percent price increase, but the unexpected strength of the dollar on the international market has mitigated a portion of that calculation ("Journal Prices to Rise..., 1993).

Figures compare the serial expenditures with that for monographs in both ARL and ACRL libraries. In contrast to the swift growth of the serial expenditures in these libraries is the nearly fixed level of expenditures on monographs. A fixed budget in inflationary times is, of course, declining in real terms.

It may fairly be asserted that serials are crowding out monographs in library acquisition. Indeed, the share of material expenditures devoted by ARL libraries to monographs has fallen from 40.32 percent to 33.04 percent between 1986 and 1992. This seven point drop is a one-sixth decline in the portion of materials expenditures for monographs. Again, it is critical to recognize that even what seems to be a modest change in the percentage of budget can in fact carry major implications. This trend is as pronounced in the ACRL libraries, where monograph expenditures have fallen from 38.9 percent of the materials expenditures in 1986 to only 31 percent in 1991. These trends may be sustainable, simply altering the nature of library collections over time, were it not for the fact that even this tilt toward serials is not keeping pace with serial prices in certain disciplines. The problem, as discussed later, is that, as a category, serial prices are increasing rapidly, and libraries are being asked to subscribe to new journals.

The Race Between Expenditures and Prices

A way to examine the dynamics between rising expenditures on the one hand and the rising cost of materials on the other is to normalize both prices and expenditures to a common year and track the percentage change. Table displays indexes for select categories of library expenditures normalized to 1986 which serve as a baseline for subsequent analysis of prices. Indexes for specific categories of monographs such as U.S. college books, North American academic books, and median price of monographs purchased by ARL libraries, are presented in table; the indexes for serials

of selected subject fields (for example, chemistry and physics, engineering, medicine), and for the general academic periodicals (United States and foreign) are presented.

Monographs

Monographs cost more today than a few years ago, of course. The median price for monographs purchased by ARL libraries, up 44 percent in six years, has grown faster than either the CPI or LPI. U.S. college book and North American academic book indexes are almost exactly the same as the median price, as might be expected from the definitions (Research Associates of Washington, 1993) These three indexes have increased nearly at the same pace as the aggregate total library expenditures or aggregate materials expenditures of ARL libraries but have increased at a faster rate than monograph expenditures.

In spite of the growth in materials expenditure, spending on monographs does not seem to reflect higher monograph prices. As a result, many libraries are purchasing fewer monographs. ARL libraries have purchased fewer books each year from 1986 to 1990, recovering somewhat in 1991. During this period, these libraries were each buying 700 fewer books per year, an average decrease of 2.2 percent in the number of monographs purchased from year to year. The ACRL libraries were hit even harder for their size. While the ARL libraries managed to buy more monographs in 1991 and 1992, the average number of monographs purchased by ACRL libraries continued its downward trend, bouyed only in passing by the substantial expansion of the ACRL in 1989. Since 1989, both the median and total number of monographs purchased have fallen precipitously. The 1991 median (10,410) is 88 percent of 1989's (11,856). On the average, these libraries bought 180 fewer monographs each year since 1988.

As swiftly as monograph prices have risen, serial plus have risen even faster. In 1992, U.S. periodicals were 80 percent more expensive than in 1986. If serial expenditures are keeping pace with serial prices in general, it is because the price increases in some disciplines have been relatively modest. Annual price increases for fine arts journals have ranged from 4.0 percent to 5.5 percent per year for the last three years and are up 46 percent from 1986 to 1992 (row 4). During this period, history journals increased by 66 percent (row 5).

In contrast to the relatively modest price increases in humanities serials, stand the price increases in the scientific, technical, and medical disciplines (rows 6-8). The price increases have been greatest in chemistry and physics and in engineering. On the average, journals in 1992 were 108 percent more expensive than in 1986 in these fields and 82 percent

more expensive in medicine. These fields drive serials expenditures. As shown in table, the CPI, in contrast, increased by a bare 27 percent over the same years; the LPI by 40 percent; the ARL libraries' total expenditures by 48 percent; material expenditures by 56 percent; and serial expenditures by 87 percent. The prices of scientific, engineering, and medical journals are racing ahead of all other measures of costs or expenditures.

Impact of Journal Proliferation on Serial Expenditures

It must be the best of times and the worst of times in serials. Articles on serials cancellations abound. Indeed, fifty ARL libraries had plans to terminate over $7 million worth of serial subscriptions in 1992. Although there is a steady stream of reports of cancellations of current subscriptions, new serials emerge. Ulrich's reports that 3,800 new serials were launched since January 1, 1990 (Bowker International Serials Database, 1992). The median number of current serials in ARL libraries has increased every year but one, climbing from 20,537 in 1985 to a peak of 22,287 in 1991 before declining to 21,750 in 1992. The aggregate number of serials held has climbed every year, from 2.9 million in 1985 to 3.1 million in 1992. The increased cost of providing adequate serial collections reflects both increased unit cost and a greater aggregate number of serials held.

Suppose, for example, that a library was committed to providing on-site access to all the titles listed in Index Medicus. The index listed 2,352 titles in 1992. To purchase most of these titles would have cost $660,722. This compares to a cost of $420,000 for 2,251 titles in 1988 which is an increase of 58 percent over five years. The average cost per title is up 53 percent, from $184.20 in 1988 to $280.92 in 1992 (Bowker International Serials Database, 1992), the remaining 5 percent of extra costs being attributable to the larger number of serials. Similar circumstances surround serial collections in other fields.

The periodical price index surveyed seventy-six journals in mathematics in 1990. Just two years later the price index surveyed eighty-three titles, presumably as a reflection of the increased number of journal titles. The price index reported the average price of the journals had risen from $251.99 to $302.17. But even more important than this 20 percent average price rise was the cost to maintain a full collection. To buy all seventy-six journals in 1990 would have cost $19,151. To buy all eighty-three in 1992 would have cost $25,080, an increase not of 20 percent but of just over 30 percent. Thus, not only are serials becoming more expensive, but there is tremendous pressure to add new serials to the collection.

ARL and ACRL libraries' data show that academic libraries have enjoyed an increasing level of support. Expenditures have increased in comparison to the broad measures of inflation-the CPI and LPI. The near

doubling of ARL expenditures per library in ten years is evidence of a deep commitment to library resources. The critical issue for libraries and librarians, however, is that library expenditures have actually decreased with respect to the demands placed upon libraries by the constituencies they serve.

Decreasing real library expenditures on monographs deserves attention. There has been an absolute decline in the number of monographs purchased. Among the ARL libraries, monographs purchased have decreased from 3,006,538 in 1986 to 2,722,391 in 1990, while, among ACRL libraries, the number of monographs purchased has increased from 1,205,018 in 1986 to 1,251,531 in 1991. However, this increase in the ACRL aggregate total reflects an increase in the number of ACRL libraries not an increase in the average number of monographs purchased. Academic libraries are buying an ever smaller slice of the monograph pie.

Whereas the decline in the number of monographs purchased is absolute, there are more serials purchased from year to year. Still there is a decline in the proportion of serial universe covered. The repeated references to the cancellations of serials are evidence of the inadequacy of current funds to meet the needs of academic libraries. Although the literature abounds with reports of serial cancellations, the median number of current serials is actually up in ARL libraries from 20,537 in 1986 to 21,750 in 1992.

Indeed, many of the patterns observed here have been evident since 1973. The ARL Serials Prices Project, published in 1989, reported:

> *The average funding support to ARL libraries rose 243% from 1973 to 1987 compared to a 182% rise in the U.S. CPI during the same period). Nonetheless, ARL libraries' average percent of expenditures devoted to materials rose from 29.2% to 33.1% with an accompanying shift in the percentage devoted to serials from 40.4% to 56.2%. During this same period, the average serials holdings of ARL libraries dropped from 32% of the estimated universe to 26.4%. According to data collected by ARL, in 1988 the median price of a purchased serial was $115.00-an increase of 32% since 1986. (ARL, 1989).*

Since we excluded the twelve nonacademic ARL libraries, strictly speaking, a direct comparison between the ARL project and our study is inappropriate. However, over 90 percent of the libraries overlap. This said, since 1987, university ARL library expenditures are up 37.7 percent while the CPI is up only 24.3 percent-a rate of real increase in expenditures from 1987 to 1992 of 2.2 percent per year. Expenditures of the ACRL libraries have increased as well. The steady upward creep of the share of total

expenditures devoted to materials, evident in all ARL libraries since 1973, has continued. Within the material expenditure category, the proportion devoted to serials has continuously grown. This unprecedented level of spending on serials within ARL libraries is only four points behind that of the ACRL libraries, which have historically devoted a greater share of their material budget to serials.

It is clear that libraries are under stress generated by the longterm increase in the number and cost of serials. Library expenditures, although growing in real terms, are not keeping pace with the demands upon them. The libraries seem to have adapted to the situation so far, if at the cost of holding a reduced slice of the pie, both in serials and in monographs.

The whole Cost of Libraries-Library Finance

In addition to the operating budget, which may also include endowment and similar special funds, there may also be capital budgets. The interaction among these budgets is seldom stated, though many academic institutions have begun the practice of including some kind of operating endowment in fund drives meant to finance new construction.

Most institutional budgets are aggregated from budget requests submitted by various agencies who may or may not have engaged in any prior consultations. The fragmentary nature of institutional budgeting makes it clear that the true cost of running a library is not simply that shown in the operating budget.

Different kinds of libraries receive different kinds of budgetary treatment. In general, public library budgets are the most comprehensive, since they operate autonomously and have to be responsible, for example, for utility and cleaning costs, which seldom show up in an academic library budget. Special libraries sometimes do not have a direct budget, and their costs are paid from various sources as appropriate or charged back to various accounts. Some academic budgets make provision for staff benefits, while in other cases these are charged against a central fund. These variations exist whatever budget style is used-from the simplest line item to the most complicated programme budget. This makes consideration of total library costs a very complex matter, but, in view of the need for exercising the highest level of budgetary restraint, it is essential to know what these costs are.

Building and Maintenance Costs

Among the most important costs that do not usually show up directly in an academic or special library budget are those related to the building and its equipment. These include utility costs-heat, light, and power-which may be included in another part of the institutional budget, somewhat in

the manner of overhead. Given the size of most libraries and the fact that they are open long hours with sizable populations, it is clear that building maintenance costs will also be sizable. It is, therefore, strange that these costs are seldom taken into consideration when planning new or renovated libraries.

Added power consumption or changes in heating, ventilation, and air conditioning (HVAC) requirements are seldom considered when planning for the installation of automated systems, despite the fact that concentrations of machines and people tend to generate both heat and noise beyond that expected in the simpler days when most libraries were planned. This is particularly important when the need is to fit systems into an existing building.

Most library budgets include lines for door guards, and some include at least a part-time position responsible for building security, but few budgets (other than public libraries) include the cost of personal security or of cleaning, though both can be substantial in a large library. In part, this is because these activities are the responsibilities of other parts of the organization, which are themselves differently organized. It may be possible to extract costs associated with the library, but this kind of effort tends to be more expensive than the results are worth. It also results from the fact that different reporting mechanisms result in the activities being under the charge of different senior officers, so that there may be little or no interaction in the course of budget decision making.

Personal security is usually the responsibility of another agency, though there has been a move in some institutions to involve a wider range of administrators. Whereas the actual costs of repairs to the building may be charged back to the library budget, it is not often seen as parallel that the costs of personnel safety incidents should also be charged back. In fact, because of the nature of the building's use and the value of the materials housed, most libraries do make de facto assignments concerned with personal safety without showing the cost separately. Again, because they operate separately, large public libraries and museums have arrived at much better estimates of such costs and include them in their budgets. Because such considerations can affect the ways in which libraries (or individual departments such as Special Collections) can operate, their incorporation into the library budget, or at least consultation about these costs, would make clearer the actual cost of operation and enable better decisions to be made about how to do business.

Most library budgets will carry some line within the budget covering the cost of repairs even if the amount is small since there will inevitably be power and equipment failures and broken furniture. In this, library budgets differ from other parts of an academic institution, primarily because,

whereas classrooms are shared by many departments, these are single users and the costs of replacement and repair can be allocated directly. The amount so allocated tends to have historic roots and acts as a kind of amortization fund on the theory that it is likely that a certain number of chairs and tables will wear out each year and can be replaced individually rather than wholesale which tends to be the method used for classroom buildings.

The increasing amount of electronic equipment in libraries has begun to strain the operating budget since very few institutions create sinking funds to cover the inevitable cost of replacement with more up-to-date equipment. Testimony to this is the increasing number of idle computer terminals in many libraries awaiting replacement or repair, also the long delay in upgrading computer systems beyond the time their peak usefulness has passed. Although it has long been the practice to provide a budget line for equipment service contracts (such as typewriter cleaning or maintenance for microform readers), the increase in the number and kinds of equipment has far exceeded the capacity of this usually modest part of the budget. Even the relatively simple need to keep terminals and workstations clean has been overlooked as a cost although it is as important as programming or CPU maintenance. In fact, libraries are finding that the cost of going electronic is far more complex than was ever thought.

Insurance for library buildings and collections can be very expensive, and insurance companies are now insisting on better building conditions, including the provision of proper disaster control systems. This may prompt institutions to think more thoroughly about one of their most expensive and valuable investments. Renovation of a library can be extremely costly, but the replacement of lost collections can be prohibitive, and may, in some cases, be impossible. There are no simple ways to keep the valuation of a library's collections up to date.

It is possible to use annual expenditures to increase total worth, but there are few algorithms to upgrade the cost of the replacement of older materials, and the calculation of the cost of replacing bibliographic data, whether in paper or electronic format, defies any existing system, since the original costs are either lost in time or composed of so many separate operations that the calculation of a total cost may prove impossible. Although they are referring principally to the concept of depreciation, both Christianson (1992) and Carpenter and Milican (1991) stress the importance of including processing costs. Only when a disaster wipes out a library do most institutions realize the cost of replacement which must cover not only the direct cost of materials but also the cost of processing them-a cost that is not covered by any insurance policy. In the light of these facts, it is clear that more should be spent on preventive measures, including preservation,

but such a change runs counter to most academic or other library budget styles. In the same way as repairs to a building are likely to be delayed until the cost demands either a separate fund drive or a legislative appropriation, the repair of the collection may well be delayed until there is virtually no collection to repair. Many libraries maintain minimal budgets for replacement, but, for the bulk of the collection where the deterioration is slow and silent, most libraries must seek special grants or look to national programmes which use microforming or digitization. Overlooking such needs leads to the undercapitalization of the library.

Building and maintenance costs can thus be seen to cover a wide range of costs, some of which are recognized, some of which are not. Again some are included, even if inadequately, in the library budget; some are the responsibility of other agencies and may or may not be provided for in their budgets; others are not covered at all. These costs include:

* repairs, whether major or minor;
* maintenance contracts for equipment;
* utilities;
* cleaning;
* insurance;
* amortization funding for new equipment;
* collection maintenance and preservation;
* personal safety costs; and
* disaster preparedness costs.

Growth Costs

It is in the nature of libraries to grow. Predicting the rate of growth is not an easy task (Drake, 1976). There have been several attempts to control growth in favour of stable library size. These efforts are generally more successful in smaller libraries where the principal need is to support teaching rather than research (Gore, 1976). In larger libraries, the need for specific items in the collection may diminish over time. The famous Pittsburgh study (Kent et al., 1979) simply confirmed this but did not explain how to predict what items will be used. In many subject areas, books and periodicals simply do not go out of date; in others, use may diminish to the degree that they do not need to be retained. However, even in technologicals fields, new uses have been found for older materials-for example, in exploring its history or in recovering an earlier base on which to measure change as in ecological studies. While it is clear that comprehensive libraries are not needed at all locations, there are no clear paradigms by which to determine what to keep and what to discard. Use studies have a role to play and can certainly help direct future growth.

However, use also reflects the fashion of the day. Only too of often a researcher, seeking to probe new fields, finds that the materials needed have been discarded. Popular culture students often find themselves in this situation (Brooks, 1993) or those who want to revisit older times and interests.

Administrators and librarians who have pinned their hopes (for cutting budgets and keeping the library building smaller) on electronics and cooperative schemes have usually had those hopes dashed by the complexities of each alternative. In any event, both depend for success on the original items having been kept somewhere. It is unlikely that many libraries can be assured that anything they discard will automatically be available to them through interlibrary loan or document delivery. There is no current evidence that libraries are coordinating serial cancellations, which suggests that interlibrary cooperation is still a hit or miss affair. There are also transfer costs associated with heavy reliance on document delivery. Leach and Tribble (1993) suggest that libraries will begin to invest more of their budgets in delivery services rather than purchase, but they also raise many issues related to financing and managing this very different kind of library operation.

In such circumstances, libraries can be expected to grow, whether by the addition of printed materials or by the incorporation of electronic alternatives (which still require space), and administrations will continue to find that they need new buildings or at least better ones. One solution is the construction of storage libraries which are cheaper to construct than regular libraries and can also make more effective use of environmental controls than buildings which are heavily used daily. There are, of course, processing and retrieval costs associated with running a separate building, but these are less than similar costs associated with an increasingly larger library building. Another alternative is the use of compact shelving, whether within the existing library or as an adjunct structure. User-accessible compact storage works best with smaller frequently used collections but can also be used in remote storage facilities where access is under staff control. Compact shelving offers the opportunity to house more materials in less space but also carries new operating costs, somewhat akin to the older system of paging that was used with closed access library stacks. There are also some questions about the speed with which materials can be retrieved, and such forms of storage raise questions related to equal access by handicapped persons. Here the cost benefits of storage have to be weighed against any resulting user service costs.

Because libraries usually occupy prime space, any expansion is likely to be costly even if it is underground. This has made the idea of an electronic library very attractive since it appears to offer the chance to

house more in less space. In fact, the changeover to electronic access may well need every bit as much space as the traditional expansion of the printed collections, since the user space will have to grow proportionately to use. One architect has claimed, for instance, that workstations for computer-related work will need between fifty and sixty square feet of space, as against the twenty to twenty-five square feet that is now provided for a reading space (Jeffrey Freeman, personal communication, 1990). A major research library reference area must now include many more reader spaces of a larger size than was ever intended in the original design. Because electronic information does not yet include all publishing, the traditional collections are unlikely to diminish to make room for them. What this means is that the basic design concepts behind library buildings are changing rapidly, and older buildings cannot easily adapt to the new needs.

Traffic patterns will change and tend to concentrate the user populace more. Many libraries have also found that the electronic media have led to a new need for instruction space, separate from regular user space, since library instruction is no longer simply a matter of being shown where reference works and other tools, such as the catalogue, are located. The combined effects result in a library very different from that to which most administrators have been accustomed, and it is difficult to persuade them that the budgets that support them must also change.

If libraries are to provide adequate services to users, they have to maintain adequate staff ratios, and these tend to remain constant. Some of these issues were examined as long ago as 1969 (Knight & Nourse, 1969) and later by Baumol and Marcus (1973), and the various budget ratios and patterns have not changed substantially since that time. Economies of scale are not readily available to a library where the transactions remain individual and unique. This remains true even in the use of electronic information. Such complexities make the modern library a much more difficult building problem, one which is barely now beginning to be addressed by librarians, administrators, and architects. The costs associated with changing building needs are seldom conveniently placed within existing budget paradigms, if only because it is difficult to place them clearly within categories.

* Are CD-ROM workstations capital equipment or the equivalent of periodical subscriptions?
* Have they replaced some elements of the older traditional budget or simply added new ones?
* How does one calculate the added utility costs of new electronic equipment, and where should they show up in the budget?

* Are there other support costs that must be included in the budget?
* What are the costs of different space alternatives?
* What alternative uses could be made of any money saved on building construction?
* How far can mechanical and electronic retrieval systems replace staff costs, or will they simply be added budget items?

These are only a few of the budgetary questions associated with the "new" library. Formerly, most such costs showed up in the "other" category of support expenditures, traditionally, about 10 percent of the total, but this is changing rapidly. Many libraries are now spending more than this proportion on electronic systems alone without taking into consideration more mundane daily expenditures. Without a substantial infusion of new money, an increase of that order can only be attained at the expense of other budget items-notably library materials-and there is a limit as to how far such a process can go before the library becomes dysfunctional.

Electronics

Too many have seen the advent of long-distance electronic information transfer not only as a way of extending the services a library can provide but as a way of cutting costs. As several speakers at the Computers in Libraries Conference (Oakland, California, 1991) pointed out, such an attitude overlooks the very real cost of telecommunication, the costs of staff training, and the substantial costs for equipment and installation. Many of these issues are discussed in Campus Strategies for Libraries and Electronic Information (Arms, 1990) but with little attention to budgetary effects. Since most wide area and local area networks are handled on an institution-wide basis, these are seldom charged back to individual operational units. This may change as the Internet and similar networks are privatized, leading to direct user charges. The internal result may well be similar to the change that was made in telephone billing when central overhead costs were charged back to individual units based on their share of the total system. This is likely to come as a shock to most users since networks have been thought of as essentially free. Institutions, on the other hand, which have tried to update their communications-for instance, by laying fibre optic cables-have come to realize that there are large capital costs and ongoing maintenance costs. Usage costs, in the form now familiar for telephones, have not yet emerged clearly but are certain to be developed either in an attempt to control usage or to recover costs.

Cost Recovery: Libraries have already had to grapple with this kind of issue in the provision of online services. Discussion of cost recovery has largely been conducted under the rubric of "Fee or Free," though, as White (1993) has pointed out, this is a misleading approach since, in fact,

everything has a cost and has to be paid for. It is only a question of who will pay, and where the money will come from. Similar reservations were raised by Nielsen (1989) who was concerned at the relationships being drawn between cost and values. Taylor (1984) presented a very convincing case for fees for database searches using the analogy of photocopy services. The latter costs were, for a while, provided free until libraries realized: (1) that the cost would swamp the budget and (2) that photocopy provided a good additional income source. Whether the service is provided internally or by contract, it is now customary for there to be a user charge. Taylor predicts that database searching and other analogous electronic services will also require charges if only to regulate use and prevent a drain on the budget. White, as cited earlier, cautions that there are problems in trying to distinguish between traditional and new services-the moral basis on which librarians justify charges-but he does not deny that the services cost money.

The problem is compounded as libraries move toward including such services in their online catalogue systems. Many system vendors now make a great point of ways in which their systems link to other databases and services, such as the UnCover document delivery service. The advent of direct user searches and the possibility of using credit cards for payment is tending to eliminate such activities from those of the library proper.

It is therefore becoming difficult to draw the lines among library, departmental, and personal budget expenditures. Even if all such services became payment driven, someone would still have to provide the space and the equipment, tend to the hardware and software involved, and provide instruction when needed. Should these services be charged for, and, if so, who would pay? Should there be an overhead for each transaction or should the parent institution provide these through a central budget? These issues are still unresolved. Libraries seem to have engaged in ad hoc planning and to have drawn money from wherever possible. Nor has the issue of handling income from fees and charges been resolved, though libraries seem to be encouraged to charge for more and more services. Warner (1990) offers some suggestions for resolving such issues, though these relate more to special libraries.

Cost Centres and Overhead: As programme or functional budgets have become more accepted, libraries have begun to look at the concept of cost centres. The new electronic services can well be so regarded, with the caveat that these are linked to other more traditional services, such as reference and circulation, because of their side effects on those operations. Defining library cost centres is difficult, except in the case of standalone operations like interlibrary loan, while it is possible to argue that technical services as a whole is a kind of overhead. This introduces a new aspect

of overhead costing, which has not been customary other than in special libraries.

There are sizable overheads in any library. These include general administration, supplies, systems support (from the library and the institution), and (in such cases as online services or bibliographic instruction) part-time assignments of staff together with benefits and support. To these can be added any direct system or vendor charges-*e.g.*, for maintenance or upgrading. The result is a budget considerably different from a line item budget or even a simple programme budget. If indeed all overhead or associated costs-such as heat, light, and power-and general administration were added, it would also be considerably larger than the traditional programme budget. Despite the growth of such costs in any institution or library, there has been a move (mostly from federal programmes) to lower the definition of overhead so that costs associated with grant projects may no longer be adequately recovered.

This has had an indirect effect on libraries, which had been seen as part of that overhead in that they have to continue to provide the necessary services from diminished budgets since the parent institution is no longer receiving the same reimbursement. It is true that many libraries were never allocated research overhead directly and may never have received the amount they used to justify, but this does not vitiate the argument that, in the new electronic era, libraries must be much more concerned with indirect and overhead costs.

User-Related Costs: Although it has never been the custom to count user costs as part of the library budget these are a real cost to the parent institution which must pay for the time used by its employees. If a considerable part of that time is used in walking to and from the library with no apparent return (the book wanted is out), then that time is wasted. Here electronic systems can play a part in developing higher returns on user time. Online circulation information, particularly when accessible through office computers, can help users plan library visits more fruitfully.

This information also makes it possible for users to ask for materials to be held at We circulation desk, thus reducing everyone's expenditure of time Dahlgren (1990) outlines many of the elements that should be considered when choosing a circulations system including user costs and benefits. It is also possible to load reserve book lists and thus to update these online quite apart from being able to give information about actual usage, which can help in determining retention on the list thus making the whole operation much more cost effective from both the library and the faculty point of view. Online catalogue searching can also be linked to interlibrary loan or to document delivery. In this way, online information can play a significant role in streamlining both library and user activity.

The budgetary effects of this improvement are diffused and unlikely to show up directly in a budget line, but indirectly these can help to refine collection management and reduce lost user time. This topic is mentioned here to encourage libraries and administrators to look beyond the actual budget figures when making decisions. The examination is akin to a user environmental impact study and has some of the same difficulties-notably converting such savings into dollar figures. But the attempt can and should be made since automation is usually presented as saving money without any concrete evidence (Martin, 1986). If user time were seen as a library cost element, then savings in that time would be seen as actual rather than illusory savings. Leaving the user out of the budgetary calculation is rather like a business ignoring customer preferences.

All library activities should be re-examined from a user point of view. For the most part, these activities are designed with the library staff in mind, which may be fine internally but overlooks whether these best serve the user. This may or may not cost the library more-double staffing for both reference and information desks, for example-but it will result in better use, which is in the best interests of both the library and its parent institution. It may also result in a realignment of some expenditures-*e.g.*, the transfer of some staff members from internal circulation to document delivery or an increase in levels of staff when it is realized that the circulation desk handles a regular quota of reference questions. It may, on the other hand, be possible to close a service station altogether as a reflection of use patterns. Even so simple a matter as closer attention to signage (usually a minimal budget item) can result in better usage patterns and a better use of the budget available.

Value Maintenance: Financial accounting systems for colleges and universities and for public sector organizations in general are constructed under the rules of generally accepted accounting principles, as shown in the various guidelines composed by the National Association of College and University Business Officers and similar organizations. Most library studies, excellent though they are, on economic theory (Schauer, 1986), on accounting methods (Smith, 1991), or on budgeting practice, are written without taking explicit account of the institutional context. The assumption seems to be that this is a given, whereas, in fact, it can have a substantial impact on what the library can or cannot do.

The principal aim of these accounting systems is to record accurately what the assets and liabilities of the organization were at the beginning of a period, what they were at the end, and what activities occurred between those points in time to cause the changes. In their attempt to be entirely factual, these accounting systems focus on actual rather than projected or estimated values. Thus they record the value of assets such

as buildings only at the original price paid. Any subsequent expenditures for enlargement or restoration are simply added to the original recorded value regardless of any changes which may have occurred in the value of those dollars. Similarly, they make no attempt to recognize that assets may grow in value over time, nor that replacement costs may be significantly different in summary, generally accepted accounting standards make no provision for recognizing the current value of an asset to the institution.

Similarly, operating budgets are solely concerned with current expenditures, and capital budgets are developed to take care of necessary current expenditures-*e.g.*, repairs or expansions. All these financial concepts are important tools for fiscal control, but these need to be supplemented by "management accounting" concepts. Of these, the most important concept is value maintenance.

In principle, the idea is fairly simple. Librarians or other administrators want to maintain the current value of library assets to the ongoing life of the institution or constituency. There are two dimensions to this concept: (1) maintaining the current value of the assets (buildings, collections, etc.); and (2) since institutional needs evolve over time, modifying those assets over time so as to maintain their usefulness. These two dimensions may be thought of as upkeep and renewal.

There are three classes of asset with which librarians are concerned: facilities, collections (or, more broadly, access to information), and equipment.

Buildings deteroriate over time, as a function both of use and of decay. Each building can be thought of as a series of "systems," such as the foundations and walls; roof and windows; electrical, plumbing, HVAC; floor and wall coverings; and so on. Each system has a con and a life cycle. For example, the roof on a library may cost $100,000. Depending on the materials used and the climate, it may be necessary to replace it every twenty-five to forty years. Based on the cost and the life cycle, it is possible to estimate what amount should be put aside each year so as to be able to replace it when needed. The sum of the amounts needed for each system is the total amount that should be budgeted each year for asset upkeep. It is estimated that such a provision should be in the range of 1 to 1.5 percent each year.

The second dimension of value maintenance recognizes the effect of change. Alteration in the mix of users or changes in the methods of pedagogy or in technology can result in demand for more or less user space, for different kinds of space, or for additions to space. In addition, libraries have a special problem in dealing with growing collections. The "renewal" component of value maintenance can be very substantial and may require

budgeting 1 or 2 percent per year of the replacement cost of the facility. Together these dimensions imply setting aside as much as 4 percent annually of the replacement cost-a very substantial addition to the usual operating budget.

The same concepts can be applied to library collections. Although all institutions recognize that their collections are extremely valuable, only recently have some institutions begun to assign an asset value to their collections. In part, this attitude has resulted from the fact that library materials purchases are made from current operating budgets and not seen as a capital expenditure. Whether or not the collections are recorded as a capital asset, it is essential to maintain their current value.

Upkeep is the primary concern. As with a building, the total collection can be thought of as a series of collections, each with different costs and life cycles. This is most clear in the sciences where the currency of the information is critical. Such collections have a very short life cycle, needing to be "replaced" yearly, and the retention of older materials adds a significant housing cost. Other collections, such as literature and language, do not deteriorate as quickly. These collections do need to be refreshed by adding current publications, but the whole collection remains useful and may even grow in value over time. From an analysis of the needs of each collection, the "upkeep" portion of the value maintenance budget may be calculated. This calculation can be used as a factor in budget construction and allocation.

Unkeep, however, is not enough. New programmes, changes in curricula, or the development of new reader interests require "renewal" expenditures. These expenditures are major and easy to overlook when planning new programmes and research projects.

The rapid growth of electronic access to information adds complexity to the problem. Such access comes at a cost, which has been regarded as an added operating expense. From a "management accounting" perspective it may be more useful to view it as part of the cost of maintaining the current value of the library as an information asset.

Finally, the concept of value maintenance can be applied to library equipment-increasingly electronic equipment. The life cycles of the equipment are so short and the new technologies expanding so fast that the distinction between upkeep and renewal is less significant though still useful. Since the life cycles are only from three to five years, it is vital that library budgets make annual expenditure or reserve provisions to enable regular and frequent replacement of equipment.

The basic point is that institutional budgeting and accounting systems make it more difficult, rather than easier, to understand and provide for the whole cost of libraries. Librarians and administrators need to

understand the management accounting approach of value maintenance, and to budget on that basis. By allowing for the upkeep and renewal of facilities, collections, and equipment, we can come closer to fulfilling our responsibilities. Nothing in this approach, of course, makes any new funding available, but it does make it easier to demonstrate the need for additional resources and helps in the better allocation of the available resources.

Without pretending to have engaged in an exhaustive analysis here, the goal has been to show that there are many unconsidered costs in running a library. Unless these are considered, changes and improvements may not have the desired effects. Many organizational decisions are made without a clear understanding of the financial effects, some of which may be delayed and others of which may be external to the library. The result can be a less than successful library programme.

The Library as Information Centre: A "Utility" Model

During the winter of 1990, the author was invited to join Babson College as its first Chief Information Officer (CIO). Concurrently, the entire college community was in the throes of a detailed self-evaluation culminating in a new strategic plan. This process helped to restate and clarify Babson's mission as an educational institution dedicated to the development of innovative leaders capable of initiating, managing, and implementing change. Furthermore, the college committed itself to teaching with a global perspective And to the integration of information technology into all aspects of the Babson learning experience (Babson College, 1991).

To achieve the latter objective, the chief information officer was charged with creating and maintaining a "real world" information resource environment for the use of students, faculty, and administrators. In establishing this new office, the Babson College brought together the entire campus's existing information service departments, including academic computing, administrative computing, media services, the Babson College Telephone Company (BABTELCO), and the library. These functional areas had never operated in concert before. Each reported to a different senior administrator; possessed its own personnel structure, policies, and procedures; and provided services according to its own sense of customer requirements. To fashion a new environment within which to realize the Babson's strategic objectives, the CIO was obliged to reshape the operating units that now reported to him, provide his staff with a common sense of mission, and instill in them a sense of customer service that transcended their specific job assignments.

The organization that emerged from this effort was named the Information Technology and Services Division (ITSD). Its newly defined mission and strategic plan, which emerged from an intense discussion

process involving both ITSD personnel and its customers, began as follows:

Consistent with the overall strategic plans of the College, it is the mission of Babson's Information Technology and Services Division (ITSD) to provide in partnership with the Babson Community information and services to proactively support the educational programmes, operation requirements, and business plans of the College. To achieve these ends through innovation and excellence, ITSD will deploy the best in proven information technologies.

In brief, the ITSD intended to deliver on this challenging assignment through the innovative use of an integrated information services organization. The model for such a structure, the so-called "Information Utility," was already present in private industry and was in fact emerging in leading U.S. colleges and universities. Babson's information resource management members are adapting this approach to their own institutional settings and in so doing are providing their colleagues with a practical illustration of how to effectively restructure information services to enhance performance and competitive advantage.

This article examines the forces at work within the modern organization that are driving information professionals to reconsider how best to structure and deliver their services. Global information needs, the increasing diversity and complexity of available information resources and systems, and the escalating "utility" costs of service maintenance are all factors influencing these developments. The author therefore begins with a consideration of external environmental forces and the emergence of the "knowledge worker" as the IRM professional's primary customer. From this more general discussion, the author will focus upon the positioning of the library within the context of the information utility model. The conclusion will Provide readers with some thoughts on the critical success factors associated with integrating the library into the I/U.

A Select Vocabulary

Though from a sister discipline, the author views the challenges of IRM through a different lens than that of the typical library administrator. His use of terminology may not always appear, therefore, to be appropriate (or recognizable) to his audience. To orient the reader for the discussion that follows, and position the frame of reference away from the established library science framework of concepts and responsibilities and more toward a comprehensive information resource management perspective, the following terms and definitions are offered.

1. end-user-Also referred to as "customer," "patron," or "constituent," the end-user is the knowledge worker in the modern organization. I/T systems, services, and resources must be tailored to the

requirements of the end-user who in turn addresses through his/her efforts the Primary mission of the parent organization.

2. enterprise-While "enterprise" may be used interchangeably with organization" and "institution," it is the preferred term because it conveys action and the creation/delivery of value to the end-user. Regardless of the strategic focus of the organization, enterprises must create "value" as perceived by their customers if they are to survive and prosper. This statement applies to government services and higher education as well as private industry. Similarly, the "library" must be viewed as an enterprise within the "information utility" which is itself an enterprise within the parent organization.
3. information resource management-the economical and efficient management, servicing, and support of all information (in whatever format) that is of value to the organization. The value-added component of IRM is the information utility's ability to deliver accurate specific information to the end-user in a timely manner.
4. IRM strategic planning-IRM strategic planning is a necessary subset of the parent institution's process. It is necessarily shaped by the goals and objectives of the greater organization and must complement the more global directives established in the corporate plan.
5. information services Professional-While the terms librarian, archivist, records manager, and systems analyst have relevance in today's information technology environment, the twenty-first century information utility requires the services of cross-trained, highly integrated staffs of I/T professionals to act as facilitators, catalysts for change, standards monitors, and resource managers for complex user-driven and controlled information delivery systems.
6. information utility-Within any organization, the information utility includes all of those resources, services, and facilities that comprise, process, and deliver information to the end-user. More than computer hardware and software, an information utility is an approach to customer service that emphasizes availability, ease of access, economy, efficiency, and accountability to the community.
7. knowledge-We often think of "information" in terms of documents, records, files, etc., but these are merely formalized vehicles for the delivery of data to an end-user. Historically, these information products were/are self-supporting and generally sufficient in terms of satisfying the needs of the end-user. With recent developments in I/T, "information" alone is not satisfactory-primarily because there is too much of it and the "products" in question are

insufficiently focused and unadaptable. Instead, users seek "knowledge": a higher level of information, at times in multimedia formats, tailored and processed to address a specific requirement. Correspondingly, knowledge tools, such, as artificial intelligence systems and hypertext databases, facilitate the manipulation of information to meet end-user needs.

8. knowledge worker-This is the end-user who employs a wide range of information technologies to draw upon diverse information resources in a variety of formats to address his/her immediate needs through the sophisticated researching, sifting, search, and reassembly of data into highly usable formats. Note that all "knowledge workers" are "end-users" but not all "end-users" are "knowledge workers." It is the responsibility of information service professionals to assist in the development of end-users into knowledge workers.
9. strategic planning-Strategic planning is that process of thought and action that directs the long-term growth of an organization. It focuses upon the clearly defined mission, goals, and objectives of the organization; assesses the available resources to bring these milestones to fruition; and establishes a method of performance measurement. The rigor of the process places considerable demands on management but is essential to corporate prosperity and hence to the interest of all stockholders (*i.e.*, organization members and those served by the organization).

By way of orientation, This exhibit graphically represents the flow of raw data in various media and formats to intermediate data collection and distribution platforms (*e.g.*, databases). From there, it is manipulated by higher-level information processing ("knowledge") tools (*i.e.*, computer applications) and then transmitted via an array of networks to the desk top of the end-user, who, in this illustration, is either a living person or an automated process. The ultimate delivery of "knowledge" as defined earlier may then lead to specific informed actions.

As described here, the entire set of transactions in constitutes modes of information resource management and use within the modern organization. The unique character of these processes defines the institutional context and corporate culture within which people work. Like the role of IRM itself, the modern organization is also changing radically due to technological innovation and adaptation. To better understand the forces at work and what they mean to the library administrator, we will next explore the information requirements and evolving I/T environment of the modern institution.

Organizational Environments and IRM

As we proceed toward the twenty-first century, organizations are becoming less bureaucratic, more complex, and global in their orientation. Their management structures will flatten with senior executives playing a larger role in the direct management of people and processes. These players will map out the strategic programmes for their organization, employing external alliances, resource sharing, outsourcing (*i.e.*, the use of external agencies to perform services or processes hitherto maintained by the organization), and new information technologies to enhance their overall performance. Middle management will grow thin and serve primarily as a group of technical specialists developing policies, procedures, and applications for other employees.

The vast majority of those remaining will directly contribute to value creation in terms of either products of services provided to the customers of the organization. In this more fluid, less hierarchical environment, most, if not all, employees will have both information resource management and production responsibilities.

Information technologies have played, and will continue to play, a central role in this restructuring of the enterprise. They facilitate streamlining and encourage a more entrepreneurial operating mode among managers now freed from dependence on others for vital information. For example, through electronic mail and executive information systems, senior managers can readily access field personnel and assess the status of far-flung projects. The management process need not occur through direct face-to-face interaction but may be mediated through electronic mail and teleconferencing. These same technologies also tend to foster linkages with external global partners. As operations become more complex, they are being segmented with the relocation of specific functions to the most advantageous locales. For example, automobile and computer manufacturing now occurs in a global arena where plants are located near cheap labour and the necessary raw or processed materials. Without the computer and telecommunication facilities of the modern corporate infrastructure, these arrangements would not have materialized.

Furthermore, the ubiquitous and increasingly user-friendly nature of emerging information technologies has meant that line managers rather than technologists have taken charge of the resource, refocusing IRM requirements on core services and strategic business objectives. This trend exemplifies the realization that, to manage a process, those in charge must also control the related IRM functions. It manifests itself in the growing acceptance of end-user "ownership" of the data and even associated information systems and IRM resources. The proliferation of I/T and information resources throughout the organization is illustrated in Figure.

No functional area in this representation of an organization is without its IRM capabilities and responsibilities.

Each operating unit of the XYZ Organization has fully integrated business functions. This structure is indicative of the worker empowerment and managerial flattening of the enterprise alluded to earlier. Similarly, each unit has its own information processing; capabilities, ranging from individual personal computer workstations to large corporate databases run on mainframe computers. They also have access to, if not complete control over, the I/T tools, hard copy and online information resources, and associated support services deemed necessary to satisfy the requirements of their customers. The organization's administrative units are similarly endowed as the "owners" of human resource, financial, real estate, purchasing, insurance, and other corporate data. In this context, the information services arm of the organization acts as the I/T standards watch dog, the keeper of networks and operating environments (*i.e.*, the I/T infrastructure), the provider of Access to external information utilities (*e.g.*, bibliographic utilities and extracorporate electronic mail networks), and the developer and supporter of new I/T capabilities.

As a result of these functional allocations of I/T responsibilities, information service Providers within the modern organization are concerned less with the efficient and economical storage of data and more with the proactive delivery of knowledge. Thus the IRM shopping list includes such products as intelligent, personal computerbased tools for end-users; future-focused decision support systems; business simulation software; and expert systems. Throughout, the objective of these I/T scenarios is to empower the end-user and to put this person in touch with the appropriate data to address immediate customer needs today and plan for tomorrow.

The Emergence of the Information Utility Model

To manage the enterprisewide use of information technologies and services, organizations are currently experimenting with at number of different reporting/management structures. The societal forces influencing these changes are easily discerned. In the first place, demographic shifts in both the work force and the customer base of many organizations have necessitated a reconsideration of IRM products and services today's economic climate, with its accompanying resource scarcity, is forcing overall institutional restructurings and a critical review of expensive operations such as the I/T functions. The technologies themselves are changing rapidly, obliging those in charge to look for new opportunities and to rethink old strategies. Lastly, a new generation of skilled and knowledgeable I/T users is exerting pressure on information services to perform and deliver as never before. Clearly, institutions of higher education are being influenced by these very trends.

In response, many organizations are moving toward the development of an information utility (I/U) under the aegis of a Chief information officer (CIO). Structurally, the I/U serves as an administrative umbrella for a mix of I/T enterprises that may include libraries, archives, records management programmes, data centres, networks, technology training centres, media production and operations, and end-user documentation, However, the heart of the I/U concept has less to do with departmental structure than it has to do with service. As its name suggests, the I/U exists to provide capabilities to its customers. With the aid of computer hardware and software, communications networks, documentation, and training, the I/U seeks to empower its users to exploit all available information resources in paper and electronic/optical formats. Through direct participation in the strategic planning process, those who manage the I/U work with their customers to identify opportunities for the deployment of emerging technologies and the creation of new learning and information processes.

In focusing its information technology capabilities in the information utility, the enterprise is making a statement as to the importance of the I/T within the organization. The CIO usually sits in the organization's senior decision-making body and is instrumental in the development of internal and external linkages among information user communities. On the other hand, the I/U does not "own" corporate data and all of the associated systems and services. These tend to be the property of key I/U customers. By contrast, the CIO and his/her team facilitate, coordinate, and support the structures that deliver the data and enrich its value to the end-user. I/U personnel ate also responsible for the protection of the network and overall data integrity.

Thus, the typical information utility must function in an environment that is both centralized and decentralized. On the one hand, it maintains and enhances the organization's core information technology infrastructure, including libraries, data centres, networks, enterprise databases, and so forth. It also provides a wide range of user support functions coordinates corporatewide IRM activities, and policies system standards. On the other hand, it promotes user ownership and maintenance of data resources, client self-sufficiency in the exploitation of I/T tools, and technology planning at the operating unit level.

The structure of the information utility and the role of the CIO may be illustrated by contrasting a more traditional organization with one employing the I/U model. For this example, let us consider the "XYZ University". In this illustration, the information service components of the organization are disbursed among various operating units. For example, "academic computing" and "administrative computing" report to different university divisions. While the "library" is also under academic affairs, the

synergies between it and "academic computing" cannot be realized without the involvement of "networks" and other information technology services positioned elsewhere in the organization. Information resources and associated services, on the other hand, are to be found everywhere. Clearly this more traditional structure does not afford opportunities arising from the combination of complementary I/T services, such as library, media, and computer services.

Our second example assumes the structure of an information utility. Here information technology services are reorganized to take advantage of the synergies absent from the previous example. At the same time, it allows for the streamlining and downsizing of the I/T team as well as the ability to focus the investment in people, hardware, and software where it will have the greatest impact. Furthermore, in this scenario the chief information officer is now a player of senior executive rank. He/she will therefore participate in the institution's strategic planning process and hence learn firsthand how the development of the information utility can best address the organization's overall goals and objectives. Similarly, as the direction of the patent institution changes, the CIO has the advanced warning and flexibility to redirect I/U resources accordingly.

Unfortunately, the appointment of a CIO and the reorganization of information technology will not in and of itself lead to a successful implementation. Ultimately, the corporate culture of the information utility team must also change. Individually, players must become more flexible and proactive in their approach to their respective assignments. Collectively they must commit themselves to total quality, which in turn means an acceptance of the team's success over individual recognition. They must also act entrepreneurially, seeking out opportunities to maximize the benefit of the I/U through the innovative use of new technologies and skilful change management.

This last characteristic is particularly important in an environment where teamwork will cut across organizational lines, where users "own" the data and may also control their own hardware and software, and where those in the trenches, not the technologists, are the experts in specific applications. Under these conditions, process management will require the nurturing of alliances where the common ground is defined by corporate strategic objectives and personal relationships rather than by a rigorous reporting structure. Indeed, we are entering an era of individual employee empowerment where organizational "authority" is being replaced functionally by informal, complex, overlapping, reciprocal arrangements.

While formal organizational and reporting structures will continue to exist, most of the activity will come from intra-and interdepartmental coalitions of knowledge workers. In this setting, decisions and associated

actions will emerge from negotiation processes where all participants believe that they have a stake and will therefore benefit from a positive outcome (on the theme of influencing others within a complex organizational structure). Similarly, the effective manager will be measured in terms of his/her success as a negotiator, facilitator, catalyst, and team builder.

To Serve the Knowledge Worker

Given this view of tie modern organization and information resource management operations, it is clear that the library administrator will possess, a different skill base than has hitherto been the case. More importantly, the librarian will come to View his/her services as an integral part of those offered by the information utility. In so doing, the librarian will continue to serve as a role model to other IRM professionals in his/her understanding of the "knowledge worker" whose information resource and service requirements in turn are the driving force behind the design and functionality of the information utility model.

Here again it is helpful to begin from the perspective of the information resource management dynamics of the workplace. The work process of the typical electronic office may be summarized as follows: (1) raw data are created/collected-"input," (2) the data are enhanced through value-added services-"data processing applications," (3) the enhanced data-"information"-are distributed via electronic networks to the desktop, (4) the information is then received and manipulated by a worker or a work process, and (5) the resulting creation is a "knowledge product" that exists for a specific purpose in time.

To achieve these ends, the knowledge worker needs access to a complex array of information resources, including printed publications of all kinds, information systems documentation, bibliographic and other information utilities, proprietary and public databases, and the thoughts and voices of colleagues. But access alone is not enough. To be "empowered" and indeed to add value to the information at hand, the knowledge worker requires independent data processing capabilities, including a personal computer workstation with local and wide-area network connectivity to both in-house library database and holding lists, and external information resources, relational database tools, a multimedia receipt and transmission capacity, and even perhaps artificial-intelligence based information resource management applications. With this functionality at hand, the worker can more readily address his/her self-managed assignments, adding value to the greater organization's products and services.

The knowledge-worker scenario described here reflects a growing desire within the modern organization to enhance the productivity and corporate contribution of each individual employee. To achieve this end,

information services will be tailored to the specific needs of the worker and readily accessible, preferably at the desktop. The implications of this design for the traditionally defined library are immense. No longer can the library view itself as an institution, only to be "visited" on site by its customers. It will instead represent a series of interrelated services that are to as great an extent as possible available at the user's desktop. It will look for innovative ways of promoting and providing value-added access to its information resources. Finally it will tailor its activities in concert with the strategic and tactical direction of its parent institution.

To do so it will need to complement the functions of other information utility players. Implicit in the aforementioned circumstances is a great deal of role redefinition, cross-training, and resource sharing within the units of the information utility. These types of activities disturb established paradigms of library operations and funding. Indeed, they call for a different approach to library administration, one that seeks to dissolve many of the self-imposed distinctions that separate some librarians from their information service professional colleagues. In brief, library administrators should invest in the information utility model, joining the rest if their organization's information resource management.

Integrating the Library into the Information Utility

At the core of the information utility model runs the theme of customer service. The I/U exists to place a wide range of strategic information resources, tools, and capabilities in the hands of end-users. Its mode of operation ought to be proactive, anticipating the requirements of its customers and building the infrastructure and support systems to address those needs. In the same spirit, it will continuously scan the information technology horizon in search of new applications that might benefit enterprise performance. The placement of library services within this context is essential for the success of the enterprise. However, the operationalization of this stratagem is perhaps less obvious.

To begin, let us consider the functional structure of the information utility in greater detail. The I/U brings together all of the organization's traditionally defined information and data processing services, including information resource management; media production (*e.g.*, video, audio, graphic multimedia); computer operations; information systems development; implementation, and maintenance; voice/data communications; and "end-user" support. The latter function is often referred to as the organization's "information centre," providing personal computer training, documentation, and support. This "centre" might also include a "help desk" Or some other online service for customer assistance and I/U problem resolution. The library reference function is a key offering

under the "user services" rubric. Though it typically involves personal interaction with a library specialist, more recent designs include automated services.

Certain activities cut across the entire organization. For instance, each and every unit is involved in customer support. To deliver this service, all information utility departments will engage in some degree of documentation, user training, and online customer assistance-either via the phone system or through a computer-based help desk. Bibliographic databases and other electronic reference utilities may also flesh out this function. Each unit also participates in I/U research and development, encompassing such activities as the review of function-specific technologies for use within the organization, the evaluation of opportunities for the enhancement of existing or the development of new services, and the consideration of cooperative ventures within the I/U or between the I/U and its customers. To coordinate all of these ventures, the team will come together, both formally and informally, on a regular basis to exchange information and revise plans.

At first blush, the information utility concept may appear to be merely a convenient handle for a group of related though distinct services. Indeed, each I/U component may continue to be organized and staffed along well-established lines. However, the significance and true benefit in applying the I/U model comes from the critical mass of resources and the opportunities for a more efficient and economical coordination of IRM activities created by its establishment. From the library administrator's perspective, the return on the investment in an I/U comes in many forms: 1. better overall customer service and support; 2. the delivery of library services to the desk top; 3. integration of other information technologies with library services for better overall use of corporate information services; 4. greater recognition of the library and the I/U's contribution to the parent organization's mission, goals, and objectives and hence more clout; 5. access to new information technologies; 6. better overall resource planning; and 7. staff cross training and cross fertilization.

By exploring these points in greater detail, the author will suggest how a library organization might begin its integration into the information utility. From the outset, a rigorous planning process is critical to the success of the undertaking.

Since in all likelihood the parent institution recognizes the need for a strategic approach to the management of its own affairs, information utility personnel would be well advised to follow a similar course. Such a process will cause them to prioritize their activities in light of the institutions goals and objectives. It will ensure expenditure of resources in accordance with these corporate priorities and similarly that they identify

barriers to the accomplishment of mission-critical assignments. As players in these discussions, library personnel will help shape the direction of the I/U. Of equal importance, they will spend concentrated periods of time with their information resource management colleagues. The ensuing interdepartmental communication and cross fertilization of ideas will stengthen the I/U plan as well as contribute to the evolution of a shared view of corporate information technology priorities.

The coherence Of the information resource management team's strategies is all the more desirable when one recognizes the interdependence of the information utility's service components. For example, if the I/U's plans call for online access to the library's automated systems, library personnel will work with their counterparts in computer operations and network services to ensure success. As part of this or any other systems implementation, the I/U will need to create documentation and training tools to complement the new installation. Since they will serve as the front line of support and problem resolution, the help desk staff will also be involved in this process. To keep the ongoing costs of the implementation within reasonable limits and to protect the organization's information assets, the I/U's technology standards and data security functions will also have a part to play.

Thus each integrative process undertaken by the information utility team helps to bring its resources and services closer together. The reciprocal relationship among players builds a Mutual understanding of individual and operating unit capabilities. These exchanges also expand staff awareness to I/U potentialities. One could rightly observe that the greater organization could realize these same objectives through the cooperation of unintegrated information services. Historically, there is plenty of evidence to support this contention. However, within the I/U, the barriers to success are fewer in number and less formidable. Because the members of the I/U identify with the achievements of the whole, they have a greater stake in its accomplishments and are therefore more willing to provide the necessary value-added input.

Returning once again to the preceding example, online access to the organization's automated library system requires more than a bridge between that system and the corporate network. The interfaces will work efficiently so as not to degrade response time and hence try user patience. Screen formats need to be "friendly" and make the best use of end-user workstations. The connections between the library's automated and manual systems and between these tools and the actual servicing of customer requests will appear as seamless as possible. Quality user support and documentation are therefore paramount to the implementation's success. One could go on, but the point is that there are many milestones in the

aforementioned process. Some of these milestones are best achieved by librarians while others should be assigned to nonlibrary members of the information utility team. The I/U possesses the critical mass of talent and expertise to get the job done.

Another clear advantage in the envisioned information utility alliance is the quality of customer service that the library staff brings to the mix of information resource management capabilities. Of all the IRM specialities, librarians are best prepared to listen to the customer and establish an accurate understanding of user needs.

Too often the more technology oriented players of the I/U are so absorbed with the functionality of the computer hardware and software under consideration that they lose sight of the customer's requirements. By contrast, library personnel are adept at probing beneath the surface of a request and identifying the user's true need. If, through demonstration and direct involvement, this skill is transferred from the librarians to their colleagues, the I/U will achieve a higher rate of success in the delivery of products and services that meet and even anticipate customer requirements.

To achieve this end and to more generally integrate the information utility team, senior management will seize every opportunity to bring cross sections of information resource management professionals together. One obvious stratagem in this regard is to empower small groups of I/U players to review and reengineer customer services.

By jointly analysing such topics as "workstation support," "project management," "database administration," and "collection (both paper and electronic) development," librarians, technologists, and end-users can come together to better understand each other and how best to leverage the organization's information resources. In the same vein, librarians should participate in integrated information technology support, service, and training functions, and work with their colleagues on a uniform approach to the marketing and documentation of I/U services.

Ultimately, this approach will yield major benefits to all those involved. First and foremost, it will make the most out of the organization's considerable investment in information resources and technologies. The success of the information utility enterprise will win it the respect and the support-both political and financial of the parent institution. Resource sharing within the I/U and the synergies afforded by a team approach to problem solving and project implementation will reduce costs and promote greater efficiency.

Finally, in a world overtaken by rapid change, the I/U model provides a flexible framework within which innovation and teamwork are encouraged. The result; should speak for themselves.

Critical Steps in Library/Information

Utility Integration

To conclude, the author offers the following critical success factors for library/information utility integration:

Reorganize-realign people and functions to optimize staff and information technology resource synergies. Plan-a forward-looking strategic planning process will afford an ample opportunity for staff participation, idea sharing, and skill development. It will get the team behind the programme because they will have had a Part in its creation. Bear in mind that the plan is merely a tool to keep the information utility focused on priorities. It will remain flexible and adaptable as circumstances and assumptions change.

Listen to your customers; become totally customer driven-this does not mean abdicate responsibility. Make certain that you possess customer support and an understanding of their expectations before you proceed. Develop a total quality management culture-this point overlaps with number 3 above but is nevertheless essential. It will provide many opportunities for the library and other information resource management players to share ideas and work on the improvement of services. Help desk-involve the library staff in the help desk/information entre function.

Training and documentation-involve the library staff in the development of marketing and training services and materials. Staff development-devise individual strategies for each information utility player that allows for the development of, kills and experiences in line with overall I/U requirements. Be sure to expose as broad a spectrum of the staff as is practical to potentially applicable information technology innovations and new management idea. Service/project sharing-develop project work plans that draw upon the diverse talent, of the I/U to address the objectives outlined in the corporation's overall IRM strategy. Innovate and experiment; take risks-history has taught us that inaction may be as costly as action. Do not rely on the paradigms of the past. Continue to challenge past practices and test now options.

Library Finance : New Needs, New Models

Thoughts of a town bring a dreamy vision of rolling hills, a main street with shops, a fire department with shiny engines, the city hall sitting stately somewhere near the town square, a bank on the corner, the park with a bandstand, the schoolhouse somewhere near the downtown, and the library with its prominent steps and perhaps a sculptured lion or two at the entrance. Of all the buildings which make up the town, the library is the one which all may use-from the smallest child to the oldest senior

citizen. When a community has a library, it somehow seems as if the community has achieved legitimacy, is solid, sure. As a governmental agency, the library reflects the organization of which it is a part-it holds the documents of the government, makes them available to the public, and it reflects that government in its interface with the community it serves. It also reflects the governmental concern for society being involved in, and responsive to, various social needs.

The library is often one of the largest of the civic buildings. It is prominent in its location and in its fine architecture which represents the town. Andrew Carnegie, in his designs for public libraries, acknowledged the majesty of the library building. This same look of substance, with a much different design, is being carried on in the new libraries of today. The Harold Washington Library of the Chicago Public Library is an example. Here the style of the building was chosen to fit into the traditional look of the downtown area and to carry on the tradition of fine architecture. The newly reopened Los Angeles Public Library blended its restoration and addition with the original 1926 style, restoring well-loved murals and enhancing the architectural detail. The San Francisco Public Library, currently under Planning and construction, will be adjacent to the civic auditorium to enhance the city's art and cultural status. The building itself is designed to accommodate the latest in the technology associated with the Bay area.

The library in a new community is often one of the first buildings to be established, whether a storefront or permanent building. If a storefront building, it has the unique ability to attract people to that shopping area, that commercial complex, or that series of buildings who may not have come to that area before. The storefront library is complementary to other businesses in the complex, and the use of all the businesses is very likely to increase because of the presence of the library. In its commercial location, the library interacts with its neighbours as a business, and its programmes and collections can directly address the concerns of the neighbourhood-whether it be providing job information for un-or underemployed, producing a trade fair, or providing meeting facilities and information for citizens planning for community improvement.

As a new building, it is often one of the largest, adding heft to the civic centre complex, and, because it is one of the first, may set the design and style for other buildings in the complex. The new civic centre at Oceanside, California, integrates the library into the complex completely, adding public meeting rooms, plazas, and a corner anchor to the complex.

An older example is the Marin County Library in the Marin Civic Centre designed by Frank Lloyd Wright. A caution should be made, however, for this type of inclusion that, whereas it centralizes services for the

citizen, lack of planning for community growth in terms of space and functional design may lead to problems as the community grows and its need for services increases. The library then may be in competition with other governmental services for space and may find itself needing to relocate to an area which can provide expansion space.

The library focuses residents on one place for information and civic activity. It attracts many who may be unaware of other civic services and creates a positive image in its services, as opposed to some other services which may be regulatory in their nature and may create, though unintentionally, a negative image. Residents closely identify with their library and are quite loyal to it. This is particularly true in smaller communities or in branch library locations which serve neighbourhoods. The Friends of the Library, the literacy groups, the preschool story hours, the career and job centres, the business information centres, and so on, all provide individuals with opportunities to participate in the library as users and as supporters. The Yucaipa Branch of the San Bernardino County Library system is an excellent example.

This community of 30,000 people has no motion picture theater, and only within the past few years has added several fast food restaurants. The city's recreation programme is full with many senior citizens participating. There are several very large churches, a senior high school, and a community college within the city. The library has a friends group of some 300 members, which has assumed responsibility for providing additional cultural and recreational outlets ranging from travelogues, author's presentations, wine and cheese tasting, rare book auctions, arts and crafts displays, musicals and theatricals, as well as giving direct library service to shut-ins.

The Highland Branch Library (California) became the meeting and discussion place for incorporation plans. After incorporation, the library was the first place for the new City Council of the City of Highland (50,000 population) to meet. Now that the council has moved to a permanent location and has acquired property for construction of a civic centre, the library will again plan to lead as a key building in that complex. This same path has been followed by other communities. The Loma Linda Civic Centre was located in the office buildings of the Loma Linda University. The branch library was located first in other university buildings and later in a storefront. In 1989, plans were made to construct a civic centre to include city offices, fire station, and library. The overall design was coordinated, and the library was constructed so that the meeting room of the library adjoined a patio of the civic centre with a large meeting room just beyond. These three areas-the large city meeting room, the enclosed garden patio, and the library meeting room-have been used as a unit for

special civic, library, and community programmes ranging from an Asian Festival to all-day training sessions which involved meals and breakout sessions, to musicales. The library, as an independent building, can be expanded when needed, or can be assumed by the city with another library building built on readily available land. This city of some 20,000 persons will be well served by this complex for many years to come.

The Grand Terrace City Hall is an example of incorporating the branch library into the design of the building and further sharing space. The City of Grand Terrace, California (12,000 population), is also fairly newly incorporated. The architectural firm of Wolff, Lang, and Christopher Architects, Inc., of Rancho Cucamonga, California, designed the two-story brick civic centre to be energy efficient, compact, and easy for the public to use. Innovations included banking the planting at the side of the building halfway up the first floor, setting skylights in the length, and extending to the height of the building to take advantage of natural light; the use of many live plants within the building; a solar heating and cooling system; locating the council chambers at a level lower than the audience to reflect the attitude of government serving the people; designing the chambers to be used for a number of events including being a television studio; and placing the public counters off a central walkway with the offices supporting them immediately behind them. Walls are limited so that the public has easy access to the decision-making person.

The community room, the public restrooms, the central hallway, and the central entrance are shared by the civic centre and the library-they are one. There are no hallways nor public restrooms or meeting room facilities within the library, but these are immediately outside the door. The security for the building is maintained by the city, and library activities are an important part of city recreation activities.

An additional benefit of this arrangement is that there is a close working relationship between individuals in city government and the library staff. The Friends of the Library active members include former mayors, city council persons, and city employees as well as members of the general public. There is no newspaper in this city which is surrounded by larger cities with newspapers, so the library newsletter is sent to each household as an insert in local water bills. Library programmes addressing the needs of young undereducated mothers who are often unemployed, or programmes addressing the problems that latchkey children bring to the library, directly address an economic situation. The ability to network with others in the same situation in a nonjudgmental environment adds to the feeling of self worth of these vulnerable people.

The many literacy programmes available in libraries assist the undereducated in becoming prepared for a better job, and, through the

postings and information services in the library, allow the employer to recruit from an improved workforce. Library services which include material collection, services, and followup are extremely important as well as other programmes-workshops on writing resumes, informational sessions on retirement and creative leisure time, job and career changes, improving computer skills, personal finances and investments, and, of course, taxes. The literacy programmes, such as the California Literacy Campaign and the complementary programme, Families For Literacy, further address the cycle of illiteracy by reaching younger children of parents involved in the literacy campaign.

A State of Change: California's Ethnic Future and Libraries (Jacob, 1988), a report of a conference on ethnic awareness funded by the California State Library, pointed out the dramatic changes in the ethnic population of California by the twenty-first century. New ethnic groups, by their numbers, are making dramatic impacts on communities, bringing with them old-country cultures and having to adapt to totally new ones. The needs of traditional minorities who may have been here for generations-the blacks, Native Americans, Hispanics-have yet to be resolved. The number of new immigrants, particularly from Southeast Asia and Latin America, is growing rapidly and, as our governmental bodies struggle to understand and to deal with the impact they make on the socioeconomic-political system, it is the library, through its variety of resources and ability to collect and search, which will assist those making decisions which affect personal lives as well as those who are attempting integration into this society. The library is sensitive to the changing nature of cities due to this immigration, the evolution of rural communities to suburbs, and the impact this has on the family structure and the environment.

Local historical groups have traditionally found a centre in the library. As new technology is added to the library's arsenal of tools, the historical societies, archivists, and students have found the library to be an even greater resource. The library's commitment to preserve a record of local history has led to seeking out, microfilming, and indexing local newspapers. Sometimes this has meant that the newspaper is no longer being published and the papers themselves are scattered in several garages, private collections, and the library's own collection. Working with commercial microfilm agencies when in-house capabilities do not exist, the library serves as a collection and organizing point for microfilming and making available these papers.

In larger libraries or more inventive smaller ones, other cultural opportunities are given to the public. The San Diego Public Library has perhaps the oldest ongoing concert series in the city. The lawn in front of the Riverside (California) City and County Public Library has a summer

series of films for the family. In many libraries, the meeting room is often called the community room and may bear the name of some local hero or celebrity. This room often serves as an extension of the meeting rooms in city/county government, or it is used for conducting CPR classes, a polling place, or a homework centre.

Through its community involvement and reflection, the library and its staff are often a part of the community group which is making decisions on the direction of the city. Librarians serve on planning task forces, participate in various networks, and serve on committees which address community heeds. The Children's Network, a grouping of services serving children (primarily social services, probation, schools, and so on), includes San Bernardino County Library representatives on the policy council and its committees. Often the concerns of the network centre on life and death situations for children, but there are many times when the library can participate. In a conference directed primarily at care providers and social workers, the library presented workshops on multiculturalism through children's books, storytelling, and literacy.

Looking beyond the physical library is the perception of the library as a neutral place, a place where divergent ideas and people with differing lifestyles, education, and economic levels can gather. Here is where the very successful California Literacy Campaign is centred, where the grandparents and books programme is based, and where discussion groups are held on any range of civic and social concerns. Environmental impact reports requesting citizen input and information on federal job openings may sit side by side on a shelf. The minutes of the governing board of supervisors or city council are current, with the librarian answering questions on meeting dates and the process for speaking before the group.

The library's quiet is also a mediating presence when tempers run high. The problems of the community with "city hall" may be reflected in the information the library carries, but the destructive violence in the street does not often carry over into the library itself. For the most part, the library is still respected for its ability to provide a respite or a place of reason in the abstract. In the day-to-day operation, the library facts the problems of society, and each library must find a way to deal with street people, those who should be institutionalized, overwhelming numbers of students, demands being made for more and more materials/information when budgets are limited, vandalism, and so on. This raises the questions, Can libraries meet all of the needs voiced? Can we be everything to everybody? How do we choose?

Even though it is a part of government (city, county, parish, state, and so on), the library is not viewed by the general public as such. It is apolitical. As an often central governmental building open to the public

and providing the conveniences of restrooms, easy chairs, and, of course, good reading and programme material, the homeless and the unemployed are attracted. Working with governmental and social agencies, the library is able to focus its specialized skills on these problems as a resource to both. The library's organizational and collecting skills focus on providing information to the job seeker and the employer, to the governmental caseworker and the individual case person. Information and referral files which feed back into the city databases, such as that of the Pasadena Public Library (California), and are available to the job provider as well as the job seeker, strengthen public support.

The public library, dependent upon tax revenue and operating within a governmental structure, is highly aware of, and affected by, the social and economic concerns around it. In California and Massachusetts, consumer tax revolt left their marks on the ability of the public library to operate. The current social and economic uncertainties as well as the changing ethnic demographics dictate the manner in which the library operates.

Traditional sources of income, such as property tax or redevelopment passthroughs, cannot provide the funds necessary to carry on the operations of the library, as these funds may be rerouted to support other services or agencies. Proposition 98 in California and the ensuing AB8 provided for the shift of funds earmarked for special districts (which included county libraries) to the K-12 educational system. General Fund libraries also lost support as the library and other departments of the county competed with local law enforcement for funds.

Libraries need a dependable financial stream. It has been suggested that a pay-for-service plan be developed to support libraries with the public voting on which services they want and need and all others being abandoned or deemed unnecessary. Socially conscious public libraries find this difficult to accept. In the emerging awareness of the promise of a multicultural society, which includes many who do not have a free public library background, where outreach services are beginning to be reflected in usage, it would be difficult to obtain the needed support for charging for basic services such as boor, loans, attendance at a story hour, or answer of information or reference questions which do not require expensive database searching. It would also be difficult to defend charging for some services which had been considered basic to a user group which might not be able to pay. Would information and library use then belong to the privileged who could afford them?

There are situations where such a dependable financial source can be encouraged. Joint marketing of the library with other services-such as museums, parks, arts groups-can save funds. Publicity which includes all

promotional activities-such as a jazz festival, folk festival, and so on-can provide some saving of funds.

These can all be a way to augment local property tax receipts where public libraries receive between 85 and 95 percent of their funding from local sources and approximately 5 percent, mostly indirectly, from federal sources. An attempt was made in preparation for the first White House Conference in 1979 to propose a National Library Act to increase federal funding for libraries. This was unsuccessful, and so the major federal funding support is through the Library Services and Construction Act titles which, over the past thirty or so years, have been funded at a minimal level.

The use of other taxing or assessment authorities could provide additional funds-the transient tax, bed tax, additional local sales tax, and so on. Community Development Block Grant Funds, which address blight in improvement of communities, may sometimes be used for library construction or alteration. Where grants come to communities for social programmes, it is possible for libraries to receive some of this funding as the library programme melds with the purpose of the grant. Federal grants which go to Indian tribes for furthering of library service can also be molded into a library which is also a community centre, or contracting with a nearby public library to provide assistance to upgrade staff skills or assist in collection development. This is particularly interesting as it would allow libraries on tribal lands to also become the collection point of tribal memories and histories. Federal funding for the direct support of libraries through programmes such as the MURL grants (Metropolitan Urban Resource Libraries) might be expanded to include all libraries to a minimum level or to assure that local libraries will not fall below a designated level. This last could be a staggered amount dependent on the local level of support so those which are at the lowest levels will be raised and those at the higher level will still find an incentive to continue to improve their libraries. The networking efforts available in many states should be encouraged as they supplement, rather than supplant, local libraries.

In all, public libraries have historically been a part of community government and have themselves been community centres. This is a difficult time for funding of both, but their paths are coterminal in providing the best resources, the best representation, and the best government for the people they represent and for being responsible members in society.

Other Online and New Technology

Over the past twenty years, academic libraries have changed considerably as bibliographic utilities, online catalogues, automated

circulation systems, and other new technologies have been implemented in a majority of library operations and services. These changes have created rising costs for libraries in a time of tight fiscal constraints, particularly in the area of telecommunications, buildings, furniture, and electronic equipment. For the medium and larger sized academic libraries, it is not uncommon for computer costs associated with implementing online catalogues, circulation/reserve, acquisitions accounting, and serials control systems-including retrospective conversion of paper records into machine-readable forms-to require $5 million plus. Annual maintenance, licensing agreements, software, and hardware requirements will exceed an additional $250,000 to $350,000 per year.

The increased access to electronic information systems not held locally and to other new technologies such as CD-ROM, laser technologies, interactive multimedia packages, OCR (optical character recognition) and imaging systems, satellite communication and teleconferencing, laptop computers, packet telephone switches, and cellular telephones have also been making an impact in a few libraries along with LANs (local area networks) and WANs (wide area networks) for interconnecting local computing resources.

The impact has not been only on more technologically oriented methods of operations and services; new information and instructional technologies have placed tremendous pressures on outdated cabling and wiring. Expanded budgets are required for such things as asbestos abatement in ceiling and floor tiling as well as utility tunnels; installation of fibre optics and additional connective wiring and cabling within and among buildings; and equipment (hardware and soft ware) for both staff and public access. Additional funding is needed for online network memberships and connections to local, state, regional, national, and international networks.

These network relationships require new and expanded licensing agreements with updated copyright procedures and related issues. New formats and access tools require revamped policies and procedures, rules, and regulations. Expanded training (of staff and users) and continuing education require increased travel budgets for participation in new professional associations and continuing education and training opportunities. Employment of new types of personnel to handle technological problems (including troubleshooting of hardware/software problems), programming, and maintenance and repair work, plus retooling of existing staff and enhanced hiring requirements when keyboarding skill (*i.e.*, typing) becomes more important at all levels.

The new equipment can focus stuff demands for installation of ergonomic furniture and security devices. There are increased costs in HVAC (heating, air conditioning, circulation, and humidity) and other

utilities costs (telephone, telefacsimile, electrical power, security and control of equipment, software, building access, and other costs associated with telecommunications and online networking). Reconfiguration and reconstruction of physical facilities both within and outside of library buildings is often necessary. Special consultants to assist with strategic planning, selection of systems, technological issues, and related problems are often hidden costs. The emphasis on equipment increases the need for analysis of depreciation and replacement costs associated with many aspects of new technologies. In addition to all the new budget-impacting workloads, much greater interaction, collaboration, and cooperation have been required among librarians, their primary clientele, computer centre personnel, physical plant operations, university administration, and others related to telecommunications planning and budgeting of all aspects of informational and instructional technologies.

Fund-raising has become far more commonplace in all types of academic libraries (public and private) than ever before in history-and not just through state and federal granting agencies but through approaches to foundations and corporations, as well as individual benefactors. Priorities have changed; funding methodologies have expanded; resources (budget, personnel, space, equipment, responsibilities) have had to be re-examined and reallocated. All of this requires that far more personnel time be devoted to both short-and long-range planning within libraries, across campus, and often within consortia of a local, state, regional, and even national nature.

The new technologies have required not only different expertise and training requirements for personnel but have required new types of personnel and more personnel, even though shifts in existing personnel could be made to meet new demands when the newer technologies made some activities obsolete and others less labour intensive.

Gaddis (1989) notes that libraries have had to become more involved in soliciting bids, writing specifications, identifying potential vendors, evaluating systems and services, and preparing RFPs (request for proposals). These RFPs have to ensure that future activities be accommodated by the systems selected for use and that these are also documented (*i.e.*, systems must be sized to meet potential for growth and development as well as strategically developed to support linking capabilities among systems and to allow similar connections to other multimedia resources). Systems costs, Gaddis notes, include central processing units, disk and/or tape storage/drives, printers, freight and installation, and maintenance. Costs must be included for terminals for staff and users, wands or laser readers, and furniture for equipment. There are obvious software costs (for the operating system, application programmes or

modules, maintenance, customizing to accommodate local systems), interfaces to other systems, and backup systems.

There is site preparation (space, air conditioning, raised floors, dedicated electrical power, power protection, fire extinguishing systems, grounded electrical outlets, individual surge protectors, antistatic materials, cleaning kits for terminals, and cabling throughout buildings). There are conversion costs (bibliographic with authority control; copy level conversion and barcoding; patron file creation; and creation of patron identification cards). There are implementation costs (time for planning, including staff line reporting, and developing policies and procedures), installation, training, publicity, and public relations in an environment where there is also operational disruption for barcoding of collections, structural modifications, rewiring, and so on.

At the end, there is staff recognition for all of the implementation activity. And always there are ongoing operational costs (including bringing systems up and taking them down), doing file saves; ongoing staffing needs for troubleshooting problems with peripherals and software operations; for coordinating vendor maintenance performance; for preparing documentation of hardware operations as they are handled locally, including emergency procedures; for performing day-end processes, including generation of reports and notices; ceaseless needs for funding initiatives to cover purchase costs for enhancements; membership in user groups (membership fees, navel costs, and staff time to attend meetings); and other developmental service components that grow from a successful library management system.

Peter Spyers-Duran (1990) provides a concise summary of the benefits of automation, as follows: 1. "handle a large volume of routine and repetitive transactions"; 2. "facilitate better, sophisticated, more varied information management and retrieval of information"; 3. "assist with the general management"; 4. "reallocate resources to meet contemporary needs"; 5. "offset cost of labour"; and 6. "introduce cost avoidance measures through resource sharing, joint ventures, sharing staff specializations and improved means of communication".

Another, even more important, benefit is discussed by Tyckoson (1989): "[Automation] allows users to access and share information by methods that could not be achieved with more traditional formats". Many libraries have already begun planning and implementing other benefits of the new technologies, including coordinated collection development; speedy document delivery of full-text information; ability to digitize special collections unique to a particular library; linkages and interfaces with other information agencies, vendors, and libraries for data that are not held locally; improved and enhanced access to visual and sound collections; and expanded capabilities to use all the new technologies and, often, even

the more traditional formats in an interactive multimedia way in wired classrooms around the world with real face-to-face online collaborative research and study going on among students, faculty, researchers, and scholars. Other benefits include, Rush (1986) notes, "expanded service to the public, decreased backlogs, more timely processing, increased productivity, reduced space requirements, or other improvements". Joan Frye Williams adds another benefit: "an automated system contains staff costs by accommodating workload increases".

Funding priorities today must also include assisting with standardization of databases, communication and access protocols, and simplified entry from one system or personal computer into other systems, regardless of location, type of system and network, and computer (mainframe, personal computer, or other). Funding priorities must provide for continuing innovation and creativity to enhance access to all information resources-print and nonprint, electronic, and so on.

Juergens (1990) notes that, "there are at most 1,400 library employees in all of the nation's technology-based networks, as opposed to 340,000 library employees in the country in 1987, according to the American Library Association". Of those 340,000 library employees, it would be interesting to discover how many of them use automation daily and at what level. Juergens also states that "bibliographic networks (*e.g.*, OCLC, WLN, RLN) cost 1-2.8% of a library's annual expense budget" (p. 22). Hunter (1988) notes that, "the amount of recorded literature doubles every 15 to 17 years". The amount of that literature in electronic format is still a minimal part of information dealt with by libraries, but it is growing dramatically each day. Hunter (1988) also notes that "we are already technically capable of doing far more than our budgets will ever allow" and that "scholarly publishers and research librarians cannot afford all of the things which new technology makes possible-we will have to make choices". Gupta (1991) states that, "the investment in information systems, if used effectively, will lead to improved information systems performance, and hence will result in better organisational decision making which may enhance the overall performance of the organisation". Malinconico (1992) quotes David Bishop (JAL, Sept. 1989) saying that "revenues earned by the electronic database industry are already near $11 billion and are expected to grow 20% per year for the next 5 years, reaching more than $22 billion by 1995". Malinconico (1992) also notes that database growth is about 25 percent per year with CD-ROM database growth about 60 percent per year.

In addition, he notes the growth of electronic journals, specialized networks-such as NASA's Mission to Planet Earth-campuswide networks, electronic imaging and virtual libraries, and national network development-

such as the NREN (National Research Education Network). As he points out, "the new information services simultaneously increase user need for the assistance of information specialists and reduce the contact they have with them". Susan Baerg Epstein (1990) expands this to note that with the new technologies we have "improved services and limited increases in number of staff needed to meet greater demands" and that "existing staff can [now] be more productive".

A major problem with the new technologies which libraries must learn to deal with more effectively is the fact that new electronic systems represent additional ongoing expenses. James E. Rush (1986) feels that the application of new computer technologies will help us "to improve service, to make more informed decisions, and to lower costs or avoid cost increases". A major improvement in service via speedier document delivery of journal articles via CARL UNCOVER 2, FAXON Finder, and FAXON Xpress-as well as similar services, with full-text delivery over the Internet using excellent text/graphics copy via resources such as RLG's Ariel-demonstrate a growing phenomena.

Many libraries have found new, or adapted old, methods to increase their fiscal resources. These include, as Rush (1986) notes, sharing costs across consortia; distributing operating costs over a broader base; improving resource sharing through state and federal grants and through proposals to foundations; obtaining legislation for funding; gaining funds from wealthy and influential citizens/benefactors; and offering revenue-producing services to businesses. Williams (1986) adds "allocating available operational funds more wisely using management reports generated by automated systems, transferring financial resources now supporting repetitive clerical tasks to other parts of the budget in order to improve direct user services". Williams also suggests that a library should "deposit one seventh of the system's original price in a special interest-bearing replacement account" each year, or consideration of funding strategies such as "commercial lease-purchase agreement, Municipal Leasing Corporation (MLC) Lease Purchase Agreements, and Limited Partnerships with investors". At least one academic library (Southern Methodist University Libraries, Dallas, Texas) received a $500,000 endowment for library automation and new technologies.

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The earlier costs represent typical library management system expenditures-other initiatives and extended automation services may add incrementally. Some typical projects are noted here:

> *New hardware and networking demands; extended services (special renewal options, document delivery services to off-campus constituents, and so on) (shared, no charge-back to libraries for those options currently in production [*e.g.*, special faculty renewal].)*
>
> *Retrospective conversion of specialized collections such as art history slides, manuscripts, photographs, and so on to machine-readable files development costs not currently available).*

Implementation of new technologies and/or services such as a microcomputer lab ($26,000 upgrades), CD-ROM Reference Centre ($136,010), CD-ROM LAN networking ($70,000 installation), or similar new additions to library service centres-plus maintenance of staff support for office automation (up to $30,000 per year) Miscellaneous and unexpected expenses. Bolez (1987) notes that "costs vary with the size of the system (single-function, bifunction, multifunction, or fully integrated) and the amount of modification required". She notes that "after 5-7 years there is a need to upgrade, modify, enlarge, or completely re-vamp" .

And each year today's academic libraries are finding that the changes in existing technology are so rapid that it is almost impossible to get by only with initially purchased equipment and software-change is required on an annual, biannual, or more frequent basis. Camp et al. (1987) offer an interesting table on how academic libraries use the regular library budget for automation. Ongoing tensions will be experienced in library budgets for resources: print, media, microform, and electronic. Library users will expect and demand instant access to full-text as well as indexes and online library catalogues. Internet access will be, and of ten is,

considered the norm. As individual librarians and campuses commit to these projects, the details of budget requirements noted earlier and the goals of service noted must be considered and carefully monitored.

Bamboo Furniture and Fencing

Bamboo furniture and fencing are a stylish addition to your home. Here is more information about this grass that is adding class and style to homes.

Close your eyes and envision a house nestled in the mountains and surrounded by trees with smoke emanating from the tall chimneys, as you do this put your feet forward and take a step towards the entrance. Open the door and switch on the lights and then look around the room and feast your eyes on the flexible and lightweight furniture, a new trend that is picking up in the furniture market.

Actually I would say that bamboo has always been used to make products, it is just that this material is getting its exposure a little later than other materials, however better late then never!

Bamboo

Bamboo is actually a grass that takes one year to reach a full height, which could be as high as 30 to 40 feet. Bamboo then hardens and matures for the next four to seven years before it is ready to be harvested and used to make bamboo blinds, screens, curtains, fences and furniture.

Why should I Use Bamboo Furniture?

When it comes to writing about anything that is closely related to the home I could go on and on, but I know I have my limitations too so here I will concentrate on stating the reasons why opting for this eco-friendly furniture is a good choice.

- Basically bamboo is a strong and tough material that resists shrinkage and swelling.
- Bamboo furniture is blessed with a delicate grain that gives it a style of its own.
- Thirdly, bamboo is good for your environment as it grows quickly and can be harvested over and over again.

What are the Styles of Bamboo Furniture Available in the Market?

Bamboo furniture is of two styles; the first one will look good around a pool or even in a tropical themed room. The second style of bamboo furniture is made through a process of cutting strips of bamboo, boiling them in order to make them resilient to mildew and bugs and then gluing the strips together.

After they are stuck together edge to edge, the panels are pressed together in order to make a multi-layer resembling wood, this can be shaped into any kind of furniture. This kind of bamboo furniture resembles hardwood furniture and comes in both light and dark shades and finishes.

Carbonised is the term that is actually used for a piece that has been heated for a long time in order to make the bamboo darker. Bamboo furniture that has been carbonized and laminated will prove very strong and durable.

What does the Bamboo Range of Furniture Include?

The range of bamboo furniture includes:

- Beds
- Chest of drawers
- Workstations
- Desks
- Tables
- Stools
- Rockers
- Chairs
- Loveseats
- Couches
- Kitchen cabinets
- Bathroom cabinets.

Where can I Use Bamboo Fencing?

Bamboo fencing is an excellent way to create a privacy fence. This fence can be used to keep people from peering into your yard and also to provides a secure perimeter of your property. This fence has another benefit too; it can be used as a garden fence to add a touch of class.

Bamboo Fencing-Where can I Buy it?

Look no further than the home improvement stores, these stores will have bamboo suppliers as also the supplies that you will require to set up your bamboo fence and maintain it.

How do I Care for My Bamboo Fencing?

It is advisable to treat bamboo fences with a thin layer of UV resistant stain to prevent decay and weathering.

5

Preparation of Books for Use

The procured books should be processed as early as possible for making them available to the readers for use. The book/publication undergoes the following processes before it goes finally in the hands of the readers:

— Checking, stamping property mark and labelling.
— Accessioning
— Classification
— Assigning Call No.
— Cataloguing.

Checking, Stamping Property Mark and Labelling

All the books received from the suppliers should be checked thoroughly so that books found damaged may not be stamped, accessioned and are replaced from the suppliers promptly. The ownership stamp may be affixed at the following places in the book;

(i) on the back of the title page
(ii) at the bottom of the confidential page chosen by the library; and
(iii) at the last page of the book.

A book plate, which is the prominent mark of ownership, is pasted on the inside of front cover. On the inside of the back cover, paste a book pocket. The due date slip should be pasted on the last page of the book. This should be attached to the book by one edge only in order to facilitate its removal when it is full and a new one to be inserted.

Accessioning

Recording the books in the register (commonly known as accession register) is called accessioning. The accession register is an essential record of a library. Sometimes it is called the horoscope of the library.

Maintenance of accession register is also a requirement according to the Government of India decision (i) below Rule 113 of General Financial Rules. For the guidance of librarians the Government of India decision is reproduced below:

Government of India's Decisions

Records to be maintained by Central Government Libraries for books acquired.— Insofar as the books acquired by various libraries of the Central Government are concerned the necessary records should be maintained in Form GFR 35. This form of Accession Register may be used by all libraries excepting those of a specialised nature which may require additional information in the "Accession Register." (G.I., M.F., O.M. No. F. 11 (2)-E. II (A)/70, dated the 2nd July, 1970.).

A copy of the form of accession register prescribed by the Government of India may be seen at *Appendix 4-III.* The books procured are recorded in the accession register in the order in which they are received in the library.

Each copy or volume of the book is entered on the separate line and given different or next serial number. The accession number and date should be written on the back of the title page, last page of the book and on the confidential page, in the space provided in the ownership stamp affixed at all these three places in the book. The confidential page is the choice of the librarian which helps in identifying the library books.

Classification

The classification provides formal, orderly access to the shelves which helps in locating and retrieval of materials in a library. The books on the same subject are automatically grouped on the shelves by their classification numbers. The purpose of classification is to bring related items together in a helpful sequence from the general to the specific.

Dewey Decimal Classification Scheme

There are a number of schemes of classification, but the one which is popular and commonly used in the libraries is the Dewey Decimal Classification (DDC). This system divides the whole knowledge into ten main classes numbered from 000 — 900 which are further sub-divided into Divisions and Sections, The following outline of the Dewey Decimal Classification (20th edition in 4 vols.) will serve as a guide though it may not be sufficient for adequate classification:

The Ten Main DDC Classes

1. Generalities
2. Philosophy and psychology

3. Religion
4. Social sciences
5. Language
6. Natural sciences & mathematics
7. Technology (Applied sciences)
8. The Arts
9. Literature & rhetoric
10. Geography & history.

The Hundred Divisions

1. Generalities
2. Bibliography
3. Library & information sciences
4. General Encyclopaedic works
5. General serials & their indexes
6. General organisations & muscology
7. News media, journalism, publishing
8. General collections
9. Manuscripts & rare books
10. Philosophy & psychology
11. Metaphysics
12. Epistemology, causation, humankind
13. Paranormal phenomena
14. Specific philosophical schools
15. Psychology
16. Logic
17. Ethics (Moral philosophy)
18. Ancient, mediaeval, Oriental philosophy
19. Modern Western philosophy
20. Religion
21. Natural theology
22. Bible
23. Christian theology
24. Christian moral and devotional theology
25. Christian orders and local church
26. Christian social theology
27. Christian church history

28. Christian denominations and sects
29. Other and comparative religions
30. Social sciences
31. General statistics
32. Political sciences
33. Economics
34. Law
35. Public administration
36. Social services; association
37. Education
38. Commerce, communications, transport
39. Customs, etiquette, folklore
40. Language
41. Linguistics
42. English & Old English
43. Germanic languages, German
44. Romance languages, French
45. Italian, Romanian, Rhaeto-Romanic
46. Spanish & Portuguese languages
47. Italic languages, Latin
48. Hellenic languages, Classical Greek
49. Other Languages
50. Natural sciences & mathematics
51. Mathematics
52. Astronomy & allied sciences
53. Physics
54. Chemistry & allied sciences
55. Earth sciences
56. Palaeontology & Palaeozoology
57. Life sciences
58. Botanical sciences
59. Zoological sciences
60. Technology (Applied sciences)
61. Medical sciences Medicine
62. Engineering & allied operations
63. Agriculture

64. Home economics & family living
65. Management & auxiliary services
66. Chemical engineering
67. Manufacturing
68. Manufacture for specific uses
69. Buildings
70. The arts
71. Civic & landscape art
72. Architecture
73. Plastic arts Sculpture
74. Drawing & decorative arts
75. Painting & paintings
76. Graphic arts Printmaking & prints
77. Photography & photographs
78. Music
79. Recreational & performing arts
80. Literature & rhetoric
81. American literature in English
82. English & Old English literatures
83. Literatures of Germanic languages
84. Literatures of Romance languages
85. Italian, Romanian, Rhaeto-Romanic
86. Spanish & Portuguese literatures
87. Italic literatures Latin
88. Hellenic literatures Classical Creek
89. Literatures of other languages
90. Geography & history
91. Geography & travel
92. Biography, genealogy, insignia
93. History of ancient world
94. General history of Europe
95. General history of Asia Far East
96. General history of Africa
97. General history of North America
98. General history of South America
99. General history of other areas.

Outline of DDC in Indian National Bibliography

In India there are many regional languages in which the books are being published. Dewey Decimal Classification scheme does not provide class number for all these languages. Central Reference Library at Calcutta, which is bringing out Indian National Bibliography, has prepared an outline of the Dewey Decimal Classification in order to cover various Indian religions and languages etc. This outline is given below for the guidance of librarians engaged in classification of books.

General Works

1. Bibliography
2. Library Science
2. General Encyclopaedias
3. General Collected Essays
4. General Periodicals
5. General Learned Societies, Museums
6. Journalism, Newspapers
7. Collected Works
8. Book Rarities.

Philosophy

1. Metaphysics
2. Psychology, Psychical Phenomena
3. Logic
4. Ethics
5. Ancient & Mediaeval Philosophy
6. Indian Philosophy
7. Modern Indian Philosophy.

Religion

1. Natural Religion
2. Theosophy
3. Christianity
4. Brahmanism
5. Buddhism
6. Jainism
7. Hinduism
8. Sikhism

9. Judaism
10. Islam
11. Confucianism.

Social Sciences

1. Statistics
2. Politics
3. Economics
4. Sarvodaya
4. Law
5. Public Administration
6. Social Welfare
7. Education
8. Basic Education
9. Commerce
10. Social Customs, Costumes and Folklore.

Languages

1. Comparative Linguistics
2. English Language
3. German Language
4. French Language
5. Italian Language
6. Spanish Language
7. Latin Language
8. Greek Language
9. Sanskrit Language
10. Prakrit Language
11. Pali Language
12. Punjabi Language
13. Hindi Language
14. Urdu Language
15. Bengali Language
16. Oriya Language
17. Marathi Language
18. Gujarati Language

19. Assamese Language
19. Dogri Language
20. Kashmiri Language
21. Iranian and Armenian Languages
22. Modern Persian Languages
23. Russian Language
24. Dravidian Languages
25. Tamil Language
26. Malayalam Language
27. Telugu Language
28. Kannada Language
29. Japanese Language.

Pure Science

1. Mathematics
2. Astronomy
3. Physics
4. Chemistry
5. Geology
6. Palaeontology
7. Anthropology
8. Biology
9. Botany
10. Zoology
11. Taxonomic Zoology.

Technology and Useful Arts

1. Medicine
2. Engineering
3. Agriculture
4. Home Economic
5. Business Methods
6. Manufactures
7. Building Construction.

Fine Arts

1. Landscape Architecture
2. Architecture

3. Sculpture
4. Drawing and Decorative Arts
5. Painting
6. Prints and Print Making
7. Photography
8. Music
9. Recreation, Sport, Entertainment.

Literature

1. American Literature
2. English Literature
3. German Literature
4. French Literature
5. Italian Literature
6. Rumanian Literature
7. Spanish Literature
8. Latin Literature
9. Greek Literature
10. Sanskrit Literature
11. Prakrit Literature
12. Pali Literature
13. Sindhi Literature
14. Punjabi Literature
15. Hindi Literature
16. Urdu Literature
17. Bengali Literature
18. Oriya Literature
19. Marathi Literature
20. Gujarati Literature
21. Assamese Literature
22. Dogri Literature
23. Kashmiri Literature
24. Persian Literature
25. Russian Literature
26. Polish Literature
27. Semitic Literature

28. Yiddish Literature
29. Uzbek Literature
30. Dravidian Literature
31. Tamil Literature
32. Malayalam Literature
33. Telugu Literature
34. Kannada Literature
35. Chinese Literature
36. Japanese Literature.

History

1. Geography
2. Geography of India
2. Biography
3. Ancient World History
4. History of Europe
5. History of Asia
6. History of India .
7. History of Africa
8. History of North America
9. History of South America
10. History of Oceania.

Classification Numbers—Hindi Literature

These class numbers can further be expanded to cover the whole gamut of literature by placing 1,2,3—9, for various literary forms. For example Hindi Literature can be further classified as detailed below:

Hindi Poetry	891.431
Hindi Drama	891.432
Hindi Fiction	891.433
Hindi Essays	891.434
Hindi Speeches	891.435
Hindi Letters	891.436
Hindi Satire and Humour	891.437
Hindi Misc. Writings	891.438
History, Description, Critical Appraisal of Works	891.439

Classification Numbers—Indian Languages

From the above outline of Dewey Decimal Classification, the Classification numbers for various Indian Languages are as follows:

Sanskrit Literature	891.2
Prakrit Literature	891.3
Pali Literature	891.370
Sindhi	891.41
Punjabi	891.42
Hindi	891.43
Urdu	891.439
Bengali	891.44
Oriya	891.45
Marathi	891.46
Gujarati	891.47
Assamese	891.49
Dogri D	891.49
Kashmiri K	891.49
Dravidian	894.8
Tamil	894.11
Malayalam	894.812
Telugu	894.813
Kannada	894.814

Call Numbers

It is helpful to consult the latest edition of DDC Schedules. The classification number arrived at should be written in pencil on the back of the title page of the book. The first three letters of the author's name (except in the case of individual biographies) are written beneath the class number followed by an hyphen and then first letter of the first word of the title. In case of individual biographies first three letters of the name of the person whose biography is being classified, are written beneath the class number.

The class number together with these letters of author's surname and the first letter of the first word of the title with a hyphen in between, form the Call No. This Call No. so formed is written on the backside of the title page and also on the book plate, book card and the date slip. If the first word of the title begins with 'The,' 'An' and 'A,' the first letter of the second word is to be written after hyphen.

Cataloguing

In order to provide access to the holdings of a library, an index or list of the materials in the Collection must be maintained. In Libraries the principal index or list of available materials is called the catalogue. A catalogue is a list of books, maps, coins, stamps, sound recordings, or materials in any other medium that constitute a collection. Its purpose is to record, describe, and index the holdings of a specific collection. Cataloguing is the process of preparing a catalogue, or preparing bibliographic records that will become entries in a catalogue. These entries are made on catalogue cards of 3" X 5" size.

Cataloguing Rules

Catalogue cards are prepared according to some code or rules. There are many cataloguing rules and codes, but the AACR (Anglo-American Cataloguing Rules) are followed almost universally. The latest and revised rules are AACR-II. According to these rules, following information is given on the main catalogue card:

1. Call No.
2. Author
3. Title
4. Imprint
5. Collation
6. Series Note
7. Notes
8. Contents.

Service to Readers

Circulation Functions

Circulation of books is the pivotal role of a library. The activities of the circulation department involve giving assistance to users in using the catalogue; issuing and receiving books; maintaining borrowers' records; keeping records and statistics; conducting studies of the use of library materials; collecting fines; and formulating policies and procedures for these activities.

The circulation section is, therefore, the most important part of the library and its functions are as follows:

— To enrol members for the library.

— To issue books for home reading, official work or otherwise to the borrowers/readers/officials through their borrowers tickets/ Passbooks or requisition slips.

— To maintain shelf arrangement.
— To get the suggestions of the readers for the purchase of books and arrange their purchase through Acquisition section.
— To issue No Demand/Clearance Certificates to the members at the time of their leaving the library membership.
— To recall overdue books/material.
— To reserve books/material which have been requested.
— To maintain statistics on the working of the Division.

The circulation section usually consists of three parts:

(i) the issue desk where books are charged and discharged, requests and general enquiries are attended to.
(ii) the shelves, equipment area.
(iii) the work room where routines such as sending reminders, handling inter-library loans and servicing readers' requests are undertaken.

Issue System

Most of these tasks require the adoption of a definite issue system on "charging" following certain routines and promoting efficiency. The libraries of earliest times kept simple records in the registers/ledgers when closed access was there. With the expansion and diversification of library materials the use of the library increased, the open access was introduced and new charging systems were invented. For the last several decades various systems have come into use. First of all, book card file systems such as Browne and Newark were predominant. Then came the Transaction Card File systems with Mechanisation and the Photo-charging systems. Finally, the contemporary technological societies of the developed countries have made strides with the most advanced mechanical device in this field—the Computer.

No single issue system is ideal for all Library situations. While choosing a system, a library has to take into account its own peculiarities. Cost, speed, simplicity, accuracy, security and circulation activities are some of the factors in choosing a system. Following are the main issue systems:-

1. Browne
2. Newark
3. Bookamatic
4. Photocharging
5. Multiple issue slip system
6. Token charging
7. Computers.

The photocharging system has not seen the light of the day in Indian libraries because it is very expensive. Except Browne none of the other systems is popular. In some Indian libraries the circulation of books is done through computer's application.

Browne System

Since this system is most popular, it is necessary to explain it in detail. In this system the borrower is given a ticket called Borrower's Ticket in the form of a pocket bearing his/her name and address. The loan is effected by (a) placing the book card each in the borrower's ticket and filing it by date due, sub-arranged by accession number, author or the call No., (b) stamping the book with the date of return. When the book is returned the discharge is effected by

(a) Noting the date due;

(b) searching and retrieving the loan record from the issue file;

(c) separating the book card from the borrower's ticket;

(d) putting the card back in the book and returning the ticket to the borrower.

Advantages

The advantages of the system are: (i) Charging is relatively rapid, (ii) the reader does not participate, (iii) errors in the loan are minimum, (iv) economical on stationery, (v) simple to operate and overdues are easily located.

Disadvantages

In this system main disadvantages are that discharging is slow and only single record of loan is kept. Despite its shortcomings Browne system is really an ideal system for small and medium-sized libraries. With modification, it can be used in almost any type of library.

Registration of Borrowers

For borrowing books for outside the library reading, the readers are registered within rules and regulations of the library. Reader has to fill up the application form providing his or her particulars. Most of the libraries require the signature of a responsible person and in case of government libraries the signature of administrative authority under whose control the reader is working. The application form should be as simple as possible though there cannot be a same form for every type of library, yet the basic information required to be entered in the form is the same. A specimen of the application form may be seen at Appendix *5-I*.

Libraries can modify the application form according to their needs.

Public libraries are open to all the readers but in other types of libraries the membership is restricted to special type of clientele.

Rules

The readers should be asked to read the rules of the library before they are registered as borrowing members of the library. A set of model 'Rules' may be seen at Appendix *5-II*. Necessary modifications can be made in them according to the needs of individual libraries.

Reminders

Reminders for overdue books from the borrowers should be sent in time. A specimen of reminder is given at Appendix *5-III*.

Shelving

Shelving of books in a library is most important part of the circulation section. Books should be restored on the shelves as soon as they are returned. The shelving should be accurate and tidy. Once in a while the shelf-reading should be done to see that the books are properly arranged in correct order.

Inter-Library Loans

It is very well known that no library is self-sufficient. More often than not there are occasions in a library when books are obtained from other libraries on inter-library loan.

The book asked for by the user for urgent use can either be purchased or obtained from other libraries. Even if the book is not out of print and is available in the market, it takes time to get it and to make available to the user. In such situation the library has to borrow book immediately on inter-library loan.

Efforts should be made to borrow books from sister libraries which are located in the nearest vicinity. Specimen letters for borrowing book and their return are given in *Appendix 5-IV* and *5-V*. If the book is not returned by the borrower in time, reminder as per *Appendix* 5-VI may be sent.

An inter-library loan is a transaction in which library material, or a copy of the material, is made available by one library to another upon request. Since a library cannot own all materials, inter-library loan is a means of borrowing materials which users need for research and serious study from local, state, or regional libraries.

Each library should provide information to library users regarding the purpose of inter-library loan and the library's inter-library loan policies.

The inter-library loan is not one way. The library has also to loan to other libraries. This should be done with mutual cooperation of libraries and requisition for inter-library loan should be entertained. Rare and reference books may not be loaned. For books which become overdue a reminder as per *Appendix* 5-VII may be sent.

Requests for Reservation of Books

Except Public Libraries all other libraries reserve books for their clientele, which are out on loan. Where there is lot of demand for reservation of books the formal procedure is adopted. The borrower should be provided with a reservation post-card on which he/she writes the particulars of the required item. The other side of the post-card is used for the borrowers' address. Each issue system should usually have a built-in device for these reservations.

No Demand/Clearance Certificate

When a reader leaves the office, college, university, institution, he/she has to obtain a 'No-Demand' Certificate for the clearance of his/her dues. The readers of Public Libraries may not need such Library's 'No Demand' Certificate. In order to streamline the procedure a simple application form (as per *Appendix 5-VIII)* may be duly filled out by the reader. As soon as the application form is received all the necessary records of that particular borrower are crossed and a 'No Demand'/'No Objection/'No Dues/Clearance Certificate is issued to him/her. A specimen copy of the certificate is at *Appendix* 5-IX.

Shelf Reading

There is need for regular shelf reading in order to provide efficient retrieval of materials. The shelves should be read on a regular basis. Damaged books should be removed for repair and binding. Cleaners/Farashes should clean the shelves, racks and other furniture daily as a matter of routine maintenance.

Reference Service

The reference service means helping the readers in their use of the library. It is the reference service that builds the reputation of the library. If a good and efficient reference service is provided to the clientele the usefulness of the library is recognised. Whatever the size of the library, it will receive queries of one kind or the other from the readers, which must be answered promptly within the resources of the library. Some questions can be answered immediately by simple consultation but in some cases, a search has to be made which takes time. Questions are of following two categories:

Short Range Questions

Questions requiring simple consultation are called short range questions.

Longe Range Questions

Questions requiring more time and the use of more than one reference source are normally called long range questions.

The following factors are very important in delivering quick and efficient reference service:

— Capable and skilled staff

— Good collection of Reference Sources

— Efficient arrangement and maintenance of the collection.

The staff employed in the Reference section should be intelligent, trained in the use of reference books and reference methods and willing to help readers. A skilled reference assistant, who is knowledgeable of reference sources can make a significant difference in the delivery of reference service.

Reference Books

The work of the Reference Section covers everything necessary to help the reader in his/her inquiries including the selection of an adequate and suitable collection of reference books. The possession of the right books and the knowledge of how to use them are essential to the success of a reference section. There are two kinds of books.

(i) Those which are meant to be read through for either information or enjoyment.

(ii) Those which are meant to be consulted or referred to for some specific piece of information.

Books of the second kind are called reference books. These are comprehensive in scope, condensed in treatment and are arranged according to some special order to facilitate the ready and accurate finding of information. This special order may be alphabetic, chronological, tabular, regional, classified or systematic. The books which are not arranged in alphabetical order are generally provided with indexes. Alphabetic approach is needed to find a fact or piece of information. There are some books, which are so comprehensive, accurate and so well provided with indexes though not reference books yet they also serve as reference books.

Experience has shown that formal reference books constitute only a part but there are questions and situations where you have to consult other books. Either there is reference in the reference books for such books or the Reference Assistant feels that a particular book might contain the

required information. The arrangement and maintenance of the reference collection is very essential. Even if a library has got the best reference collection but if the books can't be retrieved due to lack of shelf reading then what is the use of such a collection.

Proper maintenance is equally important. As soon as the new editions of the reference books are available these should be procured to keep the collection uptodate and current. Old editions may be kept aside for reference in times of need.

The reference collection may also be supplemented by adding vertical reference files, indexes and clipping collections. If need be the catalogue may be supplemented by other bibliographic tools depending upon the type of catalogue a library has.

Following books are recommended for reference librarians:

1. Foskett D.J. — Information Services in Libraries
2. Walford, A.J. — Guide to Reference Materials
3. Cheney, F.W. — Fundamental Reference Sources
4. Katz, W.A — Introduction to Reference Work (2 vols)
5. Sheehy, E.P. — Guide to Reference Books

Kinds of Reference Books

The reference collection of a library should have the following kinds of reference books:

Dictionaries, Encyclopaedias, Year Books, Almanacks, Gazetteers, Atlases, Maps, Bibliographical sources, Directories, Handbooks, Manuals, Bibliographies, Statistical Sources, Audiovisual sources, Supplements to Encyclopaedias, Guidebooks, Globes, Indexing and Abstracting services.

Standard Reference Books

Standard reference books *(Appendix 5-X)* are essential in a library depending upon its budget and need.

There are many more reference books but it is not possible to buy all of them for every library. For example there are more than 1000 Encyclopaedias alone. The above list of reference books is, therefore, not an exhaustive one. Efforts have been made to make the Reference Librarians familiar with some of the standard tools.

Other Services

The librarians should not lose time and opportunity in organising various other services. These services enhance library's role in meeting information needs of its users. The users benefit and are able to save their time in finding information they need. Such services are:

List of New Additions

A list of new books added to the library may be brought out every month.

Bibliographies

At regular intervals bibliographies on demand and on topical subject be brought out A bibliography is a list of writings on a given subject or by a given author. As far as possible annotated bibliographies should be brought out. These bibliographies help the readers to provide the background information on the specific subject or author of their interest.

Indexing and Abstracting

These services provide access contents and to information located in books, journals and other publications.

Current Awareness Service (CAS)

It is a system and often a publication for notifying current documents to users of libraries and information services.

Selective Dissemination of Information (SDI)

It provides location of new items from whatever source to those persons/ researchers who need them most in connection with their current work or interest.

Article Alert

Latest articles are brought to the notice of library users according to their subject of interest.

Document Back-up

This service ensures access to documents by the provision of hard copy or microcopy. The purpose of this service is to provide the needed original document to the clientele.

The above services can be organised depending upon the availability of staff and the need of clientele of a library.

Important Steps in Service to Readers

1. Readers should be enrolled as members of the library and be given borrowers' tickets.
2. Reminders for overdue books should be sent promptly on a regular basis.
3. Books and other library material should be restored on the shelves as soon as returned by users.
4. The arrangement of books on the shelves should be kept in order.

5. Daily dusting and cleaning of books, racks and other furniture should be maintained.
6. Capable staff with helping nature with pleasant disposition should be employed on the reference service.
7. Staff deployed on Reference work should be trained in Reference service.
8. A good collection of reference tools should be developed.
9. Reference books should be kept in helpful order. Shelf reading should be done on a regular basis.
10. Old editions of reference books should be replaced with revised and uptodate editions.

Role of Special Libraries in Research

Any library or department of a library can be regarded as a special library if it undertakes to supply from its own stock and other sources, literature and information required for research projects, professional or administrative problems or problems relevant to commercial and industrial development for the benefit of a smaller or larger groups of persons engaged in research, professional activities, administration, commerce or industry, very often concerned with some kind of institute, department or concern. In order to perform this function the special library collects specialised information material in its own field with special emphasis on material of current importance, which will entail keeping abreast of new developments. Furthermore, the special library will organise its material in such a way that retrieval in required depth will be possible and undertake to draw the attention of researcher and other users to current materials of particular importance to projects underway or problems under consideration.

So it is quite clear that primary function of special libraries is to provide help in research. These were established to support research. To achieve objectives special library provides following services i.e. literature searching, current awareness, S.D.I., Translation, Abstracting, Reference, Bibliographies, Photocopying and Publications.

In special libraries, work is done at high speed, it is done on behalf of people for whom time is money and answer must be found before a close deadline, so the researcher can use that in his study. Special library collection is prepared keeping in view of its services. So the literature sources of special library are books, periodicals, pamphlets, reports, abstracts, photograph, films, slides, illustrations, tapes, sound recordings, microfilms, or any other media by which required information may be stored or transmitted. Sources of information in special libraries are not

restricted to printed world but also come from individuals who know it. Special library locates living experts and efforts should be made for consultations.

Man is very busy today. Nobody can afford wastage of time, money and effort. So duplication in research is most painful. For the information and results relating to particular problems, special libraries help researcher in literature searching and providing up to date information.

Researchers like to know selected information. Special librarian is working as a team member in a restricted clientele so he knows the interests, qualification and details of projects upon which they are working. This enables him in providing S.D.I. services which are very valuable for researcher.

Research worker likes to know what is going on in the world, related to his problem. Special libraries draw information from world-wide sources to keep the researcher informed. But it is impossible for researcher to know more than few languages. Special libraries provide translation services to research workers.

In some cases special libraries take the responsibility of editing and publication. Special library issues accession lists, current awarence, translations, glossaries, state-of-the-art reports, bibiographies, library guides, digest of commercial information, content list of journals, catalogues, indexes and annual reports to help the research scholars and up-dating his knowledge.

It is an unfortunate fact that even among those graduates who have research degree, many do not know how to use libraries properly and are unaware of full range of information sources within their own disciplines. Special librarian train users to stop them from washing time and that time can be spent on research.

Special libraries are information pointers in the organisation. These act as a filter for the flood of information coming in. It reduces duplication of research effort and it directs specific material to staff who need or can use it. The library is an active and dynamic part of organisation.

Suggestions for Improvement

1. A complete survey of special libraries should be conducted to know the condition of special libraries, determining programme of action, pointing the ways of improvement and remedying defects and eliminating difficulties.
2. Special library administrator should be a professional librarian who can, by virture of his education or subject speciality, experience and personal qualification, successfully carry out the objectives

and functions of the special library. Special librarian should hold master degree in library science. He should be accorded a high degree of responsibility and enjoy a great measure of autonomy in the basic functions.

3. Special libraries operate within a limited subject field and it is impossible to acquire all relevant material of interest. No library can be self-sufficient today. Special libraries should co-operate with libraries of their own type. Library co-operation can be by co-operative acquisition, interlibrary loan etc. forming a compact network.
4. For the promotion of special libraries in Pakistan, special libraries association should be established on the lines of ASLIB (U.S.A), Special Library Association (U. K.), Indian Association of special libraries and Information Centres (IASLIC) etc. This special library association in Pakistan should work for improving special library services and making standards.
5. An information center like Pakistan Scientific and Technological Information Center (PASTIC) should be established for social sciences/humanities. Help and guidance should be taken from UNESCO in this concern.
6. Adequate funds should be provided and measures should be taken for the improvement of special libraries services. Especially in the Govt. Deptt, libraries information retrieval techniques should be introduced for achieving organisations goal and help in research.
7. A comprehensive and detailed union catalogue of Books/Journals should be prepared and printed on all Pakistan basis and it should be available at all Research Centres, and special libraries. A catalogue of these should also be prepared.
8. Union list of journals should be prepared having complete holding of journals available at various special libraries.
9. Microfilms/fische should be made for manuscripts and rare material which can be sold to other libraries or provided on interlibrary loan basis.
10. Photocopies of requested articles should be freely provided to researchers and libraries.

6

Classification of Library Books

Contemporary Schemes of Classification

The following seven are the widely known modern schemes of classification:

Year of Contracted first publication	*Country of origin*	*Name of author*	*Name of scheme*	*Name*
1876	USA	Melvil Dewey	Decimal Classification	DC
1991	USA	CA Cutter	Expensive Classification	BC
1896	Belgium	FID (International Federation for Documentation)	Universal Decimal Classification	UDC
1904	USA	Library of Congress	Congress Classification	LC
1906	Gr Britain	J D Brown	Subject Classification	SC
1933	India	S R Ranganathan	Colon Classification	CC
1935	USA	H E Bliss	Bibliographic Classification	BC

Evaluation

"Of all these", it has been said, "two are more or less obsolete (Brown and Cutter), two are moribund but might be revived by blood transfusion of new thinking (Dewey and UDC)". The same source speaks of the Colon Classification as "the best of the published schemes, exemplifying the most original and the most creative thinking in the field". Having discussed the essential qualities of an efficient scheme of classification, Palmer and Wells say, "We find that the only scheme produced so far which comes within measurable distance of this ideal is the Colon Classification", The

later chapters of this part give extracts, suited to small public libraries, from CC as well as DC. Therefore, a more detailed evaluation of these two schemes is given below. The relative schedules in the later chapters can form the basis for comparison of helpfulness of sequence.

Colon Classification

Valid Principles

According to Bliss, "The system is constructed on valid principles .. . the 'basic' classification is logical in most of its divisions, scientific in details, and scholarly in its elaboration". Its basis is utterly different from that of the Decimal Classification. It is based on the Meccano principle. Hence its hospitality is virtually unending. Indeed', it is a self-perpetuating scheme of classification.

Synthetic and Mnemonic

According to Phillips, "The objects sought through this synthetic method are minuteness of classification — extending to the individualising of every book in the library — a high mnemonic value, hospitality, and elasticity, combined with great brevity as to the printed schedules... the process of subdividing by topic is normally simple, and figures are used decimally, but there are many divisions where a succession of characteristics is applied in order".

Provision for Indian Subjects

CC is universal in its scope. Without prejudice to this, it gives detailed schedules for the geographical divisions, languages, religions, and philosophical systems of India. It has a simple method of classifying literature. In this method, the literature in any language of the world, including those of India, can be readily classified by a classifier. This is typical of the autonomy given by CC to the classifier.

Provision for Indian Classics

India is rich in ancient classics. These classics are being continuously brought out in new editions and translations. They are popular. Most of the public libraries in India acquire them. They are much in demand. CC gives a fairly exhaustive schedule of the Indian classics in Medicine, Spiritual Experience, Fine Arts, Literary Criticism, Linguistics, Religion, and Philosophy.

The schedule was constructed with the help of my friend Mahamahopadhyaya Professor S Kuppuswamy Sastri, an authority on Indian Classics. According to Sayers, "It has an admirable scheme for arranging the Indian literatures, the fullest I know". This schedule of Indian classics forms Part 3 of CC. It is in 136 pages. It is not, therefore,

practicable to reproduce that schedule in this small book. The original book itself must be used.

Provision for Depth Classification

It has now been discovered that a set of postulates had been guiding the building up of CC from the unconscious levels. They have now been brought to the conscious level. This makes it possible to fit CC to any involved depth of classification needed for the documentation service of specialist readers. In other words, the hospitality of CC is very rich. As a result, without in any way lengthening the class numbers of the books normally kept in public libraries for the general public, CC gives expressive, individualising, and therefore necessarily long numbers to the articles found in learned periodicals. The continuation of the same system of classification from ordinary books to articles in periodicals is an advantage to readers. This helpful result has not been achieved by any other scheme. On account of this, there is often talk about the need for special schemes of classification for special subjects for learned readers. But this capacity of CC is used by some librarians, in an irresponsible way without actual experience in classification, to make a glib statement like, "Oh ! CC is quite learned, I grant. It can be used for documentation, it is obvious. But it is too complicated for use in public or school libraries." This erroneous impression is due to the ignorance of the quite simple class numbers given by CC for subjects which are usually represented by the books in a public library. These subjects are of a general kind and not of a specialised nature.

Short Class Number

The CC numbers are not only simple-looking, but are also comfortably short for books normally found in public libraries. Here again, by simply looking at the numbers arising in the depth classification needed in documentation work, people without experience make the irresponsible statement that CC number is long. The correct way of deciding the relative length of different systems of class numbers is the statistical way. To pursue this way, one should take a random sample of a large number of individualising class numbers of the same subjects, got by different schemes. Their average lengths should be compared. A comparative statistical study of CC and DC class numbers in this manner has been done. According to the results of this study, on an average, a CC number has one digit less than a DC number.

Marathi and Hindi Versions

A Marathi version of CC has been brought out by R S Parkhi. This must be of use to Maharashtra librarians not knowing English. A Hindi version of extracts has also been published. As a result of the current

Indian renascence, versions in the other modern Indian languages may be brought out in due course.

Decimal Classification

Inadaptability

According to Bliss, "The Decimal Classification is disqualified ... both structurally and functionally. It does not embody the natural, scientific, logical and educational orders. It fails to apply consistently the fundamental principles of classification .... It is inefficient in classifying the modern literature for specific topics.... Nor is its vogue among librarians and even among scientists and businessmen especially significant, except for the fact that there was nothing else readily available. It is an antiquated and inadaptable product .... And now it is hopelessly beyond reconstruction". According to Schofield, "owing to lack of adaptation to changed conditions 'Dewey' is out of touch with modern knowledge, it has also lost contact with the stock and demand of the libraries which use it".

Poor Hospitality

DC can give a class number to Agriculture of Rice Plant; and it can also give a class number to Manuring in Agriculture; but it cannot give a class number for Manuring of Rice Plant. Similarly, there is a DC Number for the Medicine of the Bone system; and there is also a DC number for Tuberculosis; but there is no DC number for Tuberculosis of the Bone. Again, Elementary Education has a DC number; and Curriculum has a DC number; but there is no DC number for Curriculum for Elementary Education. On the other hand, CC can furnish a number for all these combinations and even for more complicated combinations such as Time for Applying Cow Dung Manure to Rice Plant in Monsoon Areas of India.

No Provision for Indian Subjects

DC is far too American in its schedules. It has no satisfactory schedules for the geographical divisions, languages, literature, religions, and philosophical systems of India. It has no device at all to bring a classic and its family of books together. Dewey read in the *Five laws of library science* (1931) about CC being designed. Thereupon, he wrote to me saying that DC was poor in Indian subjects and that he would welcome our collaboration in removing this defect in DC. But unfortunately, he died before the CC came out in print — indeed shortly after he wrote to me.

Recommendation

CC is a later invention than DC. DC has all honour for its pioneership in making classification popular. But it has also the handicaps of a pioneer. It has been outmoded. Its structure is based on a constricted foundation.

Its notation is not sufficiently mnemonic. Its hospitality has been outgrown by the march of knowledge. Having witnessed all such natural defects in the pioneer DC, CC has based its structure on a very elastic foundation, almost reaching the bed-rock of the seminal level. It has great hospitality and mnemonics. It has developed certain devices to withstand the challenge of the turbulent and ever-growing universe of knowledge. Its versatility has been described to be such that every new subject creates its own class number in the scheme. The British Classification Group has therefore accepted that, "Facet Analysis (the technique of CC) must be the basis of a classification scheme able to meet requirements". On these grounds, CC is recommended for adoption. In Indian libraries, there should be the additional secondary reason of its being of Indian origin.

Classifying

Class Number: The Class Number of a book is a translation of the name of its specific subject into the artificial language of ordinal numbers specified and elaborated by a scheme of classification.

Examples

CC	*Subject*	*DC*
J	Agriculture	63
J1	Horticulture	63
J16	Floriculture	635
J169	Bulb plants	635.944
J16912	Tulip	635.93114
J16912:2	Manure for tulip	
116912:2:3	Application of manure to tulip	
116912:2:3.245	Application of manure to tulip in Nepal	

Ultimate Class

The Ultimate Class of a book is the class of the smallest extension, admitted by the scheme of classification into which it can be placed.

Book Number: The purpose of Book Number is to individualise the different books having the same ultimate class. In CC the book number is a translation of the names of certain specified features of the book into an artificial language of ordinal numbers specified and elaborated by rules. In DC, it may be made of the first three letters of the name of the author.

Call Number

Call number = Class number + Book Number + indication of any abnormal peculiarity of a book such as being a pamphlet or an organised

some etc., if any. A double space should separate the class number and the book number.

Examples

CC	*Subject*	*DC*
J16 N59	Sarada (L). Floriculture. 1959 (in English, which is taken to be the Favoured language of the library)	635 Sar
J16 152N59	(If the book is in Hindi)	635 Sar
JI6 c5N59	(If the book is an alphabetical list in English)	635 Sar
J16 152c5N59	(If the book is an alphabetical list in Hindi)	635 Sar
J16 N59	(If the first of the above books is a pamphlet)	635 Sar

The inability of DC to provide distinguishing call numbers for the five different kinds of books on floriculture can be easily seen.

The Book Number is written below the Class Number on the spine of the book and on the back of the title-page of the book.

Examples

JI6	JI6	J16	635
N59	152N59	c5N59	Sar

Classifying

Classifying is constructing the Class Number and the Book Number of a book, according to the Classification Scheme used. If the book is abnormal, in any way, that too should be indicated. Classificationist designs a scheme of classification. Classifier uses the scheme and classifies books.

Schedule of Main Classes

CC	***Name of Class***	***DC***
	Generalia	
a	Bibliography	01
k	Cyclopaedia	03
m	Periodical	05
n	Serial	058
P	Conference proceedings	063
w	Biography	92
z	Collection	08

Specific and Partially Comprehensive

1	Universe of knowledge	
2	Library science	02
3	Book science	
4	Journalism	07
A	Science (general)	5
B	Mathematics	51
C	Physics	53
D	Engineering	62
E	Chemistry	54
F	Technology	66
G	Biology	57
H	Geology	55,56
HZ	Mining	
I	Botany	58
J	Agriculture	63
JB	Forestry	634.9
K	Zoology	59
KZ	Animal husbandry	636 to 639
L	Medicine	61
M	Useful arts	6
D	Spiritual experience	149.3
N	Fine arts	7
″	Humanities	
O	Literature	8
P	Linguistics	4
Q	Religion	2
R	Philosophy	1
S	Psychology	15
S	Social sciences	3
T	Education	37
U	Geography	91
V	History	9
W	Political Science	32
X	Economics	33, 38, 65
Y	Sociology	31,36,39
YZ	Social work	
Z	Law	34

Schedules of Common Isolates
Anteriorising Common Isolates

CC	*Isolates*	*DC*
a	Bibliography	
c	Concordance	
d	Table	
e	Formula	
f	Atlas	
k	Cyclopaedia	03
m	Periodical	04 if organ of a body and otherwise
n	Serial	05 06
p	Conference proceedings	
v	History	
w	Biography	
x	Works (Collection or Selection)	09
*y*1	Programme of instruction	
*y*2	Syllabus	
*y*3	Synopsis	
*y*4	Scope	
*y*7	Case study	
*y*8	Digest"	

Meaning of Common Isolate

The significance of the term "Common Isolate" is that it can be added to any subject. The following examples illustrate this significance.

CC	*Subject with Common Isolate*	*DC*
Ik	Cyclopaedia of agriculture	630.3
J:4k	Cyclopaedia of plant disease	632.03
J16k	Cyclopaedia of floriculture	635.03
J16912k	Cyclopaedia of tulip	35.9311403
J16912:4k	Cyclopaedia of diseases of tulip	
J16912:4:5k	Cyclopaedia of prevention of dis-eases of tulip	

Significance of "Anteriorising"

The significance of the term "Anteriorising Isolate" is that the subject formed by attaching it to a host subject comes earlier than the host subject.

1 *Jk* Cyclopaedia of agriculture (comes earlier than)
J Agriculture.

2 *b,m* Periodical in medicine (comes earlier than)
L Medicine.
3 Tv History of education (comes earlier than)
T Education.

In DC, all common isolates are only posteriorising.

Facets for Anteriorising Common Isolates

Some of the anteriorising common isolates may have to be divided further by the addition of a geographical number and/or a chronological number. These two numbers are to be separated by a dot as specified or a comma. Adding a Geographical Number is called Geographical Device (=GD). Adding a Chronological Number is called Chronological Device(=CD). The following is the table of facets for anteriorising common isolates.

Common Isolate	***Facet by (GD)***	***Facet by (CD)***
k		Geographical area of Epoch of origin worked purview out to the minimum number of digits necessary for individualisation
m	Periodical	Country of origin, or country of sponsoring body, if organ of a body
n	Serial	Geographical area of purview
p	Conference (periodical)	
p	Conference (isolated)	Year of the conference
v	History	Latest effective epoch covered
w	Biography (collective)	Latest effective decade among the years of birth of the biographees
w	Biography (single)	Year of birth of the biographee
x	Works (collective)	Latest effective decade among the years of birth of the authors included
x	Works (single)	Year of birth of the author

Note: Latest effective decade is a decade whose decade number ends with 1 or 3, or 5, or 7, or 9, as explained in the section "Last Effective Decade".

Examples

CC	*Category*	*DC*
k3,L	Encyclopaedia Brittanica (which has a slant to Great Britain and which was started in 1768)	03
*k*73,N	Encyclopaedia Americana (started in 1903)	03
*k*73,N3	Columbia Encyclopaedia (started by Columbia University, USA, in 1935)	03
Am2,N	Transactions, Bose Research Institute (started in India in 1917)	504
Am2,Nl	Journal, Indian Institute of Science (started in India in 1918)	504
Am2,N3	Current science (started in India in 1932)	505
Am2,N34	Proceedings, sec A, Indian Academy of Sciences (started in 1934)	504
Aw3,M	Transactions, Cambridge Philosophical Society (started in 1818)	504
Am3,M6	Nature (started in Great Britain in 1869)	505
Bv2.F5	History of Indian mathematics up to 1150's	510.954
By2.N3	History of Indian mathematics up to 1930's	510.954
BwK42	Biography of Newton	925.1
BwM88	Biography of Ramanujan	925.1

Note

1. DC mixes up all cyclopaedias on a subject alphabetically, whatever be the country of slant. But CC individualises each cyclopaedia — that is, no two cyclopaedias have the same CC number. As a result, the cyclopaedias in a subject get separated out by the countries of slant; and those with slant to the same country get arranged by their years of origin.
2. DC separates out independent periodicals from those sponsored by a learned body or an institution. But CC does not do so.

3. DC mixes up all periodicals in a subject alphabetically whatever be the country or year of origin or language. But CC individualises each periodical — that is, no two periodicals have the same CC number. As a result, the periodicals in a subject get separated out and grouped by countries of origin; and those of the same country get arranged by their years of origin.
4. DC cannot indicate the period up to which the history of a subject is brought. But CC indicates it. As a result, the histories of a subject get arranged by periods.
5. DC cannot separate out the biographies of different persons in a subject. But CC individualises the biographies of each person — that is, the biographies of no two persons have the same CC number. As a result, the biographies of different persons in the same subject get arranged by the years of birth of the biographees.

Anteriorising Common Isolates Applicable Only After Space Facet

CC	*Isolate*	*DC*
r	Administration report	
	Statistics (if periodical)	

Examples

1. CC number for ad initiation report on Indian education is
   T.2r and not Tr2
2. CC number for the periodical of Indian medical statistics started in 1902 is
   L.2sN and not Ls2,N

Anteriorising Common Isolate Applicable Only After Time Facet

CC	*Isolate*	*DC*
s	Statistics (if stray)	
t	Commission report	
*t*4	Survey	
*t*5	Plan	
*t*7	Ideal	
v	Sources of history	
*v*5	Literature	
*v*6	Tradition	
*v*7	Archaeology etc.	
*v*8	Archives	

Examples

CC	*Category*	*DC*
T4.2.Nt	Report of the Indian University Commission of 1917	
T4.2.N4t	Report of the Indian University Commission of 1948	
T4.3.Nt	Report of the British University Commission of 1908	

Posteriorising Personality Common Isolate

CC	*Personality Isolate*	*DC*
d	Institution	
f	Investigating institution	
*f*2	Observational	
*f*3	Experimenting	
*f*4	Discussional	
*f*7	Yogic (Asrama)	
g	Learned institution	
t	Educational institution	
*t*2	Lower	
*t*4	Higher (To be divided as in T)	
y	Profession	

Note:

1. A comma is to precede a posteriorising personality common isolate.
2. To individualise an institution, the common isolate number is to be followed successively by a comma, the number of its country, and the first letter of the name of its locality. If a second locality has such an institution, the first two letters (both in capitals) of its name are to be added. And so on.

Examples

CC	*Institution*	*DC*
B9,t2,3G	Royal Observatory (Greenwich)	
D,f41,2B	Engineering College (Bombay)	
D,t41,2BA	Engineering College (Bangalore)	
D,t41,2BAR	Engineering College (Baroda)	
E.t3,2P	National Chemical Laboratory (Poona)	

Posteriorising Energy Common Isolates

CC	*Energy Isolate*	*DC*
f	Investigation	
*f*2	Observation	
*f*3	Experiment	
g	Criticism	

Note. A colon is to precede an energy common isolate.

Examples

CC	*Subject*	*DC*
2:51N3:g	Criticism of Colon Classification	
B96:*f*2	Observation of stars	
C:*f*3	Practical physics	
C6:*f*3	Practical electricity	
O15:g	Criticism of Sanskrit literature	
T15:3:*f*2	Observation of elementary school teaching	

Time Isolates

CC	*Time Isolate*	*CC*	*Time Isolate*
A	Before 9999 BC	L	1700 to 1799 AD
Al	Eozoic	M	1800 to 1899 AD
A2	Palaeozoic	N	1900 to 1999 AD
A3	Mesozoic	P	2000 to 2099 AD
A4	Cainozoic	Q	2100 to 2199 AD
A5	Quartenary	R	2200 to 2299 AD
B	9999 to 1000 BC	S	2300 to 2399 AD
C	999 to 1 BC	T	2400 to 2499 AD
D	1 to 999 AD	U	2500 to 2599 AD
E	1000 to 1099 AD	V	2600 to 2699 AD
F	1100 to 1199 AD	w	2700 to 2799 AD
G	1200 to 1299 AD	X	2800 to 2899 AD
H	1300 to 1399 AD	YA	2900 to 2999 AD
I	1400 to 1499 AD		
J	1500 to 1599 AD		
K	1600 to 1699 AD		

Note. DC has no schedule of time isolates for general use as common isolates.

Use of Time Isolates

Time forms a posteriorising common isolate. It has to be added at the end of a subject for all historical accounts and local descriptions of it. Sometimes an isolate is formed, or sharpened — that is, subdivided — by the addition of time isolate. This is called Chronological Device (CD).

Examples

1. Individualisation of cyclopaedias and periodicals.
2. Representation of a biographee.
3. Representation of an author in the main class Literature.

Construction of Time Isolates for Modern Period

1. For a decade, add the decade digit after the century digit.
2. For a year, add the year digit after the decade digit.

Examples

MO = 1800's Ml = 1810's N5 - 1950's

MO5 - 1805 MIS - 1818 N59 = 1959

Construction of Time Isolate for Mediaeval Period

1. For a century, add the century digit after the millennium digit D.
2. For a decade, add the decade digit after the century digit.
3. For a year, add the year digit after the decade digit.

Examples

D6 = 600-699 D61 = 610's

D60 =600's D619 = 619

D603 - 603

Last Effective Decade

The number of a Last Effective Decade will end with I when the Natural Decade Number ends with 0 or 1; with 3 when the natural decade number ends with 2 or 3; with 5 when the natural decade number ends with 4 or 5; with 7 when the natural decade number ends with 6 or 7, and with 9, when the natural decade number ends with 8 or 9.

Explanation

Experience has shown that grouping by intervals for about one generation is more helpful and also sufficient in the arrangement of books on shelves. It also makes the work of the classifier less arduous. This is perhaps because a generation is a more natural and significant unit in the progress of human thought and practices than a decade which is only

arbitrary and arithmetical. Generally, in history and local description, the Last Effective Decade is to be used.

Space Isolates, That is Geographical Divisions

CC	*Area*	*DC*
1	World	
1-0	Empire to be divided by (GD) *(Illustrative)*	
1-52	Roman empire	
1-56	British empire	
16	Atlantic countries	
161	Mediterranean countries	
167	Baltic countries	
17	Pacific countries	
19	By Zone	
191	Equatorial	
192	Tropical	
1923	South	
1927	North	
193	Sub-tropical	
195	Temperate	
197	Sub-arctic	
198	Arctic	
19A	By Orientation	
19B	East	
19C	Near East	956
19D	Middle East	956
19E	Far East	
19F	South-East	959
19G	South	
19L	South-West	
19M	West	
19R	North-West	
19S	North	
19W	North-East	
19X	Inside	
19Y	Outside	

1A	Near-Sovereign Formation	
To be divided by (CD) *(Illustrative)*		
IN	League of Nations area	
1N4	United Nations area	
1N48	The Commonwealth area	
Division by (SD) *(Illustrative)*		
1(P111)	English speaking countries	
1(Q7)	Muslim countries	
1(Y:42)	Under-developed countries	
2	Mother country (India)	54
21	Southern States	548
211	Madras (Tamil Nadu)	548.2
212	Kerala	548.3
213	Mysore (Karnataka)	548.7
216	Andhra Pradesh	
23	Western States	544
231	Bombay	547.9
235	Maharashtra	
236	Gujarat	
237	Rajasthan	543.42
24	North Western States	
241	Delhi	545.6
243	Punjab (East)	545.5
245	Himachal Pradesh	545.2
247	Jammu and Kashmir	546
25	Northern States	542
252	Uttar Pradesh	542.5
255	Madhya Pradesh	543.3
27	Eastern States	
271	Orissa	541.3
273	Bihar	541.2
275	Bengal (West)	541.4
277	Assam	541.6
28	Centrally administered areas	
297	Himalayan States	
297	Bhutan	541.9
2973	Sikkim	542.7
2975	Nepal	542.6

3	Favoured country (Great Britain)	
31	England	42
32	Wales	429
33	Scotland	41
34	Ireland	415
4	Asia	5
41	China	51
42	Japan	52
43	South-east Asia	59
431	Indo-China	597
433	Thailand	593
435	Malay States	595
436	Indonesia	991
438	Burma	591
4498	Ceylon	548.9
44Q7	Pakistan	547
44Q71	East Pakistan	
44Q72	East Bengal	541.45
44Q73	West Pakistan	
44Q74	Sind	547.3
44Q75	Baluchistan	588
44Q77	West Punjab	545.3
45	Persia (Iran)	55
46	Arabian Peninsula	53
461	Arabia	538
465	Palestine	
4651	Jordan	569.5
4653	Israel	569.4
4655	Lebanon	569.2
466	Syria	569.1
467	Iraq (Mesopotamia)	567
4671	Babylonia	
4672	Assyria	
47	Asia Minor	
48	Siberia	57
4893	Armenia	
49	Other Asian countries	
491	Afghanistan	581

494	Manchuria	518
495	Korea	519
496	Mongolia	517
497	Sinkiang	516
498	Tibet	515
5	Europe	4
51	Greece	495
52	Italy	45
5291	Sicily	458
5222	Malta	458.2
53	France	44
54	Spain and Portugal	
541	Spain	46
542	Portugal	469
55	Germany	43
5541	Saar Basin	
57	Scandinavia	48
571	Sweden	485
572	Denmark	489
573	Norway	481
574	Iceland	491
575	Finland	471
58	Russia	47
591	Turkey	496
59191	Cyprus	564
592	Balkan States	496
5931	Austria	436
5932	Hungary	4391
594	Switzerland	404
595	Poland	438
596	Netherlands	492
5961	Belgium	493
5962	Holland	492
5971	Lithuania	
5973	Latvia	474
5975	Esthonia	474
6	Africa	6
63	Union of South Africa	68

671	Egypt	62
682	Abyssinia	63
7	America	7
71	North America	7
7191	Greenland	98
72	Canada	71
73	United States	73
74	Mexico	72
7414	Yucatan	726
75	Central America	728
791	South America	3
792	West Indies	739.13
8	Australia	94
937	New Zealand	993
	Oceans	
95	Indian Ocean	
96	Atlantic Ocean	997
97	Pacific Ocean	99
983	Antarctic Ocean	
987	Artic Ocean	98

Note

1. For more detailed divisions, schedule 4 of CC should be used.
2. Orientation divisions and subject divisions of any geographical area can be got on the analogy of the respective divisions of "1 World".
3. There are no appropriate DC numbers for certain geographical divisions.

Use of Space Isolates

Space forms a posteriorising common isolate. It has to be added at the end of the class number of any subject, for all its historical and descriptive accounts. Sometimes, an isolate is formed or sharpened — that is, subdivided — by the addition of space isolate. This is called Geographical Device (GD).

Examples

1. Individualisation of cyclopaedias and periodicals.
2. The first facet in the main class "V History".
3. The first facet in the main class "Z Law".

Physiographical Isolates

CC	*Physiographical Isolate*	*DC*
1	Land	
121	Desert	
124	Forest	
131	Coastland	
133	Cape	
137	Delta	
14	Island	
16	Valley	
2	Mountain	
3	City (Town, Village)	
535	Inland sea	
54	Lake	
6	River	

Note

1. There is no provision in DC for physiographical isolates.
2. In CC the isolate number of a physiographical isolate should be added to the host space isolate of the least area containing it.
3. A dot should separate the host isolate number and the physiographical isolate number.
4. A particular physiographical entity may be got by alphabetical device, as shown in some of the following examples.

Examples

CC	*Physiographical Feature*	*DC*
2.121	Indian deserts	
2.121R	Rajputana desert	
2.6	Indian rivers	
2.6G	Ganges	
21.6	South Indian rivers	
21 .6K	Kavery	
211.3	Cities of Madras State	
211.3T	Tanjore	
211.3T1	Tirunelveli	
73.3N	New York (City)	

Parts of Physical Features (Illustrative)

CC	*Parts of Physical Features*	*DC*
2.6G.1	Sources of the Ganges	
4.2H	Himalayas	
4.2H.1	Peaks of Himalayas	
4.2H.1E	Mount Everest	
5.2A.1B	Mount Blanc	

Examples

CC	*Subject*	*DC*
U8.2.6G.1	Journey to the source of the Ganges	
US.4.2H	Himalayan travels	
U8A2H.1E	Mount Everest expedition	

Language Isolates

CC	*Language*	*DC*
1	Indo-European	
11	Teutonic	
111	English	*2*
113	German	3
12	Latin	7
122	French	4
124	Portuguese	69
13	Greek	8
15	Sanskrit	912
151	Prakrit	913
1511	Pali	913.791
1512	Maharastri	
1516	Ardhamagadhi	
1517	Magadhi	
1518	Apabhramsa	
15198	Sinhalese	914.8
1521	Hindi	914.3
153	Punjabi	914.2
154	Gujarati	914.7
155	Marathi	914.6

156	Oriya	914.5
157	Bengali	915.4
158	Nepali	
16	Iranian	915.5
164	Persian	915.5
168	Urdu	914.3
2	Semitio	92.8
25	Hebrew	92.4
28	Arabic	92.7
3	Dravidian	948.1
31	Tamil	948.11
32	Malayalam	948.12
33	Kanarese	948.14
34	Tulu	948.15
35	Telugu	948.13
36	Kui	
38	Brahui	
39	Toda etc.	
41	Chinese	95.1
42	Japanese	956
433	Siamese	959.1
435	Malay	992.21
438	Burmese	958
99M87	Esperanto	089.2

Uses of Language Isolates

Language is a common isolate. It forms the first facet in the main classes "O Literature" and "P Linguistics". In each of these cases it is a personality facet. Language forms a facet in book numbers also.

Schedule of Select Class Numbers

This chapter gives a schedule of Class Numbers for books likely to be found in a small public library.

These Class Numbers are ready-made ones for the convenience of use by a semi-professional. They are illustrative only. Similar Class Numbers can be easily constructed. For the construction of more complicated subjects, the original books *Colon classification* ed 6 and *Decimal classification* ed 16 are to be consulted. The schedule of main classes given in same chapter should be remembered.

CC	*Subject*	*DC*
	Library Science	
2	Library science	02
2:1	Book selection	025.21
2:2	Organisation	023
2:51	Classification	025.4
2:55	Cataloguing	025.3
2:6	Circulation work	025.6
2:7	Reference service	025.52
2:8	Administration	025
2:97	Documentation	
213	National central library	027.5
215	State central library	
22	Public library	027.4
221	Rural library	027.4223
222	City library	027.4222
23	Academic library	
232	Secondary school library	027.8223
233	College library	027.7
234	University library	027.7
261	Children's library	027.625
	Mathematics	
B	Mathematics	51
B0*b*	from special points of view	
B0*b*D	for Engineers	
B0*b*MY3	for Recreation	
B0*b*X	for Economists	
BO*b*X8	for Actuaries	
B11	Elementary arithmetic	511
B21	Elementary algebra	512
B23	Theory of equation	512.2
B28	Statistics	
B280b	from special points of view	
B280bJ	for Agriculturists	
B280bS	for Psychologists	
B280bT	for Educationists	

B280bX	for Economists	
B280bX8	for Actuaries	
B3	Analysis	
B32	Calculus	517
B321	Differential	517.2
B325	Integral	517.3
B5	Trigonometry	514
B52	Plane	514.5
B6	Geometry	
B6:5	Descriptive	515
B6:2	Plane	513.1
B622	Conies	516
B622:2	Analytical conies	513.22
B622:6	Geometrical conies	516
B63	Solid geometry	513.3
B7	Mechanics	531
B71	Solid	531
B71:1	Dynamics	531.3
B71:3	Statics	531.2
B75	Liquid	532
B75:2	Hydrodynamics	532.5
B75:3	Hydrostatics	532.2
B78:2	Aerodynamics	533.6
B9	Astronomy	52
B9.l	Chronology	529
B9:17	Calendar	529.3
B9:13	Era	529.2
B9:6	Astrophysics	532
B9:8	Cosmogony	523.1
B9:94	Nautical	527
B91	Earth	525
B92	Moon	523.3
B93	Sun	523.7
B94	Planet	523.4
B951	Meteor	523.5
B952	Comet	523.6
B96	Star	523.8

74C Physics

C	Physics	53
C15:(B1)	Mensuration	511.8
*C:f*3	Practical physics	530.765
C2	Properties of matter	
C21	Solid	
C216	Crystal	
C25	Liquid	
C25,4	Surface tension	532.6
C28	Gas	533
C28.76	Vacuum	
C3	Sound	534
C3:7	Accoustics	534.84
C4	Heat	536
C4:7	Thermodynamics	536.7
C5	Radiation	535
C5:3	Spectroscopy	535.84
C51	Light	535
C51:3	Spectroscopy of light	535.84
C52	Ultra-violet	535.844
C53	X-ray	537.535
C56	Infra-red ray	535.842
C57	Hertzian wave	
C6	Electricity	537.2
C6:45	Photo-electricity	537.54
C62	Current electricity	537.5
C7	Magnetism	538
C9B3	Nuclear physics	539.7
CM	Kinetic theory	530.13
CN	Relativity	530.11
CN1	Quantum theory	530.12
CN2	Wave Mechanics	530.12

74D Engineering

D	Engineering	62
Dl	Civil	
D2	Irrigation	
D3	Building	

D4	Transport (Track)	627.2
D411	High-way	
D514	Rail-road	
D416	Bridge	
D42:8	Harbour	627.2
D43:8	Aerodrome	
D5	Transport (Vehicle)	
D521	Cart	
D5125	Cycle	529.2272
D513	Motor	629.2
D515	Railway carriage	625.2
D525	Ship	625.824
D525	Sub-marine	623.825
D535	Aeroplane	629.1334
D58	Space vehicle	
D6	Mechanical Engineering	
D6:6	Machinery	
D6:7	General machinery	
D6:8	Machine tool	621.9
D6:9(D2:1)	Excavating machinery	624.156
D6:9(D85)	Pumping „	621.64
D6:9(M14)	Printing „	681.62
D6:9(M7)	Textile	677.0285
D6:9(MC421)	Refrigerating „	621.56
D6:9(MJ38)	Flouring „	521.92
D6:9(MJ381)	Rice husking „	
D62	Principles of Mechanism	621.8
D635	Hydraulic Engineering	621.2
D6351	Waterwheel	621.21
D6355	Water turbine	621.24
D638	Pneumatic Engineering	621.5
D6381	Wind mill	621.45
D6385	Turbine	
D6387	Compressed air	621.42
D64	Heat Engine	
D641	Steam engine	621.11
D645	Steam turbine	621.165

D646	Internal combustion engine	621.43
D6465	Oil engine	621.434
D6466	Diesel engine	621.436
D6467	Gas engine	621.434
D6468	Hot air engine	624,41
D65	Electronics	621.381
D65:4	Wireless	621.384
D65:43	Broadcasting	
D65:45	Television	621.338
D65:47	Telegraphy	621.3842
D65:48	Telephony	621.3845
D65:78	Servomechanism	
D66	Electrical Engineering	621.3
D664	Alternating current	621.3133
D665	Weak current	631.33
D665:45	Telegraphy	621.382
D665:48	Telephone	621.385
D7	Nuclear Engineering	621.48
D8	Sanitary Engineering	628
D85	Water supply	628.1
D855	Purification	628.16
D856	Distribution	628.14
D86	Sewage	628.3
D88	Municipal refuse	628.3
	74E Chemistry	
E	Chemistry	54
E:l	General	54
E:2	Physical	541
E :22	Solution	541.34
E :235	Colloid	541.345
E:24	Thermo-chemistry	541.36
E:25	Photo-chemistry	541.35
E:26	Electro-chemistry	541.37
E:28	Steoro-chemistry	541.6
E:3	Analytical chemistry	543
E:4	Synthesis	546.45
E:5	Extraction	547.2

E :8	Manipulation	
El	Inorganic	546
E2	Basic oxide	546.4
E3	Acid	546.24
E4	Salt	546.34
E5	Organic	547
E68	Carbohydrate	547.78
E6892	Starch	547.782
E6894	Cellulose	547.782
E7	Aromatic compound	547.6
E9	Biosubstance	547
E92	Alkaloid	547.72
E927	Protein	547.75
E94	Fat	547.438
E95	Pigmant	547.2
E97	Vitamin	547.74
E982	Enzyme	547.758
E986	Hormone	547.194
E9G	Biochemistry	547.192
	74F Technology	
F182	Iron	659.1
F191	Metallurgy	669
F4416	Enamel	666.2
F527	Celluloid	668.44
F53	Food	664
F54	Alcohol	663.1
F547	Wine	663.2
F548	Beer	664.4
F55	Fuel	662.6
F551	Coal	662.62
F555	Petroleum	665.5
F5552	Petrol	665.5
F5591	Matches	662.5
F5594	Explosive	662
F56	Drug	615.1
F573	Artificial silk	
F58	Dye	667.2

F5895	Paint	667.6
F594	Poison	
F9491	Candle	665.1
F9496	Soap	668.12
	74G Biology	
G	Biology	57
G:19	Microscopy	578
G:2	Morphology	574.4
G:3	Physiology	574.1
G :33	Metabolism	574.13
G:346	Fasting	613.24
G:394	Fatigue	612.816
G:5	Ecology	575.5
G:563	Parasitism	574.23
G :58	Migration	
G:6	Genetics	575.1
G :61	Heredity	575.11
G:64	Hybridisation	575.1
G:66	Evolution	575
G:67	Reproduction	574.16
G:7	Ontogeny (Growth)	575.6
Gl	Life	577.2
G11	Cell (Cytology)	574.87
G116	Gene	576.3
G12	Tissue (Histology)	574.82
	74 H Geology	
H	Geology	55
H:(C)	Geophysics	
H1	Mineralogy	549
H1:8	Crystallography	548
H19	Precious stone	553.8
H2	Petrology	552
H3	Structural geology	551.8
H36	Mountain formation	551.43
H4	Physiography	551.4
H411	Volcano	551.21
H4132	Earthquake	551.22

H6	Paleontology	56
H7	Economic geology	553
H7:15	Prospecting	622.1
H7:155	Occurrence	553
H7:16	Genesis	353
	741 Botany	
I	Botany	58
I:12	Flora	581.9
1:12.2	Indian flora	581.954
I:13	Popular description	
I:I3.2	Indian plants	
I:18	List	
I22	Algae	589.3
I23	Fungi	589.23
I2375	Mushroom	635.8
I32	Moss	588.2
I5	Flowering plants	583,584

Note: Each of the classes 122 to 15 may be divided as G:2 to G:7 and 1:12 to 1:18. For example,

123:3	***Physiology of fungi***	
	74J Agriculture	
J	Agriculture	J
J:l	Soil	631.4
J:2	Manure	641.86,
J:2:25	Compositing	631.875
J:24	Chemical manure (Fertilizer)	631.82
J:24l	Potassic	631.83
J*:245*	Nitrogenous	631.84
J :246	Phosphatic	631.85
J:3	Propagation method	631.53
J:4	Disease	632
J:5	Crop development	631.54
J :7	Harvesting	631.55
J:97	Utilisation	
J1	Horticulture	635
J16	Floriculture	63

J2	Feed crop	635
J3	Food crop	633
J311	Sugarcane	
J321	Onion	635.25
J341	Potato	633.491
J3513	Cabbage	635.34
J37	Fruit Culture	634
J371	Apple	634.11
J372	Orange	634.31
J3731	Plantain	634.773
J374	Grape	634.8
J3751	Mango	634.441
J3752	Pine apple	
J38	Cereal	633.1
J381	Rice	633.18
J382	Wheat	633.11
J385	Corn	
J397	Millet	633.17
J388	Pulse	
J389	Nut	
J451	Tea	633.72
J456	Tobacco	633.71
J481	Coffee	633.71
J581	Groundnut	
J582	Coconut	
J641	Cinchona	
J671	Black pepper	633.841
J674	Chillies	
J711	Rubber	634.9865
J741	Jute	633.34
J742	Flax	633.52
J743	Hemp	632.53
J781	Cotton	633.51
J9D	Dry farming	631.586
J9S	Soilless farming	
JB	Forestry	634.9

Note: Each of the classes from Jl to JB may be further subdivided on the analogy of the subdivision of bare J. For example,

J381:7	Harvesting of rice	
J451:4	Disease of tea-plant	
JB:97	Forest utilisation	634.92727
	74K Zoology	
K	Zoology	59
K:12	Fauna	591
K:12.2	Indian fauna	591.954
K:13	Description	
K.13.2	India	
K:2	Morphology	591.4
K:3	Physiology	591.1
K:5	Ecology	591.5
K:58	Migration	591.52
K:73	Embryology	593
K1	Invertebrate	592
K6	Worm	595.1
K7	Mollusc	594
K86	Insect	595.7
K9	Vertebrate	596
K92	Fish	597
K93	Amphibian	597.6
K94	Reptile	598
K96	Bird	598.2
K97	Mammal	599

Note: Each of the classes K1 to K97 may be divided as bare K, for example, (K96:58 Bird migration)

	74KB Animal Husbandry	
KZ	Animal Husbandry	636
KZ:4	Veterinary science	636
KZ31	Dairy	637
KZ31:71	Milk	637.1
KZ31:73	Butter	637.2
KZ332	Fishery	639.3
KZ35	Poultry	636.5

KZ442	Horse	636.1
KZ54	Pet Animal	636
KZ54I	Dog	636.7
KZ542	Cat	636.8
KZ611	Bee	638.1
KZ771	Silkworm	638.2
	74 L Medicine	
L	Medicine	61
LZ	Pharmocognacy	
L:13	Nursing Home	321.16
L:14	Hospital	36l.ll
L:15	Sanatorium	362.13
L:2	Morphology	611
L:3	Physiology	612
L:4	Disease	616
L:4:l	Nursing	610.72
L:4:2	Etiology	616
L:4:3	Diagnosis	616.075
L:4:4	Pathology	616.07
L:4:5	Prevention	614.44
L:4:6	Treatment	615
L:4:6253	Treatment by X-Ray	616.8422
L:4:63	Treatment by drug	615.7
L:4:6426	Fast cure	615.85
L:4:65	Hydro-therapy	615.853
L:4:66	Antibody and serum therapy	615.37
L:5:68	Aero-therapy	615.836
L:4:7	Surgery	617
L:4:8	Diet regulation	615.854
L:4:9I	After care	614.88
L:4:97	First aid	616.9
L:42	Infectious disease	616.995
L:421	Tuberculosis	616.92
L:423	Virus disease	616.91
L:4537	Allergy	615.97
L:4725	Cancer	616.994
L:473	Hernia	617.559

L:473:7	Operation for hernia	617,559
L:475	Abcess	617.2
L:49	Burns	617.11
L:491:97	First aid for burns	617.11

Note: Each specific disease may be further divided as "General disease L:4", as illustrated under Hernia and Burns.

L:5	Public health	614
L:51	Vital statistics	312
L:521	Habitation	613.5
L:522	Animal	636.0894
L:523	Food	614.31
L:54	Preventive measure	614.44
L:55	Public hygiene	614.7
L:57	Personal hygiene	613
L:571	Residence	613.5
L:572	Recreation	613.7
L:573	Food	613.2
L:573	Stimulant	613.8
L:575	Toilet	646.7
L:577	Clothing	
L:578	Sleep	613.79
L:8	Physical fitness	
LI	Regional organs	
L12:46	Obesity	616.398
L177	Throat	
L183	Ear	
L183:4	Disease of the ear	617.3
L813:4:7	Surgery of the ear	617.8
L185	**Eye**	
L185:4	Disease of the eye	617.7
L192	Joints	
L192:415	Rheumatism	616.991
L2	Digestive system	
L214	Teeth	
L25	Intestines	
L25:4241	Typhoid	616.9272

L25:4251	Cholera	616.932
L25:4372	Hookworm disease	616.9654
L25:451	Constipation	616.34
L25:452	Diarrhoea	616.34
L29 1:453	Jaundice	616.365
L293:62	Diabetes	616.46
L3	Circulatory system	
L32	Heart	
L32:4	Disease of heart	616.12
L35:4I1	Anaemia	616.936
L35:4261	Malaria	616.9362
L39:481	Elephantiasis	616.9652
L396:4241	Plague	616.9232
L4	Respiratory system	
L4:4241	Influenza	616.203
L4:4242	Whooping cough	616.204
L41	Nose	
L41 :4241	Diphtheria	616.9313
L44:415	Bronchitis	616.23
L44:453	Asthma	616.23
L45:421	Pulmonary tuberculosis	616.246
L45:424	Pneumonia	616.241
L62:4261	Kala-azar	
L6	Ductless glands	
L.62:5261	Kala-azar	
L7	Nervous system	
L7:51	Neurasthenia	616.343
L7:52	Insomnia	616.849
L72	Brain	
L72:453	Epilepsy	616.353
L73	Spinal cord	
L73:4241	Titanus	616.9318
L77:411	Paralysis	616.842
L82	Bone	
L82:463	Ricket	616.95
L87	Skin	
L87:4	Skin disease	616.5

L9A	Specials	
L9B	Embryology	
L9C	Child medicine	618.92
L9F	Female medicine	618
L95:3	Obstetrics	618.2
L95:4	Gynaecology	618.1
L9H	Tropical medicine	
L9X	Industrial medicine	
LA	Systems	
LB	Ayurveda medicine	615.89
LB.xl,l	Charaka Samhita	
L B:4:7.x2,l	Susruta Samhita	
LB:68;x 1,1	Vagbhata Raseratna samuccya	
LC	Sidda medicine	615.89
LD	Unani medicine	615.89
LL	Homoeopathy	615.532
LM	Naturopathy	615,535
L:Z	Pharmocognacy	615
L:Z3	Pharmocology	615.1
L:Z5	Materia medica	615.1
L:Z8	Pharmacy	615.4

Note;

1. Any class from L1 to L87 can be divided as bare L is divided from L: 11 to L:491.
2. Any of the systems LB to LM may be divided as L:l to L9H. The one extra prescription is this. If any of the organ divisions from "1 Regional organ" to "87 Skin" is to be added, the organ numbers 1to 87, whichever it be, is to be preceded by a comma. Similarly, if any of the divisions "9B Embryology" to "9X Industrial medicine" is to be added, this number whichever it be, is to be preceded by a comma.

Examples

LB,185:4:6	Ayurvedic treatment for eye disease	615.89
LB,9F:4	Ayurvedic gynaecology	615.89
LL,9C,44:453:63	Homeopathic drug remedy for asthma in child	615.532

Useful Arts

CC	*Subject*	*DC*
M	Useful Arts	*6*
Ml	Book production	655
M13	Paper making	676
M14	Printing	655
M144	Book illustration	
M15	Binding	615.7
M3	Home science	64
M3:3	Cooking	641.5
M4	Smithy	682
M5	Carpentry	694
M6	Glass industry	666.1
M7	Textiles	677
M7:l	Spinnin	677.02822
M7:2	Weaving	677.02824
M71	Cotton	677.21
M72	Wool	677. 31
M73	Silk	677.4
M8	Tailoring	687.1
M92	Masonry	693
M95	Photography	77
M98	Packaging	658.7884
MJ7	Ropemaking	677.71
MY1	Physical training	796
MY11	Callisthenics	796.41
MY12	Heavy exercise	796.43
MY13	Gymnastics	796.4
MY2	Athletics	796
MY2121	Football	796.33
MY2131	Tennis	796.34
MY2132	Badminton	796.34
MY2141	Cricket	796.358
MY22	Competitive sport	796.07
MY25	Aquatic sport	797
MY251	Swimming	797.2

MY3	Indoor game	793
MY3I	Card play	795.4
MY4	Jugglery	793.5
MY5	Animal racing	798.8
MY6	Hunting	799.2
MY7	Scouting	360.43
MY974	Stamp collection	383.22
	D 74 Spiritual experience and mysticism	
D	Spiritual experience and mysticism	189.5
D :34	Breath control	
D :8	Occultism	133
D,16:8	Spiritualism	133.9
D :86	Prophecy	133.3
D :862	Physiognomy	138
D :8627	Palmistry	133.6
D :8628	Phrenology	139
D :864	Astrology	133.5
D :8692	Omen	133.3
D :87	Magic and witchcraft	133.4
D 2	Hindu yoga	
2x4	Yoga Upanishads	
D 22	Hatha	
D 23	Jnana	
D 24	Karma	
D 25	Bhakti	
D 26	Raja	
D 28	Siddha	
	74N Fine Arts	
N	Fine Arts	7
NA	Architecture	72
NB	Town planning	711.4
NC	Plastic art	
ND	Sculpture	73
ND,9(Q)	Iconography	73
NJ	Inlay art	745.51
NL	Embroidery	746
NM	Graphic art	76

NN	Engraving	
NP	Drawing	74
NQ	Painting	75
NR	Music	78
NR;2	Wind instrument	786
NR;21	Pipe	788.9
NR;22	Flute	788.5
NR;291	Harmonium	786.94
NR;3	Stringed instrument	
NR;31	Vina	787
NR;32	Violin	787.1
NR;34	Piano	786.2
NR;4	Percussion instrument	789
NR;41	Drum	789.1
NR;91	Vocal music	784
NR,92	Dramatic music	782
NR,93	Orchestral music	785.1
NR44	Indian music	
NR441	Carnatic music	781.7548
NR445	Hindustani music	781.7541
NR5	European music	
NS	Dance	793.3
NT	Theatre	792
NU	Puppet play	791.53
NV	Shadow play	791.5
NW	Cinema	791.43
NX	Talkie	791.43

Note: See Colon Classification Part 3 Chapter N for Indian classics in Music.

Literature

Note: For definiteness, English is taken in the following schedule as the favoured language of the library.

O	English literature	82
O-,l	English poetry	821
O-,1K08	John Milton	821.47
O-,1K08,6	Paradise lost	821.47

O-,1L88	Alexander Pope	821.53
O-,1M09	Alfred Tennyson	821.81
O-,IL08	Elizabeth Barret Browning	821.82
O-,IM12	Robert Browning	821.83
O-,1M61	Rabindranath Tagore	821.91
O-,1M841	John Drinkwater	821.91
O-,1M851	Ezra Pound	82.91
O-,2	English Drama	822
O-,2J64	William Shakespeare	822.33
O-,2J64.5	Tragedies of Shakespeare	822.33
O-2J64.51	Hamlet	822.33
O-,2J64,5l:g	Criticism of Hamlet	822.33
O-,2L51	Sheroidian	822.65
O-,2M57	Bernard Shaw	822.91
O-2M60	James Barrie	821.91
O-2N09	Stephen Spender	821.91
0-,3	English fiction	823
O-,3L7I	Walter Scott	823.73
O-,3M11	William Makepeace Thackeray	824.82
O-,3M12	Charles Dickens	823.3
0-,3M20	George Elliot	823.89
O-,3M40	Thomas Hardy	823.89
O-,3M64	Rudyard Kipling	823.91
O-,3N09	Stephen Spender	823.91
0-,4	English essays	824
O15	Sanskrit literature	891.2
O15,1	Sanskrit poetry	891.21
O15,1D60	Kalidasa	891.21
O15,1F60	Jayadeva	891.21
O15,2	Sanskrit drama	891.22
O15,2D35	Bhasa	891.22
O15,2D40	Kalidasa	891.22
O15,2D42	Dinnaga	891.22
O15,2D60	Harsha	891.22
O15,2D70	Bhavabhuti	891.22
O15,2D63	Murari	891.22
O15,2M97	Mahalingasastri	891.22

O152	Hindi literature	891.43
O152,1	Hindi poetry	891.43
O152,1J32	Tulsi Das	891.43

Note: 1. The above are only illustrations of class numbers in the main class "O Literature".

2. The Colon Number for any work in literature can be got by the facet formula:

O [Language], [Form] [Author], [Work]

3. The language for the language facet is the language in which, the author — poet, dramatist etc. — wrote his work. The isolate number in the language facet is to be got from the schedule of language isolates in section "Language Isolates".

4. The form number is to be got from the following schedule:

1. Poetry
2. Drama
3. Fiction
4 Literature in the form of letters
5 Prose
6 Campu

5. The author number — that is, the isolate number in the author facet — that is, the number to denote the author of the poem, drama, fiction etc. as the case may be—is to be got by the Chronological Device. In other words, the name of the author is normally represented by the year of his birth, translated into isolate number in accordance with the schedule of time isolates. The year of birth is easily got from books in the history of literature concerned or from *Who's Who.*

However, we do not have sufficient help to find the year of birth of the authors in Indian literature. It is particularly so with modern authors. This is due to the absence of a good *Who's Who* for living Indian authors. But in all cases, at least the century of birth of the author may be guessed. Then, the author number, in such cases, may be made of the century digit followed by the first letter of the name of the author. If the names of several authors of the same century in the same form of literature in the same language, begin with the same letter, in the case of the second of them the second letter in the name may also be added in capital. And so on. For example,

Example

CC	***Subject***	***DC***
O31,3NS	Seetharaman, Tamil novelist born in the twentieth century	
O31,3NSU	Subramanian, another Tamil novelist born in the twentieth century	

O31,3NSUN	Sundaram, a third Tamil novelist born in the twentieth century
O31,3NV	Vaidyanathan, Tamil novelist born in the twentieth century
O31,3NVE	Venkatachalam, another Tamil novelist born in the 20th century

6. The work number — that is, the isolate number in the work facet of a particular author — may be fixed serially as 1, 2, 3, ... 10, 11, 12, etc.

7. The class numbers for ancient Tamil works are given in Chapter O of Part 3 of Colon Classification.

The class numbers for some Marathi authors are given in the *Dvibhindu-vargikarena* by R S Parkhi.

The class numbers for some Hindi authors are given in the *Granthalaya Prakriya* by Ranganathan and Nagar.

CC	***Subject***	***DC***
	74P Linguistics	
	Note: In what follows, English is taken as the favoured language.	
P	Linguistics	4
P-	English linguistics	42
P-,D	Old English	429
P-,E	Middle English	42
P-,J	Modern English	42
P-,J:1	Phonetics of modern English	421
P-,J:2	Morphology „	425.1
P-,J:3	Syntax „	425.2
P-,J:4/k	Dictionary „	423
P-,J:7	Composition in „	808
P15	Sanskrit linguistics	491.2
P15,A	Vedic grammar	491.2
P15,C	Classical Sanskrit	491.2
P15.Cxl,l	Panini	491.2
P15,Cx1,1,2	Pantanjali	491.2

Note: 1. The class numbers for the linguistics of the other languages are to be constructed on the above model, inserting after P the number of the language concerned, as found in the Language Isolate Schedule given in section "Language Isolates".

2. Class numbers for the classics in Indian linguistics is given in Chapter P of Part 3 of Colon Classification.

CC	*Subject*	*DC*
	74Q Religion	
Q	Religion	*2*
Q:l	Mythology	291.13
Q:2	Scripture	291.82
Q:25	Sayings	
Q:26	Traditions	291.83
Q:3	Theology	2
Q:31	God	211
Q:311	Avatara	
Q:315	Avasara	
Q:321	Angel	291.215
Q:324	Devil	291.216
Q:33	Founder of religion	
Q:4	Religious practices	217
Q:4l	Personal	
Q:417	Namavali	
Q:418	Sacred formula	
Q:4192	Ritual	291.38
Q:4198	Pilgrimage	291.38
Q:42	Sacrament	
Q:43	Holi day	291.36
Q:45	Public worship	291.3
Q:494	Sacrifice	291.34
Q:495	Holy water	
Q:6	Religious institution	291.65
Q:7	Religious sect formation	
Q1	Hinduism (Vedic)	294.1
Q1:21	Samhita	
Q1:22	Brahmana	
Q1:23	Aranyaka	
Q1:24	Upanishad	
Q1:4	Kalpa sutra	
Q11	Rig Vedic religion	
Q111	Aitreyin	
Q112	Kausatakin	
Q112:22	Sankhayana Brahmana	
Q12	Yajur Vedic religion	
Q121	Black	

Q125	Taittiriya	
Q 125:24	Ekagni-kanda (Mantra-prasna) (Mantra-pata)	
Q125:25	Narayana Upanishad	
Q125:26	Swetaswatara Upanishad	
Q127	Madnyandina	
Q127:22	Satapata Brahmana	
Q127:24	Brahad-aranyaka Upanishad	
Q127:25	Isavasya Upanishad	
Q13	Sama Vedic religion	
Q131	Tandin	
Q131:22	Chandogya Brahmana	
Q131:24	Chandogya Upanishad	
Q132	Talavakara	
Q 132:24	Kena Upanishad	
Q14	Atharva Vedic religion	
Q14:22	Gopaa Brahmana	
Q 141	Saunakiya	
Q141:24	Prasna Upanishad	
Q141:25	Manduka Upanishad	
Q141.26	Mandukya Upanishad	
Q2	Hinduism (post-Vedic)	294.5
Q21	Smartaism	
Q21:21.x1	Purusha-suktam	
Q21:22	Smarta Puranas	
Q21:22l	Brahma Purana	
Q21:222	Markandeya Purana	
Q21:223	Bhavishya Purana	
Q21:2231	Bhavishyottara Purana	
Q21:224	Vamana Purana	
Q21:225	Brahmanda Purana	
Q2I:2251	Adhyatma Ramayana	
Q21:2252	Rama Gita	
Q21:226	Yogavasishta Ramayana (Jnana Vasishta)	
Q21:227	Ananda Ramayana	
Q21:228	Adbhuta Ramayana	
Q22	Vaishnavism	
Q22 *wx* 1,1	Mahipati: Bhakta-vijayam	
Q22 *wx* 1,2	Mahipati: Bhakta-lilamrita	

Q22 wx 2	Chandradatta: Bhakta-mala
Q22:22	Vaishnara Puranas
Q22.-22	Padma Purana
Q22:2211	Siva Gita
Q22:222	Vishnu Purana
Q22:223	Bhagavata Purana
Q22:224	Narada Purana
Q22:2241	Narada Upa-Purana
Q22:225	Brahma Vaivarta Purana
Q22:226	Varaha Purana
Q22:227	Garuda Purana
Q22:2271	Vishnu-dharmottara
Q22:228	Hari-vamsa Purana
Q22:2291	Kalki Purana
Q22:2292	Narasimha Purana
Q22:2293	Bhargava Purana
Q22:4l7.xl	Nalayira Prabanda
Q22:4173xl	Vishnu-shasranama
Q23	Saivism
Q23wxl	Sekkizhar: Periya-puranam
Q23:21x1	Rudra
Q23:21x2	Camaka
Q23:22	Saiva Puranas
Q23:221	Vayu Purana
Q23:222	Agni Purana
Q23:223	Linga Purana
Q23:224	Ganesa Purana
Q23:2244	Ganesa Gita
Q23:225	Matsya Purana
Q23:226	Skandapurana
Q23:226	Suta Samhita
Q23:227	Kurma Purana
Q23:2271	Iswara Gita
Q23:228	Saura Purana
Q23:2291	Siva Purana
Q23:417xl	Tevaram
Q232	Agamic Saivaism
Q233	Kashmir Saivaism

Q234	Vira Saivaism	
Q24	Ganapatyism	
Q25	Saktaism	
Q25x 1,1	Sankara : Saundarya-laheri	
Q25:21x5	Srisuktam	
Q25:21 *x6*	Durga-suktam	
Q25:22	Sakta Puranas	
Q25:221	Devi Bhagavata	
Q25:222	Brihad-dharma Purana	
Q25:223	Kalika Purana	
Q25:225	Lalitopakhyana	
Q25:2291	Devi-mahatmya	
Q25:4173xl	Lalita-sahasra-nama	
Q26	Shanmukaism	
Q28	Sauraism	
Q28:22	Saura Puranas	
Q28:221	Aditya Purana	
Q28:222	Samba Purana	
Q3	Jainism	294 .4
Q31	Swetambara	
Q31:211	Anga	
Q31:212	Upanga	
Q31:213	Prakirna	
Q31:2I6	Mula-sutra	
Q32	Digambara	
Q4	Buddhism	294.3
Q41	Hinayana	294.31
Q41:2	Tripitaka	294.30032
Q42	Mahayana	294.32
Q5	Judaism	296
Q6	Christianity	2
Q6:2l	Bible	22
Q6:22	Old Testament	221
Q6.23	New Testament	225
Q7	Mohammadanism	297
Q7:21	Quran	297.12

Note: More detailed divisions of the different religions will be found in the original Colon Classification.

CC	*Subject*	*DC*
	74R Philosophy	
R	Philosophy	1
R1	Logic	16
R11	Inductive Logic	161
R12	Deductive Logic	162
R2	Epistemology	121
R3	Metaphysics	11
R4	Ethics	17
R4,(Q2)	Hindu ethics	
R5	Esthetics	111.85
R6	Indian philosophy	181 .4
R61	Hindu philosophy	
R621	Vaisashika	181.44
R625	Nyaya	181.43
R631	Sankhya	181.41
R635	Yoga	181.45
R64	Purva mimamsa	181.42
R641	Bhatta mimamsa	
R645	Prabhakara mimamsa	
R65	Vedanta	181.48
R65.0	Upanishads	
R65,271	Brahadaranyaka	
R65,31	Chandogya	
R65,5	Brahma-sutra	
R65,6	Bhagavad Gita	
R66	Advaita	
R663	Pratyabigna	
R67	Visishta-advaita	
R672	Vaishnava	
R673	Saiva-siddhanta	
R68	Dvaita	

Note: R66 to R68 may be divided on the analogy of R65.

R69	Other Indian systems
R 691	Charvaka philosophy
R693	Jaina philosophy
R694	Buddhistic philosophy

Note: A full list of the Indian systems of philosophy and of the classics in them is given in Chapter R of Part 3 of Colon Classification.

74S Psychology		
S	Psychology	15
O bT	For teachers	
S:2	Sensation	152
S:31	Attention	152.723
S:34	Work	158.7
S:344	Fatigue	158.7
S:4	Cognition	153
S:43	Memory	154
S:44	Reasoning	153.6
S:47	Opinion	301.154
S:5	Emotion	157
S:6	Conation	158
S:7	Personality	137
S:72	Intelligence	151
S:73	Ability	137.38
S:74	Character	137
S:75	Temperament	137.42
S:76	Intuition	156
S:78	Psychic powers	
S:791	Longevity	
S:793	Endurance	
S:794	Immunity	
S:796	Drug habit	132.73
S:8	Meta-psychology	13
S:81	Sleep	135.2
S:811	Dream	135.3
3:813	Hallucination	134.52
S:815	Subconscious	153.8
S:851	Hypnotism	134
S:852	Suggestion	
S:8521	Auto-suggestion	134.6
S1	Child	136.7
52	Adolescent	136.7354
S35	Middle age	136.52
S3S	Old age	136.53
S4	Vocational	
	(to be divided by subject device)	

Examples

S4(NR)	Psychology of musicians	
S4(0,l)	Psychology of poets	
S4(Z)	Psychology of lawyers	
S51	Male	136.16
S55	Female	136.15
S6	Abnormal	
S7	Race	36.4
S8	Social	301.15
S91	Animal	151.3

Cataloguing

Function of Catalogue

Note: The examples of entries in this part are numbered serially for convenience of reference.

The function of a catalogue is to provide to readers answers to questions such as the following:

1. Is there a book in the library by such and such an author ?
   1.1 What are all the books in the library by him ?
2. Is there a book in the library with such and such a title — that is, name ?
3. Is there a book in the library with such and such a collaborator— that is, editor,translator, reviser, compiler, commentator, etc. ?
   31 What are all the books in the library with him as collaborator?
4. Is there a book in the library in such and such a publisher's series?
   4.1 What are all the books in the library in that publisher's series?
5. Is there a book in the library in such and such a subject ?
   5.1 What are all the books in the library on that subject and on its subdivisions and on subjects of which it is a subdivision?

Author Entry

A catalogue has author entries to answer question 1. An Author Entry has the name of the author at its very beginning:

Example

1. *R*anganatha (Shiyali Ramamrita) (1892).
   Library manual. Ed 2. 22 N60

Consolidated Author Entry

A catalogue has consolidated author entries to answer question 11. A Consolidated Author Entry has the name of an author its beginning. It gives after it all the books of the author in the library.

Example

2. Ranganathan (Shiyali Ramamrita) (1892).

Classified catalogue code. Ed 4.	2:55N N58
Colon classification. Ed 6.	2:51N3N60
Five laws of library science. Ed 2.	2N57
Library manual. Ed *2.*	22 N60
Reference service and bibliography.	2:7 N40

Title Entry

A catalogue has title entries to answer question 2. A Title Entry has the title of the book at its very beginning.

Example

3. Hermes.

By Jones.	Evl.N3 N28

Collaborator Entry

A catalogue has collaborator entries to answer question 3. A Collaborator Entry has the name of the collaborator at its very beginning.

Example

4. Crookes (William) (1832), *Tr* and *Ed.*

Wagner: Chemical technology.	F N04

Series Entry

A catalogue has series entries to answer question 4. A Series Entry has the name of the publisher's series at its very beginning.

Consolidated Series Entry

A catalogue has consolidated series entries to question 41. A Consolidated Series Entry is a series entry giving in a serial sequence all the books of the series available in the library.

Example

5. Ranganathas series in library science.

1 Kaula, *Ed:* Library movement in India.	2.2.N5 N58

2 Ranganatha: Classified catalogue code. Ed 4. 2:55N N58

3 Ranganathas Library administration. Ed 2. 2:3 N59

Subject Entry

A catalogue has subject entries to answer question 5. A Subject Entry has the name of a subject at its very beginning.

Consolidated Subject Entry

A catalogue has consolidated subject entries to answer question 51. A Consolidated Subject Entry is a subject entry giving in rough alphabetical sequence all the books in the subject available in the library.

Example

6. Botany

Coulter: Text-book of botany. 2 V.	I N10.1-.2
Sabesan: Intermediate botany.	1 N37
Warburg: Planzenwelt. 3 B.	I 113N 13.1-3

Subject Analytical Entry

If a subject is treated only in a part of a book, it is brought to the notice of readers by a Subject Analytical Entry. It too answers question 5. It specifies the part, the chapter, the section, on the pages of the book, containing the subject.

Example

7. Reference Seslvice.

Ranganathan: Library manual. Part 3.	22 N60

Call Number Entry

The very beginning of an entry in a catalogue may have the call number of a book instead of the name of its subject. It too answers question 5. It is called Call Number Entry. This is an alternative to subject entry.

Example

8. 22N60 Ranganathas (Shiyali Ramamrita) (1892).

Library manual for Library Authorities, librarians, and honorary library workers. Ed 2.

(Ranganathan series in library science, 6)

(Madras Library Association, publication series, 25). 135,791.

Cross Reference Entry

If a subject is treated only in a part of a book, it is brought to the notice of readers by a Cross Reference Entry. It too answers question 5.

It specifies the part, the chapter, the section, or the pages of the book, containing the subject. The class number of the subject occurs at the very beginning of such an entry. This is an alternative to subject analytical entry.

Example

9. 2;7

Types of Catalogue

There are two important types of catalogue. They are:

1. Classified catalogue; and
2. Dictionary catalogue.

Their essential difference is in respect of subject entries. In the classified catalogue, all the subject entries, including subject-analytical entries, are arranged together by their respective class numbers. This enables the classified catalogue to answer question 51 quite easily. In the dictionary catalogue, the subject entries, including subject-analytical entries, are scattered alphabetically by the names of the subjects. Another difference is main entry — that is, the entry giving the largest amount of information about the book and forming the chief source of all the other brief added entries. In the classified catalogue, the call number entry is made the main entry. In the dictionary catalogue, the author entry is made the main entry.

Examples

1. The entry 8 in section 8153 is the main entry of this book; for classified catalogue.
2. The following is its main entry for dictionary catalogue.

10. Ranganathan (Shiyali Ramamrita) (1892).
    Library manual for Library Authorities, librarians and honorary library workers. Ed 2.
    (Ranganathan series in library science, 5).
    (Madras Library Association, publication series, 25). 22 N59.
    135,791.

See also Entries

A reader, looking for books on a particular subject, looks up the name of the subject entries. Usually, hardly any reader is able to name his precise subject. He generally mentions a subject of greater extension — that is, a broad subject having his precise subject as a subdivision. For example, suppose the precise subject sought by a reader is "Drinking vessel

in use among gypsies". The reader may say, "I wish to have a book on 'Gypsies' ". He may even mention "Ethnology" or simply "Sociology". Some may perhaps be a little more precise and mention "Equipment of gypsies". To help readers in all such contingencies, the dictionary catalogue should give direction from each such broad subject to his precise subject. In the particular case mentioned above, the following *See also* entries may be necessary.

Examples

11. Sociology.

    See also

    Drinking Utensil, Gypsy.

12. Ethnology.

    See also

    Drinking Utensil, Gypsy.

13. gypsy.

    See also

    Drinking Utensil, Gypsy.

14. Equipment, Gypsy.

    See also

    Drinking utensil, gypsy.

15. Utensil, Gypsy.

    See also

    Drinking Utensil, Gypsy.

    Such *see also* entries enable the dictionary catalogue to answer question 51 in an involved way.

Class Index Entry

In the case of the Classified Catalogue, the reader will not know the number either of his precise subject or of any of the six broader subjects mentioned in the entries of section 8161. He should therefore be helped by an entry to find the class number of each of the subjects mentioned by him. Such an entry is called a Class Index Entry. The following class index entries will therefore be necessary, in the case under consideration.

Examples

16. Sociology, *see* Y.
17. Ethnology, *see* Y7.
18. Gypsy, *see* Y738.

19. Equipment, gypsy, *see* Y733:8.
20. Utensil, gypsy. see Y738:82.
21. Drinking utensil, gypsy, *see* Y738:825.

Note: For brevity, *"see"* is used as the directing element. The full directing element prescribed is "For books in this class and its subclasses, see the Classified Part of the catalogue under the "Class Number".

Recommendation

The Classified Catalogue is recommended for adoption. Charles Ammi Cutter, the pioneer in catalogue, wrote, "It is true that by following up all the references of a dictionary catalogue under Theology, for example, a man may construct for himself a list of the theological literature in the library; but to do this requires time and mental effort, and it is characteristic of the desultory reader that he is averse to mental effort. What is wanted by him and by the busy man when now and then he has the same object, is to find the titles from which he could select brought together within the compass of a few pages". All this implies that Cutter preferred the classified catalogue, because it answers question 51 in a better way than the dictionary catalogue. But he could not adopt it in the 1870's, when he wrote this, because there was then no elaborate scheme of classification, with which books could be closely classified and individualised. Now such schemes of classification are available. Therefore, the world trend is now towards the classified catalogue. The British National Bibliography and the Indian National Bibliography have adopted this type of catalogue. It is too late in the day to go back to the dictionary catalogue or for any new library to adopt that type of catalogue. We have been told of the fox that lost its tail. There are such fox-like librarians who persist in recommending the dictionary catalogue to the libraries being newly formed in India. They are to be pitied; their advice is not to be followed.

Catalogue Code

A catalogue is full of details. There are many alternative choices possible in respect of many of these details. To catalogue with the aid of a badly drafted or patchy catalogue code will soon make the catalogue a hotch-potch. The only safeguard against this is to adopt a rigorously drafted catalogue code. The only complete and rigorous code for classified catalogue existing today is the Classified Catalogue Code. The other code in vogue is the ALA code. It has no rules for subject entries. It has rules only for author and title entries. Moreover 9 of its rules are faulty and 37 rules are redundant. This has now been realised by its promoters. It is therefore undergoing drastic revision. Further, it is not of much help in rendering Indian names. On the other hand, the Classified Catalogue

Code gives useful instructions on this subject. According to Sayers, it is "by far the largest contribution on the subject". Speaking about it, an American cataloguer says "Of particular interest... are the sections dealing with the structure and rendering of personal names, particularly those of South and South East Asia". Thus on grounds of merit, the adoption of the Classified Catalogue Code is recommended. Its being of Indian origin is a secondary reason for its adoption.

Structure of Entries

Terminology

This chapter deals with the structure of an entry in a card, according to the Classified Catalogue Code. The following terms will be of use in what follows:

Kinds of Entries

1. *Entry*. Ultimate unit-record in a catalogue.
   - *Specific Entry*. Entry mentioning a specific book.
   - *General Entry*. Entry not mentioning any specific book.
   - *Consolidated Entry*. Two or more entries consolidated into a single entry.
   - *Number Entry*. Entry beginning with a call number or a class number.
   - *Word Entry*. Entry beginning with a word, or in rare cases, with a symbol given in the author statement of a document as a substitute for name of author.
   - *Main Entry*. Specific entry giving maximum information about the whole of the book catalogued. All the other entries — specific or general — relating to the document, are normally derived from the main entry.
   - *Added Entry*. Entry other than main entry.

Section of an Entry

- *Section of an Entry*. That which is prescribed to be a separate paragraph in an entry in a card catalogue.
- *Leading Section*. Section I of an entry.
- *Heading Section*.

1. Leading Section of a word entry.
2. Section 2 of a call number entry of a book, or of a class number entry of a periodical publication — i e of a main Entry in a classified catalogue.

3. Section 3 of a *see also* subject entry.
4. Section 3 of a cross reference index entry.
   - *Tide Section.* Section of a main entry, giving the title of the document catalogued, along with the names of collaborators and of edition if any.
   - *Locus Section.* Section giving the locus in a cross reference entry of a classified catalogue.
   - *Note Section.* Section of a main entry giving the name of the series, if any, to which the book belongs.
   - *Accession Number Section.* Last section in a main entry, giving the accession number of the book.
   - *Tracing Section.* Back of a main entry card, denoting all the added entries of the book.
   - *Second .Section.* Section in a book index entry giving the specification of the concerned book(s).
   - *Directing Section.* Section in an added entry directing attention to a book, or a class number, or an alternative name.
   - *Index Number Section.*
1. Section in a book index entry, giving the call number of the book.
2. Section in a class index entry, giving the class number of the class.

Main Entry

Call number entry. Specific subject entry. Subject entry. Specific entry.

22	*Leading* Section	Y733:825 N59
	Heading	Schmidt (Gustav) (1905).
	Title section	How gypsies drink, a descriptive account of their drinking vessels, *tr* by Krishna Pillai Gopala Pillai, from ed 3 of the German. Ed 2.
	Note section	(Indian anthropological series, ed by Kumbakonam Krishna Ayyar, 12).
	Accession number *section*	135,793.

Cross Reference Entry

Class number entry. Subject analytical. Specific subject entry. Subject entry. Specific entry. Added entry.

23	Le*ading* section	Y7vl.N5
	Directing section	*See also* Y738:825 N59
	Location section	Schmidt.

How gypsies drink, *tr* by Gopala Pillai.

The class number in the leading section represents "History of the study of ethnology in the world brought up to 1950's."

Author Entry

Specific entry. Added entry.

24	*Heading*	Schmidt (Gustav) (1958)
	Second section	How gypsies drink.
	Index number section	Y738:S25N59

Translator Entry

Collaboratory entry. Specific entry. Added entry.

25	*Heading*	Gopala Pillai (Krishna Pillai) (1912), *tr*.
	Second section	Schmidt: How gypsies drink.
	Index number *section*	Y738:325 N59

Series Entry

Specific entry. Added entry.

26	*Heading*	Indian Anthropological Series.
	Second section	12 Schmidt: How gypsies drink, tr by Gopala Pillai, ed 2.
	Index number section	Y733:825N59

Editor of Series Entry

Cross reference index entry. General entry.

27	Referred from heading	Krishna Ayyar (Kumbekonam) (1892), Ed.
	Directing section	*See also*
	Referred to heading	Indian Anthropological Series.

Class Index Entry

Subject entry. General entry.

28	*Heading*	Drinking Vessel.
	Directing section	For books in this class and its subclasses see the Classified Part of this catalogue under the Class Number
	Index number *section*	Y738:825

Library Hand

Writing should be in detached upright impersonal hand. This is called Library Hand. This is necessary because, with each one writing in his own hand, not conforming to this standard, will make the catalogue ugly. For, the catalogue cards will be written by successive cataloguers. But all the cards will be kept together permanently.

Style of Writing

Similarly it is necessary to conform to one fixed standard in respect of space between words, space between class number and book number, formation of paragraphs, indention of paragraphs, and writing of numbers other than call number. To facilitate this, the standard catalogue card is 125 x 75 mm. It is ruled horizontally to take the writing. It has two vertical rules — the first vertical at a distance of 10 mm from the left shorter edge and the second vertical at a further distance of 5 mm from the first. The following items are to begin at the vertical:

1. Leading section;
2. Heading of every kind;
3. Continuation lines of all sections; and
4. Accession number section.

Any section, other than the index number section and those specified for the first vertical, is to be given at the second vertical. The index number

section is to be written in the line in which the title section or the series section, as the case may be, ends if there is sufficient space in it. It is to begin as far to the right as possible in its line, so as to end just near the end of that line.

Capitals, Italics, and Numerals

All the letters, except those of a conjunction if any, in any heading of any kind are to be in capitals. The first letter after a colon is to be in capital. Otherwise, the usual convention of prose is to be followed. The title portion in any entry is to be written as if it were a sentence in prose — that is, no word in the title except the first is to be begun with a capital letter, unless it is a proper noun. A descriptive term, such as *EJ, Tr, Comm,* occurring in a heading, is to begin with a capital notwithstanding its following a comma. The term is to be underlined. In print, it will be in italics. All numbers other than class number and book number are to be written in Indo-Arabic numerals. The following collection symbols may be used:

1. Pamphlet. Underline book number.
2. Over-sized book. Overline book number.
3. Book of poor build; such as a book with many plates. Underline and overline book number.
4. Book to be kept in the reading room for ready reference. Add "R R" above the Class Number.
5. Book to be kept temporarily in the topical collection. Put in the first vacant line of its date-label the date fixed for its release from the topical sequence and encircle it.

Punctuation Mark

Punctuation marks are to be as in ordinary prose, subject to the following modifications:

1. A comma is to separate two consecutive blocks in the heading.
2. A comma is to separate a Descriptive Element in a block in a heading from what it separates.
3. Circular brackets are to enclose each individualising secondary element in a block in a heading or the heading as a whole, as the case may be.

Arrangement of Entries

Classified Part

The entries in the classified part of the catalogue are to be arranged by their respective class numbers. Of the entries with the same class

number, those with book numbers are to precede those without book numbers. The former are to be arranged by their respective book numbers. The latter are to be arranged among themselves by the book numbers in the third section and the words in the fourth section.

Alphabetical Part

The entries in the alphabetical part of the catalogue are to be arranged alphabetically as in a dictionary. There are some conventions to be followed. Only the letters actually written in the entry are to be taken into consideration. That is, contractions are not to be arranged as if they were expanded.

In particular, as an example, Scotch names beginning with "Mac" should come together. Those beginning with "Mc" should come together in their own place. Again, "New York" is to precede "Newark". This is called "Nothing before something" rule. For more complicated cases, the original Classified Catalogue Code should be consulted.

Rendering of Name in Heading

The following is a list of the kind of names likely to occur in headings of entries. The later sections of this chapter indicate the way of rendering them in the headings:

1. Name-of-person;
2. Geographical name;
3. Name of government;
4. Name of institution;
5. Name of conference;
6. Name of book — that is, title; and
7. Name of series — that is, publisher's series.

Here the following definitions will be of use:

1. Entry Element. The word or word group prescribed to be written first in a heading, main heading, or subheading.
2. Entry Word. The first word of an entry element.
3. Secondary Element. The word or word group occurring in a name but not selected as entry element and therefore to be written after it.

A secondary element has the status of an individualising element. Further, while taking a name-of-person from the title-page any word denoting academic degree, civil or military honours, and all honorific words are to be ignored. The words left over in the name-of-person may be called the *Reduced Name.*

Name-of-Person

Simple Name

An oversimplified rule is "Make the last word in a name-of-person the entry word. Make all the other words the secondary element." This will work well in:

1. Most modern names of the West;
2. A modern name of Assam, Bengal, Gujarat, Kashmir, Maharashtra, Orissa, and Sindh; and
3. A modern name of South India, not ending with an attached word — such as Ayyangar, Ayyar, Chettiar, Mudaliar, Pillai, etc. — indicating sub-community. In the first two cases, the last word denotes *Family Name;* and the earlier words denote *Given Names* —- that is, name or names given during the naming ceremony or later. In Marathi and Gujarati, one of the earlier words is father's given name. In the third case, the last words denote the Given Name; the earlier words may denote father's name, or family name, or name of locality.

South Indian Names Ending with Attachment Word

In a South Indian name with an attached word, such as those indicated in section 8311 —the entry element is to consist of the word group made of the Given Name preceding the attached word followed by the attached word itself. The other words from the secondary element.

Hindi and Punjabi Name

In the Hindi and Punjabi name-of-person not having a family name in imitation of the West, the original single coalesced *(Samasa)* word denoting the given name is split into two or more words. All the components of the split word should be taken together as a word-group for use as entry element. For example, *Labhu Ram, Manohar Lal,* and *Rama Prasad.*

Complicated Cases

The original Classified Catalogue Code should be used for complicated cases with double and treble family names, whose whole word-group should be used as entry element. So also, for Muslim names and for lists of irremovable attachment at the end of South Indian names.

Reduction of Homonym

Historically, the secondary element was used, in a heading made of a name-of-person, chiefly to resolve homonyms. In spite of it, homonyms may crop up. Such homonyms are to be resolved by adding the year of birth of the person as a further individualising element. It should be enclosed

in a circular bracket. It is now considered desirable to add the year of birth in all possible cases to avoid the formation of homonyms in future.

Geographical Name

The name of a geographical entity is to be written in the favoured language of the library, if it has a name in that language. It is to be written in the language of its own locality, if it does not have a name in the favoured language of the library.

Homonym: Areas Outside One Another

If two or more geographical areas have the same name and lie in different countries, the individualising element for resolving the homonym is to be the name of the country in which it lies, except that it may be omitted if it is the country of the library.

If two or more geographical areas have the same name and lie outside one another, the individualising element for resolving the homonym is to be the name of the largest geographical area, among the areas of the countries, constituent states, districts, taluks, etc. containing that the respective geographical areas and sufficient to individualise them.

Examples

1. Sattanur (Kumbakonam).
   Sattanur (Tanjavur).

   Here Kumbakonam and Tanjavur are Taluks.
2. Tiruvalangadu (Chingleput).
   Tiruvalangadu (Tanjavur).

   Here Chingleput and Tanjavur are Districts.
3. Salem.
   Salem (Ohio).
   Salem (Virginia).

   The first Salem is in India. Ohio and Virginia are constituent states of USA.

Homonym: Area Within Area

If two or more geographical areas have the same name and lie one within another in succession, the individualising element for resolving the homonym is to be the word state, district, taluk, city, town, village, etc., as the case may be, except that it can be omitted if it is the name of the largest of the above mentioned areas among those needed for resolving the homonym.

Examples

1. Mysore.
   Mysore(District).
   Mysore (Taluk).
   Mysore (City).

Here the first denotes the State of Mysore.

2. Tanjavur.
   Tanjavur (Taluk).
   Tanjavur (Town).

Here the first denotes the district of Tanjavur.
Kumbakonam.
Kumbakonam (Town).

Here the first denotes the Kumbakonam Taluk.

Name of Government

Definition

The term "Government" is used to denote a corporate body with,

1. Full sovereign power, as the Government of India, or Government of Britain, or Government of USA;
2. Limited sovereign power as the Governments of the States of Madras, Bengal, or New York;
3. Without sovereign power, but a local body established for the regulation, promotion, and/or provision of specific public services in an area, such as Mysore District Board, Mysore Taluk Board, or Mysore City Municipality; and
4. Any constitutional or administratively created organ of any of the above.

Name of Whole Government

When used as the corporate author of a book, the name of the government is to be the name of its territory.

Examples

1. India is the rendering of "Government of India".
2. Mysore is the rendering of the "Government of the constituent state Mysore".
3. Mysore (District) is the rendering of the "District Board of Mysore District".

4. Mysore (Taluk) is the rendering of the "Local Body or the Taluk Board of the Mysore Taluk".
5. Mysore (City) is the rendering of the "Local Body or the Municipal Council of the City of Mysore".

Constitutional Organ

In the case of an organ of a government, the first heading is to be the name of the whole government. Then should come the name of the organ as subheading:

Examples

1. India, president.
2. India, cabinet.
3. India, lok sabha.
4. India, supreme court.
5. Madras, high court.
6. Madras (City), mayor.
7. Madras (City), council.

Administrative Departments of Government

In the case of an administrative department of a government, the first heading is to be the name of the whole government. Then should come the name of the department as subheading. In the subheading, the word or word group denoting the sphere of work is to be the entry element. It should be reduced to the noun form in the nominative case. The other words in the name of the department are to be made a secondary element, and added within circular brackets. The place of the entry element should be indicated by a dash within the brackets cantaining the secondary clement.

Examples

1. India, Finance (Ministry of —).
2. Madras, Instruction (Department of Public —).
3. Bombay, Agriculture (—Department). Assuming that it is called Agricultural Department.

Temporary Organ

In the case of a temporary organ of a government, the year of its formation is to be added as an individualising element.

Examples

1. India, Banking (Indian Central — Enquiry Committee) (1929).

2. Madras, Public Libraries (Review Committee on—)(1960).
3. Madras, Legislative Assembly, Public Libraries Bill (Select Committee on —) (1948).

Name of Institution

Definition

The term "Institution" is used to denote an independent or autonomous corporate body, other than a government, whether:

1 created by a government;

2 constituted under a statute; or

3 formed voluntarily — formally or informally. The term denotes also an Organ of an Institution.

Name of Whole Institution

The name to be used in rendering the name of an institution is to be the one in the shortest form found in the:

1. tide-page; or
2. half-title page; or
3. any other part of the book.

The initial article and every honorific word not forming an inseparable part of the name, if any, are to be omitted. Whenever necessary, individualising element is to be added.

Examples

1. Andhra University.
2. Asiatic Society of Bengal, and Not Royal Asiatic Society of Bengal.
3. Royal Society of London, as the Word "Royal" is inseparable from the name.
4. Srinivasa Sastry Entertainment Committee, and not Rt. Honorable Srinivasa Sastry Entertainment Committee.
5. State Bank of India (Delhi).
6. State Bank of India (Madras) (City).
7. University Grants Commission (India).

Name of Organ of Institution

In the case of an organ of an institution, the first heading is to be the name of the whole institution. Then should come the name of the organ as subheading. The latter should be rendered as in the case of an organ of the government.

Name of a Conference

Definition

The term "Conference" is used to denote a meeting for deliberation, or formulation or expression of opinion or sentiment,

1. not convened by government(s) and made up of its (their) own personnel;
2. not convened by and made up only of the members of a single institution or to form an institution; but
3. convened and conducted either spontaneously by a number of persons or institutions to consider matters of common interest; or
4. convened by a body with no function or existence beyond the conference convened and held by it. The term denotes also an Organ of a Conference.

Individualisation

The rendering of the name of a conference is to be on the analogy of that for institution. And the name of the place or/and the year of the conference is/are to be added as individualising element(s).

Examples

1. Basant Memorial Meeting (1933).
2. Conference of Orientalists (Simla) (1911).
3. Geneva Summit Conference (1956).

Title of a Book

Initial Article and Honorific

The initial article and honorific, if any, are to be omitted in rendering the title of the book either in a heading or in any other section.

Puff

Puff, if any, in the title of a book is to be omitted. In the main entry, in the title section, its place should be indicated by "... ". In an added entry, in the second section, such an indication is not necessary; the title may be used in a shortened form, without taking away intelligibility.

In the Heading

When the title occurs in a heading, the first two words are to be deemed to form the entry element.

Name of Series

In rendering the name of the series, in the note section or in the heading, the initial article and honorific words, if any, are to be omitted. And the remaining words are to be written in the sequence in which they

occur in the book. If the name of the series is not an individualising one—for example, English series. Publication series, Translation series — its name is to be preceded by the name of an individualising entity with which it is associated, say as publisher, sponsor, university. The name of the entity used as the individualising entity is to be rendered as prescribed for the entities of its kind.

Examples

1. Wiley farm series.
2. Madras Library Association, publication series.
3. Bombay, Agriculture (Department of —), Bulletin.

The style of writing will be as shown above in the note section of the main entry. If the name of the series occurs in the heading of an entry, caps and small caps will be used in the usual style.

Who is the Author ?

The name of the author is to be taken from the title-page. It is usually indicated there. If it is not indicated, the book is to be taken to be anonymous. For most of the books, the author is a single person. For some, it may be two or more persons. In both these cases, it is a person or persons, who create the thought content of the book and express it. Such a book of personal authorship will give no difficulty, unless there are collaborators. Some books are produced on the responsibility of a corporate body — a government, an institution, or a conference — or two or more corporate bodies. They are responsible for the thought content and for the expression. Such a book is of corporate authorship. Some difficulty may arise in books of this kind. The difficulty arises when the title-page of a book of corporate authorship gives the name of a person also. The following sections give a summary of the convention used to solve such difficulties. For a full discussion of the problem.

Person* vs *Person

S.N.	*Type of Work*	*Author*
1.	Ana. table-talk	Talker
2.	Dialogue, conversation, debate	Participants
3.	Interview	Person(s) interviewed
4.	Narration (real and not fictitious)	Narrator
5.	Mediumistic communication	Medium(s) and not the disembodied soul(s)
6.	Correspondence	Correspondent(s) unless it is all of one person only with several others in which case only that one person

Dependent Work or Kind

The author of the original work should be taken as the author of the following kinds of dependent works. The other associated person is to be taken, only as collaborator:

1. Abridgment
2. Adaptation
3. Paraphrase
4. Revision
5. Selection
6. Translation

Dependent Work of Kind 2

The author of the dependent work itself should be taken as the author of the following kinds of dependent work:

1. Commentary	91 Novelisation
2. Concordance	92 Parody
3. Continuation	93 Sequel
4. Dramatisation	94 Supplement
5. Imitation	95 Versification
6. Index	96 Version in the same or another
7. Libretto	language, which has sufficient
8. Music-setting	new qualities in thought and/or expression to deem it an independent work on its own right.

Person vs *Corporate Body*

If the title-page mentions the name(s) of person(s) only and does not mention or indicate the name of any corporate body other than the one belonging to the publishing trade mentioned in the imprint, the work is of personal authorship.

If the title-page does not mention the name of any person but mentions or indicates the name of a corporate body other than a body belonging to the publishing trade mentioned in the imprint, the work is of corporate authorship.

Even if the title page mentions a person, if it indicates the name of a corporate body other than the publisher, the work is of corporate authorship, if it is of a deliberative, legislative, directive, judicial, administrative, or routine character limited by the purpose or function or outlook of the corporate body. But the mere fact that the book is published,

financed, aided, approved, sponsored, or authorised by a corporate body is not sufficient reason to deem it to be of corporate authorship.

On the other hand, if the primary purpose of the book is the extension of the boundary of the field of knowledge, or its intensification, and the responsibility for the thought-content and expression of it, rests on the person and not on the office held by him in the corporate body, it is of personal authorship.

The mere mention of the personal name of an official of the corporate body in the title-page is not sufficient reason to deem it to be of personal authorship.

Government *vs* Institution

Group 1

Each of the following institutions is to be taken as author of its works, as if it were independent of the parent body, if any exists, be it government or institution:

Abbey	Exchange (Money)	Post office
Bank		Produce exchange
Board of Trade	Firm of Enterprise	Religious order
Cathedral	Foundation	School
Cemetery	Guild	Stock-exchange
Chamber of Commerce	Masonic body	Telegraph office
Church (place of worship)	Monastery	Telephone exchange
College	Mosque	Temple
Convent	Park	University
Endowment	Political party	

Group 2

Each of the following institutions are to be taken as author of its work as if it were independent of the parent body, provided it has a distinctive name:

Botanical garden	Hospital	Museum
Chapel	Laboratory	Observatory
Experimental station	Library	Zoological garden
Exhibition		

Note: If any of the above institutions has no distinctive name, it should be treated as an organ of its parent body.

Group 3

Any formal or informal group of the members of a parent body, formed for recreative, ameliorative, or any other economical or social purposes other than forming a distinctive purpose of the parent body, should be treated as an organ of the parent body, even if it has a distinctive name.

Heading of Main Entry

The structure — that is the sections, their sequence, and their make-up — have been shown by examples in section 821. The rendering of the heading and of the later sections. This chapter deals only with the choice of heading for the main entry of the book.

Choice of Heading

The heading is to consist of the earliest of the following, which the book admits:

1. The name of personal author;
2. The names of joint personal authors;
3. The name of corporate author;
4. The names of joint corporate authors;
5. Pseudonym;
6. The name of collaborator;
7. The names of joint collaborators; and
8. The title of the book.

Two Joint Authors

If the title-page contains the names of two and only two joint authors, both the names are to be used as the heading with the conjunction "and" connecting them.

Example

1. Srinivasan (G A) (1894) and Krishnamachari (C) (1894).
2. American Library Association and Library Association (Great Britain).
3. Indian Standards Institution, Documentation (—Section) and Insdoc, Technical (—Committee).

Three or More Joint Authors

If the title-page contains the names of three or more joint authors, the name of the first mentioned author alone is to be used as the heading and the word "etc." is to be added thereafter.

Example

Ranganathan (Shiyali Ramamrita) (1892) etc. is the heading for the *Union catalogue of learned periodicals of South Asia* (1953) which has 20 other joint authors.

Pseudonym

A pseudonym is a false or fictitious name used by an author in the title-page of the book. If the title-page gives only a pseudonym, the pseudonym is to be used as the heading and it is to be followed by the descriptive element *"Pseud"*.

If the title-page gives the real name of the author also in a subordinated manner, it is to be added in circular brackets after the descriptive element. The real name is to be preceded by the symbol "i *e"*. A comma is to be placed before the bracket begins.

Examples

- Libra, *Pseud.*
- Twain (Mark), *Pseud.*
- Twain (Mark), *Pseud, (i e* Samuel Langhore Clement).

Collaborator Heading

If the title-page does not give the name of personal author(s) or indicate corporate authorship or give a pseudonym, but contains the name of collaborator, that name is to be used as the heading; and a descriptive element is to be added thereafter indicating the role of the collaborator.

Title-Heading

If a book is a general biographical dictionary or an encyclopaedia belonging to the class generalia, or science general, or useful arts, or social sciences, or is a volume of a periodical, or if the heading cannot be Chosen in accordance with the prescriptions in sections 851 to 855, the title, is to be used as the heading.

Heading of Book Index Entry

The structure — that is section(s) etc. — of a book index entry has been shown by examples in sections 822, 8221 and 824. The rendering of the heading and of the later sections. This chapter deals only with the choice of the headings for which book index entries are to be given for a book.

Choice of Book Index Entry

A book index entry is to be given using as heading each of such of the following, as the main entry of the book admits of.

Derived from Heading

1. Heading, provided it is not, as such, eligible to be used as the heading of a class index entry appropriate to the book;
2. Each permutation of the names in the heading, if it is one of two joint authors or two collaborators;
3. Name of each of the third and later authors, if there are three or more joint authors (optional).

Derived from Title Section

1. Name of each collaborator mentioned in the Title portion; and
2. Title of the book,

1. If it is fanciful; or
2. If it contains a proper noun; or
3. If it is treated in usage as a proper noun, provided that it is not, as such, eligible to be used as the heading of a class index entry of the book.

Derived from Note Section

Name of the series occurring in each independent series note.

Heading of Cross Reference Index Entry

The structure — that is the section(s) etc. — of a cross reference index entry has been shown by examples in section 8241. The referred-to-heading is to be the same as in the main entry or book index entry to which it relates. This chapter deals only with the types of cross reference index entry.

Types of Cross Reference Index entry

A cross reference index entry may be one of the four types:

1. Alternative name entry;
2. Variant-form-of-word entry;
3. Pseudonym-real-name entry; and
4. Editor-of-series entry.

Avoidance of Duplication of Entry

Care is to be taken not to write a cross reference index entry suggested by a book, if an identically similar entry is already found in the catalogue.

Alternative Name Entry

There is to be an alternative name entry using as referred-from-heading each of all the possible alternative names by which any person,

any corporate body, any geographical entity, any series, or any book, respectively whose name has been used as the heading of the main entry or a book index entry, is known or is likely to be known.

Example

29 ananda matteyya.
see
Bennett (Allan).

Variant-form-of-word Entry

There is to be a variant-form-of-word entry using as referred-from-heading each of all possible variant forms in which the word(s) in the name of a person or a corporate body or a geographical entity or a book, occurring in the heading of a main entry or a book index entry, or an alternative name index entry, has(have) occurred or is(are) likely to occur.

Example

30 Banerjee
see also
Bangopadhyaya.
31 Bangopadhyaya
see also
Banerjee.

Pseudonym-real-name Entry

There is to be a pseudonym-real-name entry in the case of every person whose pseudonym alone or pseudonym as well as real name appears in the main entry concerned.

The referred-to-heading is to be the pseudonym.

Example

32 Russel (George) (1867).
see
A E, *Pseud.*

Editor-of-series Entry

There is to be an editor-of-series entry using as referred-from-heading the name(s) of the editor(s), if any, occurring in the series note in any main entry in the catalogue.

In the case of joint editors, an editor-of-series entry is to be made for each of the permuted sequences of the names. The referred-to-heading is to be name of the series.

Example

33 Egerton (Clement) (). *Ed.*
See
Broadway Oriental Library.

34 Getman (A K) (1887) and Ladd (C E) (1883), *Ed.*
See
Wiley Farm Series.

35 Ladd (C E) (1888) and Getman (A K.) (1887), *Ed*
See
Wiley Farm Series.

36 Capps (Edward) (1886), etc. *Ed.*
See
Loeb Classical Library.

Heading of Class Index Entry

The sections of index entry have been shown by illustration in section 825. The choice and rendering of the headings of class index entries is regulated by the Chain Procedure. It is a method using the class number of the book for the purpose. It is illustrated here by throwing into a chain the class number of the book whose main entry is given as example 22 in section 821. For every book, the class index heading should also be derived from the class numbers in all its cross references entries. Care should be taken that the same cross reference entry is not made in the catalogue more than once.

Chain for the Class Number in Example 22

Y	=	Sociology
	‡	sought heading)
Y7	=	Ethnology
	‡	(Sought heading)
Y73	=	Ethnic groups
	‡	(Sought heading)
Y738	=	Gypsy
	‡	(Sought heading)
Y738:3	=	Equipment of gypsies
	‡	(Sought heading)
Y738:32	=	Utensils of gypsies
	‡	(Sougth heading)
Y738:325	=	Drinking vessels of gypsies
	‡	(Sought heading)

Chain for the Class Number in Example 23

Y	=	Sociology
	‡	(sought heading) (But already written)
Y7	=	Ethnology
	‡	(Sought heading) (But already written)
Y7v	=	History of Ethnology
	‡	(Sought heading)
Y7vl	=	History of ethnology in the world
	‡	(Sought heading)
Y7vI.N5	=	History of ethnology in the world brought up to 1950's
	‡	(Unsought heading)

Library Extension Service

Meaning of the Term

Apart from such methods of pure publicity, libraries are nowadays developing certain new types of work. In addition to their being directly educative or recreational, they also lead to good public relations as an important secondary product. Such new lines of activity may be referred to as the "extension service" of libraries. The object of extension service may be said to be to turn the library into a social centre with the encouragement of reading as its ultimate objective. Its aim is to make readers of non-readers, to create and stimulate the desire for good reading, and to bring book and reader together. Libraries, under the influence of the Third Law, value these aims highly and take to extension service with great zeal.

Reading to Illiterates

One form of extension service is very urgent in our libraries of today. It is the institution of the "reading system". As a result of high percentage of illiteracy the present generation of illiterate adults can be made to have the benefits of library service only by arranging to have books read to them at stated hours either by paid readers, or by honorary readers who are actuated by a spirit of social service. About 1930, this system was experimented upon in some of the towns in the neighbourhood of the City of Madras, at the suggestion of the Madras Library Association. For several years, the Association arranged for books to be read to the illiterate patients in the hospitals of Madras. This "reading system", coupled with the formation of clubs for the liquidation of illiteracy, has even converted many an illiterate adult into eager literate readers in post-revolution

Russia. There is no reason why libraries, with this extension side properly developed, may not provide a sure solution of a similar problem in Adult Education in India as well.

Reading Manuscripts

Owing to the present paucity of books on current thought in the modern Indian Languages, this form of extension service may have to be carried even further.

To induce and maintain the interests of the illiterate people in books and in. hearing books read out, it would be necessary to read to them, not only books of a religious or recreational nature, but also books of useful knowledge dealing with their daily avocations and leading to increased efficiency in their work.

In the absence of such books in the mother tongue and in the absence of any prospect of such books being printed immediately, the only practicable course would be for the library to prepare a manuscript translation of suitable books from English and have the manuscripts read to them. It must be possible to find, among the English knowing local residents, persons willing to do the translation as a piece of social service.

If each library in a district undertakes the translation of one or two books in a year and all such manuscript books are systematically exchanged between the different libraries, an appreciable region of knowledge can be provided with such improvised reading materials, in a reasonable time. If no competent non-commercial agency like the State or the Universities would undertake the initial supply of such books on useful knowledge, this seems to me to be the only practical way of cutting the vicious circle of the law of supply and demand. But this extreme phase of extension service is only a strictly temporary expedient, for which there will be no need as soon as a market is created for the publishers to step in.

Reading Circle

A third form of extension work for the libraries to pursue is that of organizing reading circles. Persons pursuing a particular subject for profit or pleasure may be brought together by the libraries, so as to form a reading circle. Each such circle may have a leader and not less than two and not more than five other members. The library may give special facilities for each reading circle in the matter of books, periodicals, and meeting places.

For this purpose a library should have a suitable suite of small rooms. Such reading circles are usually effective agencies in thoroughly exploiting the resources of the library in their respective subjects of study. Therefore, their formation gives unusual satisfaction to the Third Law.

Intellectual Centre

One of the necessary conditions for social service institutions, such as the library, becoming popular is the fostering of a feeling of mutual cordiality and helpfulness between those who offer service and those who are served, together with a disposition to self-sacrifice. To this end, the library should strive to reduce formality to a minimum and make everyone feel at home. As a natural extension of this attitude, a modem library even goes so far in its effort as to make personal and social contacts and not infrequently offers meeting place for local learned organisations in an attempt to make them, as constituent parts of the general public, feel that it desires to function as an intellectual centre for the locality. Such meetings offer opportunities for the fulfilment of the Third Law.

Example

The possibilities of this form of extension service can be inferred from the following statement by a small English town library, of the societies meeting there regularly—The British Legion, Cage Birds' Society, Chess Club, Draughts Club, Church Lads' Brigade, Church Mothers' Meeting, Church of England Men's Society, Folk Dance Society, two or three Friendly Societies, Free Church Mothers' Meeting, Gardeners' Society, Grocers' Society, Farmers' Union, National Union of Teachers, Radio Society, Women's Institute, and Workers' Educational Association.

Library Talk

Another common form of extension service is that of arranging for public lectures in the premises of the library. For this purpose, all modern library buildings are provided with spacious lecture halls, fitted with a stage, a magic lantern, a cinema apparatus, and other related appliances. In our country, we may have open-air meetings and theatres. In addition to the local associations being invited to hold their public lectures in the library's lecture hall or open-air space for the purpose, the library may frequently arrange for special library talks either by the members of its staff or by outside experts.

One special feature of such library talks is the announcement of a select list of books on the subject-matter of the talk, available for the library for loan or consultation. The subjects chosen for such library talks are usually of local or topical interest. Scientific subjects also come in for a good share. Such talks ought not to be exclusively confined to topics of a religious, philosophical, or Puranic nature. But care should be taken to widen the range of subjects and give a chance for every phase of current thought. Whenever possible, it would be an advantage to illustrate the talks with lantern slides and moving pictures.

Story Hour

Similar to the library talks for adults, libraries arrange also for story hours, lantern talks, dramatisations and other attractive forms of extension service and similar privilege issues, to establish contact with the children of the locality. Again it is not unusual for the library to arrange occasionally for dramatic performances by amateuring troupes. But in all such cases the performances do not form an end in themselves ; but they are all made to serve as aids to the ultimate satisfaction of the exacting Third Law.

Kalakshepam and Music

The unique Indian Institution of *Kalakshepam* or *Katha* with its happy blend of music and talk, presents enormous potentialities as an instrument of this form of extension service. But due care should be taken, in this case also, to lift the *Kalakshepam* or the *Katha* from the narrow rut of traditional subjects. In Western countries where this institution is unknown, the lecture hall is used for musical concerts. This enables the Third Law to find readers for the comparatively large quantity of printed music usually available in those libraries.

Festivals and Fairs

Another form of extension service is the celebration of local festivals and special days of the year dedicated to particular persons or ideas, and participation in local fairs. Here again the demand of the Third Law is always kept in the forefront. In our own country, where such celebrations are still attracting large crowds of people, this form of extension service is full of great potentiality to serve the Third Law. Examples are New Year Day, Rama Navami, Diwali, Holi, Independence Day, Gandhi Jayanthi, Moharram, Nanak's Day. These are all national days. There will also be local days. In addition to the celebrations, books on these days may be exhibited. A list of them may be distributed.

Tapping the Community Potential

Religion as Activating Force

As shown in the earlier chapters of this part, the primary aim of good and persistent public relation is to bring more readers into the Library, But it can also release the social qualities lying deep in the recesses of personality. In the distant past, loyalty, to the temple activated community-potential into public service. Years ago, I went to a small town in Malayalam to meet a friend. I went without notice. His house was locked. Most of the houses in the street were locked. I wondered what had happened. A farmer passing by smelt a stranger in me. He said, "They are all in the *Sasta* Temple." It was 11 am. I found my way to the temple. I saw my friend—

a learned professor in the local college — perched up on the top of a gabled roof being put up for a festival. He was engaged in fixing up a row of plaited coconut leaves. I looked for another colleague. He was in the kitchen, dressing vegetables. They were enjoying this way of community life and service. This is possible even in towns, not grown too big to preserve group-life.

Personality as Activating Force

Loyalty to a powerful personality can also activate community-potential into public service. We are witnessing it today in the "walking mission" of Vinobha Bhave. We saw the height reached by it during Mahatma Gandhi's days. I saw it recently in the camp of Sri Sankaracharya, the head of the Kanchipuram Mutt. The newly formed university at Vallabha Vidyanagar near Anand is another demonstration of the activation of community-potential by the force of the personality of a leader.

Service Library as Activating Force

Library service is public service. It can activate community-potential into public service. Here is an example from USA. It was June 1953. There was a lady in Louisville, Kentucky, with leisure and with some experience in social work. The State University of Kentucky held its annual function to award its Medallion to the State's "outstanding citizen of the year". The recipient was that lady. Her merit was that she used her leisure in a public cause. The public cause was the promotion of library service to the rural folk of the State.

The Trigger

She was drawn to it in 1947. She happened to glance through a statement that 80 per cent of the people of the State lived in rural districts and they had no public library service whatever. This acted as the trigger. This made her feel, "I have leisure. If I can find someone to work with, who knows more than I do about libraries, perhaps I can help her." She started visiting nearby places and towns ; she studied the situation ; she got some ideas.

The Kentucky Library Association was working hard to get legislation for State aid to libraries. But it was facing much opposition. She decided that a demonstration was necessary. An organisation called Friends of Kentucky Libraries was formed. Then she said to herself, "I want some one to work with, who is or has been a librarian. He must be a sincere, far-sighted, and public-spirited person. He must be willing to take any help provided by the Friends of Libraries and use it right away without waiting for the State aid. If that person is in one of the State agencies, I can make a worthwhile public-private co-operation."

Public Servant and Private People

She soon found such an in-service person, working in the State Library at Frankfurt. That person satisfied herself that there was nothing in the law of the State preventing her from co-operating with private persons and agencies for public benefit. She had some experience with the working of librachines— motor-vans used as travelling libraries. She spotted out a second-hand van for sale.

The Friends bought it. The Friends also built a book-dump mostly by collection and partly by purchase. The dissymmetry of the collection was revealed by the work done by the assistants of the in-service lady sorting them out and roughly classifying and listing them during their out-of-office hours. The State Library lent a few books to correct the dissymmetry. In her off-days, the in-service lady drove the librachine herself from one village to another. Soon, some private people began to emulate her and relieved her from the task of driving. She could devote her spare time fully in organising book-dump. This also made the librachine go out more often. Thus, the leisure of private persons and public servants were jointly turned on the promotion of library service.

Specialist in Promotion Work

This demonstrated the keenness of the rural people to read and to keep knowing. This also attracted more leisured people to work for the cause. A specialist in Promotion Work soon joined the Friends of Libraries. He drew up a scheme for 100 librachines to cover the whole State. Each librachine was estimated to cost Rs 12,000. A special donation campaign started to raise Rs 12,00,000 for the purpose, from industrial corporations and private people. Each district was promised a librachine, if it pledged itself to vote annually a sum of Rs 12,000 to pay the library staff and maintain the librachine. The Government of the State was persuaded to pay an equal amount, and to strengthen its own staff to administer the programme; it needed only three additional hands.

Specialist in Public Relations Work

A specialist in Public Relations Work felt attracted by this venture. He arranged for a film to be prepared. It showed the librachine doing its rounds, with a sound commentary — arrival at the village school, the children running with smiling faces and fleeting feet to get their books exchanged, the librarian-driver telling them stories ; the men in the fields and the women in the homes getting intimate reference help and walking away with books in their hands and delight in their faces, books being taken to the home of a person lying in bed with paralysis and depending on reading as the only relief from boredom.

Panel of Speakers

A State Speakers Panel was formed. They were all drawn from those filled with faith that book-service is indispensable at the stage society has reached today, and for the democratic form of government to succeed in building a welfare state.

Each was willing to give a few days once in three months to go long distances in the librachine to address and enthuse the village folk to accept the book service brought to their very doors. Sympathetic co-operation soon came from everywhere. The press and the radio gave a helping hand. The farmers' groups and the women's groups were eager to give their platforms to the visiting speaker or the librarian. The regional fairs in the district were never missed by the librachine.

Literacy Level

In six years of the leisured lady looking round for an ally in the library profession, half of the districts in the State had established active library service. Six years earlier, 50 per cent of the rural folk were illiterate. In the district which started working the librachine first, illiteracy had already come down to less than 20 per cent.

A Madras Example

The community-potential is not yet totally extinguished in the heart of our people. It can be tapped by a service-library owned by the public for the public. Here is a recent example. It is an extract from the report furnished by the Local Library Authority of Coimbatore — a district in the Madras State.

We had almost fixed a building for the Branch Library at Lakshminaickenpalayam and we were waiting for our bus. Then an elderly gentleman came towards us and some time later we were busily engaged in talking various things which touched also on the purpose of our visit. On hearing the purpose of our visit, the elderly gentleman took us back to Lakshminaickenpalayam proper and earnestly requested us to see a particular building. We were very satisfied about its suitability for the Branch Library. Then when we began to discuss the financial matters, he put a full stop to the talk, saying that he with all his heart wished to give the building to switch the library free of cost.

Lead by Librarians

The library staff can give a lead in activating community-potential. Here is an example from USA. It may look strange, and perhaps undignified to see two librarians swaying on eight-foot ladders and painting high above the doors. Or another bending double over a design low on a bookcase. Or

still another balanced precariously on a seven-foot bookcase painting on window frames; or all of them ranged on chairs on top of tables, while they did the design on the centre beam in the ceiling. Was the library closed while this work was going on? Oh no!

There was "business as usual". Whoever was lowest on the ladder or nearest the desk, took care of the readers who came in. Every one was tolerant. In fact some readers were so interested that they volunteered to help. Before long the decorating work became a community project. Here, in a small way, is a sample of what can be done in a community, where there is an idea fired by enthusiasm and willingness to work, and backed by the co-operation of all the people concerned with the objectives. This is what happened in a public library at Wisconsin. On hearing the word "Wisconsin", the cynic may dispose it off saying, "It is America. In our country, you can't expect that, kind of public co-operation." Is it ? Is human nature so different in India ? Let me describe what happened 20 years ago in Madras City.

Madras Example

Start from Library Staff

It was September 1936. The new University Library Building was getting ready for occupation. The making of bundles of books began. The statistics of issue during the preceding ten years and the memory of the reference and circulation librarians decided the sequence in which the books should be bundled up.

Each bundle had its inclusive class number. The technical and administrative staff took up the task of bundling. This made it possible for the library to function without interruption. Occasionally, the Maxwell's ghost of decimal one per cent probability prompted a reader to ask for an out-of-the-way book bundled some days earlier. But the start was not frightend by the ghost.

Sundaram, the indefatigable chief of reference staff, would look up the chart, go straight to the bundle, unbundle it, pull out the wanted book, and rebundle the rest. Each book so pulled out would go into a separate bundle.

Thus the Method of Osmosis kept the ghost at bay. In the meantime, the new book-racks were put in position in the stack-room of the new building. Each gangway, bay, and plank received its number. A chart was prepared establishing One — One correspondence between the bundle numbers and the shelf numbers. The bundles with little chance of being called for within a month were transferred to the stack-room and put in their correct position. Then its string was pulled off and used to bundle up other books.

Stimulus to Readers

The readers got interested to know how we managed to serve them in spite of the tremendous bundling work going on. Those that were more than curious were explained the objective and the plan. They were taken to the stack-room in the new building. One of them asked, "How can you find where each book is ? In the basement of the Senate House you had bay-guides.

But you are now spreading out the books. Those guides will not serve here." "No", they were told, "Instead of the three-hundred old bay-guides, we should have 1,200 here in the new building." "How are you going to make them ? It will take a month at least. Are you going to close the library ?", they asked. "No", they were told, "With four hands working on them, it will take a month. But with forty, we can finish the work in three days." One of the readers asked, "Will you mind if some of us come and help you ? We can give two hours each evening." The offer was accepted. About 100 readers came for a few evenings and finished the work. They also helped in fixing them. Thus, the community-potential was tapped and the work was completed without much ado.

The Result of Readers' Help

The library had to be formally closed only for three days to give the final check ; and yet, all serious students and research workers were informally informed that they could have their urgent needs looked after. Every such person who came for a book or a periodical invariably gave us at least one man-hour to do some work or other for us. An old student of the University had just then returned from abroad. He wanted to look up some reference, just during these three days. He felt disappointed that the library was not functioning. However, he had the pluck to catch me in the second tier of the new stack-room with my fingers jammed between two book-racks! He was easily given access to his periodical. He said, "It seems you are closing the library only for three days. Even then you allow some of us to use it. Is this sufficient time for you to transfer the library to here ? In the university abroad, where I was working since I left Madras, they closed the library absolutely for 45 days. Even after that, open access was not given because the bay-guides were not yet put up." I replied with joy, "It is all due to the community-potential of your student successors here."

Immediate Application

We are now experiencing a sudden expansion in our public library system, Let us illustrate from the Madras State. About ten years ago, there were only about a dozen free public libraries in the whole State. In 1958,

each of its 13 old districts had a District Central Library under the Public Libraries Act. Its new District of Kanyakumari will also have one soon. In -1958 the 14 districts taken together had 486 Branch Libraries. In 1958, the skilled staff of these 500 stationary libraries was not more than 503. Of these, only 11 were professional librarians with a Diploma in Library Science ; and only 8 were semi-professionals with a Certificate in Library Science.

The remaining 484 employees should have been doing merely the routine work of maintaining the issue register and safe-guarding the collection and the buildings ! They could not establish any public relation. Nor could they do any reference service. Here is a splendid opportunity for tapping the community-potential in each locality. It should be found from among the educated retired residents of the locality. A person with a good pension, keeping him above want, can be persuaded to give to the public library of his locality his part-time honorary service. A person with a meagre pension may be given an honorarium in return for a similar service. By doing so, our new libraries can be made to function up. This may have to be continued for some years. For, the State of Madras will take at least 20 years to train the necessary number of professionals to man all its public libraries.

7

Resource Sharing in Libraries and Networking

Introduction

We live in a knowledge based world and primarily in a world shaped by modem science and technology. We live in an information based world where the future mankind depends on the success, and where information centres are playing an increasing role in all sphere of life. We live in a world of "Knowledge Explosion" which is often expressed by the statement that knowledge in every field doubles in a period of about ten years. This is supported by the evidence in growth of information in the form of books, periodicals, thesis and other research publications.

"If we had one unit of knowledge in 1900 we would have 2units in 1910,4 units in 1920,8 units in 1930, 16 units in 1940, 32 units in 1950, 64 units in 1960,128 units in 1970, 256 units in 1980, 512 units in 1990 and 1024 units in 2000 A.D. This means that 99.99 per cent of the knowledge we shall have at the end of this century would have been created in this decade of the century", Kent (1974).

Never in the history of mankind the man has taken up research so rigorously and vigorously that he has done today. All the nations have entered a rat race to obtain superiority over each other in research particularly in science and technology. "In Science and Technology alone to best available estimates indicate that there are about 100,000 journals and that the number is steadily increasing at a compound rate in the range of 2 to 4 per cent a year" Allen, (1985).

India being developing country the economic conditions of the libraries are not heal thy. All libraries have to be depend on national source of funding. India has established the National Scientific Documentation Centre (INSDOC) for the purpose of document delivery services to libraries.

Many of these activities are not satisfactorily done because of non-availability of required document in participating libraries. The present proposal is decentralised and having common interest of academic as well as research in the science and technology. This networking proposes the development of participating library resources and services in which institutional and local priorities of the parent institutes are balanced with considerations of national needs.

Need for Resource Sharing

This growth in number and sue of information and documents has created many problems for libraries. Self-sufficiency in libraries is not possible at all in such a state of affairs. Libraries cannot dream of acquiring all the literature published Worldwide individually, but the users have the right to ask for all. Thus the libraries have to cooperate to share their resources so that every demand for documents is not only from the library's own collection but from the collections of other libraries also. There are other offshoots of this problem like the space problem, scatter and seepage problem and rising of price of publications have put great financial strains on the libraries. Their purchasing capacity in terms of number of documents is fast receding. This has led the libraries and information centres to form a net work to share the resources of the partners.

Networking in Technical Institute Libraries

Library networking is currently getting a great deal of attention as the extension of the old practice of cooperation which existed usually without proper co-ordination or plan. If the libraries operate on resource-sharing system activity and are linking together with this system they can achieve high level of efficiency and can have an access to wider resources.

In India serious thought was given for the first time in 1971 to build up a strong network of documentation and information services to meet the needs of scientific and technical research works. As a result, National Information System for Science and Technology (NISSAT) started from 1977. This supports and emphasis the need for network of libraries of Research and Development centres of science and technology in India.

In order to make optimum use of library and information systems it is very essential to identify the existing units and to have cooperative programmes in various areas. This will help each unit of the network to have access resources of others. The network is to be built up on the existing infrastructure by integrating and coordinating the available resources, services and activities and by seeking cooperation of individual information centres. A network of these in formation centres and libraries offers larger resources and hence improved services to the users of information.

Present Scene

In India resource sharing is informal and voluntary. Whatever little is done for the name sake. The inter library loan (ILL) transactions operating between libraries is based on the personal initiative of a few professionals. It is not covered under any system, network or plan. Indian National Scientific Documentation Centre (INSDOC) has issued several union catalogues of important libraries but these need to be updated. Even Indian Institutes of Technology and science brought out union catalogue of periodical holdings and it also needed up-to-date. The problem still continues to be formidable inspite of the existence of several union catalogues, and most of the inter library loan requests are not met as most of the libraries do not have facilities to supply copy of document. For non-serial publications sectoral centres of NISSAT are trying to render some services in this regard.

For all inter library loan requests, we mostly depend on INSDOC. But here again the requests cannot be met quickly as the INSDOC has to collect the source documents from other libraries. Hence the supply of photocopies or information is usually delayed. Compared to this services some of the Indian Institutes of Technology are giving better services but not necessarily'. British lending Library Division, British Council services are very quick and efficient and most of the services are met promptly.

Resource sharing become more important and inevitable for developing countries like India, where libraries are always short of funds and resources. To make best possible use of the resources of different libraries it is essential that technical institute libraries should form a network with NISSAT and INSDOC at national level. Again the whole country area has to be made into several regions, each region having several participating libraries, located within the region. This is decentralised system based on the resources available in libraries in various centres in the country. It is three source system. NISSAT specialised services like document supply facility, SDI and Online services will be at the basic system. The technical and engineering institutes libraries will be at the middle level system, where the interaction is needed much. At the other level again INSDOC and its regional centres are supporting the resource sharing and networking. The different levels and operating systems of these institutes are on library cooperation. The technical institutes operating centres again manifest in three levels as follows:

0 Level : Nissat, Insdoc, Unisist, National Database

I Level : I.I.T., I.I.Sc., Technical University Library

II Level : Regional Engineering College Libraries

III Level : Polytechnics and other College Libraries.

Level First

Five Indian Institutes of Technology Libraries and Indian Institute of Science Library will act as the regional operating centres for the network. These centres will be supported and encouraged by-NISSAT and Department of Science and Technology of Government of India, for overall development of resource sharing network. The operating centres located in the region will utilise the resources available in various libraries of the region. The NISSAT and INSDOC will coordinate the activities of regional centres and also backup the service with financial assistance necessarily.

Level Second

Regional Engineering College Libraries will act as the sector operating centres for resource sharing network. These sector centres involve the participation of all the technical institutes and college libraries spread all over the state and region. As there are 17 Regional Engineering Colleges spread all over India each state having one (taking as 17 states as it is done for students admission policy). This sector centre will utilise the resources available in the participating libraries. This library will acquire, store and provide available information to all state engineering college and institute libraries. This library will be as the regional operating centre which will co-ordinate the activities of the sector centre. This network division can also be setup for co-operative acquisition of information sources.

Level Three

All engineering colleges, technical institutes and polytechnics (public and private) libraries will act as local information centres in the network. It will also interact with other engineering clienteles as well as local industries. It is necessary for these local centres to have resource sharing and networking, because of their limitations in funds, space and manpower etc. These local centres can directly have the services from the Regional centres as this is decentralised system.

These technical institute libraries are not only instrumental in the formation of resource sharing, they also contribute a substantial percentage of the NETWORKING of the national bibliographical database. In this networking the linkages among the institutes are in three stages. The three stream linkages in networking. The libraries of in formation and technological capabilities, scope of available resource and potential uses are positioned in UPSTREAM LINKAGE in networking. Those are I.I.T., I.I.Sc., INSDOC, NISSAT and National document supply division.

All Regional Engineering College Libraries are in COLLATERAL LINKAGE stage. These are sharing their resource and having network each other and down-loading the information sources from upstream

institutes as well directly. The local area network will be there in between collateral linkage institutes and local technical colleges and poly technics and nearing industries. These DOWN STREAM linkage libraries can have the direct linkage with upstream linkage institute libraries also if those libraries are in local and near by area.

Plan of Action

The following activities should be initiated to promote and strengthen resource sharing network among technical institutes in India.

(a) *Inter Library Loan:* This service should be accepted as an official and compulsory programme and activity in the libraries. Inter Library Loan specification code should be framed as existed in western countries.

(b) *Intensified Information Services:* All technical institutes libraries should establish documentation and information services unit with qualified staff to provide intensified information services like SDI, Online database, Current Awareness services by computers and reprographic services. There should be financial support for this purpose by NISSAT or local Government.

(c) *Union Catalogue:* Union Catalogue of all participating libraries of network should be compiled and updated regularly on science and technology.

(d) *Exchange of Duplicates:* Every library has many collection of duplicate number of periodicals and also certain gaps in its periodicals holdings. Each library should circulate its list of duplicates and gaps. A plan has to be made for circulation of such lists. This work has to be taken up at the national level.

(e) *Manpower Training Programme:* The real obstacles of resource sharing are not only that of matter and money but the attitudes of fellow Librarians and participating members. The library staff should upheld the philosophy of S.R. Ranganathan's five laws of library science in this resource sharing phenomena.

Library staff should be deputed for specialised training programmes so that the latest developments on the subject would be known and it will help them to serve the users on better lines.

Information and Computer Technology

Effects of modern information technology on libraries networking has made considerable impact on libraries resource sharing services. The procedure involved in resource sharing can certainly be improved by use of computers. Libraries and computers can contribute towards efficiency in dissemination of information. Use of computers is essential for

networking. The union catalogue will provide the information about the resources of the libraries through computer network. The computerised information dissemination of the libraries will be able to eliminate the time and distance constraints on free flow of information from one library to another library. The employment on ONLINE terminals ensures that an individual no matter where resides can tap the information resources of the world. The computer devices help in forrnulating effective programmes of networking and resource sharing.

National policy for technical institute library resource sharing is to be formulated initiating the activities. The resource sharing and networking of libraries have become necessity today on account of growing mutual interdependence to face the situation created by explosion of information and ever accelerating technology. The needs for the technical institute libraries are growing day by day. To overcome this impediment it is necessary to go for networking and resource sharing.

An Assessment of User Satisfaction with Library Services

In the modern world the concept of 'library' changed as an 'information centre'. It is the connecting node in the process of information generation and communication. The value of the library collection depends not on the quantity of information sources but on the effective ways and means of providing and interpreting them to the users. The artificial techniques followed in the library activities are not common to the users hence these should be interpreted in the easy understandable ways. The users are having different information needs. In order to provide tailored information, according to their needs, the library has to develop various information services, provide the users adequate facilities for physical comfort and mental peace. Further providing number of services will not be the indication of the effective utilisation of the library materials, hence proper evaluations should be undertaken to know the worthwhileness of each of the information services, and facilities provided in the library. This helps to maintain cost-benefit view in the library activities. Keeping in view these ideas the present study has been undertaken to know to what extent the services, arrangement of reading materials, working hours, user orientation programmes, are satisfactory to the users of Mangalore University Library.

Objectives of the Study

The specific objectives of the study are as follows:

1. To know the awareness of users about the different services provided in the library;
2. To know the satisfaction of users with the existing services and to know any additional services if the users desire to have;

3. To know the users views about the comfortability of library furniture equipment etc.;
4. To know the adequacy of lighting and ventilation in the library;
5. To know the views regarding drinking water and other necessary facilities;
6. To know the opinions about the library working hours;
7. To know the need for user education programme and to get suggestions for improving the same;
8. To suggest overall opinions, for the improvement of each of the services, facilities and for encouraging the maximum utilisation of library collection.

Methodology

The primary data has been collected through questionnaire method, supplimented by informal discussions with the users. A sample of 415 Post Graduate Students, 60 Research Scholars including M.Phil. Students, and 100 Teachers have been selected for distributing 575 questionnaires. Out of these 400(69.5%) questionnaires were received duly filled in from 270 (65%) P.G. Students, 44 (73.4%) Researchers, and 86 (86.0%) Teachers.

Results and Discussion

Information is one among the basic needs of human beings. It is the basic ingradient to the human knowledge. Information is the edifice on which the building of advancement in each and every discipline is built. Information forms the life blood of research and continuing education. Hence to achieve desirable goals, to get fruitful results, the academic and research activities should be supported by accurate, exhaustive and timely information.

The libraries and information centres are indispensable intermediaries for collecting organising, maintaining and disseminating the information to those who are in need of it. The worthwhileness of information depends not on the vast accumulation of information but on the collection of useful, easily understandable forms of information and the effective techniques of information retrieval. Today the information is appearing in variety of forms and the users are also having different approaches to the information. So, the libraries and information centres are adopting some artificial techniques. Unless the users are aware of these techniques of ways and means of obtaining information the aim of these centres of information will fail.

The information service such as Current Awareness Service (CAS) is much familiar with students (88.8%) than Researchers (34%) and Teachers (47.7%). This is an interesting feature of the study, which further shows

that about 47.7 per cent of Researchers and 34.8 per cent of Teachers are not aware of CAS offered by the University Library. Another important point identified in this analysis is that majority of Students, Researchers and Teachers are not aware of the Newspaper clipping service and library orientation services offered by the library. About 62.6 per cent of Students are familiar with the Microfilm/Fiche reader service offered by the library. Whereas majority of Researchers (65.9%) are not aware of Microfilm/Fiche reader service offered by the library. Further about 44.2 per cent of Teachers also not aware of this service.

Hence it is suggested to the library authorities to develop suitable user orientation/education programme to create awareness of the above said library and information services and to promote the role of these services in the advancement of higher education.

A well staffed, well equipped library with the provision of various services is not enough unless those services are properly utilised by its users. The provision of number of services in the library is not an end, but it is a means for the effective utilisation of library collection. The type of services needed by different users may vary according to their level of study.

The majority of Students (91.2%), Researchers (93.2%) and Teachers (90.6%) are using library services to a maximum extent. Only a very few respondents have responded negatively about this. For this proper library orientation programme is necessary. Personalised service provided with free of mind will create interest among the users for effective utilisation of the benefits of the services provided in the library.

The effective utilisation of the library service depends on the qualitative, nascent and timely information that the service will carry, further the necessity from the readers side is going to contribute to it. The readers who have examination oriented mind may not use the information services of the library, and the Researchers may fully concentrate on the current information services only. So, it is very much essential to know to what extent the users are satisfied with the existing services of the library. This will help to develop and maintain need based information services. The views of the users regarding their extent of satisfaction about existing services of the library.

Regarding Current Awareness Service, Reader guidance/assistance, Inter Library Loan and Micro film/Fiche Reader Service, the majority of Students have expressed their satisfaction. Further analysis shows that reprographic service needs further improvement Though a significant number of respondents have not answered in respect of Inter Library Loan, it nevertheless requires attention.

The analysis of data furnished by Researchers and Teachers shows that a majority of them find that Current Awarness Service, Inter Library Loan and Microfilm Reader Service are not satisfactory. The information service such as Readers Guidance/Assistance is quite familiar to the Teachers (56.9%) than Researchers (38.6%). Regarding reprographic service it is identified in this analysis that some of the students (10.8%) are not aware of this service offered by the Library, where as significant number of teachers (65.1) are familiar with the service. Further about 56.8 per cent of Researchers are not aware of the availability of Reprographic Service.

Hence, it could be suggested to the library authorities that steps ought to be taken to improve the library services. While collecting the opinions of users regarding information services, an attempt is also made to seek the opinions of users about the kind of services which needs further improvement. The following, according to them, are some of the services which call for improvement in the effective utilisation of resources and services of the library for academic, research and other activities.

1. Improve proper arrangement of reading materials in different sections of the library;
2. The delay in providing services such as Zerox, Reference, Circulation, Microfilm/Fiche reader service, Inter Library Loan Service etc. need to be reduced;
3. Newspaper clipping service should be strengthened and Current Awareness Service be initiated;
4. Bringing out of' New Additions List' should be in time;
5. Updating and proper supply of book form of catalogue of periodicals is to be undertaken;
6. User orientation programmes has to be strengthened.

Hence, it is suggested to the library authorities to consider the above suggestions made by the respondents about various information services and to improve the same to meet the information needs of users. The analysis of responses shows that the following are some of the additional services expected by the users where the services of different units of the library are not sufficient to meet the needs of users or information requirement. Hence, it is essential to understand other new techniques and additional services expected by users of the library. The suggestions of the users regarding additional services expected are as follows.

1. Improve the collection of books and periodicals;
2. Providing borrowing facility of current periodicals and back volumes;
3. Improvement of Reference Service and reader guidance service to the readers;

4. Increasing number of borrowers tickets for researchers;
5. Computerisation of library functions and information services;
6. Providing Guide boards in all units of the library;
7. To facilitate Inter Library Loan Service to the users;
8. To promote the proper utilisation of library materials the reservation of books in the circulation service is to be improved.
9. Some respondents among students suggested that the issue of text books to staff members is to be, if not stopped, but atleast reduced for a overnight issue;
10. To promote the Current Awareness about the arrival of new information to the library and to enable them to know about the themes of forthcoming meetings, seminars, lecturers etc. The zerox copies of the contents pages of the important periodicals, news letters etc. should be put into circulation.
11. The some of the researchers and faculty members suggested that proper catalogues of reprints, leaf-lets and reports collected in the library are to be maintained;
12. In view of advancement of research in all fields with a faster speed, the researchers have suggested to collect and maintain the union catalogues of periodical literature of different special libraries;
13. In view of the recent developments in science and technology, the development of E.mail service, online search service and development of the collection of Micro forms have been suggested by the researchers;
14. Further some of the respondents suggested that the display of new arrivals should be at a regular internal covering all subject fields.

Hence, it could be suggested that the library authorities ought to consider the above suggestions made by the respondents about the various information services and to improve the same to meet the information needs of the users.

Working Hours of the Library

Since the university is a centre at apex imparting higher education and promoting research the library forms its heart. The maximum utilisation of library collection depends on the working hours of the library. In order to consider the implications of first law of library science, the gates of the store house of knowledge should be open for all, around the clock. The library is the perennial source for each and every activities of academicians and researchers. At present the library remains open from 8 A.M. to 9 P.M. on all working days. Where as it functions from 10 P.M. to 5.30 P.M. during vacations, Sundays and Second Saturdays.

The circulation section functions on all working days from 9.30 A.M. to 5 P.M. and 10.30 A.M. to 5 P.M.during academic session and during vacation respectively. The Reference Section and Kannada Sections of the library remains open from 10.30 A.M. to 6 P.M. on all working days only. Periodical section remains open from 8 A.M. to 8 P.M. on all working days and on Sundays and Second Saturdays it remains open from 10 A.M. to 5.30 P.M. The Stack section remains open from 8 A.M. to 7 P.M. on all working days. The Textbook section having the reading area remains open from 8 A.M. to 9 P.M. on all working days and 10 P.M. to 5.30 P.M. on Sundays and Second Saturdays. The Reference section, Kannada Section and Stack Sections are going to remain fully closed on Sundays and Second Saturdays. The library remains closed on all general holidays other than Sundays and Second Saturdays.

In view of the readers interest and urgently for reading the text book section and periodical sections are kept open even on the general holidays from 10A.M. to 5.30 P.M.during examination times.

The majority of respondents i.e. Students (81.9%), Researchers (68.2%) and Teachers (80.3%) are satisfied with the working hours of the library. Further the order indicates that a small number of respondents expressed some sort of dis-satisfaction and stated as follows regarding working hours.

1. Working hours should be extended;
2. Circulation section timings must be extended;
3. Keeping the library open during Second Saturdays and public holidays; and
4. Keeping the library open till late night.

Arrangement of Reading Material

The acquisition and storage of reading materials is not enough, hence it is the obligation on the part of the library personnel to organise the collection in proper order. This will enable the users to trace the required information at the earliest possible time. Further the techniques followed in the library for proper organisation of reading materials should be made known to the users, and proper guide boards should be provided to be the self explanatory mediaries, to tell what is available in the library and where it is.

Keeping in view the different approaches of users and the variety of forms in which the information is appearing today, the DDC (19Ed.) Scheme of classification is followed for arranging the books on the library shelves, and an alphabetical as well as classified index is provided to the total collection of library books through a card catalogue. For the entry

format the AACR-II code has been followed with some local variations. The artificial techniques followed in the library are clearly explained to the users in the orientation programme and any clarifications, if needed are explained as and when required.

However, a significant number of respondents among students (30.8%) & Researchers (36.4%) have complained about the lack of proper attention in arranging reference books in proper order. Similarly about 43.2 per cent of Researchers and 34.8 per cent of Teachers have expressed their dissatisfaction about the arrangement of periodical literature. Further, a significant number of Students (22.6%), Researchers (31.8%), and Teachers (32.5%) have found the lack of proper attention in arranging report literature in a proper manner.

Thus, based on the above observations, it could be suggested to the library authorities that they should take care of these opinions expressed by the respondents and also recommend suitable measures to set right the above problems.

Library Facilities

Library is a trinity of reading materials of various kinds, users of various denominations, and a good number of library personnel. These three constituents co-exist in a sort of on-going mutual interrelatedness under the roof of the library building. Since the old concept library as a 'Store House' changed into a modern concept of 'Information Centre', the users have also changed from the few restricted groups, into the total persons of a global village, the exterior of the modern library building should be attractive and the interior should be inviting. Further it should provide functional and comfortable furniture in the adequate reading area.

The library interior should be pleasing and it should have adequate natural lighting and proper ventilation. The statues, photographs of eminent scholars, and past leaders of the nation and provision of indoor plants will not only provide some sort of rest to the tired eyes of the readers, but also creates some sort of goodwill in the minds of the readers. The pertinent proverbs will give a feeling of holyness about the library in the minds of readers. The building should be in a noise free area and should be nearer to the departments of the university. Further the library building should have adequate drinking water, toilet facilities and cleanliness. In total the exterior of the library building should protect the reading materials and equipment from the natural Sunrays, winter and rain where as the interior should protect and encourage the readers interests. The views of the users of Mangalore University Library about the facilities of the library have been collected to know the lacunas, with an intention of developing proper facilities. Since the students are much interested in completing their

academic programmes successfully, the available library facilities of the above mentioned types are helpful to meet their requirements. Further few respondents have responded negatively in respect of these facilities, it require attention for further improvement.

The analysis of data furnished by Researchers and Teachers indicates that 70.4 per cent of Researchers and 63.9 per cent of Teachers have expressed that cleanliness in the library at present is satisfactory. Regarding drinking water, lighting majority of respondents among Research and Teachers have expressed their satisfaction. Another important finding is that the majority of Researchers (65.9%) specified that space available within the library for reading is not-satisfactory. Further majority of respondents expressed that the existing toilet and ventilation facilities are not satisfactory which therefore needs improvements.

Furniture, fitting and equipments are equally essential like any other resources. These will facilitate the promotion of use of library collection among the users. The furniture and other related items acquired for the library should be functional and should support in achieving the objectives of the library. Hence the library authorities have to acquire and maintain the furniture and fittings such as reading tables, chairs etc. adequate in number and also of functional in quality.

Regarding the reading chairs the majority of the users feel that they are not so comfortable. Further majority of respondents from all the categories are satisfied with the carrel facility. Hence it is suggested to the library authorities to maintain the durability of chairs not at the cost of users comfortability.

User Education Programme

The reading materials are acquired organised and maintained for use. Due to several reasons and with the aim of providing timely services several artificial techniques are followed for the arrangement of materials, and for interpreting them to the users. To enable the users to know what is their right in the library to what extent they can get the benefit of the library services, a formal introduction of the library to a newcomer is essential. This will not only enable the user to know what is available in the library and where it is but it also suggests what is available outside the library pertaining to his subject, and how to get it. Even though the users of the library are going to understand themselves what is available and where it is with the help of self explanatory guide boards, instructions etc., an attempt is made to know whether the users of the Mangalore University Library need orientation programme or not by collecting views

Keeping in view the above facts, further the analysis of data shows that very small number of users in each category (i.e. Students 35.2%,

Researchers 31.8% and Teachers 22.1%) had expressed negatively regarding User Education Programme. Rest of 8.21 per cent of students, 9.1 per cent of Researchers, and 8.2 per cent of Teachers are not responded to the question. This may be due to lack of ideas about the benefits of user education.

Hence, the library professionals should bring to the notice of its users all the resources and the services by conducting User Education Programme at regular intervals in batches or individually, if necessary, so that they will become much familiar with various services/facilities of the library/ information centre, with such kind of knowledge, they will make use of library resources to a maximum extent.

Even though User Education Programme is undertaken in the Mangalore University Library every year, the users necessitated the improvement of its quality and they have shared their ideas with the investigators, with their suggestions.

The following are some of the guidance need, as suggested by the respondents calls for improvement for effective utilisation of resources and services of the library for their study, teaching and research. The guidance suggested for improvement includes.

1. Orientation programme should be at regular intervals for newcomers instead of once in a year;
2. Instead of explaining in the sections first a lecture should be given, describing the library, the number of sections etc., then the users should be taken a round indifferent sections;
3. The role of different guide boards and row guides should be clearly explained;
4. The users should be explained as how to approach the total library collection;
5. The format of bibliographic description in the catalogue entries and the meaning of different special marks denoting collection number and the arrangements of entries should be clearly explained;
6. The users need an explanation regarding how to involve in the collection development policy;
7. It is the readers view that they need display of the uptodate statistics of total collection. Further they stated that there should be a proper display of lists in the periodicals section regarding the number and names of current periodicals subscribed, with the kits of using indexing and abstracting periodicals.

In the light of the users opinions and suggestions, it could be suggested to the authorities to strengthen the quality of user education.

1. The orientation programme should be well planned and it should be given by experienced staff members;
2. First the total sections of the library should be clearly stated and what kind of collection is available in each sections should be explained;
3. Brief explanation regarding the services and facilities available in the library is to be given. Further meaning of each service, its importance should be clearly stated;
4. Not only the arrangement of reading materials in the library but also the arrangement of information in various reference and current sources of information should be explained;
5. Incase of difficulty to whom the users have to contact should be explained;
6. A copy of the library rules should be handed over to the users;
7. Voluntary readiness should be created in the minds of readers for maintaining silence and cleanliness in the library.

Library is the centre where ideas of the scholars, scientists, saints and sages are collected, organised and maintained for use. For the proper utilisation of these ideas it is the obligation on the part of the library professionals to intrepret them to the users and suggest the ways and means of utilising the same. In the present study few respondents are of the view that they are unaware about different services hence proper orientation programme explaining the meaning of each kind of service available in the library will be of much help to them. Further the worthwhileness of information that each service is going to carry should be strengthened. This will create interest and encourage the readers, in the maximum utilisation of library resources. Within the framework of library budget, strengthening of inter-library loan service will be of much help to the readers who are expecting additional services.

Keeping open the doors of the knowledge to the users to a maximum possible time with pleasing, comfortable, silent reading area will create and encourage the reading interest in the readers. Well arranged library collection on the shelves, with proper bay guides and row guides, with twinkling numbers on the neat clean spines of the books will invite the readers themselves. With these ideas the library can become a centre of learning and will create, maintain and encourage the readers interests about the library.

Computerisation of Library Housekeeping Operations

Activities related to acquisition of books, classification, cataloguing, book circulation and book maintenance are traditionally known as

housekeeping operations. Until recently, these activities were highly labour intensive. In recent times (in India) many librarians are attempting to computerize some of these activities.

Depending upon the type of library, we may computerise some of the functions on priority. For example, in a large public library, one may automate circulation control; in a special library, one can computerise serials control; and in an university library, acquisition system may be given priority.

In this chapter, an attempt has been made to discuss the procedures to computerise some housekeeping operations with the emphasis on design and file requirements.

A Simple Procedure to Automate Certain Activities

To begin with, we must identify the activities to be automated and then decide on the order of priority in the context of library objectives. For example, if the aim is to have effective control over the serials (especially when we spend about 50 per cent of the total budget allotted for collection development), priority may be given to automating serials control. If the aim is to reduce staff, priority may be given to those areas which are heavily staffed. If the objective is to improve the reader services, we may think of using computers (main-frame/or/mini/micro) to provide additional services.

While deciding to take up a project on automation, a question usually arises—is there any guiding principle to proceed with the project? There are atleast two such principles:

1. The principles of total systems approach
2. The principles of integrated technical processing.

The first principle may suggest taking up a single task/job for automation; by doing so, we may have to face the problem of incompatibility (with the systems to be developed later). Some are of the opinion that a total system must be designed to begin with and, funds permitting, different components of it may be implemented step-by-step at different times. On the other hand, many are of the opinion that a good system design demands elimination of redundancy in inputting as well as in storing the data pertaining to various distinctive library functions. We may, therefore, be guided by the second principle, so as to eliminate the redundancy.

In fact some of the largest and most sophisticated systems are based on this principle. It is, however, interesting to note that the Library of Congress opines that there is a vast difference between acquisition data and cataloguing-data and the use of the former is unlikely to be effectively useful for the latter application. Most of the existing systems follow the

first principle and, therefore, we perhaps have several software packages for automation of:

1. Acquisition system
2. Serials control
3. Cataloguing
4. Circulation control.

Having decided upon the activities to be automated, we must carry out a detailed examination of each activity to:

1. Identify the data elements
2. Calculate the total storage capacity required to:

   Ensure that the software (to be acquired/developed) is able to handle the size, number of fields and the records

   Estimate the back-up storage required

   Estimate the number of terminals required
3. Identify the various functions to be automated
4. Identify those data elements which are common to several functions.

The following steps are useful for developing an automated system.

1. Identify various functions of each activity. (For example: IF activity is circulation control, its functions are charging, discharging, renewing, etc.).
2. Identify the input requirements for each of the functions (i.e. data elements)
3. Identify the input in terms of records, files and the media; also determine the size of the files
4. Identify the output required for each of the functions
5. Identify the output in terms of records, files and the media; also determine the size of the files
6. Development of programs (to get the desired output from the given input, using the available hardware) or buying the software/turnkey system* to automate certain or all functions of the activities to be automated
7. Implementation and evaluation.

Acquisition Control

Until the 1950s most of the automated acquisition control systems were based on unit record machines. Such a system requires a keypunch, sorter, collator and a tabulating machine (like IBM 402, 403 or 407). In unit record systems, the order information is punched on cards and then

they are sorted. Sorted cards are processed using a tabulator to print the orders. A file of outstanding orders can be obtained by collecting the previous orders (which are on cards) with the new one using the collator. This file can also be printed using the tabulator. When the documents are received, the cost price of each document is punched into a corresponding card, which is then used to update financial records, and in some cases to write vouchers. Order files can be processed periodically using the sorter and the tabulator to get the printed list of the books not received.

As general purpose computers became widely popular in the 1960s, batch processing systems became the most common and popular form of acquisition system. Most of such systems used punched-cards for inputting order information. However, the input designs were not greatly different from that of unit record systems; but once the data were fed into the system, information was normally transferred back and forth between magnetic tapes or disc files without the necessity of repeated manual handling of cards. A typical system of this type, in addition to printing orders, automatically carried out updating of the file of information on orders outstanding and the appropriate financial records storing the bibliographic information for later use.

The most popular computers used for acquisition control systems in the mid-1960s were IBM 1400 series, particularly the 1401. The University of Illinois at Chicago began using a 1401 for an off-line acquisition system in 1964. An off-line batch processing system was introduced in 1965 on IBM 1401, at the University of Michigan. Since then, many libraries, introduced such systems in USA and other advanced countries.

By mid-1970s, the cost of on-line storage and the necessary hardware had declined dramatically and by then several on-line systems were in operation in industrially advanced nations. Perhaps, the earliest one was implemented at the Washington State University in 1968. In on-line acquisition systems, each information is tagged; records can be processed directly from the terminals. For instance, it may be edited for valid order number, updated budget information, etc.

The objective of the following sections is to highlight the file requirements from the viewpoint of systems design for developing an automated system for book acquisitions. As far as possible, the presentation has been slanted towards the procedures involved in the development of the required software.

During the early period of library automation, many libraries automated their procedures for ordering, receipt and payment of library materials. The early systems were developed with an objective of only order/receipt control or funds accounting; very few systems in fact combined

these two functions of acquisitions control. Further, most of the systems were developed using the in-housed, main-frame computers of the libraries' parent organisations. On the other hand, the vendors of the turnkey circulation systems have substantially completed the development of software for their initial products and are now extending their range of services. Also, book-sellers especially those who have in-house computer systems, see significant financial benefits in having libraries submit their orders on-line. Thus, in recent years, the major initiative in automating acquisitions control comes from the vendors of the automated library systems. The options for automating acquisition control therefore now include not only in-house development but also the purchase of a system or services from a vendor.

Because of the many capabilities of automated systems, the acquisitions librarians can effectively handle ordering systems and then can afford to spend sufficient time for collection development and management of funds. Thus, the primary objectives of an automated acquisitions control system are likely to be towards cost containment, speeding up of the receipt of materials, improving fund control, developing single function systems into integrated systems.

Before we begin the process of developing or selecting a software to have an automated acquisitions system, we must clearly state the rationale to the process so that decisions can be made quickly and consistently. To begin with, the library administration must examine its motivation in undertaking the project. Usually, common motivations include:

1. Reducing order back logs
2. Reducing/containing acquisitions cost
3. Speeding up ordering work (including the receipt of materials)
4. Improving funds control
5. Achieving compatibility (with resource sharing libraries)
6. Move towards integrated systems
7. Committing the library to use the available technology.

Functions of an Automated Acquisitions Control System

An automated acquisitions system is expected to perform certain managerial functions in addition to certain clerical functions (such as pre-order searching, creating purchase order, etc.). Systems are usually designed to respond to regular orders, blanket orders, exchanges, etc. It is also designed to handle regular receipt, non-receipt, out of print documents with wrong billing, unwanted documents with right billing, and so on. The typical functions of an automated acquisitions control system are:

(i) Pre-order searching, especially to avoid duplicate orders

(ii) Creating purchase orders:

(a) request for invoice, if necessary

(b) sending order letter (if necessary, along with cheques/drafts)

(iii) Receiving materials:

(a) Sending cheques/drafts (as and when necessary)

(b) Completion of accession list

(c) Announcement of latest documents received

(d) Completion of cataloguing.

(iv) Claim (for damaged materials) and/or cancellation notices

(v) Providing information to the management (and sometimes to users) on orders outstanding and sometimes on work-in-progress (that is, books received but not yet catalogued)

(vi) Maintaining book fund accounts and printing book fund reports.

Whenever, there is a delay on the part of the bookseller in supplying a book, the system must prepare a *reminder note*. As and when books are received, it must handle the various associated accounting procedures.

The bibliographic data in the order record can also be amended by the library staff to produce a catalogue card as well as to update the accession list. If a library has a computerised circulation system, the necessary machine-readable book-cards can also be prepared automatically as part of the "Order System".

In addition to these, list of orders (by order number, by author, by title, etc.). and various reports of statistical analyses may also be derived from the system. Provision can also be made in the system to perform such functions as:

1. To *hold* orders until funds become available;
2. *To re-orders* from a second vendor if the first cannot supply the documents; and
3. To compute vendor performance measure (e.g., the average time taken to supply books, average discount given, etc.)

Required Data Files

The following factors are to be considered in advance while designing an automated acquisitions system:

(i) The files to be maintained

(ii) Data elements in the records of each file

(iii) Record format and media of the file

(iv) Modes of operation (batch processing or on-line).

In a total on-line system, the acquisitions librarian can access the files at any time from his/her desk itself. In a batch processing system, the files are not directly accessible but the printed lists are used. Depending upon the size of the library, the batch processing might be carried out weekly or at some other selected time interval.

To perform the above mentioned functions in a typical system, one may have to maintain at least the following files in machine-readable form:

1. Order file
2. Accession file
3. Fund file.

In a batch processing system, these files may be maintained on magnetic tapes. In an on-line system, it is necessary to maintain these files on disks. Data elements constituting the records of each of these files and the record formats are discussed below.

The required data elements for the records may vary from one library to another, depending on the functions to be performed and the capability of the hardware.

In brief, the order file contains minimum information required to process an order related to a document and the accession file contains complete information regarding the documents which are available in the library. In order to have as many data elements as possible in record we can adopt a fixed cum variable field format similar to the MARC format. In such a structure, a record may consist of three parts.

Leader Directory Variable Data Fields

Leader

Each record may contain and begin with a 24-character *Leader*. It contains data related to the structure of the record and a few data elements. The data elements in the *Leader* are required primarily to process the record.

Directory

It is an index to the location of the variable fields within a record. It is made up of a series of fixed length fields consisting of tags, and the starting character position of the field. The directory begins immediately after the *Leader* and ends always with a field terminator. The number of entries in the directory depends on the number of the variable data field in the record.

Variable Data Fields

The variable data fields consist of a series of variables (data elements).

Each of these fields may begin with the field or subfield indicators. The presence or absence of indicators in the record are indicated (in terms of its length) in the file is printed out usual.

Fund File

Information in the fund file is primarily for the management. It may contain:

(i) Total amount available for the year (in local as well as in foreign currency)

(ii) Amount to be spent for different types of documents (viz. monographs, journals, newspapers/magazines, reports etc.)

(iii) Amount to be spent for different subjects (viz. physics, chemistry, mathematics, etc.)

(iv) Amount spent in the previous months of the current year as suggested in (ii) and (iii).

In fact, we can even store finance data regarding handling charges, postage, etc. for each document. However, such an in-depth analysis may not be really required.

Steps Involved in the Design and Development

In developing the systems, the following steps are involved:

Step A

Design a worksheet and write the necessary information required for an order in the worksheet.

Step B

Key-in the data from the worksheet to a temporary file called In-Process file. This file contains the minimum required data elements to create an order file. Each record in the In-Process file consists of one data element and its tag. For example:

- For Title:
- 033 $a Quantitative methods for library and Information Science
- For Author:
- 004 $a I.K. Ravichandra Rao.

The last character in each of the order must be a special character, so that one can easily identify the end of the data elements. If the tag is 000, we may treat it as the end of a bibliographical record and if the tag is 999, we may treat it as the end of the file (in the In-Process file). Thus, the records in the In-Process file may look like:

	Record 1	.....	Order information for document 1
	Record 2	.....	document 1
	Record 3	.....	
Block 1	Record 4	.....	
	Record 5	.....	
	Record 6	000.....	
	Record 1	.....	Order information for document 2
	Record 2	.....	
	Record 3	.....	
	Record 4	.....	
	Record 5	000.....	
	Record 1	.....	Order information for document
	Record 2	.....	
Block n	Record 3	.....	
	Record 4	.....	
	Record 5	000.....	
Block(n+1)	Last		
	Record 999	End of file	

Step C

Processing the In-Process file to create an order file. For each block (consisting of information regarding order for a document) of information, we must create an order record, to be stored in the Order File. As and when the order is created an order letter (requesting for invoice or requesting for a book depending upon the situation) may be printed. After receiving the invoice, the order file may have to be processed again to print an order letter (requesting for a document); this letter may be sent to the vendor along with the cheque/draft, if necessary.

Step D

Processing the Order file to ;

(i) send reminders;

(ii) send claim notices for replacement of defective copies; and

(iii) update the accession record in the accession file, etc.

Step E

(i) Catalogue cards;

(ii) Book cards; and

(iii) Due date slips, etc.

Step F

Processing the Order File and Fund File (once in a quarter or 6-9 months) to obtain financial statements and also to evaluate vendor performance, etc.

Programs to be Developed

A few programs required for the development of an automated acquisitions control system discussed below:

Program A

To create an In-Process File. The required input may be on punched cards (tag + field indicator + data element) or straight away keyed-into the system (i.e. writing straight away on the floppy/disk/tape/cassette).

Program B

To create an Order File and to print and order letter.

Program C

To process an order file to send reminders, claim notices, etc.

Program D

To update or search a record in the order file (That is to add a record or to search for a data element or a record in the order/file; and to add, or delete a data element within a record).

Program E

To obtain various print-outs or lists from the Order File as and when necessary.

Program F

To create an Accession File from the Order File.

Program G

To process the Fund File to obtain various financial reports.

Programs D and E should be designed in such a way that one can even process the accession file using the same programs to update as well as to obtain various printed outputs. Flowcharts showing the various functions of an automated acquisition system.

Serials Control

Automation of serials control system helps us to handle processing of serials more easily, quickly and economically. An automated serials control system is slightly different from that of a simple book ordering system. Because of the very nature of the serials, automated serials control systems are usually developed and designed independent of book ordering system. In contrast to books, serials are subscribed regularly. The cataloguing data (which are often changing) include additional information

regarding the library's holding and it is to be regularly updated and also the information related to binding is to be processed regularly. An automated serials control system is expected to handle these procedures.

The simplest type of serials control system is the straight listing of information regarding each title. In such a system, the information is key punched or and then printed lists are obtained by title, by subject, or in any other sequence. Even in such a system, multiple copies of the library holdings can be produced easily and made available to users of library as well as potential users at remote points.

We can also use a pre-punched card (also called arrival card) for each issue of all the titles expected during a given period of time. The arrival cards contain a brief title, information about the particular issue expected (volume number, issue number, date and other information required in receiving process, frequency of publication etc.). The cards can be organised in a manual file. When issues are received, an attempt is made to match them against the corresponding arrival cards. These cards are pulled out and kept in a separate file. At the end of the month (assuming a monthly cycle of processing), the cards for the issues received are fed into the computer to update "holdings" information and it simultaneously punches another set of arrival cards for the next period. Any card remaining in the file at the end of a period represents issues which are potential claims.

Usually, there will not be any card-reader in a microcomputer system. So, if an automated serials control system is based on microcomputers, the arrival-file may be maintained on floppy disks and appropriately processed.

The Holding File of an automated serials control system can further be used to provide *holding data* (in machine-readable form) to those who want to compile union catalogue.

Functions of an Automated Serials Control System

General objectives of an automated serials control system are to handle serials and to maintain holding list. In order to achieve these objectives, the system must perform the following functions:

1. Inputting serial data (those data which are essential to the system)
2. Ordering new serials
3. Renewals of presently subscribed serials
4. Cancellation of presently subscribed serials, if necessary
5. Accessioning of individual issues, as and when the issues are received
6. Sending reminders, if necessary

7. Claiming the issue, if necessary (such as, request for replacement of a defective copy)
8. Selective follow-up of missing issues
9. Preparation of various lists like:
   (a) List of periodicals received during a specified period;
   (b) List of periodicals cancelled during a specified period; and
   (c) List of holding with their status; on shelf, on binding, on circulation, etc. (the lists can be by subject, by country of origin, by title, etc.)
10. Keeping track of the amount spent on serials subscriptions, serials binding, etc. (subjectwise, if necessary)
11. Estimation of the budget for the next academic financial year
12. Binding Control.

These functions are not exhaustive; one can add many other functions, according to local needs.

Required Data Files

As has been discussed in the section on. "Acquisitions Control", several factors are to be considered while designing an automated serials control system.

To perform the above mentioned functions, one may have to maintain at least the following files:

1. Order File
2. Holding File
3. Fund File.

In a batch-processing system, these files may be maintained on magnetic tapes. For on-line system, it is necessary to maintain these files on disk.

In order to have as many data elements as possible in the order and the holding files, we can adopt a fixed cum variable field format similar to that of the MARC format.

As has been mentioned in Section 3.2.2, the Directory consists of the tag and the "starting character position" of each field in the record.

The Variable Data Fields consist of for each variable that occurs in the directory. Each of these fields begins with two character field indicators.

Information in the fund file may be exactly similar to that described in the case of acquisitions control.

Steps Involved in the Design and Development

In developing the system, the following steps are involved:

Step A

Design a worksheet and fill the necessary information required for an order in it.

Step B

Key-in the data from the worksheet to a temporary file called In-Process file. This file contains order data. Each record in the In-Process file consists of one data element and its tag.

For example:

- For title of a serial:
- 058 $a The Program#
- For year:
- 011 SA1985#
- For Expected Arrival Date
- 053 $a850731#

Where # represents the field separate character.

Further, in the In-Process file, the records may be conveniently grouped and each group may be called as a block of information. A block may then be divided into two sub-blocks. The first sub-block for the minimum required data elements and the second sub-block for the issue numbers and their expected arrival dates. This is illustrated below:

1st sub-block consist of: Order number, order date, order for a new subscription or for renewal, etc., mode of acquisition, frequency, type of journal ISSN, Year, Volume number, part number, title, name of the publisher, place of publication, name of the vendor and his/her address. (These data elements constitute a record in the block; price information may also be added at this stage, if available)

2nd sub-block consists of: Issue numbers and the corresponding expected arrival dates; the data elements constitute a record in the block.

Step C

Create an Order file. This means, processing the In-Process file to prepare order records. For each record (consisting of issue number and its expected arrival date) in the 2nd sub-block, an order record is created along with the information available in the 1st sub-block. That record is

then written into the order file. If there are four issues for a given volume, four order records are created, one for each issue with its expected arrival date. As and when the block of information in the In-Process file is processed, an order letter (mainly requesting for invoice) is printed. After receiving the invoice, the order file may be processed along with the financial information, to print an order letter. This letter may be sent to the vendor along with the cheque/draft. The steps involved in creating order records are given below:

1. Begin.
2. Read the first sub-block of the first block from the In-Process file.
3. Store the data elements appropriately in the memory allotted for the order record.
4. Read an issue No. and its expected arrival date from the second sub-block of the first block from the In-Process file.
5. Store them appropriately in the memory allotted for the order record.
6. Write the order record in the order file.
7. Create all the order records. (If there are 52 issues in a volume. 52 order records have to be created). Otherwise, repeat steps 4-6, until the records are created for each issue).
8. Process till all the blocks in the In-Process file are over and then stop. Otherwise go to step 2 to process next block.

Step D

Processing the Order file, depending on the requirements for:

(a) sending reminders;
(b) sending claim notices; and
(c) preparing holding file, etc.

Step E

Processing the Holding file to:

(a) get catalogue cards, book cards, due date slips etc.;
(b) complete and update the holding record; and
(c) get the binding statements.

Step F

Processing Fund File as well as Order file to obtain financial statements.

Programs to be Developed

The following programs may have to be developed to have an automated serials control system.

Program A

To create an In-Process file (This is exactly similar to that described in the case of acquisitions control).

Program B

To create an Order file and simultaneously print an order letter.

Program C

To process Order file (This may be similar to that described in the case of book acquisitions control) to:

(a) send reminder

(b) send claim notices

(c) create a holding record etc.

Program D

To update a record in the Order File/holding File (to insert, delete and search a record; to insert/modify, delete and search a data element within a record). (This may be exactly similar to that described in the case of an acquisitions control).

Program E

To obtain various print-outs or lists as and when necessary from the Order/Holding File.

Program F

To process the fund file in order to obtain the necessary financial statements.

Circulation Control

Circulation, as a library function, is very specific definable and similar to common business activities such as material handling and inventory control. Circulation control is mainly concerned with the clerical function of keeping track of documents taken out of the library by the user i.e., of charging, discharging, overdue control, reserves, and associated file maintenance activities. It is therefore quite amenable for automation.

Several mechanised systems were developed for circulation control since World War I with considerable successes. A few them are Dickman's book charging system, Gaylord system, etc. The most popular and efficient mechanised circulation systems which were installed in some of the US libraries in the early 1930s used McBee punched cards. In this system, the McBee card was filled in with the author's name, title call number of the book, the user's name and address; the edge of the card is then

punched, depending upon the date due. The edge is thus clipped off over to the hole representing specific date on which that particular document is due. To find out books which are due on a particular date, a needle was inserted through the hole representing that date lifting all the McBee cards. Cards which refer to the relevant books that are due fall into a group thus effecting their retrieval. The cards were usually arranged by the call number. So, the librarian had access to the file of McBee cards neither by the date due or by the call number. In the 1950s a few librarians attempted to use computer generated lists and unit record equipment; the IBM-357 data collection terminal was the most popular unit record equipment which was used for automating circulation systems. In the late 1950s and 1960s, several libraries made use of the first and second generation computers respectively for automating their circulation systems. During this time batch processing systems were very popular. The rise of third generation computers in the early 1970s has made it possible for libraries to take advantage of on-line facilities for circulation systems in the mid 1970s.

Development in this field has thus taken place from systems based on unit record machines to batch processing systems and finally to a considerable number of partial on-line systems and then to real time on-line systems.

Functions of an Automated Circulation System

Automated circulation systems can be either traditional or broad in scope depending upon the design objectives established by the library. Thus, one of the basic considerations in the design and selection of a circulation system is the definition of the role and objectives of a circulation system in the library.

A typical automated circulation system usually performs some or all of the following functions:

1. Provision of information on the location of circulation items-either all the items or only those items on loan or elsewhere, i.e. at the bindery, on reserve, being recatalogued, etc.
2. Identification of items on loan to a particular borrower or class of borrowers (e.g., off-campus users).
3. Recording of *holds or personal reserves* for items on loan but desired by another borrower, often with additional provision for notifying the library staff when the item is returned and printing of *book available notice* to the requestor about the availability of the document.
4. Printing recall notices for items *on long-term loan,* when required by others.

5. Renewal of loans.
6. Notification to the library staff of overdue items and printing of overdue notices.
7. Notification to the library staff of delinquent borrowers (i.e., those with unpaid fines/or overdue books) either at the time of an attempted loan, or at the time a borrower is leaving the institution, or on request from the library.
8. Calculation of fines, printing of fine notices, recording receipt of fines, and sometimes printing details of fine receipts.
9. Calculation and printing various types of statistics.
10. Analysis of both summary statistics and statistics for the circulation of particular items for use in acquisitions, planning of services and for other administrative purposes.
11. Provision for handling special categories of borrowers and special types of materials.
12. Provision for printing *due date slips,* automatically generating orders for lost books or additional copies and printing mailing labels for remote borrowers.

These above functions are obviously in addition to the primary functions of the systems—charging and discharging of documents.

To achieve these objectives, circulation systems are designed to record and manipulate the following three kinds of information:

1. Information about the borrower (call number, identification number if it is other than the call number, author, title, date of publication, etc.).
2. Information about the document (call number, identification number if it is other than the call number, author, title, date of publication, etc.).
3. Information about the transaction (such as date due or date of loan, and in some cases the time of loan).

These data are collected in a variety of ways. They way be entered by the borrower or by a library clerk and then keyed into the system. Alternatively, information on the borrower may be obtained automatically from a machine-readable identification card and information on the document borrowed may be automatically obtained from a previously punched book card placed in the book. In a micro system, information about both the users and documents may be displayed on the screens appropriately, by keying in the identification numbers. Then the relevant information may be re-written on a transaction file along with the transaction data.

Two Different Systems

Information regarding the documents can be considered either as transitory (i.e., recorded in the transaction file when only an item is removed from its normal location) or as permanent systems (i.e., stored in the transaction file irrespective of where the book is). These two types of recording systems are respectively also known as Absence and Inventory systems. In the Former, the records are stored only during a document's absence from its normal location, and in the latter, the record is permanently stored in the file as long as the document is a part of the library's collection.

The data structure and the medium to store the necessary information may depend upon the above two systems. In an Absence System, the document record must contain enough information to identify the document. At least, it should consist of the call number, author and title. In an Inventory System, the document identification can consist of an arbitrary, but unique identification number. This number may then be used to link the more complete bibliographic data stored in the document file.

In an Inventory System, the inventory file contains bibliographic records for all documents owned and therefore, the computer used by the library must have the capacity to process these records and to access them at a reasonable cost. On the other hand, an Absence System requires less file capacity and computer processing, and other things being equal, is less costly. Libraries with very large book collections may not find inventory systems economically feasible. In an Inventory Systems item information records are stored in a central file. On the other hand, in an Absence System these are stored in the books themselves, generally in the form of a machine-readable punched card. Absence System, however, cannot provide information about documents that are not in circulation or have never been circulated.

Because of the physical limitations in coding borrower's cards, all automated systems are of the inventory type when viewed from the perspective of the borrower file, i.e., a short, machine-readable identification code is assigned to each borrower and these codes are used to link the full records in a permanent borrower file.

Batch Versus Online Circulation Systems

Batch systems are usually dominated by the IBM-357 system. This machine accepts a punched card (end wise) in one slot and a plastic borrower's card punched with standard rectangular holes in another slot. For this system borrowers must, therefore, be issued with such cards and the books must have punched cards in them. When an identification card and a book card are placed in the device, the information from each is read automatically and transmitted by cable to an automatic card punch. The

transaction date or due date is also transmitted at the same time. Returns are processed in a similar way, except that a special identification card is used to indicate that the transaction is a return and not a loan. The transaction cards thus created on the remote punch for both charges and discharges contain all the required information on each transaction, and at the end of the day they are carried to a computer centre where they are used to update a magnetic tape file of all books in circulation. This updated file is printed out usually around mid-night and is made available the next morning for consultation by library staff and users (the list contains information such as the call number, borrower number, location of the book—if it is in reserve or at the bindery, *date due,* etc.) At the same time, an updating run is made, overdues identified, notices printed and statistics compiled.

But, in the recent past, many variations have been made on this basic pattern. Terminals other than the IBM-357 have been used; return transaction cards in some cases are produced while charging the book. The basic design of the system, however, remains the same.

The actual files are not directly accessible from the circulation desk in a batch processing system. The printed lists of the files are used instead. Depending on the size of the library, batch processing might take place daily or at any other convenient time interval. A certain portion of the files in the batch processing system is not accessible from the circulation desk until the next "batch" (job) is run.

Reservation for certain books and identifying delinquent borrowers can be dealt in a batch system by *having a trapping-store device* in the data collection system. Without the trapping-store device, this can, however, be achieved only after the event, i.e., details of delinquent borrowers or list of reserved books would be printed out by the computer after processing the latest transaction record which may not be very effective. However, better results are obtained in an on-line system.

The trapping-store system consists of an electronic store which is capable of holding document identification numbers. It can trap books when they are returned. This can be done electronically by checking the book number of a return transaction against the numbers held in the store. If the number is present, an appropriate lamp glows which is an indication to the assistant at the library counter. Thus, the trapping-store device gives some automatic control over reservations even in a strictly batch or partially on-line system. If there is no such device, then a printed list of reserved items can be checked manually when the books are returned.

On-line systems have certain advantages over the IBM-357 type or similar batch systems. In an on-line system, data are accessible at all times

from the circulation desk upon enquiry. The status of the availability of each item is thus current at all times. On-line systems also elimiante the need for bulky print-outs.

Reservations for certain books (which are in circulation) in an on-line system can be dealt with immediately by recording the fact that an item is reserved by a particular user.

The data related to the reservation is usually processed when the book is discharged or when the user is attempting to renew the book. Over-borrowing is solved simply by checking whether the borrower is within the allotted limits each time a book is issued. If a user tries to take out too many books, the computer can alert the library assistant at the circulation desk immediately about it.

One of the problems faced by libraries wishing to operate on-line systems is the lack of available on-line facilities in the parent institution. Users normally take out and return books throughout the working hours of the library and to provide such a dedicated on-line system is beyond the capability of many institutions.

To overcome this problem, a hybrid approach is often adopted. The main feature of such a system is the use of a library-in-house computer which offers some on-line facilities and a mainframe computer, usually belonging to the parent institution, for batch processing. The library-in-house computer may be a mini or a microcomputer. Some of the functions like charging, discharging, certain enquiries, reservation and detecting delinquent borrowers can be automated using the microcomputers.

In the context of recent developments in micros, both on-line and batch systems are not really relevant; one can develop an automated circulation system entirely based on microcomputers (either inventory or absence).

Required Data Files

The above discussion relates to one basic choice of data structure whether the records in an automated circulation system should contain all library materials or only those which are in circulation. Another design choice is how these files will be accessed by the library processing? Relating the concepts of Absence or Inventory Systems to on-line or batch processing systems, we may thus see that there are basically four types of automated circulation systems:

1. On-line Absence Systems
2. On-line Inventory Systems
3. Batch processing Inventory Systems
4. Batch processing Absence Systems.

Data structures and media for storing the information may, therefore, depend upon a choice of one of the above four systems. The files required with necessary data elements, access keys and the media to store the information for each of the above mentioned systems.

Methods of Inputting Identification Numbers

The simplicity of an automated circulation system depends upon how best we can record both the document and user identification numbers at the circulation desk at the time of charging/discharing a document. There are several ways of recording the identification numbers. Some of these are:

Document Identification Number

In an automated circulation systems, each document usually carries a punched card with some minimum required information for identifying the document. The minimum required data for a document are:

- Document Identification Number (=DIN) (12 characters)
- Authors (15 characters)
- Title (25 characters)
- Edition number, if any (2 characters)
- Volume number, if any (2 characters)
- Year of publication (4 characters)
- Name of publisher (10 characters)
- Place of publisher (10 characters)

The crux of the problem here is what should be the DIN? It can be any one of the following:

(a) Call number
(b) Accession number
(c) Serial number (which is different from accession number)
(d) ISBN
(e) Any other code such as author-title code.

The choice of DIN depends upon the hardware device used to record the DIN. For example, if one uses a light pen device to record DIN, one can even use coded labels as DIN such as a bar-coded label consisting of a few white and black bars of varied thickness. The bar codes can be affixed to the spine or inside back cover of the document. The choice of DIN further depends upon whether it is Absence or Inventory system. The DIN, in an Inventory System, can be brief since a record for each document in the collection is stored with complete information in a machine-readable inventory file.

User Identification Number

A user identification number (UIN) can be punched on a plastic card, if a suitable hardware device is available. It can even be punched on punched cards. But, in this case, the punched cards should be stored at the circulation desk which not only requires sufficient space, but pose some difficulties to retrieve at the time of charging and discharging a document. One can also give this through a keyboard in which case, UIN is typed for each transaction. It can be any one of the following:

(a) Roll numbers or Registered numbers assigned by the library or parent organisation

(b) Social security or insurance number, if any

(c) Name.

Design Factors

The above discussion leads to consider the following factors in designing a circulation system:

(a) choice of system (whether Absence/Inventory System)

(b) Mode of operation (batch/on-line processing)

(c) Method of inputting identification numbers

(d) Available hardware.

Library Management Information System: A By-product of Automated Circulation Control

A management information system is defined generally as a reporting technique. It provides the top management with the data required for its operation. In a library environment, compiling various statistics on the active users and collection from the automated circulation system for management could represent a MIS. Data on frequency of use, together with the data pertaining to the cost of retrieving and shelving of documents, will facilitate decision making with regard to different types of storage policies to be practised. For example, frequently borrowed documents can be shelved as primary storage in the main building of the library and the infrequently borrowed documents can be shelved as secondary storage, adopting either a compact storage in the campus or in an off-campus location.

A summary report on frequency of use also helps us to take decisions regarding:

(a) Ordering multiple copies.

(b) Replacement of "missing documents"

(c) Arranging for binding etc.

Further, it also helps us to organise transaction records relating to documents and users in circulation files in an automated circulation systems.

Thus, one can obtain a variety of statistics from the automated circulation control, after at no additional cost. These statistics can, in turn, be used for decision making purposes.

Cataloguing and Indexing

It has been so far amply demonstrated that computers can successfully be used as an aid to "cataloguing". The Ohio College Library Centre (OCLC), in fact, now provides an on-line cataloguing service in North America. It is less expensive and far more efficient than its participants can provide for themselves. In India, such a system does not exist. In fact, it is not economically feasible at present to have such a network in India for reasons such as:

1. Lack of telecommunication facilities; because of our insufficient telecommunication system, it is not economically feasible to have links (through dedicated cables) with international systems (like, OCLC)
2. Non-availability of bibliographies (such as, national bibliography) in a machine-readable form; even if they are in the machine-readable form, they may have very little use (for the purpose of cataloguing) since most of our libraries (especially academic and research libraries) acquire mainly foreign publications.

Under these circumstances, libraries in India must think of developing their own automated cataloguing systems. It can be developed easily as a by-product of a book-ordering system. If a few libraries in a region develop automated cataloguing systems, a library network similar to that of the OCLC may be possible in the near future.

The main activity of cataloguing systems is the production of catalogue cards. Because of the availability of high-speed printers, book catalogues are becoming extremely popular. In recent years, catalogues in microfiche are becoming very popular since they are least expensive and more durable than book catalogues. In a computer-aided cataloguing system, we can also produce, as a by-product of it, spine labels, book pockets and book cards for use in circulation systems. Also it further helps us to provide most economically cataloguing information to branch libraries. Procedures involved in cataloguing are:

1. Preparing worksheets.
2. Generating machine-readable records consisting of appropriate tags; these records can either be on punch cards or they can be stored directly on tape or disk (through terminals)

3. Verification of the machine-readable catalogues (CORC); it is usually on tape and key to the record is preferably through the call number.
4. Generation of added entries (such as author entry, title entry, series entry, etc.). These entries can be stored in a file called "inverted file". In this file, the records consist of data elements and the link to the main record in the CORC; the data element may be either author or title, or any other item which is in the main entry.
5. Generation of indexes and cross-reference entries. Records of the index files can be merged appropriately into the inverted file and the records of the cross-reference files can also be merged appropriately into the CORC. To generate indexes and cross-reference entries, it is essential to maintain a subject authority file.
6. Printing the records (from both the CORC and the inverted file) in card form, or in book form or in machine-readable form.

Cataloguing using Unit Record Machines

To develop an automated cataloguing system, we can use either unit record machines or general purpose digital computers. In unit record systems, cataloguing information is keypunched and the resulting punched cards are sorted into a desired filing sequence using sorters. Sorted cards are then processed using the tabulators to obtain either book catalogues or card catalogues. Tabulators may also be used to obtain added entries on punched cards. These punched cards have to be sorted again using the sorter to obtain a printed list. However, for a large library, use of unit record machines is prohibitive due to:

(1) Difficulties in handling large files of punched cards,
(2) Non-availability of lower case letters, diacritics, etc., in the unit record machines,
(3) Limited number of characters that can be punched in the unit record (i.e., punch card).
(4) Difficulties in arranging the records in a desired sequence.

Despite these limitations, a large number of book catalogues were produced in the 1940s by many libraries using unit record machines.

Machine Readable Catalogues (MARC)

Among the developments of MARC, the most important development is the programme of the Library of Congress for distribution of catalogue data in tape form. From these tapes, any library in the world can economically acquire machine-readable catalogue data, just as it has been able to acquire catalogue cards. The basic machine readable catalogue

record on a MARC tape consists of the Leader, the Record Directory, the Control Fields and the Variable fields.

Leader	Record Directory	Control Fields	Variable Fields

The control field consists of both variable control number and Variable fixed Fields. The leader is fixed in length for all records contains 24 characters. It is a set of fields describing the general structure of the individual entry. The Record Directory is an index to the location of the Control and Variable Fields in the record. It consists of a series of fixed length entries, one for each variable field in the record.

An entry in the Record Directory contains the identification tag, the length and starting character position in the record of each of the Variable Field. The Record Directory will end with a field-terminator code. Since the number of variable fields in a record can vary, the total length of the record directory is also variable. Variable Fields (including the control fields) are made up of variable length alphanumeric data. All fields end with a field terminator code, except the last variable field in a logical record which replaces the field-terminator with an end of record code. Each variable field is identified by a three character numeric tag in the record directory. Tags may be repeated as required in a logical record. However, tags associated with the control fields will not be repeated in a logical record.

A detailed outline of Leader, Directory, Control Fields and Variable Fields is given below:

- A Leader
- Record length
- Control Fields
- Variable Fields.

Description of the Data Elements: The total number of characters in the leader is 24, and there are nine data elements in the leader. There are actually three data elements (tag, field length and starting character position) in each field. The number of fields in the directory is exactly equivalent to the number of data fields (both control fields and variable fields) in the record Data elements for the control fields.

As has been pointed out earlier, a variable field consists of indicators, subfield codes, data elements and the field terminator. Further, each variable field is assigned a tag and the tag is stored in the directory. These are briefly discussed below. The directory, control fields and the variable fields are always terminated by a *Field Terminator*. Finally the last character in the record is a *Record Terminator*.

Indicators: Each variable field will begin with 2 character code which provides descriptive information about the field. The contents of the indicators are specified for the fields in which they are used. (If the indicators are not used with a particular field, they will contain blanks).

Subfield Codes: Variable fields are made up of a single data elements or a group of data elements. The subfield code precedes each data element in a field and identifies the data element. The subfield code consists of 2 characters. For the purpose of these specifications, the delimiter will be represented by "$", Subfield codes are discussed in detail in the MARC Manual.

Data Elements: All the data elements in the variable fields may have variable lengths.

Variable Field Tags: The variable field tags used for monograph cataloguing of records according to MARC of the Library of Congress. All variable field tags may be repeated; however, the nature of cataloguing data is such that many tags are not repeatable, e.g. a record for a monograph can only have one main entry and, therefore, only one field in the 100 series.

Subfield Codes in Variable Fields: The subfield code identifies the constituent data elements of a variable field. For example, the *imprint* field, tag 260, may have the following 3 data elements in its respective subfield codes:

Place	$a
Publisher	$b
Date	$c

Imprint data could appear as follows with hypothetical record directory entries and indicators carrying blanks:

- Directory: 26 000 45 2 0 8
- Data: BB a New Delhi $ b Wiley-Eastern
- Directory: 26 000 48 0 2 8
- Data : BB$a London $a New York $b Macmillan, $c 1965$c1964.

Cataloguing has been a traditional art and science of librarianship. The development of computer and communication technologies has contributed towards standardisation of the entry format and the cataloguing system at international, national and local levels. The drudgery in developing local catalogues and making them compatible for resource sharing with other libraries has been eliminated due to the development of machine-readable cataloguing system. Therefore, it is imperative on the part of librarians to adopt information technology for efficient access to

documents and their information contents. There are several international standards for Machine-Readable Bibliographic Records. Some of them are:

1. Standard for Record Structure (ISO 2709)
2. Standard for Coded Character Sets (ISO, 2202 and 2375)
3. Standard for Abbreviation of Periodical Titles (ISO 4)
4. Standard for Form of Calendar Dates in Numeric Form (ISO 2014)
5. Standard for names of Countries (ISO 3166)
6. Standard for Serial Numbering.

There are many other standards related to bibliographic level, language, script, physical medium, role of responsible person or body, etc. Among the various standard, those for the format of bibliographical records are considered as most important because of their applications in information handling. Formats for the bibliographical records may be grouped as:

1. Switching formats
2. Bilateral formats
3. Standard formats.

A switching format is used when we would like to switch from one system to another. A bilateral format is designed when two or more institutions agree to use the same format. A standard format may be used for a specific group of users for general use.

ISDS (International Serials Data System), AGRIS (International Information for Agricultural Science and TEchnology) and INIS (International Nuclear Information System) record formats are the examples of standard format adopted by a specific group of users. On the other hand, Reference Manual for Bibliographic Descriptions (RMBD, published by UNESCO), universal MARC format (UNIMARC, published by IFLA) and Common Communication Format (CCF, published by UNESCO) are the examples of standard formats designed for general bibliographic use.

The RMBD is typically employed by abstracting and indexing organisations; it includes rules for data preparation and it acts as a source for local and bilateral formats. UNIMARC is, however, mainly employed by national libraries to exchange MARC records. It is based on International Standard Bibliographic Description (ISBD). Although, CCF is designed for general bibliographic use, only those data elements which are useful for printed text are included in the standard. It is designed for both local use and for exchange of bibliographic data. Also, it is compatible with UNIMARC and RMBD. It is however, does not include any cataloguing rules and it has a provision to include local data elements. All the three standards (RMBD, UNIMARC and CCF) follow ISO standard for record structure, for coded character sets and for physical tape characteristics.

Computerisation of Indexing

Indexes are main retrieval tools for any documentation work. Author and subject indexes are accepted as the necessary parts of bibliographical information retrieval systems. The need for subject indexes has arisen mainly due to certain disadvantages of keyword indexes, taxonomic indexes, etc. These indexes quite often retrieve many non relevant documents; precision in retrieval is very less. The concept of keywords and uniterms has thus given rise to a variety of indexes which vary from one another in terms of the vocabulary control used in indexing and in the methods by which they seek to control noise in retrieval.

For quick production of these indexes, computers have been used increasingly since 1950; Which began with Luhn's work on KWIC indexes in 1957. This is primarily because of the fact that routines involved in their productions are easily amenable for mechanisation. Even in this, two distinct levels of attempts are possible.

(a) Merely to use the computer to automate the mechanics of compilation and printing of the hard copy of an index.

(b) To use the computer as an aid in arriving at and printing terms or words considered as suitable for indexing.

An entry in a KWIC index usually consists of one line of text printed in such a way that the particular keyword characterising the entry appears in an alphabetical order in the middle of the line, with both left and right contexts with the corresponding document reference number. The production of KWIC index is a simple mechanised operation consisting of text reading, filtering noise words and automatic sorting routines. The KWIC entries are usually generated from titles of documents; if the titles are not clearly indicative of the content, a KWIC entry will not be much useful in searching.

Other related automatic indexing products are author list, keyword lists, often called as Keyword-Out-Of Context (KWOC), etc.

8

College Libraries

In good old days a Library was a sign of pride and dignitaries and distinguished people kept their own personal Libraries. The common public could not have access to these Libraries. After that the public Libraries came into being but the Librarian was not as jealous a preserver as the dignitaries of olden times. The Governments then started institutional Libraries for the benefit of the readers. The primary purpose of the college Library is not only to provide reading material to supplement academic programme of the college, but also to encourage and promote the habit of reading much and reading well. To achieve this object a good Library is a must. A good Library must have a Growing Collection which could satisfy the urgent and dire needs of the readers. This kind of Library should, have a Modern Physical Plant where there should be adequate space for books and ample reading facilities for the readers.

Qualified and Adequate Staff

Qualified and adequate staff is essential to run a Library, because it cannot give proper service to .the readers if the staff is inadequate or unqualified. Faculty members can be of good help in this direction. They can motivate the students and create incentive to use the Library. They can suggest good books to the students for extra curricular reading.

The college Libraries are running on closed shelf system and the students often find it difficult to get books of their own choice. Open shelf system can help the readers in providing books of their own choice and this will help in the promotion of Library use.

Financial Support

Adequate funds should be provided to the Libraries so that good useful and latest books can be purchased where-ever available in the market. No addition to the existing stock of books is possible if adequate funds are not provided to the Libraries. It is a pity that no recurring grant is put

at the disposal of the Librarian well in time. Non recurring grants are often given to the Libraries just at the fag end of the year and in a limited period good selection is not possible. Regular Library grants according to the needs of the institution can go a long way to help the Library to add useful and good books to its stock.

Libraries are housed in small and dark rooms and they are run on closed shelf system. There must be ample space and proper facilities of air and light. Browsing facilities must be provided to the readers by segregating new arrivals in separate almirahs so that the reader can chose books of his own desire and needs.

The stock of the Library remains useless if the Library staff is not qualified. Qualified staff can save the time of the readers by giving them reference aid. The staff must be adequate as well because inadequacy of staff can badly hit the efficiency of the Library.

In books selection the help of the Faculty Members is a must because they can help the Librarian in the selection of good books in their own subjects. Library committee should help the librarian in all matters. Students' participation can be a great help to satisfy the needs of students.

College Libraries play a pivotal role for dissemination of knowledge. Teachers and the taught both benefit from it. Libraries are inseparable and integral part of educational institutions but maximum benefit is not being derived from them because there is a paucity of fund, no system of recurring grants, 'no acquisition policy and dearth of qualified staff. The students coming from schools are not familiar with Libraries because there are no Libraries in the schools under the supervision of the qualified Libraries. The school Libraries are housed in one of the class rooms and a teacher opens it for one or two periods daily which is an extra duty for him. He is not a qualified man for the job entrusted to him and moreover he is given no extra remuneration for the additional work entrusted to him. In this way an un-interested and un-qualified person runs the Library half heartedly and the students are not allowed to make the full use of the Library. When the students coming from the schools join the college for higher studies they do not have any idea of the Library use.

There is no union catalogue in the college Libraries which is a must because in this way we shall be able to know the holdings of all the college Libraries and inter-loan and inter-lending system can be started. The research scholars can make the best use of the Libraries and can locate the desired material they need. The rare books can also be made available to the readers by supplying them photostate copies of the required material.

In summer vacation the Faculty Members working outside their home district cannot make use of the Libraries because they are only allowed to use the Library of the institution in which they are working. To facilitate

the Faculty members in their reading programme, arrangements should be made to allow them to use any College Library nearer to their home district in the vacation.

Divisional Directorates are functioning without an Assistant Director for Libraries although posts of Assistant Director Colleges, Assistant Director for Schools and Assistant Directors for Physical Education have been established. There is a dire need of the post of Assistant Director for Libraries at Divisional directorates because the job of Librarian is purely technical and the inspection of the Libraries by a technical hand can go a long way in efficiently running the college libraries. It has been often seen that books in college libraries are not properly classified and catalogued. Inspections by the Assistant Director Libraries can help the Libraries in their proper functioning.

Library science as an optional subject at Intermediate and B. A. level is going to be introduced from this year in colleges which I think will help library orientation in the readers. Every literate person is Library minded and keeps his own Library how-so-ever small it may be. The inclusion of Library science as a subject shall promote the Library use and will make the people Library minded.

The Govt. has recognised the Libraries at National level and it is high time now to take immediate steps to establish an independent and. separate Library Directorate which should aim at promoting cooperation and efficiency in the existing college Libraries. I congratulate the Government for appointing a Director General for public Libraries and on the same lines a fullfledged Library Directorate is a must. I hope the Govt. will give sympathetic consideration to this proposal.

On the event of transfer of Faculty Members the books borrowed by them are often not returned to the Libraries. Students whose names are struck off for non payment of dues also do not return the Library books with them and thus the Library is deprived of many good and useful books. Proper steps for the recovery of this valueable treasure must be taken.

The college Libraries have not been standardised, that is why the Library staff has not been provided according to the size of the Library and number of students. Library buildings of equal size have been provided to different colleges and physical plants are not in accordance with the needs of the institutions. This is again all due to non-availability of standardisation scheme in the college Libraries.

Service Rules

It is regretable that no service rules exist about the college Librarians. They are very small in number and are very important persons in the colleges but they are serving without Service Rules and have got little chances of promotions in the hierarchy of grades. The Government is

requested to take immediate and proper steps for making Library Service Rules so that capable and qualified persons should like to join this honourable profession.

In the end I may point that the college Librarians are seldom regarded as influential policy making personalities. I may suggest that the qualified Librarians being technical hands deserve encouragement by the Government who should grant them reasonable status so that the capable and qualified persons join this profession. Thus Librarians will be in a position to render better service to the community.

Administrative Staff Libraries

Background

The administrative staff libraries include the libraries of those institutions which are engaged in imparting training and promoting research in the field of Public Administration. The Government of Pakistan under its well thought training policy had made different levels of training available for different administrators.

The first level of training that 'we have is to the pre-service training which is being imparted in A. A. T. Lahore. Broadly speaking, the Academy seeks to impart the basic knowledge and skills to a developed administrator with a special consideration of the requirements of District Administration. But his over all role as an administrative leader is kept in mind.

Second type of training is called in-service training. Generally given to officers of middle management level to develop their managerial capabilities so that they may themselves handle their jobs much better than they did before undergoing this sort of training. This training is being provided in two NIPAs at Lahore and Karachi.

The third type of training is also-in-service training for very senior people given in the Pakistan Administrative Staff College, Lahore. The training is for officers of Joint Secretaries status and above making them good planners and policy makers. There are two Acadmies at Peshawar one known as PCS Academy and the other known as PARD; and another Institution Local Government Training Institute. Lalamusa intended to develop and prepare local leadership and field officers of Local Government and Rural Development.

Another common feature of these institutions is, that they are engaged in the promotion of research and publication of material in the field of Public Administration. These institutions with their inception under their own functional necessity have given birth to those units which are called libraries in each institution. These training institutions have to achieve and perform specific objectives and functions. Libraries in these institutions have to support and cater for their needs in achieving their objectives.

Since these libraries have specific functions to 'perform, therefore, they are called special libraries.

Existing Conditions

For this purpose these libraries are containing a collection of more than two lacs titles. They are receiving near 70 foreign professional journals and all the local professional journals. They are also maintaining bound volumes of important national newspapers. Each participant during his training period in these institutions has to write an essay or report or research paper on a particular topic. All these documents running in thousands are properly listed and placed in the library. Indexing of important journals and newspapers is also done in at least two of these libraries.

Cuttings and clippings of important articles from the newspapers is done and properly arranged. Verticle files of ephemera material are being maintained properly. Material for trainees and trainers participating in group discussions, syndicate meetings and seminars is provided and arranged according to the courses. In these institutions librarians are particularly involved in delivering lectures on the techniques of utilizing library resources, research methodology, format of the paper and bibliographic citations.

The whole course and syllabus is designed in such a form that library becomes an integral part of the entire system of training. Four libraries are manned with properly trained personnel placed in NPS. 16 and 17. The libraries which do not have any trained librarians are being run by virtue of long experience of the staff working in these libraries.

Most of the libraries are placed in new buildings and sufficient space is provided to accommodate the collection and its growth in future. One library has a space problem which shall be solved very soon. Two libraries are fully air conditioned. The annual budget for basic purchase in these libraries ranges from Rs.30,000.00 to one lac.

Problems and Suggestions

Library Cooperation

There is no system or arrangement of inter library loan among these libraries. The librarians however cooperate with each other in some cases because of their personal relations. A system of inter library loan should be established. Definitely it will promote the cause of research, training and education.

Exchange of Information and Publication

There should be agreement for the exchange of library information. They should be able to know the contents of the other libraries. As a matter

of fact there was a system of exchanging main entry cards between NIPA, Staff College and Administrative Science Department. This was an unofficial arrangement of the Librarians of these libraries. Due to transfers, postings and changes of Librarians this could not be continued. The same can be revived temporarily until we reach at some system duly sanctioned by the concerned authorities.

Staff

Another problem is to equip the libraries with qualified professional persons. This problem is due to the fact that there is no proper line of promotion and cadre in these libraries. As a result one institution could not appoint its librarian in NPS. 17 inspite of repeated advertisements. In another institution the post of librarian was down-graded from NPS. 18 to 17 because the man of required qualifications was not available.

Subject-Headings

The conventional cataloguing tools specially Sayer's list of subject headings and L C. are not sufficient to provide the micro approach to the subjects. In this respect the librarians of these institutions may sit together and prepare an additional list of subject headings which are generally needed in these libraries.

Problems of Public Library Development

The Public Library is a practical demonstration of democracy's faith in universal education as a continuing and lifelong process in the appreciation of the achievement of humanity in knowledge and culture. The Public Library is the principle means whereby the record of man's thoughts and ideas, and the expression of his creative imagination, are made freely available to all (UNESCO).

Definition of Objectives

1. To assemble, preserve and administer books and related educational materials in organised collections, in order to promote, through guidance and stimulation, an enlightened citizenship and enriched lives.
2. To serve the community as a general centre of reliable information.
3. To provide opportunity and encouragement for children, young people, men and women to educate themselves continuously.

Public libraries participate equally in the formal and informal education of the nation. They also wage everlasting combat with illiteracy in all forms.

The aim for the public library must be to sell itself, go out and promote its services. The library, if it is to play its complete role in society, must

not be passive to make books available when needed by a potential reader, but very active to stimulate the use of books.

The public libraries should be established under the clean mandate of law so framed as to ensure nationwide provision of public library service. Organised co-operation between libraries is essential so that total national resources should be made available to everyone for use. Public library should he-maintained wholly from public fund and no direct charge should be made to everyone for its services.

We do not believe that Pakistan Government was ever ignorant of the importance and role of libraries in education. We note that the Planning Commission (1970—75) recognised the importance of public libraries and in Fourth Five-year Report it maintained ... "if country's millions are to be given lasting literacy, useful and interesting reading materials should be made available through the establishment of chain of libraries in small towns and villages. The success of all our programmes for functional literacy, formal education, social enlightenment and development depend upon the existence of public libraries to provide continuous education at various districts and divisional levels during the Fourth-Five Year Plan with mobile services to reach the remote places."

Major Problems in the Public Library Development

Library Legislation

We have been discussing time and again various problems that have impaired library development in Pakistan for the last 35 years. Many proposals and schemes were prepared by the professional hands and submitted to the authorities for consideration and implementation. All such efforts have gone waste. It is pathetic to note that still a large number of educated class of people are not aware of the advantages of libraries. To them, libraries are something apart from educational system. This sort of attitude amongst the educated class has given great set back not only to the development of public libraries in the country but also to the institutional libraries of formal learning. The library history of the developing and the developed world reveals that library service developed in the right direction only when their governments officials were convinced about the benefits and usefulness of library services. The very right and first step they took was the enactment of library legislation. No plan or policy of library service could be launched successfully without suitable library law.

From amongst the development countries, the U.S. and the U.K. had library legislations in 1845 and 1850 respectively. Other advanced country of Europe had adopted library Acts in between 1920 to 1930s. For example Russia has based her library service on legislation passed in 1921. Japan

is the first Asian country which could be proud of and take credit for an enactment for the establishment of libraries. Its government passed a library Act as early as 1899 for organizing library service on a country-wide bases. By 1948 four India states had library Acts. Some of African countries as Ghana, Kenyia, Tanzania, Uganda, Zambia, Gambia etc., which hastened to adopt library Acts have now well-established public library system with them.

In Pakistan, if we are seriously interested to provide library service to the nation, we must prepare and adopt library legislation without further loss of time.

Library Authorities

The second step which is essentially taken is the creation of library authorities to carry out the provisions of legislation and to guarantee the systematic growth and development of library services in the country.

To break the 35-year old static state of library conditions in the country a National Advisory Council for libraries should be created in the Centre to lay down policy and coordinate library development plan in the whole country. This Central Authority should help the provinces to enact library laws expeditiously. The establishment of the following library authorities in the provinces at the initial stage is indispensable and long overdue:-

1. Provincial library authority
2. Divisional library authority
3. District library authority.

Provincial Library Authority

It should be a statutory and autonomous body responsible to the Minister of Education for the provision and development of public libraries in the province. It should be purely advisory body with limited administrative powers.

Divisional Library Authority

This authority should be a co-ordinating and advisory body and be responsible for co-ordination and development of library service in all the districts falling within its jurisdiction. This should also act as liaison between the district and the provincial library authorities.

District Library Authority

This should be the main administrative unit and should be responsible for the establishment development of library service within its area. Such a body in principle, should be an autonomous unit entirely responsible for library administration in the district.

Directorate of Libraries

A Directorate of libraries within the Ministry of Education is a must in each province, and professionally trained and experienced librarians be appointed as Directors. This agency should be responsible for the implementation of policies prepared by the provincial library authority.

Standing Library Advisory Committee

It should not be out of place to mention here for the first time, in the history of Pakistan, a Standing Library Advisory Committee was established by the Government of Pakistan, Ministry of Education, Islamabad in early 1981. First meeting of this Committee was held on 23th February, 1981 in the office of the Ministry of Education, Islamabad. After deliberations a Technical Working Group consisting of technical experts was formed with the purpose to survey the existing facilities and to assess the requirements of libraries at the divisional, district and tehsil levels. It was also envisaged that the Technical Working Group would also prepare a Five Year Plan of Development of Public Library System in the country. This was a scientifically correct step taken in the right direction for the solution of library problems in Pakistan. But unfortunately further progress of this Committee seems to have jeopardised.

Problems Before the Existing Public Libraries

Management Problem

Most of our public libraries are being operated under the outdated management system. If we study their management structures, we will find that committees are piled on committee and meetings on meetings and rhetoric has overcome action. A lot of public librarians' time is spent in preparing Committees agendas or compiling minutes and other secretarial work. The position of librarians has been relegated to clerks. They have not been given even essential administrative, executive or financial powers to run the libraries efficiently. We have to change such dated management structures and substitute them by the new efficient and workable systems. There should be only one library Advisory Committee and the Librarian must be its Secretary.

The Library Operation Policy

For an efficient and successful internal administration of the library, it has been practice in the advanced countries to provide written policy statement to the librarian for running the library. A library policy usually includes matters like:-

1. Acquisition and preservation of material.
2. Technical matters.
3. Reference and lending facilities to members and non-members.

4. Withdrawal/writing of unwanted, worn out, long overdue reading material and the disposal of rubbish etc.

Such policies are prepared and approved by the library Advisory Committee or the Boards of Trustees. The librarian is then fully authorised to work within the framework of that approved policy with the least disturbance from any side. Any problem arising out of it which warrants amendment, revision, or the new library services to be provided to the community etc. are referred to the library Committee or Board for consideration and decision. But unfortunately in Pakistan the big public libraries do not have library operation policy. The librarians have to work in vacuum and chaos. We cannot hope for any improvement or good work in such circumstances.

Library Co-operation

Library co-operation rests on the amply proved principle that no single library, however large and well provided, can at all times and from its own resources satisfy all the legitimate demands that may be made upon it and that the whole of the collections in the country should be regarded as a single pool of book resources available under suitable conditions to any one.

To date there does not exist any kind of co-operation or co-ordination amongst the libraries in Pakistan nor is it feasible under the present circumstances. There is no need to enumerate here what types of co-operation are found in the libraries. But this is a proved fact that we cannot conceive of any co-ordination amongst the public or any other libraries without having statutory controlling authorities over them. All sorts of co-ordination and co-operation amongst the libraries entails administrative, technical and financial implications which are sorted out and decided by the controlling authorities before we expect any move to this direction.

Shortage of Trained and Experienced Librarians

Today all the libraries in Pakistan are facing a serious problem of the shortage of trained manpower. Due to un-attractive service conditions and brain-drain a large number of qualified librarians have left the country. This challenge can be met by expanding library education in Pakistan at graduate level. A comprehensive scheme of fellowship and scholarship be prepared for advanced professional training and study to be carried out abroad for the working librarians.

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