COMPUTRISED INFORMATION STORAGE AND RETRIEVAL IN MEDICINE

A SELECT ANNOTATED BIBLIOGRAPHY

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BY

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This is to certify that the M.I. & L.Sc. dissertation of Mr. Mehd. Yousuf Ansari on "Computerised Information Storage and Retrieval in Medicine: A select annotated bibliography" was compiled under my supervision and guidance.

I. Husain

(Shahabuddin Division)
In Loving Memory

of my

Father

Late Mr. Noor Ali
Behold, in the creation

Of the heavens and the earth;

In the alternation of the Night and the Day

In the Sailing of the Ships

Through the Ocean

For the profit of mankind,

In the rain which Allah

Sends down from the skies,

And the life which He gives therewith

To an earth that is dead,

In the beasts of all kinds

That be scatters through the earth,

In the change of the winds

And the clouds which they

Trail like their slaves.

Between the sky and the earth,

(Here) indeed are signs

For a people that are wise.

Quran (Ayat: 2.164)
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(MOHDE. YUNUS ANSARI)
ABBREVIATIONS

ACMC - Association of Canadian Medical Colleges.
ADR - Adverse Drug reaction
AIHeLA- Albanian Health Libraries Association
AI - Abstracting and Indexing
AIDS - Acquired Immune Deficiency Syndrome
AMA - American Medical Association
AYA - Acute Yellow Antropy
BB - Bibliography of Bibliothic.
BIOSIS- Biosciences Information Service of Biological Abstracts.
BRS - Bibliographic retrieval services.
CA - Chemical Abstract.
CAB - Commonwealth Agricultural Bureau.
CAIN - Computerised AIDS information Network

CANCERLIT-Cancer Literature
CATLINE - Cataloguing online
CATS - Computerised Acquisitions Tracking system
CDIF - Consumer Drug Information
CD-ROM - Compact Disc Read only memory
CHID - Combined Health information database.
CHLA - Canadian Health Libraries Association
CISTI - Canadian Institute for Scientific and Tech. Inf.
CMA - Canadian Medical Association
DHSS - Department of Health and Social security.
DIF - Drug Information Full text
EMED - Ecerpta Medica
FDA - Food and Drug Administration
FID - Federation international de La documentation
GaIN - Georgia Interactive Network
HELLS - Health Literature Library and Information services
HELMIS - Health Management Information services.
HELP - Health Evaluation through Logical Processors
HLSP - Health Literature services program
IAIMS- Integrated Academic Information management system.
IANE- Institute of Advanced Nursing Education
IBM- International Business machine
ICD- International Classification of Diseases
ILL- Inter Library Loan
IM - Index Medicus
INPADOC- International Patent Documentation centre.
IPA - International Pharmaceutical Abstracts
IS - Information services
IUSD - Indiana University school of Dentistry
JHMI - Johns Hopkin's Medical Institutions
JICST- Japan information centre for science & Technology.
LAN - Local Area Network
MBS - Medical Behavioral Sciences
MCIC - Medical Centre Information and Communication
MCW - Medical College of Wisconsin
MEDIS - Medical Information services
MEDLARS - Medical Literature Analysis and Retrieval Service
MEDLINE - MEDLARS online
MHLA - Manitoba Health Libraries Association
MIQ - Medical Information Quick
MLNC - Missouri Library Network Cooperation
MRC - Medical Research Council
MeSH - Medical Subject Heading
NAHL - Nursing and Allied Health Literature
NLH - National Library of Medicine
NYH - CUMC - New York Hospital Cornell University Medical Centre
OPAC - Online Public Access Catalogue
PAHD - Pan-American Health Organization
PC - Personal computer
PDR - Physicians Desk Reference
PGHEC - Postgraduate Medical Education Centre
PRECIS - PRE served Context Index System
PSRMLS - Pacific South West Regional Medical Library Services
LA - Quebec Library Association
RCN - Royal College of Nursing
RFP - Request for proposal
RML - Regional Medical Library
RTECS- Registry of Toxic Effect of Chemical Substance
SDI - Selective Dissemination of Information
SML - Scott Memorial Library
SMLM - Selective Medical Library on Microfiche
SMS - Serial Management System
SNOMED - Systematized Nomenclature of Medicine
TOXL - Toxiline
VDT - Video Display Terminal
VDU - Visual Display Unit
WHO - World Health Organization
WPIC - Western Psychiatric Institute and Clinic
INTRODUCTION: The impact of computer on documentation and information handling is becoming evident in many ways. Although at present there are relatively few computer-aided systems operating in information and documentation centers specially in developing countries which computer offer for improved information services. As new systems are developed and put into use, the distinction between computer information and documentary information will become less and patterns of providing information will change drastically.

In 19th century, the pace and scope of research quickened, and the communication of the results of that research led, inevitably, to an increase in the volume of publications. The growth of specialisation in Medicine produced a like effect, with the proliferation of books and journals devoted to particular subjects. The production of such publications required, to an ever-increasing degree, resources in finance, manpower, and ultimately, in computers, which could only be developed by organisations and governments.

In these circumstances literature searches particularly in Medicine used to take a number of hours and days in libraries scanning through periodicals, reports, patents,
etc. This was a very tedious job. As the literature in various subject fields in Medicine sources increased due to information explosion, such searches became more and more time-consuming. For reducing these difficulties, indexing and abstracting services were started in the beginning of this century, with abstracts of periodicals, articles, reports, patents, etc., which are prepared and arranged in helpful order. After the advent of computers, these services were compiled with the help of computers and the information collected regularly was stored in machine and that gave rise computerised storage and retrieval systems in Medicine services over the years there has been a growth of computer-based storage and retrieval systems for medicine. It is for this reason the present topic titled "COMPUTERISED INFORMATION STORAGE AND RETRIEVAL IN MEDICINE" has been selected for the purpose.

1. **AIM AND SCOPE**: 

   The present study displays in the form of annotations all the significant literature that is available in the field of "Computerised Information Storage and Retrieval in Medicine". Although the bibliography is selective in nature but exhaustive, and an attempt has been made to cover all important aspects of 'Computerised Information Storage & Retrieval in Medicine".
I am confident that the bibliography will be useful to all those who have some interest in the field of computerised Information Storage and Retrieval in Medicine. Research Scholars in the field of "Medicine will find it helpful.

The part I deals with Introduction or Readings. The part II, which is the main part of the present study consists of an annotated list of 250 articles on the subject. There entries are not comprehensive but are fairly representative on the subject. Part III, however, deals with indices and list of periodicals.

2. METHODOLOGY:

To collect material on the subject, secondary sources such as Library literature, library and information science Abstract were consulted to approach primary sources which include periodical, articles and conferences. The title of the periodical used for compiling the bibliography are listed as in part III of the bibliography.

Abstracts are mostly informative based generally on the author's abstracts as it is generally assumed that author is the best person to summaries his article.
(i) **Standard Followed:** The Indian Standard recommendations for bibliographical references (IS: 2381-1963), titles of periodicals are written as it is available in the article and classified catalogue code (CCC) of Dr. S.R. Rangunathan have been followed. In certain cases, where the said standards became unhelpful I have preferred own judgement (local variation).

(ii) **Subject Heading:** Attempt has been made to give co-extensive "subject headings" as much as possible and allowed by Natural language if more than one entry comes under the same subject heading, these are arranged alphabetically by the author(s) name.

(iii) **Arrangement:** The entries in this Bibliography are arranged alphabetically among the subject headings.

The entry element of the author is in capitals, followed by the secondary element in parenthesis using upper and lowers and then the title of the articles subtitle(if any), then name of the periodical being underlined followed by the volume number, issue number, the year, the month in abbreviated form, giving by using inclusive notation of the pages of the articles. Then each entry is followed by an indicative abstract of the article.

Entries of periodical articles are arranged as follows:
(a) Serial number
(b) Name of the author/authors
(c) A full stop (.)
(d) Title of the article including sub-title and alternative titles if any (with its punctuations).
(e) A full stop (.)
(f) Title of the periodical being underlined
(g) A full stop
(h) Volume number
(i) A comma ( , )
(j) Issue number
(k) Semi colon (;)
(l) year
(m) A comma ( , )
(n) A comma ( , )
o Month
(p) Semi colon (;)
(q) Inclusive pages of the article
(r) A full stop (.)

(iv) **Sample entry:** KUNITA (Hatsuo) and TOSHKAN (Yakagaku). World medical materials 2: North American region. Pharmaceutical Library Bulletin 32, 4; 1987, Oct; 241-64.
(iv) (a). **Explanation:** This article is taken from the periodical "Pharmaceutical Library Bulletin", which is entitled as 'World medical materials' written by Hatsuo Kunita and Yakagaku Toshikan, in 32nd volume, in the fourth issue number of the month Oct of the year 1987, on the pages from 241 to 43 against this entry the number has been given.

(v) **Conference Proceeding:** The items of information for each entry of a conference proceeding are arranged as follows:

(a) Name of the author
(b) Full stop (.)
(c) Title of contribution including subtitle and alternative title if any.
(d) Full stop (.)
(e) Connecting word, such as 'In' being underlined
(f) Number of conference in words
(g) Name of Conference
(h) Place

(vi) **Specimen Entry:**

PART - 1

INTRODUCTION
A - INFORMATION AND ITS CHARACTERISTICS

Information is becoming a vital raw material in our rapidly changing, highly cost oriented society.

We are living an information world. This has evolved because of progress in various disciplines—mainly in science and technology. The information is increasing day by day that we are confronted with information explosion or in other words an exponential growth of information. An information which is a path to knowledge is such a thing which can not be done away with because it has become old. Because it is on an old piece of information that new thoughts, new concepts are generated.

Thus, there is a great need for storing the strong information so that the new generation can use this information and make further progress. However, it is not merely storing the information that is necessary, but is more necessary is retrieval of this information when needed by someone. Hence the concept of management of information so that communication, distribution, availability, and access can be made easier.
The word "information" is used in the English language to identify many different concepts. However, it is extremely difficult to define it precisely.

1. Sometimes the following distinction is made between information and data: information is obtained from the processing of data i.e. information is obtained from the assembly, analysis or summarizing of data into a meaningful form.

2. Information is the essential ingredient of any control system (Edwards).

In order to formulate a precise definition of information (i.e. how information differs from knowledge, data, fact) a great deal of pure research needs to take place, much of it of a fairly abstract and philosophical nature. Despite this difficulty, an understanding of how different individuals have tried to define and quantify information is valuable. Information workers are dealing with a commodity, and it is important that they understand the scope and meaning of this commodity. Much of the research into meanings will lead up blind alleys, or produces definitions irrelevant to our type of information work, but at the very least it will ensure that information workers understand that there are very many views as to the nature of information.
Gutenburge, in 1455 has contributed immensely to transfer of information from one printing on human civilisation and growth of knowledge is enormous. It has significantly changed the social, economic, political, educational, scientific technological, and cultural activities of human beings. There have been tremendous advances since Gutenburge, in printing technology, in book production methods and other media. It present enough information to occupy the reader for a convenient quantum of time and offers great flexibility of front and format.

Information is becoming big business. Do Solla price identified a take-off point when little science become Big Science; now a point is being reached when information itself takes off to a higher level of understanding, status and power. Machlup estimated that the knowledge industry, including education broad-casting and research, was growing at a rate of 10 per cent per annum and estimated its share of gross national product at 23-29 per cent in 1958. At that rate the share of GNP in the 1970s for the American knowledge industry must be over 40 percent.

Information is international resource and punishable information should be made freely available. About all institutions and organizations are engaged in research and
National Information Policies are being developed suitably to promote awareness and utilization of existing universal information resources. Information resources liberally include bibliographic information as well as data basis, patents, standards, periodicals etc. and other factual information. In the category of non-print material the computerised data basis are most important tools which have definite and quick impact on science and technology. Many data basis are in house version of printed abstracting and indexing services; some include science and technology in general and some exist in specific subject fields such as Medicine, Agriculture etc. These data basis store million of pieces of information. Several global information systems and networks are in operation by Government and private agencies.

The literature is world wide in origin, international in language, divers in subject content, complex in form, uneven in qualify and tremendous in amount. The research literature in science and technology is being published in 80 different language of the world. Over 5% of the literature published in English, 20% in Russian, 7% in German, 5% in French, 4% in Japanese, 3% in Italian and Spanish and remaining in other languages. In science and Technology about 95% cited literature is available in
periodicals and serials. Literature of the world doubled itself for the first time in the year 1700, the second doubling of knowledge occurred in 1900, the third in the year 1950 and the fourth in 1960. It is now estimated that literature in science and technology doubles itself within 5 to 7 years. The total amount of knowledge doubles 10 to 12 years. The researchers would definitely lose his way in the mass of knowledge and information but for existence of certain useful tools and services of information help them some extent. In his opening address to the Joint Conference of Aslib, the Institute of Information Scientists and the Library Association in September 1980, Professor Saunders described information as the 'Unscore' resource and suggested that many of our present problems arise from the sheer abundance of this resource for, no matter how much use is made of it, it is never consumed in the manner of material resources, and continues to grow at an explosive rate.

2- INFORMATION SERVICES & SYSTEMS

To many people this is an accepted feature of the post-industrial society in which the emphasis is on services rather than material products and in which information provision, stimulated by revolutionary developments in which technology, will be one of the fastest growing of all services. Few would doubt that the present marriage
of computer science and telecommunication will enormously increase the availability and accessibility of information of all kinds, and some have suggested that, eventually as the services provided by the electronic processing systems become more sophisticated, the librarian and information specialist, in the role of intermediary, will no longer be needed.

However, that time has not yet come and, as many people have said many times, information is not knowledge and the capacity of the human mind to absorb information and integrate it into an existing store of knowledge has not changed significantly in thousands of years. Eventually, no doubt, that particular barrier will be overcome by the machines itself but in the meantime the intermediary's task remains, as it has always been, to select, organize, control, analyse, evaluate and dessaminate and thus, for each individual's user, to provide only what can be usefully absorbed and is relevant to a particular situation.

Above all there has been an increasing awareness of the fact that information does not recognize national boundaries. There have been significant developments at the international level in such areas as bibliographical control and interlending and in the creation of information transfer networks. These developments have encouraged
many national governments to look again at their policies in the information field and to play an increasing part in the creation and support of national networks and their constituent parts.

The most important effect of all these developments is that it is now possible for most libraries to use external services of one kind or another on a demand basis to supply many of the needs previously met by anticipatory acquisition and local recording, thus removing many of the restraints imposed by local inaccessibility. There is, of course, a cost attached to this method of operation which may or may not be less than that incurred in doing the job by traditional methods. Whether it is less or not, it is certainly more explicit and immediate and has led to a trend towards cost recovering not only in relation to external users but within the special library's parent organisation itself. In those libraries founded from the public purse it has led to some heart-searching since there is an inherent conflict between pricing information to recover costs and encouraging the use to recover costs which contributes to national or corporate goals and this problem remain to be covered.

The majority of special libraries and information units, particularly in industry are concerned with both internally-generated and externally-generated information;
the former may be much less than the latter in terms of quantity but is often more demanding in terms of the effort which has to be devoted to it. The present trend is many organisations is to reduce to a minimum the in-house processing of externally generated material and to rely on external services which are set up to do this provided, of course, that these services are reliable and of the necessary high quality.

It is no longer sufficient for the information unit to be merely reactive to the demands made upon it. The most significant characteristic of information is that it enables all other resources to be used more effectively and the information manager should be continuously seeking ways in which interactions of this kind can take place within the organization. The real transition will come when, instead of adopting electronic devices to existing conceptual methods of handling information, new ideas are developed for information storage and retrieval which can exploit more effectively the capability of electronic processing systems and thus provide services more closely related to needs and behaviour of information users. There is now a certain inevitability about the growth in the use of computers for library house keeping. Librarians will increasingly be under pressure to keep down costs. This is achieved by containing staff numbers,
standardization, co-operation and improved efficiency throughout the system and it is accepted that automation can greatly assist this when applied properly. With more libraries than ever turning to computers for help, professional staff are forced to consider automation as the modern solution to library service problems. The encouragement is derived from the rapidly dropping prices of equipment, remarkable increase in its capabilities, the benefits of having data in machine readable form and the cooperation made possible by the use of computers.

Anyone asked to provide specifications for automating a library service should expect to begin by establishing objectives. There is little doubt that failure to do this will lead to unsatisfactory systems design and considerable frustrations. The reasons for automation can be summarized as follows:

(i) To save money by improved efficiency
(ii) To maintain the service by higher productivity
(iii) To extend the service
(iv) To permit fuller or wider co-operation
(v) To provide better controls.

Some may achieve all these, but the choice effects the overall design of automated systems and indeed may
determine whether a computer should be used at all. It is generally agreed that computers rarely save money in the short term, since capital outlay, installation and maintenance costs, with inevitable enhancement and replacement, all require considerable sums of money for the larger library systems in which economics are most needed. The use of computers does however avoid the need to employ more staff because the system becomes less labour intensive allowing fewer staff to cope with an increasing workload. While members of staff may feel that jobs are threatened, in reality there are few occasions when redundancies are possible. What automation can do is to permit an alteration in staff structure such that fewer staff might be employed in cataloguing, for example, and so can be transferred to other duties; then, too, unskilled and part-time staff can be used to operate automatic circulation control systems at a lower cost. Certainly libraries have been able to achieve considerable savings by transferring the catalogue to microfiche through a bureau service, or even putting it online. Undoubtedly computer-based files for items on order, receipts and loans, provide accurate, consistent and relatively fast access and updating. The result is quicker turnaround, greater productivity and better data.
The logistics of systems choice are likely to present some difficulty because the pace of technology quickly alters possibilities. Many find it almost impossible to make a decision amongst a continually changing set of characteristics. However, while it is not possible to freeze technical advance to bolster confidence in a decision, it is necessary to be very careful over the matching of the specifications and the system purchased. If the match genuinely affords what is wanted then systems offering more than that are not relevant. It should also be remembered that no automated system is static, so there will be replacement at which time consideration can be given to upgrading to take advantage of subsequent development in techniques or equipment. The point to be emphasized here is that if the system chosen does the job, then the appearance of alternatives after selection has been made does not detract from the validity of that choice. It is generally accepted that there are 4 possibilities:

(i) In-house developed systems
(ii) Turnkey systems
(iii) Bureaux
(iv) Co-operatives.

No attempt has been made to provide the facts and figures about individual automated library systems,
since each is so different. Once the prospective computer user has decided on the way in which this machine is to be used, then is the time to go and talk to the systems librarians and those working the automated systems which parallel most closely the conditions obtaining in the library. Similarly reading about systems which offer UKe approaches is best done after all the constraints on the design are known. It is significant that today, U.K. Co-operatives like BLCMP, SWALCAP, SCOLEAP and Last... and services like Blaise LOCAS are attracting increasing numbers of libraries. Not only do such systems avoid the many pitfalls and lengthy timescales of local development, but also they provide strength from unity, economic from sharing from unity, economy from starving, and benefit from quality.

3- INFORMATION STORAGE AND RETRIEVAL

The field in which we are today engaged is a branch of human communications, within which there are two further subdivisions.

The first such subdivision may be thought of as instantaneous communications in which the communication is between a transmitter and a receiver at a given time. There is what we call a one-to-one correspondence between
the symbol (code) and the item (message) of information. Generally, the job is finished when the messages or symbols have been transmitted. There is often a rapid error correction process whereby the receiver can reply as to whether or not he received the symbols. Communications engineering and information theory have had wide application to instantaneous communications. The second subdivision is that of non-instantaneous communication, in which the communication between transmitter and receiver is not at one time. This the area of storage and retrieval of information, and there may be a gap of years between the writing (transmission) and reading (receiving) of information.

In storage and Retrieval there is either a many-to-one or a one-to-many relation between the symbols (terms) and items. In other words, each item may have associated with it many symbols. Because we are dealing with systems involving more than one person it is difficult to get agreement on a unique set of symbols for a set of items (or vice versa) and the problem of what to transmit, store or retrieve become confused with the problem of what is contained in the item. In addition, the error correction process is not necessarily quick in storage and retrieval. It may take a long time before it is realized that the system was not designed properly.
Storage and retrieval theory applies to this area of non-instantaneous communications.

Let us agree for the moment that the relating of ideas and the symbols we need to express them is simply a problem of using different numbers of symbols or combinations of symbols for storing and retrieving items.

If there is a situation in which for each physical item there is exactly one code that can be assigned, we do not have a difficult retrieval problem; the item can be arranged in a fashion that will be known to all the users and the user can go directly to a particular address for a desired item. The problem of retrieval in a system where there is only one idea or one address for each physical item is a problem merely of structuring the storage system in an optimum manner. On the other hand, a storage and retrieval problem arises when there is no unique way to set up a single idea or a single code for each item and, conversely, for each idea and each symbol a unique item. If the information desired may be located in many places and in addresses which are not known in advance, a retrieval problem results.

There are various tools and techniques for storage and retrieval, some in the fancy hardware form, and some in the simple...
hardware form such as library catalogs or printed bibliographies. Each technique requires preparatory work. First, you have to get access to it before you can index it, so there is the problem of acquiring material.

We then have the intellectual job of determining what in the document is of importance. We then apply a coding system or classification scheme, any one of hundreds of which might be suitable. We then have the problem of machine—other the machining involves books or instructions in a computer. It is then necessary to get the answer out in some form, which in some cases may require conversion before we can use it. We then have to look at the document in terms of the specific requirement for a specific job. Normally it ought to be possible to cut out the obvious touch and save a user's time. The information must be in the form which is usable; this may require photographic processes, translation, report-writing or other techniques.

With a great number of storage devices at our disposal there is scarcely a handful of methods by which the material stored can be delivered for processing and retrieval. We further-more know that within the stored information material we can operate with access times down to the range of n seconds \(10^{-9}\) sec. There can be no doubt of the fact that electronic instruments
for more quickly and efficiently than the human brain. Such considerations indeed justify the demand of V. Bush in 1945 for a way to develop tools for relieving the human intellect and therefore generating progress in science and technology in a much referred-to paper, "As we may think", which was incorporated in 1946 in his "Endless Horizons". According to R.A. Fairthorne, Bush's paper was timely. The so-called "Memex" project to make man's brain free from storage problems was developed by R.A. Shaw into the Rapid selector, one of the first devices for automatic documentation. Indeed, we are now in the possession of such tools which permit us to store hundreds of thousands and even millions of informations and retrieve them in programmed form. We knew that in order to do this we must develop a precise and unequivocal information language and we already have a good number of dictionaries of such concepts with a strict and uniform method of description, the so-called thesauri which fulfill all the requirements of logic, reaching far into the area of linguistic connective operations such as "related to" "specific to" (ASTIADOD-thesauries). Nevertheless, we know from the varied fields of application how difficult it actually is to keep the thesauries up to date in fact it is in a dynamic state of
development-how difficult it is to formulate a request to the computer memory properly in such a way as to receive really pertinent answers to satisfy the expectations of clients. In this respect we are cautious concerning suggestions from various people that have already tested the possibilities of placing requests to the computer via telephone and accurately transmitting the answer over long distance.

On the one hand this all looks very promising and we can face the heterogeneous and complex task before us with some degree of confidence. And still, we are left with misgivings on viewing the entire electronic undertaking hardware/software seem in many cases unable to provide the expected results, above all in the international sphere. According to J.M.S. Cavanagh, the role of the user of information system is largely unexplored; of course extensive and intensive user studies have been undertaken but invariably these have been oriented towards identifying information needs or preferences. Such studies are, according to Cavanagh, valuable and provide printers to the design of better systems or at least better services - but they contribute little to the knowledge of the user. Of special interest may be or may become the so-called computer Assisted Interrogation (C.A.I.), a system of computer program for use in man-machine communications.
The impact of computers on documentation and information handling is becoming evident in many ways. Although at present there are relatively few computer aided systems operating in information and documentation centres, there is a growing awareness of the value, and potentiality which computer offer for improved information services. As new systems are developed and put into use, the distinction between computer information and documentary information will become less and patterns of providing information will change drastically. The fields of information processing and documentation are moving rapidly and new dimensions must be applied to the increasing challenges and opportunities for information control and access.

It is no longer a question as to whether or not computers should be used for documentation operations; the question now is when and for what purpose is it essential to use them if information requirements are to be met effectively. The answer to the growing problems of information storage, retrieval and dissemination will depend not only on how we exploit the fruits of new technology but also upon our ability to critically re-appraise the effectiveness of long-established traditional methods for information service. For the past one hundred years there has been no significant challenge to
these methods and they have become firmly entrenched as the modus operandi for documentation centres and libraries. They also have become less and less responsive to the increasing demand for information as it exists to day.

Computers began to be used to aid information retrieval systems in the 1960s. Initially, these systems aimed at retrieving document references to the scientific literature, but over the years there has been a growth of computer-based retrieval systems for medical literature as well as for factual information such as financial statistics, marketing data, currency exchange data and so on.

The first use of computers in information retrieval was in the production of indexes. A.P. Luh produced a 'Keyword in context' or KWIC index to the titles of articles appearing in Chemical Abstracts in 1961. The KWIC index and its variants KWOC, KWAC and so on are still widely used forms of computer generated indexes; other forms include precis (Pres context Indexing system), articulated subject indexes and NEPHIS (Nested phrase indexing system).
The KWIC index proceeded by Luhu was seen primarily as a current-awareness tool. Another computer-based current-awareness technique which Luhu formalized was SdI or Selective dissemination of information. In an SdI system, profiles of users' interests are stored in the computer and matched periodically with descriptions of new items (produced either internally or externally) entering the information retrieval system; details of items which match an individual user's profile are sent to that user.

Another and probably the most used way that computers assist in information retrieval work is in retrospective searching; in this case a user's request for information is searched on a large collection of items to retrieve, hopefully, some relevant ques. During the 1970's the use of online computer systems for carrying out retrospective searches of the published literature has become fairly wide-spread in Western Europe and North America. Various studies of such users have been carried out. Special libraries and information units make most use of these systems; however, a survey of academic libraries in the UK in 1979 indicated that 70% were users and in the public library sector the British Library Research and Development Department has funded a series of projects involving about seventeen public library authorities.
One factor in the growth of computer-based search services was the availability, from the late 1960s onwards of machine-readable versions of secondary indexing and abstracting publications such as Index Medicus. Initially, the computer was used to assist in the production of the printed publication, but it was soon realised that the computer could be used, given the necessary instructions (or software) to search the document references. In the beginning the searching was carried out in "batch" mode, i.e. several users' queries were batched together and then matched with the references. This meant that the user typically had to wait for days, or even weeks, after submitting a request before receiving the results of the search. Development in computer systems and the related software in the early 1970s enabled the searcher to have 'online' or 'interactive' access to the computer system. This is achieved by the searcher sitting at a typewriter-like machine and 'talking via the keyboard, to the computer which responds to each command; in this way the searcher can modify the search request in the light of references retrieved. There are usually very many searchers 'talking' to the computer in this way at any one time and the computer searches its time between the searchers and because the time units involved
are so small, this "time-sharing" is not normally noticed by the searcher. In the early 1970s many special libraries tended to acquire databases, or collections of references, most relevant to their needs and either write or acquire the necessary software to run a retrospective and/or SDI search service inhouse. However another technological development, that of telecommunications networks, enabled a searcher setting at a keyboard in, say, the UK, to access a computer system, say in the West Coast of the USA. This gave rise to various organizations, some of which had already been involved in developing software for online searching, acquiring the databases and offering online search services.

With the increase of storage facilities and software and the decrease in cost of minis, microcomputer systems and world processors it seems likely that many libraries and information units will acquire such computer systems to run internal computer based information services whilst continuing to use the developing technology of computer communication networks to link into external services for published information. Williams outlines some of the new opportunities from information technology whilst in Williams also outlines some of the problems to be faced by those acquiring their own computer systems. The main trend with regard to online searching is
likely to be the development of 'user friendly' systems which will make the search process easier for both intermediaries and end users; details of some of the techniques which might be used for this are given by Williams. (Williams, M.E. Future directions for machine readable databases and their use).

However, coming back to the area of information retrieval, it appears, the whole work can be broadly divided into three areas.

(1) Content analysis of documents
(2) Representation of the content in a suitable form of record and creation of a file.
(3) Actual retrieval of information or surrogates from the previous representation in the file in response to requests.

So far as the first area is concerned, it would appear that it is a completely intellectual work and the computer can hardly have any application here. The second area comprises of mainly the various techniques of indexing. Indexing, here, is taken in the broad sense of any method of content representation including classification. The third area is self explanatory. Even from this very brief analysis it would be apparent that the three broad areas mentioned above are very much inter-related.
MEDICAL INFORMATION AND ITS IMPORTANCE:

Human medicine deals with human body in its totality. The science of medicine is not only concerned with human anatomy and physiology, physical disorders and ailments, their treatments—oral or physical, but also deals with human health and hygiene, food and nutrition, effects of environment on human body, drugs and pharmacy, etc. There have been several medical systems in the world since the ancient times, namely, Greek medicine, Roman medicine, Arabian medicine and Ayurvedic medicine. The systems in existence, now, are Sidha, Unani Homeopathy and Allopathy etc.

Reforms and revival in medicine took place after 12th century A.D., but the rise of Scientific medicine was seen in 19th century including the verification of the germ theory and development of anesthetic techniques and of antisepsis. In 20th century more researches were made in medicine including chemotherapy (with the inventions of antibiotics, orsphenamine, sulfonamide drugs, etc.), immunology, endocrinology and surgery from simple knife to the laser use. Today the importance of medical science has increased greatly in view of growing population of the world, environmental pollution and its effects on human health, and increase in various kinds of diseases and injuries. Serious medical researches are going on through
out the world, for the medicine is needed to serve precious human lives during the sufferings, not only in homes, but also at the battle fields, at the poles, in the air and space. Hence the science of medicine has developed in all spheres of human life and thus we have industrial medicine, tropical medicine, nuclear medicine, space medicine, war medicine, high altitudes medicine and so on. Since every human being has a right to live, he also has the right to have medicine and right to have good health. And, therefore, the pious objective of medical science, today, is global and mission-oriented for providing medicine and health services to all on the globe. In this direction various agencies and organisations are working. The most important at the world level is World Health Organisation (W.H.O.) an organisation of the United Nations, was created in 1948, with its Headquarter at Geneva (Switzerland). WHO promotes the development of comprehensive health services, the prevention and control of diseases, the prevention and control of diseases, the improvement of environmental conditions, the development of Health manpower, the coordination and development of biomedical and health services research, and planning and implementation of health programmes. Today some 165 countries of the world exchange their knowledge and experience with the aim of making possible the attainment by the citizens of the world by the year 2000 A.D. of
a level of health that will permit them to lead a socially and economically productive life. This demands international cooperation and exchanges in such matters as establishing international standards for biological substances, pesticides and pharmaceuticals, formulating international health criteria, administering international health regulations, classification of diseases, injuries and causes of death, collecting and disseminating health statistical information. In this regard WHO publishes large number of documents, such as health research bulletins, reports, statistics and proceedings of its conferences. World Health Statistics Annual (WHO) provides comprehensive health statistics at world level. In each country the government, and also some voluntary organisations take care of health and hygiene of its citizens, e.g. India’s Ministry of Health and Family Welfare owes the responsibility for providing medical care to the citizens. Similarly Indian Council of Medical Research is there in this field. And they published in large quantity the research information on the medical science.

6- **MEDICAL INFORMATION SERVICES:**

The medical library makes an important contribution to modern medical practice. Since the library is first of all a storehouse for the medical literature of the past, it provide its patrons with access to the literature
This, in itself, is a significant service for by consulting the material available in the medical library, every physician can know what has been done before. This service of keeping the literature of the past available and accessible is of moment to the physician contemplating a new investigation and, also, to the clinician, because it provides him with access to the wealth of past experience in his combat with disease.

Medical librarians always have had in mind the importance of the interpretive function, for they have realized that by bringing the resources of the library to the physician they were contributing indirectly to the care of the sick. What then are the services the librarian has performed to make the contents of medical libraries available.

Medicine has begun and successfully implemented solutions to the problems of the 1960s by developing a world-wide information services for systematic reports and studies. Since 1964 the computer-based system called MEDLARS (Medical Literature Analysis and Retrieval System) is in active use in order to solve the tremendous problems. It is characteristic for the structure of this information services that an organization basically centralized at the National Library of Medicine was planned from the very
start to be expanded into a decentralized organization. MEDLARS is indeed one of the few information projects operating according to M.H. Cummings' basic study, including active services for indexing, search, maintenance and improvement of the "Libraries' Thesaurus of Indexing Term", a medical glossary, and the study of the man-machine relationship and the problems of computer in put and multiple-access systems.

Since A. Weinberg's report on "Science, Government and Information"- we know that we are faced with the fact of a bifurcation of the scientist into the form of "research scientist" and "Information Scientist". As representative for the achievement in information and documentation we mentioned the extensive and highly effective activities of the National Science Foundation. They have compiled in their Office of Science Information Services approximately 3000 statements in their "Current Research and Development in Scientific Documentation" to the following topics since 1957 up to now: information needs and uses; document creation and copying; language analysis; translation; abstracting, classification, coding and indexing; system analysis and document evaluation; pattern recognition; adaptive systems.

Such facts may serve to confirm our impression that we are on the right path. We know, however, that it frequently takes more than a decade to define the terms of reference,
to "workup" the scientific foundation for a specific mission to such a degree that one may begin retrieval service in this field with any promise of success. We also know that in most cases we cannot hope for economically sound budgeting of these services.

Medical Information Storage & Retrieval:

It has been estimated that upto three million biomedical research papers are published each year. Faced with the task of keeping upto date with this volum of literature or of starting a new project, the arrival of computer-based information storage and retrieval services seems at first sight an instant solution to this problems for the hard-pressed research worker. In practice it may be a mixed blessing. A well-thought-out computer search can be immensely rewarding, serving many hours of tedious hand-searching in conventional guides to the literature. On the other hand, a bad strategy or inadequate request will almost certainly miss most of the relevant ones, and is quite likely to do both. For the kind of problem where a mechanised information storage and Retrieval service are appropriate, time spent thinking logically about the problem and in preparing the request is time well spent. It will save a good deal more time and frustration when one examines the computer input output.
Not all problems are suitable for a computer search. It is sometimes much easier and quicker to find the answer by hand. For the kind of question where only a small number of citations is required, and only a small number of headings has to be scanned, a hand search will give the answer far more quickly and cheaply. Computer retrieval is most effective where an exhaustive search is important, and for complex questions where several concepts must be linked together and each concept is itself represented by any one of a large number of terms or ideas. To quote examples, a few recent review papers on kidney transplantation are readily traced by hand, whereas an exhaustive search on 'psychological effects of surgery' would be a mammoth task. This is because the concepts psychology and surgery both give rise to large numbers of more specific concepts with individual terms and headings in the guides. A computer search on this topic is relatively easy.

Current-awareness services using computer tapes have an obvious advantage in that they are usually available several weeks before the corresponding published issue of the parent guide.
Having decided that a computer search is appropriate, one must also decide on the most appropriate service for the particular problem. The various services cover different areas of the medical literature and different types of source material, according to the main emphasis of the parent bibliography and the indexing policy it pursues. Each system has its own characteristics and the better aquinted one is with a particular service, the more chance one has of using it successfully. The librarian can be a useful intermediary in this process, since he already has a knowledge of the parent guide and is likely to gain a wider experience of the systems than the individual research worker.

**MEDLARS**

Coverage: MEDLARS (Medical Literature Analysis and Retrieval System) is a by-product of the compilation of Index Medicus, Index to Dental Literature and International Nursing Index by means of a computer. It covers the whole field of biomedicine from 1964 onwards. 2800 journals plus a small number of monographs and semi-published reports are indexed for the system, amounting to 200,000 citations each year. The list of journals Indexed in Index Medicus gives the titles of the journals, and indicates those which are indexed selectively to include only
articles of medical interest for example, Nature.

In the more important journals the editorials, letters, bibliographies and obituaries are indexed if they are substantive, in addition to the main articles. Letters reporting adverse effects of drugs are always indexed. Society proceedings, published as summaries in certain journals, are indexed in the more important journals.

The most important journals receive priority treatment and are indexed with an average of twelve descriptors per article. Less important good-quality journals are indexed in similar detail, but articles from the lower-grade journals are usually indexed with only three or four descriptors. However, each individual article is treated on its merits, and up to 25 descriptors are permitted for each article. Of the descriptors used for indexing, only three on average are used as headings to cite the article in Index Medicus. These correspond to the main point of the article, often reflect in its title, and are called 'print' headings. The remaining descriptors describing minor or additional concepts, experimental details and the like are available only on the MEDLARS files. This gives MEDLARS an obvious advantage over hand-searching in Index Medicus. Since 1975, author abstracts
and author affiliations in the more important journals have also been available on the MEDLARS files.

9.1.1 Medical Subject Headings (MeSH): The descriptors are selected from MeSH (Medical subject Headings), which is published each year in a revised form as part two of the January issue of Index Medicus. MeSH is a thesaurus of 13,000 descriptors related to biomedicine, and is arranged in two parts. The first is a list of the headings in alphabetical order and includes cross references from synonyms and related terms. The second part is an arrangement of the headings into subject categories, e.g., anatomical terms, B- Organisms, C- diseases, and so on. Each category has an hierarchical arrangement of the headings into 'trees'.

Individual headings can be in more than one category, and can have different relations and arrangements in different categories. Since indexing is done using the most specific term available for a concept, with no posting-on of entries to higher levels, the trees are important in tracing the relationships of terms, and in building groups of related terms for searching both in MEDLARS and in Index Medicus.

MeSH contains many thousands of entry terms—that is, synonyms which can be used both in indexing and computer searching. The computer automatically substitutes the preferred major descriptor to which the entry term
refers. Similarly, minor descriptors are automatically mapped to the appropriate major descriptor for printing in Index Medicus, but are also stored for retrieval as the more specific minor descriptor term.

9.1.2 Qualifiers:

Since 1966, qualifiers (formerly known as subheadings) have been available to modify MeSH headings and minor descriptors. The introduction to MeSH lists the 68 qualifiers currently available, gives a definition of the usage of each qualifier and indicates the subject categories of terms to which, broadly speaking, it can be applied. The qualifiers were introduced to break up the list of citations under each main heading in Index Medicus into convenient groups for reaching. Their use in MEDLARS searching allows greater flexibility and a much greater precision in recall than the pairs of co-ordinated terms used for indexing prior to 1966. In searching, they can be used 'tied' to their descriptors for specificity, or used 'free' to give a blanket retrieval of all terms modified by the particular qualifier.

9.1.3 Co-ordination of terms in indexing:

The descriptor/qualifier combinations are co-ordinated at the time of indexing to give a linkage of concepts e.g. 'metabolism of iron' is indexed by the combination Iron \textit{metabolism}, and 'X-ray diagnosis of osteoporosis'
by OSTEOPOROSIS| Radiography. Sometimes no suitable qualifier exists to modify the descriptor and two separate descriptors are used e.g. psychological aspects of gastrectomy' is indexed between the two terms. Since qualifiers are restricted to particular categories of terms, it may not be possible to use a combination. For example, PREGNANCY appears in category 58, but the qualifier 'blood' is only available to categories 52, 5, D and F. 'Serum levels of iron in pregnancy' is therefore indexed PREGNANCY (no qualifier) and IRON|blood.

MeSH contains a great many pre-co-ordinated descriptors which are always preferred in indexing. KNEE JOINT is used in preference to KNEE and JOINTS, similarly LEAD POISONING is used rather than LEAD|poisoning or LEAD and POISONING. By this means apparently legitimate combinations are forbidden, e.g. MAXILL-ORIFICAL DEVELOPMENT is used rather than the apparently more specific forbidden combination MAXILL/growth and development. This is because the pre-co-ordinated descriptor can be made more specific by modification with an additional qualifier.

9.4 MEDLARS Searching:

The most important part of the retrieval process is to consider the kind of citations one wishes to retrieve. It is often useful to produce a small list of citations and analyse the concepts contained in the titles. Let us
use the example quoted earlier, psychological effects of surgery.

We produce a list of citations illustrating different kinds of papers we consider relevant.

'Psychiatric disorders after surgery for duodenal ulcer'.

'Post-cholecystectomy memory disorders'.

'Transplant psychosis'.

In each case we find the two concepts 'surgery' and 'psychological disorder'. But if we are to exclude papers on surgery as a therapy for psychological disorders, we must modify each concept by a qualifying concept.

Our strategy is therefore:

Surgery | adverse effects and psychiatric disorders/aetiology.

We can now translate these broad concepts into specific MeSH terms. For the adverse effects of surgery we will use all the terms category E4 (procedures and techniques—surgical) linked to the qualifier 'adverse effects'. We also need to include the pre-co-ordinated term POSTOPERATIVE COMPLICATIONS for adverse effects due to unspecified surgical techniques. For completeness we must include the subsidiary terms listed below POSTOPERATIVE COMPLICATIONS in the C23 tree.

For the psychiatric diseases we will include all the terms in category F3 (behavioural and mental disorder) linked to the qualifier 'aetiology'. The groups of terms
can now be listed, together with logical statements to define how they are to be linked together by the computer.

Online services:

Up to 1974-1975, MEDLARS searches in the UK were processed in batches at weekly intervals by an off-line computer. The first experimental on-line system, AIM-TWX (Abridged Index Medicus via the Teletypewriter Exchange Network), was inaugurated in the USA in June 1970. The system developed from AIM-TWX was called MEDLINE (MEDLARS on-line), which became operational in October 1971 to a limited number of users. The MEDLINE system was greatly enlarged, operating through the Tymshare Inc. network of data transmission lines from over 50 'node' cities in the USA and Europe. Within the UK, MEDLINE is now available using BLAISE (British Library Automated Information Service). SDILINE (Selective dissemination of information online) was made available in September 1972, as a sub-set of the MEDLINE file for users who wished to search only the most recent month of the file. MEDLINE contains three years' current citations. Other databases have been added, including TOXLINE, CHEMLINE and CANCELINE. TOXLINE contains citations on toxicology and related topics from six different bibliographical sources and CANCER contains citations to publish literature on cancer, abstracts and reports of on-going cancer research.
ON-LINE searching:

MEDLINE and other on-line searches take place in the form of an interactive dialogue between the searcher and the computer program. Figure 5.2 shows part of an MEDLINE search based on the topic 'Psychological effects of surgery' as described above. Depending on his experience of the on-line MEDLARS systems, the searcher can opt to communicate with the computer program in either new or experienced user format. New user format gives extensive explanations of the facilities available and the meanings of the commands in the system. For the sake of brevity, our example is given in experienced user format. New user format gives extensive explanations of the facilities available and the meanings of the commands in the system. For the sake of brevity, our example is given in experienced user format, with annotations. As well as exploring the hierarchies of MeSH terms and using the headings as search parameters, it is also possible to search the text of article titles and author abstracts for natural-language words and combinations of words. The text of titles and abstracts is held in inverted form, so that text searching is possible independent of the MeSH headings and takes place very rapidly.

MEDLARS SERVICES:

The addresses of the various national and regional MEDLARS centres are given in the publication Guide to
MEDLARS Services published by the US National Library of Medicine. In Great Britain the service is available through the UK MEDLARS Service, British Library Lending Division, BOSTON Spa, Wetherby, West Yorkshire. Three print formats are available for retrospective and current awareness searches. The short print format gives authors, title and journal reference only, allowing seven citations per page of print out. The full format includes the descriptors used indexing each citation, allowing four references to be printed on each page of print out. The abstract format gives the full format together with author abstracts where these are available, and each citation fills one page of print out on average. A number of MEDLARS Bibliographies which have been requested by individual physicians and researchers and which are considered to be of general interest are published each year by the National Library of Medicine. The titles available are listed in Index Medicus and single copies may be ordered free of charge from the NLM or national MEDLARS centres.

2- EXCEARTA MEDICA:

The computer database which is used for the production of the Excerpta Medica Foundations 49 English-language abstract journals and literature indexes covers the whole field of biomedicine apart from nursing, industry
and Veterinary medicine. The whole databases or selected part of it, is available on subscription for use in the subscriber's own computer information retrieval system. In addition, a bureau service is available to provide retrieval from the database to individuals on request. Searches are processed by DOKI in Switzerland, Hoecnsl in the Federal Republic of Germany and centres in the UK, Czechoslovakia, Japan and elsewhere.

Coverage: More than 3500 biomedical journals, 200 chemical journals and some 50 physics journals are screened for the abstract journals. In addition, several thousand journals are screened for the Environment Health section by abstracters in the Royal Netherlands Academy of Science, the Agricultural Institute, Wageningen, and the Technological University, Deft. From this material approximately 250,000 articles each year are selected for indexing, and of these some 150,000 are abstracted for the individual abstract bulletins. Around 60,000 indexed citations a year are listed in the Foundations Drug Literature Index, which is a published partial version of the computer tapes available as the DRUGDOC service. As well as original articles, the Foundation also covers: editorials, conference proceedings and letters to the editor where these are substantive. The indexing and abstracting is undertaken by around 100 specialist physicians. A series of editorial boards consisting of some
400 leading scientists and physicians from 43 advice the foundation on editorial policy.

**EM CLASS:** Each abstracts journal covers a particular subject field. The abstracts in each journal are arranged by a detailed classification scheme designed to give roughly equal numbers of citations under each sub-division. The classification can go to a depth of four decimal subdivisions, and are often based on anatomical aspects of the subject, or, in the case of the Drug Literature Service, on pharmacological activities. The combined classification of all abstracts journals is known as the *Excerpta Medica Classification System* (EMCLASS) and consists of 3500 polyhierarchical categories which cover the whole medical literature. The classification is flexible in that new categories may be added at any time. Part of the classification scheme for the abstract journal covering Anatomy, anthropology, Embryology and Histology is given in Figure 5.3.

Up to ten different classification numbers can be assigned to each article within each abstract journal. Articles overlapping into more than one subject field are included in all the appropriate abstract journals. The classification number may be used as search parameters, and are highly effective for searches where the classification scheme corresponds to some aspect of the search.
Indexing: Indexing is done at two levels. The more important concepts are put into the computer using a controlled thesaurus of terms called IALIMET (Excerpta Medica Master list of Medical Indexing Terms). On average, eight primary terms are assigned to each article, but there is no upper limit. A number of secondary indexing terms are also added without the use of thesaurus, including the species of experimental animal and detail descriptors. A third group of concept, the item index, is available only on the computer tapes. This is used for recording 90 routine concepts such as sex, age, different types of studies, common experimental animals and routes of drug administration. Up to 10 items index numbers may be used for each article.

IALIMET: The thesaurus IALIMET is not a published list but is a computer file that forms part of the database. The indexer is free to assign concepts from each article in the form in which they appear. The terms and phrases are fed into the computer in their original form, where they are checked against IALIMET. The entry vocabulary consists of 180,000 primary terms, including more than 40,000 drugs and chemicals together with 320,000 synonyms. Synonyms are automatically converted to the preferred term by the IALIMET program. There are also some limited cross-references between related terms, and from broad terms to more
specific terms, but the thesaurus has no further hierarchical structure built into it.

If the MALIMET program does not recognise an indexing term, it is printed out on an 'error list' which is examined by the thesaurus committee of the editorial department. After correcting typographical errors, the terms on the error list are entered into MALIMET either as valid new preferred terms or as new synonyms of existing preferred terms. At present few terms other than drug names are being added as preferred terms in any quantity. Synonyms are added at much more significant rate.

92.5. **Ecerpta medica tape services:** The Computer tapes are made available weekly and can be used for current-awareness searching or for retrospective searching. Different versions of the tapes are available to the specification of the tape subscriber, containing differing amounts of information in addition to the article citations. The most basic service would contain only classification categories. Another source which could be produced would also contain the subject headings and item index codes in addition to the classifications. The standard service contains complete abstracts in addition to the other codes. Other services can be supplied based on the classification headings assigned to the individual citations.
The most popular partial subscription service is DrugDOC. This service was designed to meet the requirement of pharmaceutical industry, and gives a rapid service owing to the high priority given to the indexing of drug-related information. The citation appears within 8-12 weeks of receipt of the original articles. In addition to the article citations, the DrugDOC tapes also contain information for each citation under generic name of the drug, the chemical name if there is no generic name, or the experimental name and location of the manufacturer; clinical indications and contra-indications; clinical and pharmacological effects and adverse reactions.

Searching: Retrieval of citations from the computer tapes is done by means of search statements using the logical operators 'and', 'or' and 'not'. Any information encoded on the tapes can be used as a retrieval parameter, including authors, journal codes, language of publication and country of publication, in addition to the classification codes, primary and secondary indexing terms and item index codes. The search profiles for the bureau service are constructed by Excerpta Medica staff.

Toxiline: A toxiline service is offered jointly by UKCIS and the UK MEDLARS service using Tymshare and the data base operated by the National Library of Medicine in Washington USA. Toxiline is an online database containing citations on toxicology, environmental effects of chemicals and
pollutants gathered from various services. Six discrete subfiles exist within the master database: Chemical-Biological Activities (a sub-set of Chemical Abstracts Toxicity bibliography (a sub-set of Index Medicus); Abstracts on health effects of environmental pollutants (BIOSIS); International Pharmaceutical Abstracts; Pesticides Abstracts; and a collection of citations covering the earlier years gathered by Dr. W. J. Hayes Jr. All the sub-files are arranged so that they can be searched simultaneously in response to a single query.

The TOXLINE current file contains 320,000 citations from 1971 onwards, and the backfile, TOX Back, contains 190,000 citations covering the period 1965-1970. Each record in the databases has full bibliographical details together with an abstract and/or indexing terms and chemical abstracts and/or indexing terms and chemical Abstracts Service, Registry numbers.

Searches can utilise free-text searching for words from titles, index term fields and abstracts, or can be based on the use of the CAS Registry numbers can be traced using CHEMLINE, an on line chemical dictionary listing Registry numbers for over 77,000 chemicals together with 270,000 synonyms.

Searching: A list of search terms is drawn up which can then be linked into groups to represent concepts in the search profile using the operators AND, OR and NOT. Contextual logic is available which allow terms to be
linked within the document, sentence or word.

Individual terms can be truncated at either or both ends using asterisks. If left free, the term CELL, for example, will retrieve titles containing this word only if it is bounded by spaces, punctuation or numerals. Truncation following the term, e.g. CELL, allows it to retrieve any word containing this initial root—e.g. 'Cell', 'Cell-free', 'Cells', 'Cellulose' or even 'cellophane'; and also 'stem-cell', due to the hyphen. Front truncation, e.g. CELL, retrieves any combination preceding the term for example, 'Cell', 'stem-cell' or 'microcell', and also 'cell-free'; because of the hyphen. Truncation front and veor, e.g. 'CELL, retrieves all the above together with any word containing this fragment—for example, 'microcellular; methycellulose' or acellular'.

Some thought must be given to the use and effect of such truncations sense, although desirable from computer operation and cost view point, they can give rise to unwanted retrieval. The choice of appropriate truncated terms is assis ted by the use of the Key Letter in Context (KLIC) Index, which can be purchased from UKCLIS. Terms can be selected exclusively from titles (term type TITL) or from key words (term type KEYw) or from either position (term type TEXT).
Figure 5.4 shows a CA Condensates search profile on the effect of some volatile anaesthetics on glucose metabolism in tissues other than liver. This demonstrates the use of term truncation and operators.
• AFFECTED LOOP SYNDROME

(Pro)sterol (2)

NECrosis

EXPLANATION

PROPANE

EXPLANATION

PROPANE

EXPLANATION

PROPANE

EXPLANATION

PROPANE
A4—ANATOMY-RESPIRATORY SYSTEM

RESPIRATORY SYSTEM

LARYNX
GLOTTIS
VOCAL CHORDS
LARYNGEAL CARTILAGES
EPIGLOTTIS

LUNG
BRONCHI
PULMONARY ANATOMY

NOSE
NASAL BONE
NASAL CAVITY
NASAL MUCOSA
OLFACTORY MUCOSA
NASAL SEPTUM
NASOPHARYNX
TURBINATES

PARANASAL SINUSES
ETHmoid SINUS
FRONTAL SINUS
MAXILLARY SINUS
SPHENOID SINUS

PLEURA
TRACHEA

A4
A4.329
A4.329.364
A4.329.364.737
A4.329.591
A4.329.591.411
A4.411
A4.411.237
A4.411.715
A4.551
A4.551.378
A4.551.449
A4.551.520
A4.551.520.573
A4.551.591
A4.551.662
A4.551.898
A4.621
A4.621.267
A4.621.387
A4.621.578
A4.621.827
A4.716
A4.889

A2.165.507
A2.165.507
A10.615.550
A10.615.550
A14.721.557
A2.835.233
A10.615.739

Figure 5.1. Part of the MeSH tree structure
Medical Science of course is not the only area where far-reaching changes of all kinds of information transfer systems as well as information storage and retrieval systems in the next decade will lead to new organizational structures for handling and disseminating information. The operation of the most sophisticated online storage and retrieval systems are based on intellectual concepts which were well known and used twenty years ago. Present technological developments may well enable the information manager not only to carry out traditional functions more effectively, but to introduce new services and functions which would not have been possible before for economic or technical reasons. The real transition will come when, instead of adopting electronic devices to existing conceptual methods of handling information, new ideas are developed for information storage and retrieval which can exploit more effectively the capability of electronic processing systems and thus provide services more closely related to the needs and behaviour of information users. The systems which offer like approaches is best done after all the constraints on the design are known. It is significant that today, UK co-operative like BLCMP, SWALCAP, SCOLCAP and LASER and services like Blaise LOCAS are attracting increasing numbers of libraries. Not only
do such systems avoid the many pitfalls and lengthy timescales of local development, but also they provide strength from unity, economy from sharing, and benefit from quality.

In the field of medicine particularly, a number of smaller computerised information services exist, other than the covered one, mainly in the pharmaceutical field. RINGDOC, published by Devwent Publication, 128 Theobalds Road, London WC1, abstracts medical and pharmaceutical articles from 330 journals. The information can also be supplied as weekly batches of punched cards or computer tapes to subscribing firms for in-house searching. An online service will be available through the Systems Development Corporation Search Service, 2500 Colorade Avenue, Santa Monica, California 90406, via the Tymshare network and a British service is planned by Into-Line. Pendex current Index to Scientific and Technical Literature, published by CCM Information Corporation, 866 Third Avenue, New York, NY 10022, is also available as weekly computer tape service at an annual subscription of $6508, for international SDI and retrospective searching. Individual current awareness searches of Pendex are also available on the bureau basis at weekly, fortnightly or monthly intervals.
Major advancement in these areas in the third generation equipment is a primary reason why the Information Storage and retrieval in the field of medicine is now beginning to move in a new direction. The computer has finally reached the point of development where it can provide a foundation of automatic manipulation capabilities flexible enough to significantly improve many of the functions associated with ISR input, search, and output operations. At the same time, a variety of special-purpose equipments have been developed that supplement and extend these capabilities. Consequently, it is now possible to develop a tailored, economic system capable of improving the ISR process not just in selected application areas but across the entire application spectrum.
PART - II

BIBLIOGRAPHY
1. INFORMATION STORAGE & RETRIEVAL


The explosion of knowledge in the basic medical sciences has presented medical scientists with a formidable task in keeping abreast of current developments. However, advances in computer technology have radically changed the way in which information is organised and the way in which it can be accessed. Scientists who are educated in the techniques of searching will find that communication with librarians will be improved, and the quality of their literature searches thereby enhanced.

2. CD-ROMS, DATABASES, INFORMATION SERVICES, MEDICINE.

METCALFE (JR) and JONES (PG). CD-ROM in developing countries. Electronic and optical Publishing Review. 7,3, 1987, Sep; 132-34

Describes the international CD-ROM assessment programme undertaken by CAB International. A test disc was produced in July '85, containing bibliographic data from CAE Abstracts and from Public Health and Tropical Medicine databases covering the input period Jan. '84 through Mar '85 (137,000 records).

Reports experiences with the compact Cambridge CD-ROM version of the MEDLINE database at the State University of New York and Syracuse Health Centre Library. Judged by the level of consistently high usage, compact Cambridge/MEDLINE has been an overwhelming success. Details are given of costs and hardware requirements involved.


Literature searches of the Medicine database are available through several routes at the Charles Dana Medical Library of Vermont University. Mediated online searches via BRS, DIALOG or MEDLARS, end-user online searches on BRS Colleague, and end-user searches on compact Cambridge CD-ROM have all proved to be popular. Describes the impact of CD-ROM on users and on the other services offered at the Dana Library. Limitations of CD-ROM, ease of use, and user satisfaction have been explored with the
help of a survey of CD-ROM searches.

5. ---, ---, MEDICINE, MEDLINE.


This is a review of the compact Cambridge-MEDLINE CD-ROM data base, produced by Cambridge Scientific Abstracts, Maryland. A test search comparison with the DIALOG file was carried out and the results reported. The fact that the DIALOG file is split into 3 separate files means that a direct cost comparison between the on-line and CD-ROM data bases was not possible.

6. ---, ---, MEDICINE, MEDLINE.

TENNEN HOUSE (Michael). MEDLINE on CD-ROM at the University of Manitoba Medical Library. *Bibliotheca Medica Candiana*. 8,4; 1987; 209-211.

Late in 1986 the University of Manitoba Medical Library took advantage of Cambridge Scientific Abstracts' free trial offer of its compact Cambridge MEDLINE on CD-ROM. Describes impressions of the trial exposure-installation, results, advantages and disadvantages- and subsequent developments.

Discusses the development of a vertically oriented CD-ROM data base product in the medical subdiscipline of oncology by the division of cancer prevention and control of the National Cancer Institute. Called Onco Disc, the CD-ROM is mastered by I.S. Grupe, Inc; Illinois. Contains 3 major information collections: PDQ (a system of a series of files and a set of relationship; the user accesses the data through those relationship); CANCER LIT (the research literature that underlies the treatment information contained in PDQ), and a full-text articles. Search LITE, the retrieval search system, is written in C language and has been implemented on the DEC VAX family and the IBM PC/XT and PC/AT. The disc provide a personal library of oncology information for immediate local use by the health professional; it requires no subscription to an online service, no telecommunications, and no online search charges.

Examine the usual difficulties faced by the implementation of information and knowledge dissemination systems in developing countries and explores the possible use of CD-ROM technology to overcome them. A pilot project of the Pan-American bibliographic references on public health is also described.

9. INFORMATION STORAGE & RETRIEVAL, COMPUTERISED ACQUISITION, MEDICAL LIBRARY, CALIFORNIA.


Southern California University, Norris Medical Library, Los Angeles, developed a local on-line acquisitions system based on locally written d Base 3 programs. These programs, collectively known as CATS (Computerized Acquisitions Tracking System), supports a full range of acquisitions functions and also some other unanticipated functions in other areas of the library.

10. ---, AUDIO-VISUAL MATERIALS, MEDICINE.

HORI (Michiko). Visualisation of presentation II: Case study, Teikyo University. Joho no Kagaku to Gijutsu; 37, 3; 111-13.
The author uses the following visual aids in lecturing to students on pharmacological information. Slides: a darkened room increases the danger of students falling asleep, but he tries to avoid graphs and shows pictures of relevant publications, changing the background color of color slides; hand-outs: can be read after the lecture or for use in the future—these are heavily illustrated; videos: can replace actual demonstration for activities such as administration of medicines or on-line searches; displays: on specific topics can reinforce points made in lecture.

11. --, BIBLIOGRAPHIC RECORDS, MEDICAL LIBRARIES, OHIO.

The Ohio University Health Sciences Library (HSL) USA has transferred all information concerning its 1600 plus serials to an IBM XT microcomputer. This information is accessed from a menu-driven application written in the R: base 5000 database programming language. The serials management system (SMS) supports several tasks, including current issue check-in, bindery management, and information queries based on title, Medical subject heading (MeSH), and ISSN number.
12. BIBLIOGRAPHICAL SEARCH, MEDICINE.


Discusses the role of organised bibliographic research in the transmission of new scientific knowledge focusing on the field of medicine and medico-biological science. While the user is capable of consulting publications; using abstracting services and microfiches, manual searches are very time-consuming in view of the vast amount of literature available, much of it falling in the 'grey' area in the form of reports, theses and university publications. Bibliographic research on-line is cheaper, more accurate and far less time consuming but requires the support of a documentation specialist, trained in the subject area as well as in retrieval.

13. BIBLIOGRAPHIC SEARCH, MEDICINE, DEVELOPING COUNTRY.


Through post graduate courses in developed countries many African librarians and information scientists have acquired skills in computerised bibliographic
searching. Intermediaries, librarians and information scientists experience uncertaining regarding the quality of results from the search they have formulated. Discusses the effect of time lag and lack of continuing education on morale.

14. ---, BILLING SYSTEM, MEDICAL LIBRARIES.

MOORE (Gary). The Welch Medical Library Services billing system. Information Technology and Libraries; 5,3, 1986 Sept; 239-42.

Describes the computerised billing system, developed by the William H. Medical Library, Johns Hopkins University, Maryland, for the library's fee based services. Benefits include more accurate and timely invoicing and fund accounting, improved management information, and significant savings in labour over the manual system. Describes the various billing subsystems, including the photocopy services subsystem and document delivery subsystem. Future development will embrace interloans and on-line search service billing subsystems.

15. ---, BIOMEDICAL COMMUNICATION, NETWORK.

BATTISTELLA (Maureen S) and RODGERS (Patricia M). Role of a Health Library Association in the development and Coordination of a state wide union list of health science serials. Serials Librarians; 11,2, 1986, Oct; 75-81.
In partial fulfilment of its goals and in response to encouragement by the Regional Medical Library Services (Region 2) to organise grassroots participation in the Biomedical Communications Network, the Alabama Health Libraries Association (Al HeLa), began coordination of a union list of serials. Discusses the role of Al HeLa in the development and ongoing maintenance of a statewide union list of health science serials which contributes to the SRHOLD data base. Responsibilities of the role are contract negotiation for data processing services, communication, education, quality control, and recruitment.

16. -, -, BUSINESS INFORMATION, MEDICAL LIBRARIES.


As the health care industry becomes more business oriented, health sciences librarians will encounter more users seeking business information. Discusses those resources with which health sciences librarians must be familiar to meet the challenges of these new demands. Identifies traditional and on-line sources, and emphasises business sources geared to the health care industry.
17. **COOPERATION, HEALTH CENTER, CONNECTICUT.**

Capitol Region Library Council and the University of Connecticut Health Center developed a cost allocation formula for a circulation and on-line catalogue shared by 29 libraries. The resulting formula identifies a basic unit cost as a min. for each system participant.

18. **COOPERATION, MEDICAL LIBRARIES, SOUTH AUSTRALIA.**

Part 2 of an article devoted to cooperation as a means of combatting the rising costs of inter library loans by small libraries with limited budgets. Describes the rationale, growth and operation of the South Australian equivalent of GRATIS - GRATISS - a net work of small health sciences libraries.

19. **COOPERATION, MEDICINE, HARVARD MEDICAL SCHOOL, MASSACHUSETTS.**

The long-range of the IAIMS development project is to achieve an Integrated Academic Information Management System for the Harvard Medical School, the Francis A. Countway Library of Medicine, and Harvard's affiliated institutions and their libraries.

20. -, COOPERATION, MEDICINE UNIVERSITY LIBRARIES, MARYLAND. 

The formal creation of an IAIMS. The keystone of IAIMS effort there is the HELP (Health Evaluation through Logical processing) Hospital information System. IAIMS at the University of which is a broad-based programme extending across the Health Science Center and beyond to health professionals throughout the inter-mountain area. Describes the background that led to IAIMS; the IAIMS planning process, and the library's participation in this effort.

21. -, COOPERATION, MEDICINE, UNIVERSITY LIBRARIES, MARYLAND, MEDICINE, UNIVERSITY LIBRARIES, MARYLAND, MEDICINE, UNIVERSITIES LIBRARIES. 
WILSON (Marjorie P). The IAIMS initiative at the University of Maryland at Baltimore. 74, 3; 1986, July 257-61.
With support from the National Library of Medicine, the University of Maryland at Baltimore is awaiting an Integrated Academic Information management System (IAIMS) that will serve as a prototype for academic health centres. A campus-wide undertaking, the IAIMS initiative at Maryland is characterised by its functional comprehensiveness and its planning model. The resulting strategic plan is serving as a guide in the ongoing model development within an interdisciplinary Hypertension Center.


Describes the IAIMS prototype project at the Presbyterian Medical Center, Columbia University, the factors that led to the selection of this particular project, and the planning for its implementation. The lessons learned to date and implications for the library are summarised.

The strategic planning process and the pilot phase projects undertaken by Georgetown University for an Integrated Academic Information Management System (InLMS) are described. Emphasis is placed on core services such as local area network, an academic information management centre in the library, an expansion of health sciences data bases for improved access to biomedical information. Special applications in education and clinical care are highlighted.

24. ---, CORRECTING ERRORS, MEDICINE, LITERATURE.

A management decision at the Medical Centre Library, University of New Mexico, Albuquerque, New Mexico, to discontinue manually correcting errata in medical journals. The fact that on-line errors are not corrected. Additional questions raised by the study address emerging problems with on-line full text data bases, and with whom the responsibility for correcting errors in the medical literature should rest.

25. ---, CURRENT AWARENESS SERVICES, CONTENTS LIST.
Describes the automation of the service using dBase III following the acquisition of an IBM PC/AT at the end of 1984. Automation of the table of the contents service requires the database system to match new journal issue arriving in the library with persons receiving those journals tables of contents and to produce a printed list of the matches. While automation does not save time in checking journals, it does save time in operating the service.


A method for using CATLINE SDI (selected dissemination of information) as a current awareness and collection development tool for the health sciences reference department is described. Reports 3 years of experience with this service in an academic health science library. Emphasises the exploitation of 4 data elements in the CATLINE file: the Abstracting and indexing Tag (AI) Data element; the MeSH Heading (MH) Data element; the subheading qualifier (SH) Data element.
27. CURRENT AWARENESS SERVICES, OCCUPATIONAL HEALTH.


An evaluate study of a selection of primary and secondary information sources of potential use for current awareness in the field of occupational diseases in presented. Identifies the more important English language primary sources of occupational diseases research information. Compares the usefulness of a variety of secondary sources as current awareness tools for bringing together widely scattered information.

28. DATABASES, PATIENT RECORDS, MEDICINE.

BUTZEN (Frederick) and FURLER (Francine). Computer Security: a necessary element of integrated information systems. Bulletin of the Medical Library Association, 74,3; 1986, July; 210-16.

The Matheson Report sees the medical library as playing the key role in a network of inter locking information bases that will extend from central repositories of medical information to each physicians personal records. It appears, however, that the role of security in this vision has not been fully delineated. Discusses the problems in maintaining
the security of confidential medical information, the
state of the applicable law, and techniques for security
(with special emphasis on the UNIX operating system). It
is argued that the absence of security threatens any plan
to build an information network, as there will be resis­
tance to any system that may give intruders access to
confidential data.

29. - , COMPUTERISED INFORMATION SERVICES, AIDS.
ROBERTS (Sarat). The scientific and clinical literature
of AIDS: development, bibliographic control and retrieval.

Reviews the development of the literature of AIDS
and the means by which this information may be accessed.
Surveys the development of bibliographic tools (printed
indexes, current awareness lists and on-line data bases)
and journals in parallel with the progress of research in
this fast-moving subject. A chronological approach has
been used in order to emphasise the ways in which biblio­
graphic control methods and publishing in the field have
kept pace with scientific developments. There follows a
guide to accessing on-line data bases.

30. - - , BIOMEDICAL LIBRARIES.
TABOR (RB). Biomedical libraries and information services
in Great Britain. Health Libraries Review 3, 1; 1986, Mar;
21-27.
Gives an overview of the development and current state of biomedical library and information services provision in the UK. Lays emphasis on the role of the National Health Services Regional Library Systems in England and wales. Describes current trends in the Essex Regional Library and information service.

31. -, -,-, BIOMEDICAL LIBRARIES, MINNESOTA.

MUELLER (Mary H) and FOREMAN (Gertrude). Library instruction for medical students during a curriculum elective. Bulletin of the Medical Library Association. 75,3; 1987, July; 253-56.

The University of Minnesota Medical school provides 3rd and 4th year medical students with multidisciplinary and multispeciality courses. Within this frame work, the Bio-Medical Library planned a course to teach the knowledge and skills necessary for library research and information management. It included: Searching case-related topics in prin indexes; formulating and processing MEDLINE searches on BRS colleague; Building a personal file with PC-File or Notebook; and exploring various methods for current awareness.

32. -, -, -, Cancer.

MASYS (Daniel R) and HUBBARD (Susan M). Technical information programs of the National Cancer Institute. Journal of the American Society for Information Science. 38,1; 1987, Jan; 60-64.
2 peer-reviewed journals, begun in 1940 and 1959, are supplemented by a congressionally mandated International Cancer Research Data Bank established in 1972. The NCI has made available on-line data bases of published cancer literature and cancer research in progress for the past decade; using the National Library of Medicine MEDLARS System recently, a clinical-practice-oriented cancer-information system called Physician Data Query has been developed to access at the NLM as well as through commercial data base vendors.

33. ---, DENTAL SCHOOL LIBRARIES.

HOOK (Sarah Anne). Outreach to dental health professionals by the Indiana University School of Dentistry Library. *Medical Reference Services Quarterly*. 6,4; 1987, Winter; 35-43.

The mission of the Indiana University School of Dentistry (IUSD) Library includes providing services not only to faculty, staff and students of IUSD, but also to dental health professionals in Indiana, the USA, and the world by computer. Programmes and policies have been instituted to accommodate the special information needs of these individuals.

34. ---, GYNECOLOGY AND OBSTETRICS, AMERICA.

HINE (Palmela Van) and PEARSE (Warren H). The IAIMS project of the American College of Obstetricians and Gynecologists:

The mission of the American College of Obstetricians and Gynaecologists (ACOG), IAIMS project is to identify the core of knowledge necessary for the practice of obstetrics and gynaecology, structure it and put it in electronic form, integrate it into a national ob-gyn information network, prepare ACOG members to use it, and disseminate this core of knowledge to members in appropriate forms.

35. ---, ---, MEDICAL LIBRARIES, JAPAN.


A selective survey, focusing chiefly on medical libraries in Japan. Details are given of collection and services, and progress to data in automation discussed. Japanese libraries have been relatively slow in making use of computer mainly because of difficulties in devising a keyboard based on pictograms.

36. ---, ---, MEDICAL LIBRARIES, TOKYO.

Describes the library facilities, resource materials and training of librarians at TUCH Women's Medical College Library, a middle-sized medical library, supplemented by information services. Outlines primary information services such as interlibrary loan and a journal acquisition system for each library. Also examines secondary information services which centre round an on-line information retrieval service, bibliographic and current awareness services and preparation of index cards. Considers the medical library in terms of the information services it provides.

37. --, MEDICAL LIBRARIES, U.S.A.

BOLEF (Doris) and GARDNER (Trudy). Requests for proposals for Library automation. Bulletin of the Medical Library Association. 76, 2; 1988, Apr; 141-45.

Many health science libraries are now considering integrated automated system for an investment of several hundred thousand dollars. The request for proposals (RFPs) is the usual method of selecting the candidate vendors for close inspection of promising systems. Draws upon the experience of the Library of Rush University, Illinois, and that of 12 other health sciences libraries. The libraries were interviewed by telephone using a short questionnaire that asked them to compares the RFPs with the systems actually obtained and their experiences in implementing them. The
libraries were also asked, with the benefit of hindsight, what would they have done differently. 4 vendors were also interviewed by telephone, in order to get their point of view.

38. -, -, -, MEDICAL LIBRARIES, U.S.A.


The development of the automated invoice processing feature of the National Library of Medicine's Master Serials System is described. The approaches taken to file design, standardisation of formats, and quality control of data are explained. Details of the batch processing of invoice data from tapes and the use of on-line data entry screen for payment posting are included.

39. -, -, -, MEDICINE.


Bibliographic instruction in health sciences libraries is on the verge of another major transformation. Reviews the health sciences literature after 1975. Presents information from an informat telephone survey. Describes issues of concern to health sciences librarians. Summarises the perceived 'state of the art'.
40. -, -, MEDICINE.

BROOKLINE (Naomi C.) An enhanced mini MEDLINE system: a abstracts, more journals, and CD-ROM. Serials Review. 2(2-3); 1986; 33-39.

The mini MEDLINE SYSTEM, a user-friendly bibliographic system developed by the Georgetown University Medical Center, Washington, D.C. is an in house, collection-oriented search services that affords immediate access to health care information. Describes the mini MEDLINE SYSTEM which provides article-level access to local periodical holdings.

41. -, -, MEDICINE.

BROERING (Naomi C) and . Integration accross institutions: lAAMS extended. Journal of the American Society for Information Science. 34, 2; 1986; Mar; 131-34.

Contribution to part 3-Implementation of integrated information services- in an issue devoted in part to perspectives on Integrated Academic Information Management Systems (IAAIMS). Electronic technologies are transforming the way we handle information and the medium used to pursue knowledge-computers, communications, information and handling systems can be merged harmoniously to transmit information via networks. The IAAIMS approach for transfer of biomedical information within a medical centre also offers opportunities for networks across institutional lines. It included tradition of cooperation and resource sharing among libraries.
42. -,-,-, MEDICINE.


An entity relationship level design is given for computerised medical information systems. This design is aimed at conceptual integration of hospital information systems; patient history record keeping systems; and future diagnostic systems. Lays out a foundation for distributed data bases.

43. -,-,-, MEDICINE.


The various ways in which the modern hospital library can support clinical making by providing current information to users in a quick and cost-effective manner such as computerised services are discussed.

44. -,-,-, MEDICINE.


Baylor College of Medicine, Texas Medical Center, Houston, has used information Technology in support of its corporate and academic programmes. IAIMS have proved to be
important extensions of technology development. Describes the virtual Notebook system, a conceptual and technologic framework for task coordination and information management in biomedical work groups. When fully developed and deployed, the virtual Notebook will improve the functioning of basic and clinical research groups in the college.

45. MEDECINE.

Focuses on the creation of the Integrated Academic information Management system (IAIMS) Workstation in the context of the outcome of a year-long IAIMS strategic planning process at the John Hopkins Medical Institutions (JHMI), Maryland. Details the functional requirements and specific implementation strategies for the IAIMS workstation the prototype for managing the knowledge base of the published biomedical literature.

46. MEDECINE.
WINGERT(F). Automated indexing of SNOMED Statements into ICD. Methods of Information in Medicine. 26,3; 1987, July; 93-98.

A formal computerised language is presented which is used to generate a transformation table for converting statements indexed and classified according to SNOMED (Systematized Nomenclature of Medicine) into ICD (International classification of Diseases) codes.


A model was proposed in which information management was to be achieved through integrated distributed resources. The elements of the IAIMS model are: On going policy development and planning; communications; an electronic library or resource inventory; coordination of the development or selection of the end-user function; user support; and ongoing evaluation. This model is being tested to determine its effectiveness in meeting the administrative, patient care, research, and educational needs of a basic science department and a clinical science department at Duke University.
Faculty publications are a reflection of research activity at a medical school and are thus very important. Manual methods as well as generic database managers were seen as too cumbersome. Instead, the library automated the collection using a microcomputer and Sci-Mate, which accepts downloaded citations from different databases and vendors. Discusses the design and the methods used to create the database.

Paper in a collection reviewing the Center for the Utilization of Federal Technology (CUFT) links information, Federal technology resources, and new technologies to new users, including the private sector, to facilitate commercialization. The CUFT program is increasing its online availability to deal with the increasing volume of information available and the growing number of users in health-related fields as well as in other areas of Federal Scientific and technical information.

Library Information System (LIS) developed by Georgetown University, Washington DC, Medical Center Library. 1 component of the system is mini MEDLINE, a system for searching an inhouse database derived from NLM MEDLINE tapes. Describes the process involved in determining which journal should be included in SML's mini MEDLINE file; the number of titles and years covered; the balance between research and clinical titles, the representation of allied health fields; and the level of faculty involvement.

LORENZI (Naney M) and MARKS (Ellen B). University of Cincinnati Medical Center: integrating information. Bulletin of the Medical Library Association. 76, 3; 1988, July; 231-36.

Medical Center Information and Communications, was recognised into a departments, which now provide a variety of information services. Ultimate goals for IAIMS include a patient-centred data base, a decision-support system, and a knowledge network. The IAIMS prototype, currently
under development for the University of Cincinnati Hospital's Internal Medicine Service consists of components representative of the IAIMS model's ultimate goals. A major premise of this IAIMS effort is that it is patient-centred.

53. --,--. MEDICINE, WILSON LINE.
HEWISON (Naney S). WILSONLINE. Medical Reference Services Quarterly. 5,2; 1986; 81-90.

WILSONLINE, the on-line version of H.W. Wilson Company's printed indexes became publicly available in Nov.84. It offers a variety of database of potential utility for health sciences librarians, with several additional files on the way. The attractions of WILSONLINE for health sciences librarians are outlined.

54. --,--. NATIONAL LIBRARY OF MEDICINE, U.S.A.

The National Library of Medicine has played an important role in medical communication for most of the 150 years since its founding. In the last 20 years, especially; the NLM's responsibilities have been expanded to include a variety of non-traditional library activities.
Many of these new activities are based on computer and communications technology. Research now going on in the library's Lister Hill Center shows promise of greatly altering the way future scientists and health practitioners have access to biomedical information.

55. --,--. NETWORK, MEDICINE.


The libraries of the Medical University of South Carolina were awarded a grant in 1984 to develop a statewide, computer-based, integrated library management system. The South Carolina Health Information Network (SCHIN) will be developed over 3 years. The technological basis is the simultaneous mounting at the 2 medical schools of a computer-based integrated library system with circulation, cataloguing acquisitions, serials control, an on-line catalogue and networking facilities. The Library Information System (LIS) at Georgetown University Medical Center has been chosen.

56. --,--. Nuffield Library.

Describes briefly the refurbishment of the British Medical Association's Nuffield Library and its reopening, in new premises. Describes its computerised services.

57. -, -, -, TERM SELECTION, MEDICINE.


An indexing language is made more accessible to searchers and indexers by the presence of entry terms or near-synonyms. First presents an evaluation of existing entry terms and then presents and tests a strategy for creating entry terms. The key tools in the evaluation of the entry terms are documents already indexed into the Medical Subject Heading (MeSH) and an automatic indexer.

58. -, -, -, TRADITIONAL CHINES MEDICINE.


The Chinese Medical Materials Research Centre at the Chinese University of Hong Kong has implemented a medium scale information retrieval system for plant, animal, and mineral materials of traditional Chinese Pharmacy. Gives an account of the information retrieval system that has been implemented as well as the amount of
data that has so far been built into the data base.

59. -, --, USERS, HOSPITALS.

Health care organisations have a crucial need to organise and share information resources. Hospitals seeking appropriate data processing solutions for their needs are often faced with constrained budgets, limited in-house data processing expertise, inflexible and centralised proprietary information systems, behavioural challenges, and organisational politics. Describes the development and utilisation of a hospital microcomputer centre, an outgrowth of the information centre concept, as an answer to these needs and challenges.

60. -, --, USERS NEEDS: MEDICAL LIBRARIES; U.K.

Traditional demands on library services by established medical users have over the last decade been joined by new and wide ranging information requirements articulated by nurses, the paramedical professions and those involved
in community health care including general practitioners. Briefly discusses research into users needs in the health care professions in Britain. Draws from current trends for health care librarians involved in developing and running services in changing time.

61. —-, MEDICINE, END USER SEARCHING, NEW YORK HOSPITAL.

Investigation of end-user searching at the New York Hospital Cornell University Medical Center (NYH-CUMC) revealed that 80% of the physicians surveyed were end users, 63% were interested in learning to search, and 29% were not interested. Analysis of the precision and recall ratio of searches conducted by 5 end users at NYH-CUMC indicated that the best results were obtained by end users who had been taught to search by experienced librarian-searchers. The quality of end user searches did not appear to be affected by the friendliness of the systems used, the frequency of searching habits, or the length of time that an end user had been searching.

62. —-, MEDICINE, PERSONAL FILES.
The body of literature discussing the need for personal information files as well as the variety of methods employed to manage reprint files is enormous. With the advent of the microcomputer many manual card systems are being transferred to microcomputers. Reviews 6 commercially available software packages which are suitable for creating computerised personal information files. Every attempt has been made not to endorse a specific brand of software.

63. ..., MEDICINE, U.K.

CATCHPOLE (Paul). The State of the art in computer applications for the community health services. BURISA. 73; 1986, Apr; 18-19.

Results of a questionnaire survey of applications of computer in community health services indicated a proliferation of computer applications running for a wide range of hardware. Large number of systems started up in early 1985.

64. ..., MULTI USER MICRO COMPUTER SYSTEM, SEARCHING.


The Cairns Medical Library has designed a multi-user microcomputer system for small libraries, the commercial
version of which is BOOKSHELF, marketed by Logical choice (computer Services ) Ltd. of Oxford. The system includes modules for cataloguing, acquisitions, circulation controls on-line search assistance, and periodicals control. The implementation of the system at the Cairns Library is described.

65. --, OCCUPATIONAL HEALTH.


Staff at several Australian libraries, particularly those introducing new technology, have been afflicted with injuries that are covered by the term, repetition strain injuries. The predominant symptom is myofascial pain affecting the neck shoulder and arm on the dominant side for movement. Associates the incidence of these symptoms, during the past 2-3 years, with widespread introduction of word processing and computer terminals.

66. --, OCCUPATIONAL HEALTH, USA.

The Online Meeting organised by Online Review.

The occupational safety and Health Administration (OSHA) of the US Department of Labour has developed and implemented a computer system, named TIRS (Technical Information Retrieval System), which contains the Federal Registers, dissertation abstracts, contract and technical reports from the National Technical Information Service (NTIS), and health hazard evaluations from the National Institute for Occupational Safety and Health (NIOSH). Information from these files is indexed and entered into a computer record. Documents are searchable and retrievable using a Hewlett Packard 1000 Mini-computer. The full text of most of these documents is stored in Access Corporation's System M's. Discusses advantages of an online microfiche-based technical information system.

67. DEPARTMENT OF HEALTH SOCIAL SECURITY.

DUA (ED) and MORGAN (D). The D.H.S.S. Serials database. 
UK Serials Group Newsletter 8,1; 1986, June; 34-35.

Outlines the development of the U.K. Department of Health and Social Security, serials database was created in 1983 using British Non-Ferrous Metals Technology Centre SPEED, and comprised 2,000 current and 500 old titles. Circulation lists and ordering information were
subsequently added. STATUS has been adopted to the needs of a serials librarian.

68. --, PERIODICAL CONTROL, MEDICAL SCHOOL LIBRARIES, TENNESSEE.
MCHOLLIN (Mattie) and GOODALE (Les lie). Serials automation on one's own. *Serials Librarian* 131; 1987 Sep; 3-9.

Describes the planning and design of the in-house, on-line periodicals control system installed at McGlary Medical College Library, Tennessee. Details of datawise construction are given and problems with the design are discussed. Procedure for inputting data is illustrated by means of sample on-line screens.

69. --, PERIODICAL CONTROL, MEDICAL SCHOOL LIBRARIES, TEXAS.

Houston Academy of Medicine-Texas Medical Center Library was a beta test site for the Softwork link between the OCLC SC 350 on-line periodicals control system and the OCLC LS 1200 on-line technical processing system. Advantages and disadvantages in practical operation are reported.

70. --, PHARMACEUTICAL INFORMATION, PATENTS.
The National Information Centre for Drugs and Pharmaceuticals is one specialised centre restricted to only drugs and pharmaceuticals. Its services such as its patent bulletin and patent searches on selected drugs have been well accepted by the users. With a computer now installed at the Centre, the Centre should acquire the INPADOC database and collaborate with existing Patent Information System. Nagpur and National Information Centre, New Delhi for better services.

71. --, PHOTOGRAPHS, ARCHIVES, MEDICAL SCHOOL LIBRARIES, PENNSYLVANIA.


The Archives and special collections on women in Medicine in the main archive of the Medical College of Pennsylvania. Describes the project, employing a compaq Plus microcomputer with dBase 3 and photocopying methods, to improve intellectual and physical access to the collection of still photographs in the archive.

72. --, REFERENCE SERVICES, HOSPITAL PATIENT LIBRARIES, WEST GERMANY.

HOOK (Sara Anne). Hospital libraries in West Germany: an overview of reference services. Medical Reference Services Quarterly. 5,3,1986; 75-84.
Presents a study on reference services in West German hospital libraries. Information for study was obtained through personal interviews conducted at 4 libraries in Stuttgart, West Germany in Aug. 85. A detailed questionnaire covering services provided, staff training, and use of computers in the Lib outlined.

73. SEARCHING, EXPORT SYSTEMS, CANCER.
WALTON (Joan D) and other. Graphical access to medical expert systems: 3 Design of a knowledge acquisition environment. Methods of Information in Medicine. 26,3; 1987, July; 78-88.

The experience gained in the building of ONCOCIN, a knowledge based expert system for cancer chemotherapy is described. The use of the OPAL method of knowledge acquisition is discussed.

74. SEARCHING, MEDICAL LIBRARIES, MARYLAND.
BRANCH (Katherine). Developing a conceptual framework for teaching end user searching. Medical Reference Services Quarterly. 5,1,1986; 71-76.

Describes how the end user training programme at the Welch Medical Library of John Hopkins University, Baltimore, Maryland, was founded upon a conceptual framework. The
programme began in 1985 with instructional sessions for the on-line catalogue and the integrated library system. This then moved to demonstrating and use of BRS After Dark and knowledge Index. Component of the conceptual framework are: the role of on-line searching; coverage of the principles of data base organisation; search topic analysis; and evaluation of search results.

75. --, SEARCHING, MEDICAL SUBJECT HEADING.


The National Library of Medicine revises its MeSH vocabulary annually to reflect changes in biomedical literature and the medical community. The study dealt 2 hypothesis about MeSH. The 1st was that new terms are added to MeSH when the broader terms have an increased number of postings. The 2nd was that there is a relationship between the patterns of MEDLINE indexing and searching and the organisation of the MeSH tree structure. Results indicated that: new terms can not be predicted by the increase in postings of existing terms; and searchers and indexers, use of the terms, tree structure does not correlate with the terms, distribution in the MeSH trees.
76. --, SEARCHING, MEDICAL SUBJECT HEADING, RECALL.

ISA0 (Naraoka). Some problems of using MeSH in searching literatures of fulminant hepatitis by MEDLINE. On-line Kensaku. 8,3; 1987, Sept; 122-25.

Deals with on-line searching in which browsing does not reveal synonyms and related words. Medical subject Heading (MeSH) forms a controlled vocabulary for searching. Medical subject Heading gives the term 'Acute Yellow An-trophy' (AYA) for the Japanese. A MEDLINE search gave only 7 hits for AYA. It appears that AYA is a pathological term and a survey of Index Medicus chewed it appeared only 4 times between 1978 and 1987.

77. --, SEARCHING, MEDICINE.


GRATEFUL MED is a single purpose package designed for clinicians to easily and efficiently access the MEDLINE and CATLINE databases. Describes the improvements and changes to version 3.0 of GRATEFUL MED. Relates experiences in teaching clinicians how to use GRATEFUL MED at the Health information Research Unit, McMaster University, Hamilton, Ontario, and discusses its potential role in the small library.
NEW SOUTH WALES.

DAVIS (Monica). Microsystems information exchange: microsearching with an IBM PC. LASIE. 15,4; 1985, Jan/Feb; 20-22.

Describes micro-searching with an IBM Personal Computer in the Gardiner Library, a medical library jointly administered by the University of Newcastle, the Royal Newcastle Hospital and the Department of Health-Hunter Region, New South Wales. Describes an autodial modern and good communications software which enables the microcomputer to interface with other mainframe computers. Lists the facilities which the software can offer.

MORI (Hiroaki). Attending the literature subscriber meeting of Derwent and visiting some information system in Europe. On-line Kensaku. 8,3; 1987, Sept; 108-14.

Describes the Beilstein Institute in Frankfurt and the plans for on-line access via DIALOG to Beilstein's organic compounds information service. The visits to Pharma products in the UK, an affiliate of Scrip, is outlined as well as discussion of the pharmaceuticals information service which is available on Datastar. Other visits were undertaken to Derwent publications Literature Division in London, including attendance at the Derwent
European Literature subscribers Meeting in Eastbourne, many useful contacts were made, and to JR Prous in Barcelona, producers of Annual Drug Data reports which derives information from patents from 10 countries.

80. TECHNOLOGY, MEDICINE, NATIONAL LIBRARY OF MEDICINE.


Discusses the continuing rapid development of computer technology and storage systems in the NLM and the Artificial intelligence techniques, factual database. The emergence of medical information as a formal discipline and the development of Integrated Academic Information Management Systems (IAIMS) are also important influences on the direction of the library.

81. TERM RELATIONS, MEDICINE.


An experimental computer-base bibliographic retrieval system was implemented to explore how new semantic relationship between MeSH terms might assist the retrieval
process. The system's experimental database was produced from a list of Abstracts from the MEDLINE database. Each list contained papers discussing a specified pair of terms. Each abstract was analysed to determine the specific relationships between the 2 terms discussed in that paper. The project then explored how these semantic relationships could be incorporated into the computer to enhance retrieval.

82. -, -, USE INSTRUCTIONS, HOSPITAL LIBRARIES, U.S.A.


Presented at the National Online meeting organised by Online Review, held in New York. The purpose of Tompkins- Me Caw Library's Hospital Based End user Training (HOBET) Program is to establish a training/Consultation network that prepares hospital librarians to cope with the increasing number of user enquiries concerning microcomputers and user friendly search services.

83. -, -, USE INSTRUCTION, HOSPITAL LIBRARIES, NEWYORK.

Winthrop-University Hospital Library, New York, created a subject listing of computer assisted instruction software held by the library. The list was created to publicise the collection and includes 200 titles under 20 subject headings.

84. -,-, USE INSTRUCTIONS, MEDICINE LIBRARIES, ILLINOIS.
TAWYEA (Edward W) and SHEDLOCK (James). Teaching the user about information management using microcomputers. Medical Reference Services Quarterly. 5;2; 1986; 27-35.

Paper based on a presentation at the Reference Services Section at the Annual Meeting of the Medical Library Association in New York City 28 May 85. The Northwestern University Medical Library (NUML) has provided information management instruction for its patrons over the last several years. The library has defined this topic broadly, including decision analysis, database management, and on-line searching. Reviews the instruction and outlines some of the issues which concerned the NUML as it initiate this programme.

85. -,-, USE INSTRUCTIONS, MEDICAL LIBRARIES, ONTARIO OTTAWA.
JANKE (Richard V) and WYNBERGAS (Helena). On-line seminars for medical students and personnel at the University of Ottawa Health Science Library. Bibliotheca Medica Canadiana. 7,5; 1986; 191-95.
Examines the history of free on-line access to medical database focusing on client searching. Explores the reasons why more searches were conducted at the Morisset Library and discusses the decision to run half day online seminars for health science personnel and medical personnel at the University of Ottawa and Ottawa General Hospital complex.

86. -, USE INSTRUCTION, MEDICINE.
SOLLENBERGER (Julia) and SMITH (Bernie Todd). Teaching computer searching to health care professionals: why does it take so long. *Medical Reference Services Quarterly.* 6,4; 1987; 45-51.

The librarians at Rochester General Hospital and at the University of Rochester School of Medicine and Dentistry have jointly developed a curriculum for teaching a course ranging from 8 to 20 hours, depending on the targeted audience. Examines the course content and the teaching commitment required and addresses the advantages and disadvantages of teaching a longer course. Discusses the advantages to a Libn offering any educational programme for computer searching whether it be a long course, a short course or even a demonstration.
A Canadian Medical Association (CMA) INet trial was jointly sponsored by CMA and Telecom Canada to provide about 25 physicians in 13 practice settings with access to on-line information systems such as the American Medical Association (AMA), Medical Information Network (MINBT), and Bibliographic Retrieval Service (BRS) MEDLINE and HEALTH LINE. Reports on training efforts for the end-user trial. The data conferencing facility of iNet was used to help searches with difficulties.

A composite report on the 23rd Annual Clinic on Library Applications of Data Processing, Apr 86, at the Graduate School of Library and Information Science, University of Illinois at Urbana-Champaign, USA. The objective of the meeting was to assemble a group of outstanding speakers who could collectively present a state-of-the-art
summary on the design or redesign of on-line systems to make them easier to use and thus more attractive to potential users. Presents 10 papers summarized by the students of the School.

89. USERS NEEDS, DOCTORS, MEDICINE LIBRARIES, CANADA.

MARSHALL (Joanne Gard) and FITZGERALD (Dorothy). Health Science Libraries as sources of training and support for online physicians. Bibliotheca Medica Canadiana. 7,6; 1986; 184-87.

Report the initial analysis of a survey which sought to discover the views of librarians on the marketing of on-line data base services directly to health professionals. Findings indicated: that respondent differentiated between the needs of various types of end users; a strong desire to maintain the traditional role of the library as a storehouse for books and journals while at the same time being responsive to the broader types of service opportunities facilitated by rapidly expanding information technology; and concern about the general social and professional issues raised by computerisation of information sources.

90. USER-SYSTEM, INTERFACE, DATABASES, INFORMATION SERVICE, MEDICINE.

SNOW (Bonnie). MED-BASE: case of use and search accuracy. Online. 11,3; 1987; May; 125-33.
Med-Base is a floppy disc interface designed for user-friendly access to MEDLINE, CANCERLII, and the Health PLANNING AND ADMINISTRATION data bases from the USA National Library of Medicine. Looks at the main menu options. Outlines the steps involved in a search.

91. INFORMATION STORAGE AND RETRIEVAL, DATA BASES, ALZHEIMER DISEASES.

A brief review of the characteristics of Alzheimer's Disease (Senile Dementia) is followed by notes on sources of information on the subject. Includes: notes on the 8 most useful DIALOG on-line database; Government publication; reference books.

92. --., BIBLIOGRAPHY, MEDICINE.

KOPP (James J). The impact of technology upon medical history research: the past, the problems, the potential. Bulletin of Medical Library Association. 75,4; 1987, Oct; 349-54.

Focuses on technological developments and some impact on medical history research including photostat. It is argued that on-line bibliographic databases, although relatively recent and not yet fully developed, are only the
beginning of technological aids to historical research. Other computer-assisted historiographical applications are examined and the potentials of developing technologies are explored. The specific and inherent problems of using technology in historical research are also presented, as is the need for an evolving role of libraries in dealing with these problems.

93. ——, BROWSING, HYPER TEXT, MEDICINE.

The increasing availability of commercial hypertext software such as Hypercard suggests that Hypertext applications will develop rapidly, as more and more text are created in electronic form. The document-linking aspect of hypertext has strong implications for the on-line industry, especially in those cases where the reader of an electronic text needs to view documents or other materials which are conceptually linked to the document at hand. In collaboration with S Francisco General and Columbia Presbyterian Medical Centers, BRS has designed 2 medical textbooks which are intended to be accessed entirely electronically. Other relevant chapters or topics, bibliographic
citations, or even the full-text articles behind the references, either in local or remote data bases.

94. ---, CITATION INDEX, NURSING.

SNOW (Bonnie). Nurse Search: a nursing data base on floppy disk. Database. 10,2; 1987, Apr; 107-11.

Nurse search is a subset of citation from the cumulative Index to Nursing and Allied Health Literature (CINAHL) available on floppy disc which can be searched using software developed by knowledge Access, Inc. Discusses: menu options; subject searching; other search options; logical connectors; displaying results; and ease of access.

95. ---, COOPERATION, MEDICAL LIBRARIES, JAPAN.

DESCHAMPS (Christine). La Cooperation entre bibliothèques médicales Japan. (Cooperation between medical libraries in Japan). Documentaliste. 23,2; 1986, Mar-Apr; 53-55.

Some effective cooperative programmes have been established, such as an interlibrary loan service, and joint catalogues and data bases of book and periodicals. The creation of international links—such as FID, Unesco, the South East Asian Medical Information Centre—has proved more fruitful. Japan's reluctance to cooperate is attributable to the national reverence for traditional mores and consequent hostility to changing established practices.

It briefly describes how the indexing of International pharmaceutical abstracts (IPA) developed. Examines the combination of traditional methods and concept and special modifications required for full text data bases of pharmaceutical information. Describes the indexing approach to Drug Information Fulltext (DIF) and Consumer Drug Information (CDIF) in which concepts such as 'dosage' or 'allergies' are tagged in a techniques which allows the retrieval of specific information without the need to review on screen the equivalent of 6-8 printed pages.


The rapid development of microcomputer technology has led to the increased case of personal computers and also to change information provision through central computers. An information system must therefore be oriented to become an end-user system. This trend was born in mind when AIDDS|VS was developed and has resulted in new requirements regarding
communication, functional range, system reliability and stability so that a user unfamiliar with computer work can obtain access to the information system through screen display.

98. --.--, CANCER.

SNOW (Bonnie). Differences in CANCERLITON MEDLARS and DIALOG. On line. 10,6,1986, Nov; 118-23.

Examines the differences of using the CANCERLIT health science database on MEDLARS and DIALOG data banks. Discusses: Searchable fields; Major differences on MEDLARS and DIALOG; advantages; and elimination of duplication.

99. --.--, COMBINE HEALTH.

HEWISON (Nanney S). Combined Health information on database. Medical reference services quarterly.6,2; 1987; 71-81.

CHID available from Bibliographic Retrieval services Inc. (BRS) Information Technologies which is a combination of subfills dealth with chronic deseases and health educa­tion. The data base is inteded to serve health educators, health professionals, people with deseases targeted by the subfiles, and the general public. Discusses types of bibli­o­graphic information provided, search features and future productions.
100. –,–, DENTISTRY, USERS, DENTAL SCHOOL LIBRARIES.

HOOK (Sara Anne). End user searching at Indiana University School of Dentistry: Tailoring a program for a specific user group. Medical Reference Services Quarterly. 5, 4; 1986; 35-40.

While many librarians support the concept of end user searching, they fear that large costs will be incurred with the introduction of such a programme. Describes an economical and user training programme which was developed at the USD End user training at IUSD is fully self supporting and has been tailored to meet the needs of a very specialised user group.

101. –,–, DRUGS.


Describes the DE HAEN DRUG DATA on-line data base, which has a unique record content and formal and special features to facilitate searching.

102. –,–, END USERS, MEDICINE.

SHEDLOCK (James). Planning for end user search services in the health science library. Medical Reference Services Quarterly. 6, 4; 1987; 1-13.
End user searching now has the potential for becoming a new reference service in health science libraries. No longer viewed simply as a fad, end user searching is contemplated by medical reference librarians for implementation within the information service department. For the most part these services have centred around educational and training sessions. Planning for a more detailed service programme is discussed with an outline of issues and concerns. Items that should be discussed in the planning process include costs, searching environment, equipment, telephone, service placement, search system selection, policies, public city and training. A case report is also presented as an example of implementing a limited end user search service.

103. --.--, EXPORT SYSTEM CANCER.


CANSEARCH is an expert system designed to enable doctors to specify queries to retrieve cancer-therapy documents from the MEDLINE database. The system does not require the user to be knowledgeable or undergo any training in the use of the underlying retrieval system.
104. **EXPERT SYSTEMS, MEDICINE.**


Text of a wide-ranging lecture on computer usage in medicine. The types of information required by medical practitioners can be provided by 2 sorts of computer support. Clerical support i.e. immediately available patient records, and decision support for diagnosis and prescription. Reviews currently information sources, particularly on-line system. Expert systems for medical use are being developed but there are few cases of actual use as most of them cover limited fields.

105. **EXPERT SYSTEMS, MEDICINE.**


Discusses the development of a computer aided medical diagnostic, or expert, system using standardized symptom codes as its input, based upon the results of a comprehensive questionnaire that is filled out by the patients potential disease is predicted by linking symptoms
with most likely diseases. Discusses the methodology of the system and presents examples, as well as directions for further development of this approach to medical information processing and decision making.

106. -,-,-, FRONT AND SYSTEMS.


Products and services designed to simplify the online searching process are proliferating. Features they can provide include aids for data base selection, search strategy pre-formulation and storage, single keystroke logon and logoff, memory buffer, downloading, and accounting. Compares microcomputer and main frame-based front-end software which can be used for accessing medical databases.

107. -,-,-, FULL TEXT SEARCHING.

QUIGLEY (Edward J). MEDIS: the full text medical information retrieval service. Database. 9,3; 1986,July; 112-17.

MEDIS is a full text, free-word searchable medical data base from Mead Data Central. MBDIS comprises: GENMED (the general medical library); PHARM (the drug information
library); CANCER; MEDLINE; and ADMIN (the administration library). Outlines the facilities and searching of data base.

108. --,--., HEALTH INFORMATION.

LUNIN (Lois F) and STEIN (Rene). CHID: a unique health information and education database. Bulletin of the Medical Library Association. 75,2; 1987, Apr; 95-100.

The public's growing interest in health information and health professions increasing need to locate health education materials can be answered in part by the new combined Health Information Database (CHID). This unique database focuses on materials in professional and patient education, general health education, and community risk reduction. Accessible through BRS, CHID suggest sources for procuring brochures, pamphlets, articles, and films on community services, aspect of coping. CHID is a joint project of 6 federally funded agencies in the public Health Service. CHID provides citations with abstracts to major health journals, books, reports, pamphlets, hard-to-find information resources, and to health education programmes under way in State and local health departments and other locations.
109. **HUMAN SEXUALITY.**


Human sexuality is a service available to 300,000 subscribers linked by telephone to the Campus serve video tex network. The service began in July 83 as part electronic magazine, part electronic meeting ground. It is designed to provide users with sex-related information, advice and emotional support. A standard view data service is offered in combination with a Hotline that currently handles 500 messages a week. Specific Question and Answer pages supply answers to standard topic including: Arguing over how much sex; Answers about masturbation; women and orgasm. The system also offers message board facilities and access to support group.

110. **MEDICAL CARE.**

BRUCE (Naney G). Searching BIOSIS Preview in the health Care setting. Medical reference services quarterly.6,2; 1987; 17-37.

BIOSIS Previews contained primary information related to patient care. whether these questions arises in a hospital, a pharmacy, a drug information centre or a
poison control centre, BIOSIS Previews can provide very practical and timely information from sources which are not covered in other major data bases such as MEDLINE. Sample searches will demonstrate the usefulness of BIOSIS. Previews as a practical source of medical information.

111. --,--., MEDICINE.


 describes the experience of Indiana University School of Medicine Library in organising teleconferences in 1984 and 1985 to instruct members of the Greater Midwest Regional Medical Library Network on the MEDLINE Update. Utilisation of a state-wide closed-circuit television network is time-saving and cost-effective for the audience. Differences in and audience response to this alternative programming are described.

112. --,--., MEDICINE.

Contribution to an issue devoted in part to a symposium on electronic publishing and health sciences libraries. Electronic information utilities in the health sciences such as Medical Information Network (MINET) are increasingly important as it becomes more convenient for end users to retrieve data and use various online information services such as electronic mail from personal computer work stations. MINET is examined in depth as the most fully developed end user utility. Several other end user utilities and full text data bases in the health sciences are listed and described.

113. ~*~MEDICINE.

JOHN (K). Medical literature searches—how many bibliographic databases are needed for sufficient retrieval in medical topics. Methods of Information in Medicine. 24,3; 985; 163-65.

Literature searches in 8 databases at DIMDI (De tele Institute furmedizinische Dokumentation and Information) were performed at Frank furt University to find out which data base is most important in medicine. The databases searched were: MEDLARS; EMBASE; ISIBIOMED; CANCERLII; BIOSIS; PSYCHINFO; PSYNDEX; and ISI ISTPB. Distribution of publication from the medical faculty of the University was examined. No safe prediction is
possible as to which database will yield most articles. Overlapping from different databases is often low. Selection of an appropriate database mix for sufficient recall, in a cost-effective manner, is a taste for an experienced searcher.

114. --,--. MEDICINE.

KELLER (Sharon A). Finding information on health care management: the health planning and administration database. Reference Services Review. 14,1; 1986; 85-86.

Brief details are given about the online database, HEALTH, which provides citations of articles that deal with the non-clinical aspects of health care delivery, including financial management; organisational structure; management of medical facilities. HEALTH is available via the BRS, DIALOG and NLM systems.

115. --,--. MEDICINE.

WYKOFF (Leslie W). HEALTHLAWYER: an information comparison with medical and legal databases. Medical Reference Services Quarterly. 6,2; 1987, 51-63.

Compares HEALTHLAWYER with other legal and medical databases in an informal study. Local network building is an important element of this work. The memorandum format is used to illustrate the working style of study group.
Using a sample question, each author includes HEALTH LAWYER in a multi-data base search strategy. Memorandum are exchanged regarding search formulations and search out comes. HEALTHLAWYER, it is conducted, is a helpful data base when initiating research on a medical/legal question.

116. --,--, MEDICINE, BIOTECHNOLOGY.

DRUMMOND (Louis). Biotechnology information in medicine online. Database. 10,1; 1987, Feb; 93-101.

Select 8 topics to highlight those aspects of biotechnology with a clear medical impact. These are: diagnostic procedures; ethical issues, instrumentation; legal/regulatory issues; market place; patents; pharmaceuticals; and technology. Identifies databases and medical journals with coverage in the above areas. Selects terms for use in search hedges.

117. --,--, MEDICINE, CANADA.

GRUEN (Frances). Planning for locally available subsets of the MEDLINE file on a University campus—beginning the process. Bibliotheca Medica Candiana. 9,3; 1988; 163-68.

Improving the speed and quality of access to the biomedical literature through local sub-set availability is a primary advantage to the health care community as well.
as the student community. Examines the process of identification of the technology which will best suit the adaptation of MEDLINE subsets to the local Canadian environment. Considers the following related problems: size of the MEDLINE file and fund-raising and budgeting for the programme. Reflects on the possibility of MEDLINE subsets as a prototype on the Canadian academic campus.

118. --,-- MEDICINE, CANADA.
MAES (William R). Infohealth to subscribe or not subscribe. Bibliotheca Medica Canadiana. 8,3;1987;120-22.

Infohealth was created and is being marketed by the Canadian Hospital Association as a tool for health care executives and professionals and purports to be a comprehensive Canadian health care communications and information network. Services are described, cost considerations outlined and possible advantages and disadvantages discussed.

119. --,-- MEDICINE, CHEMLINE.
McGOWAR (Anna Therse) and MATER (DeeA). Identifying drugs in the chemical literature: a proposed strategy. Medical Reference Services Quarterly. 4,4; 1985-86; 1-16.

Recently, the National Library of Medicine (NLM) Board of Regents recommended the MEDLARS users expand their knowledge of other commercial data bases. Presents
logical and straightforward method for identifying chemicals and drugs using a variety of tools. Describes on-line chemical dictionaries including CHEMLINE (National Library of Medicine) and the Chemical Abstracts files, CHEMZERO, CHEMSIS and CHEMNAMME. Emphasizes these CAS databases since they can be helpful in preparing a comprehensive search.

120.-.-.-, MEDICINE, ETHICAL ASPECTS, BIOETHICS.


The BIOETHICSLINE File (BIOETHICS) is a bibliographic database produced at the Kennedy Institute of Ethics, Georgetown University, and made available on-line through the National Library of Medicine's MEDLARS system. BIOETHICS provides multi-disciplinary coverage of the ethical, legal, and public policy aspects of medicine, health care, and biomedical and behavioral research. Describes the content and development of the database, suggests effective strategies for searching, and presents illustrative searches. An appendix lists selected major indexing terms (Keywords) from the controlled vocabulary of Bioethics Thesaurus.
121. ———, MEDICINE, FULL-TEXT SEARCHING.


Discusses the use of full-text databases in medical libraries and by health professionals. Ways in which full-text files differ from bibliographic files are described, and hints for efficient searching of full text files are suggested. Sample searches are included to illustrate features of these data bases.

122. ———, MEDICINE, HOSTS, CALIFORNIA.

KITTLE (Paul W). Putting the medical library online; the next step. *Online*. 10, 1; 1986, Jan; 42-44.

Outlines developments with the Medical Library Host System which serves all the Adventist Health Systems, Linda Loma, California, USA. The system has expanded to a community information centre with software called the Bread board system (TBBS). Facilities include interlibrary Medical Centre Library Book & Journal holdings online. Outlines hardware, software and facilities.

123. ———, MEDICINE, HISTORY, HISTLINE.

HISTLINE, the MEMLARS file on the history of the health sciences, was analysed to determine predominant areas of historical research and publication in the year 1970-1982, as reflected in this data base produced within the History of Medicine Division at the National Library of Medicine. Subject content, chronological and geographical break downs, and subjects of biographical studies are examined in view of their frequency in the file. An examination is made of the journals publishing the most medical history.

124. --.--., MEDICINE, ILLINOIS.

A survey to determine attitudes towards end-user searching was made at Loyola University's medical Center Library, Chicago, using MEDIS, an online full text and bibliographic medical retrieval system. 141 completed questionnaires were analysed. Respondents identified 5 major reasons for using the system: helpfulness, convenience, time savings, rapid feedback, and presentation of needed information. Searching the MEDLINE data base rather than the full-text data base was the search method
choice. Continued use of both mediated and end-user searching was intended by most of the respondents.

125. --,-, MEDICINE, LONDON.


One of the crucial roles of the College of Health, London, UK is to disseminate health education and information to the public. Describes an investigation into Tel-Med, a USA service through which some 250 tapes on a variety of health and medical topics are instantly available via the ordinary telephone service. Reports and discusses the experience of the College of Health in launching a similar service in UK called Healthline.

126. --,-, MEDICINE, MEDICAL LIBRARIES, U.K.


The cost of the Excerpta Medica abstracting journals was giving cause for concern and it was decided to cancel the subscription and to evaluate the online data base as an alternative source of information. Describes the background to the decisions to cancel and the evaluation that was carried out at the University of Leeds Medical and Dental Library.
A questionnaire was sent to all medical school libraries in the Annual Statistics of Medical School Libraries in the United States and Canada asking librarians to describe their end-user programmes. Of the 113 responding libraries, 78 had an end-user programme. All provided some form of user instruction, 3 made equipment available to end-users, and 22 provided and administered passwords. The commonest reasons stated for starting a programme were staff interest and patron requests. The 2 most frequently taught systems were NLM/MEDLINE and BRS/Colleague.

This study compared features and determined which of 4 end-user systems (Paper chase, GRATEFUL MED, Med Base, or compact Cambridge: MEDLINE) would best serve the Medical Sciences and Optometry Libraries of Indiana University in providing biomedical information to faculty
and graduate students through MEDLINE. Cost, case of use, retrieval, training needs, equipment requirements, and adequacy of the documentation were examined. The study consisted of a comparison of the features of each system based on available documentation; a controlled search performed by the investigators on each system and on regular NLM MEDLINE.

129. ---, MEDICINE, MEDICAL LIBRARIES, WASHINGTON, D.C.


The mini MEDLINE SYSTEM, a user-friendly search system developed in 1981. The system is designed to meet the immediate educational clinical information needs of students, residents, and faculty. Focuses on system planning and design, data base creation through downloading, hardware adoption, and system use. The data base is a subject of the NLM's MEDLINE file; it includes over 180,000 citations to articles indexed in over 160 journals from 1982 to the present. With only a few keystrokes in 92-step process it allows users to conduct bibliographic searches. The system is being replicated at 8 other medical centre libraries.
MEDIS, an on-line full-text and bibliographic medical retrieval system, was introduced by Mead Data Central to the health community in May 85. A general description of the service offered covering the data base content, search commands and strategies, equipment, cost and support services. Strengths and weakness of this new end user system are reviewed from a user's perspective. Comparison among MEDIS, BRS/Saunders Colleague, and paper chase are drawn.

Analyses the search behaviour of end users who had taken a class in searching MEDLINE on the National Library of Medicine's MEDLARS System. The survey was based on California University at San Diego of the class members, 58% obtained passwords and most of these were still conducting searches 12-18 months later. Telephone interview and search observations indicated that these
users were satisfied with the results & felt they had mastered the basic techniques of searching. However, appropriate use of explodes and subheadings, as well as locating appropriate search terms, still presented difficulties. Further training in these areas is indicated.

132. —,—, MEDICINE, MEDLINE.

KIRBY (Martha) and MILLER (Naomi). MEDLINE searching on Colleague: reasons for failure or success of untrained and users. *Medical References Services Quarterly*. 5,3; 1986; 17-34.

Untrained biomedical professionals can easily retrieve relevant articles using colleague. The searches are satisfying, but may not be successful 52 Colleague searches, judged successful or incomplete by end users, were examined and compared with results of an experienced intermediary. Failures among the 31 incomplete searches were caused by: omission of an important data base; serious problem with system machines; inadequate search strategy.

133. MEDICINE, MEDLINE.


The study systematically comprises retrievals on 11 topics across 5 well known data bases, with MEDLINE's subject
indexing as a focus. Each topic was posed by a researcher in the medical behavioural sciences, and was searched in MEDLINE, EXPERTA MEDICA and PSYCINFO, which permit descriptor searches, and in SCISEARCH and SOCIAL SEARCH, which express topics through cited references. Searches on each topic were made with descriptors; cited references, and natural language common to all 5 data bases. The set of records judged relevant was used to calculate recall, precision, and novelty ratios. Overall MEDLINE had the highest recall percentage (37%), followed by SSCT (31%). All searches resulted in high precision ratios, novelty ratio of data bases and searches varied widely. Differences in record journal among data bases affected the success of the natural language retrievals.

134. --.--, MEDICINE, MEDLINE.


US federal information establishments produce some of the biggest and most used data bases in the world. In this on-line data bases included like MEDLINE, AGRICOLA, Energy and Nuclear science Abstracts. Federal support has also assisted in the development of other "motherfiles" serving the scientific and technical disciplines.
135. ROBINS (Simone B). Literature in MEDLINE... A bibliographic anomaly? Database. 8,1; 1985, Feb; 38-42.

MEDLINE does cover-to-cover indexing of the major medical journals and therefore contains to literary articles appearing in these journals. Explains how to search MEDLINE for these types of citations. Speculates on why physician-writers submit literary works to medical periodicals. Notes the involvement of physicians in literary circles.

136. KALUZSA (Karen). Use of MEDLINE by Medical students: results of a survey of the students of the Pritzker School of Medicine of the University of Chicago. Bulletin of the Medical Library Association. 73,3; 1985, July; 259-62.

Because medical school is a logical place for information retrieval capabilities to introduced to future physicians, a survey was conducted at the Pritzker School of Medicine of the University of Chicago in Aug. 84 to determine the students' awareness and use of MEDLINE. The study found that many students were unaware of MEDLINE and its capabilities, and that MEDLINE orientation for students during the first week of medical school was
Suggestions for improvement were solicited from the students, and these have been analysed and discussed.

137. -.-., MEDICINE, MEDLINE, SEARCHING, CATLINE.


It is a software interface developed by the National Library of Medicine (NLM) for searching several of NLM's data bases. MEDLINE, its backfiles to 1966, and CATLINE. It is designed to facilitate access to medical information by health professionals, and other end users with limited or no searching experience. Describes the basic approach and specific searching feature of version 2.0 of the system.

138. -.-., MEDICINE, MEDLINE, SEARCHING STRATEGIES NUTRITION.

VAN HERN (Linda J). A hedge for searching nutrition and disease on MEDLINE. Medical Reference Services Quarterly. 3,2; 1984; 31-42.

Written for on-line searchers familiar with MEDLINE, defines the scope of nutrition as it relates to disease, suggests background literature to familiarise the searcher with nutrition, and presents a hedge (a list of terms, synonyms or variant spellings, of words, compiled and
verified once, then saved in the memory of the host computer) for searching nutritional aspects of disease on MEDLINE. Vocabulary decisions, methods for limiting retrieval, and other applications of the nutrition hedge are also discussed.

139. -.-., MEDICINE, PREFERRED PROVIDER, ORGANISATIONS.

Examines preferred provider organisations—a recently developing alternative form of health care organisation. Current problems in the health care system, together with the structure, purpose, and benefits resulting from preferred provider organisations are discussed. The contents of the File HEALTH database are compared with other business and legal databases for unique coverage of this topic.

140. -.-., MEDICINE, REGULATIONS, U.S.A.

Describes the DIONGENES database available through BRS Information Technologies. The database focuses on drug and medical device regulatory information from the
Food and Drug Administration. The specific strengths of DIOGENES are mentioned as well as some plans for further development of the database.

141. --,--, MEDICINE, SAUNDERS COLLEAGUE.

IFSHIN (Steven L). BRJ/Saunders Colleague: reaching the critical mass after the explosion. Information Services & Use. 5,2; 1985, Apr; 101-105.

Based on a presentation delivered at the Fall Meeting of the Association of Information and Dissemination Centers (ASIDIC), Washington, DC 16-18 Sept. 84. BRJ/Saunders indented for use by health professionals deals with colleague's approach to: database selection and development; search software; training; pricing and information access.

142. --,--, MEDICINE, SEARCHING STRATEGIES.


One way of refining recall in MEDLINE is the application of one or more topical qualifiers to subject descriptors used to identify major points in an online search strategy. However, the choice of qualifiers and of methodology for retrieving them can be challenging. Discusses: factors affecting subheading selections; discrepancies in user aids; MeSH annotations and differing entry formats required for use of MEDLINE subheadings in
143. --.--. MEDICINE, SEARCHING STRATEGIES.
SNOW (Bennie). MEDLINE & Subsequent visited. Database.
Database. 9,5,1986; Oct.; 63-71.

Part 2 continues discussion of MEDLINES topical qualifiers. Examines logical combination likely to refine or increase recall. Takes a closer look at differences in data bank implementations. Reviews data regarding reliability and consistency in indexing, and proposed criteria for searching qualifiers unattached to main headings.

144. --.--. MEDICINE, SEARCHING STRATEGIES, PERSONAL NAMES.
SNOW (Bonnie). Caduceus. People in medicine names

Gives guidelines to medical searches looking for personal names during an online search. Typical queries involves: authors, people as subject, or eponyms. Discusses techniques for searching each type.

145. --.--. MEDICINE, U.K.
PARRIS (Gillian). HELMIS (Health Management Information Service)- the development of a computerised database for health management information. International Journal of Information Management. 6,1; 1986, Mar; 41-43.
Describes the development of NELMIS database at the Nuffield Centre for Health Services Studies, Leeds University. The system runs on a DEC PDP 11/23 computer and employs MIC-RO-CAIRS level C software. The HELMIS data base supports information services both in-house and to external enquirer and include: on-line searches and bibliographies; a current awareness bulletin; and SDI.

46. --.,--., MEDICINE, USA.


Reports on 5 separate studies designed for the National Library of Medicine (NLM) to develop and test methodologies for evaluating the products of large data bases. The methodologies were tested on literature of the medical behavioral sciences (MBS). I study examined how well NLM covered MBS monographic literature using CATLINE and OCLC. Another examined MBS journal and serial literature coverage in MEDLINE and other MBS related data bases available through DIALOG. A 3rd study examined the quality of the indexing NLM provides to MBS literatures and developed a measure of indexing as a system component. The final 2 studies explored how well MEDLINE retrieved documents on topic submitted by MBS professionals and how on-line searches viewed MEDLINE in
handling MBS topics.

147. --.--., MEDICINE, USA, HISTORY.
SNOW (Bonnie). Medicine Online: Progress and prognosis.
On-line. 11, 1; 1987, Jan; 125-27.

Traces the history of medical on-line information system from the 1st service MEDLARS from the USA National Library of Medicine (NLM), which appeared in 1968. A major trend has been the introduction of front end software to facilitate searching by new users, and makes to make the services more user friendly. Discusses the coverage of the services, and the problem arising when specialisation leads to fragmentation of knowledge.

148. --.--., MEDICINE, UNIVERSITY LIBRARIES, NEW JERSEY.
DESS (Howard M) and STRUMINGER (Leny). End user searching v. intermediary searching in CAS Online- is the answer in the question? In Proceedings of National online meeting 5-7 May, 1987, New York. Learned Information Inc, 1987; 105-10.

Introduction of online search capabilities in Medicine has stimulated a growing demand for searches in this data base. For the continue increasing demand in searching, end user searching is under consideration. During the last half of 1985 to provides a basis for
determining what kinds of searches might be practically carried out by relatively unskilled end users, and what type of training programme might be most effective for such individuals.

149. -, -, MEDICINE, USE INSTRUCTION, MEDICAL LIBRARIES, WASHINGTON.
BADER (Shelley A) and MARTIN (Elaine R). New methods of information management: new roles for the health sciences library. Medical Reference Service Quarterly. 6, 3; 1987; 63-68.

Describes attempts to introduce user-friendly bibliographic search system and the educational programmes designed to support them for the medical profession and health care professionals, focusing on the work of the Himmelfarb Health Sciences at the George Washington University Medical Center, Washington, DC, and the National Library of Medicine. Discusses factors to be considered when beginning an instructional programme. Asserts that librarians have changed their role to accommodate users. Changing information needs and have, in the process, become educators and consultants.

Describes the IAIMS project at the University of Utah, which has focussed on clinical linkages to facilitate the research, teaching and service mission of the Medical Centre. The planning phase focused on the relationship among the users and providers of the system and developed a Scenario describing the professor and clinical clerk making rounds in the bedside setting. The prototype Health Evaluation through Logical Processes (HELP) system brings together 3 sources necessary to solve a medical problem: the patient data base; the medical literature, and an expert in the subject. Microcomputers provide access to the HELP system and a complementary literature knowledge database.


Gives a management overview of the process and problems associated with selecting and implementing an integrated library system suitable for the special requirements of the World Health Organisation (WHO), Geneva.
Emphasis is given to defining the needs of the parent organisation as well as identifying the objectives of the WHO Library's computerisation programme. The necessity of staff involvement in evaluating and testing the software within the library as part of the selection process is also considered. Lessons learnt from the negotiating process with the vendor are indicated and the problems of implementation are summarised. Initial reaction and future developments are mentioned.

152. --,--, NURSES HOSPITAL LIBRARIES.

Nurses have not been accorded a pre-eminent place in hospitals, and in large measure they continue to rely on medical libraries for their information needs. The emphasis is given on nursing as a client in the hospital libraries and some computerised data bases are developed.

153. --,--, PHARMACENTICS, MARTINDALE.
   SNOW (Bonnie). Martindale online: drug into in a detective's toolkit. Database. 11,3, 1988, June; 90-98.
The pharmaceutical data base, Martindale on-line, is reviewed as a source of information on drugs. Assesses the value of the data base in searches for drug or other substance names and disensses the method of drug classification used. Concludes that Martindale online offers well-written unbiased summaries supported by evaluated bibliography, with informative abstracts, selected from broad surveys of the literature.

154. --.--, PHARMACEUTICS, USA.
SNOW (Bonnie). DIOGENES shed new light on FDA regulatory actions. Database. 11,2;1986, Apr; 72-80.

DIOGENES is a mixed full text and citation data base offering access to many previously unpublished US food and Drug Administration (FDA) regulatory documents related to human drugs and medical devices. Details of the files, on BRS and DIALOG, are presented with sample searches.

155. --.--, PHARMACOLOGY, COVERAGE AND SUBJECT INDEXING, MEDICINE.
BARBER (John). Case studies of the indexing and retrieval of pharmacology papers. Information Processing & Management. 24,2; 1988, 141-150.

Reports a detailed analysis of the coverage and indexing of 30 papers on pharmacological topics by BIOSIS,
CA search, EMBASE and MEDLINE on-line, and Biological Abstracts, chemical Abstracts, Excerpta Medica, and Embase had adequate coverage of letters. There was a considerable variation in the indexing applied with drug formulations, drug syntheses, clinical trials, pharmacokinetics, drug synergy, and other pharmacological aspects of the papers often inadequately indexed. The value of natural language words in on-line searching was demonstrated.

156. _, _, _, REHABILITATION.

LANSING (Phyllis). Subject indexing of the American Journal of Occupational Therapy in MEDLINE and NAHL. Medical reference service quarterly. 6, 2; 1987; 39-49.

Rehabilitation professionals need access to current journal literature for research and patient care. Using the American Journal of Occupational Therapy subject Headings from the MEDLINE and Nursing and Allied Health Literature (NAHL) files are compared to determine coincidence and numbers of headings. Based on the study findings, an information retrieval plan is suggested that librarians may use in assisting rehabilitation personnel in effective use of Index Medicus, cumulative Index to Nursing and Allied Health, and their on-line counterpart.
157. -.-. SUICIDE PREVENTION.

TONOSAKI (Ma saaki). Comparison of literature on suicide prevention among EMBASE, Health care and Administration, MEDLINE, and Psychinfo in COLLEAGUE system. On-line Kansaku. 7,2; 1986; 75-80.

Coverage of literature on suicide prevention in EMBASE, HEALTH, CARE AND ADMINISTRATION (HLTH), MEDLINE and PsychINFO in the colleague system are compared. In the case of a full text data base 4 texts were found in MEDB, on the other hand, 59 articles published in 49 journals were found in MEDLINE, 43 articles in 27 journals in PsychINFO, 32 articles in 28 journals in EMBASE and 23 articles in 20 journals in HLTH. The total no. of articles are 157 consisting of 99 articles published in 76 journals. In order to retrieve the literature on suicide prevention exhaustively, these 4 data bases should be used. Finally the consistencies of coverage of articles published in the same journal contained in each data base are discussed.

158. -.-. TOBACCO AND HEALTH, USA.

HEWISON (Naney S). The SMOKING AND HEALTH Data base. Medical Reference Services Quarterly. 6,4; 1987; 53-63.

Discusses the development of the SMOKING AND HEALTH Database, which became available on DIALOG in Feb. 87. The following aspect of data base are described: Selection
of documents for inclusion; subject coverage; controlled vocabulary; comparison with MeSH vocabulary; searching for non-journal items and corporate authors; across-data-base searching and document delivery.

159. --,--. TOXICOLOGY.


It deal with the sources were: 2 Online bibliographic databases: TOXLINE (TOXL), Excerpta Medica (EMED), one data bank: Registry of Toxic Effects of Chemical substances (RTECS), 6 textbook sources and 2 National Poisons Information Service in-house data bases (Poison Index, Clinical Case Report File). The evaluation was made on the basis of completeness of information provided and search time. The in-house databases performed better than the other sources in terms of speed of provision and completeness of information on household product poisoning.

160. --,--. TROPICAL MEDICINE.

To explore the on-line databases, a structure for the field of tropical medicine was derived from the interrelationships of signs and symptoms of 37 tropical diseases. A similar structure was derived for the interrelationship of sign and symptom index terms applied to articles on these tropical diseases in the MEDLINE data base. The poor correlation of the structures led to the suggestion that rigorous indexing of articles with sign and symptom index terms check tags would enhance the usefulness of the database. Similar studies could be envisioned for other disciplines and data bases.

161. -, -, -, USE INSTRUCTIONS, MEDICINE, TENNESSEE. GIVENS (Mary King) & Mc DONELL (W. ELLEN). End user instructions for searching MEDLARS. Medical Reference Services Quarterly. 4, 2; 1985; 63-67.

Describes a project conducted by the University of Tennessee Center for the Health Sciences (TCHS) Library to develop methods of user access to medical bibliographic data bases. The project was limited to National Library of Medicine (NLM) data bases accessible through NLM only, and end users were limited to TCHS faculty, staff and students.
162. -,-,-, USERS, MEDICINE.


The physician market segment promises to be a lucrative one for database producers seeking to develop new customer bases for their on-line products. Developing a marketing programme for promoting medical literature databases to physicians requires an understanding of the physician's knowledge of computers, databases and willingness to learn and utilise searching techniques to locate patient care information.

163. -,-,-, MEDICINE, DEVELOPING COUNTRIES.


Improvement of health in the developing world is dependent on making better use of available data. Lassa Fever in Sierra Leone, Methyl-IS-Ocyanate Poisoning in Bhopal, AIDS in the USA, and Measles in Nigeria provide examples of 4 critical steps in the use of information, data collection, data access, data dissemination and data use.

Explore techniques used to retrieve items in the veterinary science related literature using the MEDLINE, CAB ABSTRACTS, AGRICOLA and BIOSIS database. The discussion is database and not vendor-specific and is directed at the medical reference librarian or information specialist currently engaged in on-line searching. Presents search aids in the form of tables.

SHIMODA(T) and FUKUT(K). On-line searching veterinary literature in the JICST file on medical sciences in Japan, JMEDICINE. On-line Kensaku. 8,2; 1987; 74-76.

To use effectively the JICST file and JMEDICINE file in the field of veterinary medicine, their coverage of periodicals and other characteristics are compared based on 3 topics: bovine leukemia, ectogenesis, and transplantation of fertilised ovum. From the result, it is found that availability of JMEDICINE in veterinary medicine depends on the topics users need.
166. INFORMATION STORAGE & RETRIEVAL, DATABASES, MANAGEMENT SYSTEM, TEXAS.

KREVET (Leah). Database management systems: an experiment in design. Medical Reference Services Quarterly. 6, 4; 1987; 65-68.

Describes the instruction programme of the Education Department of the Houston Academy of Medicine-Texas Medical Center Library. Relates how greater control over the large quantity valuable statistical data generated was achieved by means of a personal computer environment data base management system.

167. --, SEARCHING.

SNOW (Bonnie). How to sort search output. Example drawn from medical files. Online. 11, 6; 1987, Nov; 88-94.

The SORT feature offers on-line data base searchers the capability of rearranging retrieved bibliographic references by a specified factor or factors (author, title etc.) Examples of working of the SCRT command on 3 major data bases: BRS; DIALOG; and MEDLINE.

168. --, SEARCHING, MEDICINE, INDIANA.

BONHAM (Miriam D) and NELSON (Laurie L). An evaluation of four end-user systems for searching MEDLINE. Bulletin of the Medical Library Association. 76, 1; 1988, Jan; 22-31.
This study compared features and determined which of 4 end-user systems (Paper chase, GRATEFUL MED, Med-iase, or Compact Cambridge: MEDLINE) would best serve the Medical Sciences and Optometry Libraries, Indiana University in providing biomedical information to faculty and graduate students through MEDLINE. Cost, ease of use, retrieval, training needs, equipment requirements, and adequacy of documentation were examined. The study consisted of a comparison of the features of each system based on available documentation; a controlled search performed by the investigators on each system and on regular NLM MEDLINE; and a user study based on observations, questionnaires, and interviews with 11 Library patrons who performed the same search of their choice on each of the systems.


Based on a paper presented at the Health Sciences Librarians statewide Meeting, Philadelphia, Pennsylvania, 20 Mar 86. Defines telefacsimile (FAX) and discusses its implementation in the hospitals of the Bergen-Passaic Health Science Library Consortium. Discusses the advantages
of FAX for the hospital consortium.

170. TRANSMISSION, MEDICINE, USA.

BRANDER (Linda). Fax goes for in Montana. American Libraries. 19,1; 1988, Jan; 63-64.

With a 2½ year grant from the Fred Meyer Charitable Trust, the Montana Faxnet Project was launched in 1986 to demonstrate the use of telefacsimile equipment in document retrieval in medical and other field. Faxnet purchased 5 Xerox 7010 facsimile machines which are placed in permanent locations and 17 Xerox 7010 machines which are rotated to different sites every 4 months. Discusses use of the network by individuals, organisations and libraries and problems encountered.

171. INFORMATION STORAGE & RETRIEVAL, INDEXING SERVICES, CONSUMER HEALTH, MEDICINE.


An analysis of the content of 60 popular health periodicals covered in 1986 by the Consumer Health & Nutrition Index was made to identify the characteristics and concerns of popular health magazines and newsletters. The literature mirrors the health values and anxieties
of the American public while some the literature diverges from mainstream allopathic medicine, most popular publications succeed in presenting coherent, reasoned, and documented viewpoints. Because there is no consensus on many medical problems, it is important that individuals have the freedom to read dissenting and alternative points of view and consider multiple options before making informed and reasoned health decisions. The Consumer Health & Nutrition Index now provides expanded subject access to 60 health-related periodicals plus all health-related articles in 16 general interest magazines.

172. INFORMATION STORAGE & RETRIEVAL, INFORMATION EXCHANGE, NATIONAL LIBRARY OF MEDICINE, MEDLARS.


The National Library of Medicine (NLM) has a broad mission in biomedical information service. It have 3 major international programme: the global nature of disease; the international scope of medical literature; and the universal goal of better communication. Reviews NLM programmes in relation to international medical information exchange: International MEDLARS centers, collaboration with WHO and PAHO, NLM special Foreign
Currency Program, and development of the NLM collection.


The rising number of AIDS cases among children has raised serious issues for schools. School and public libraries have an opportunity to play an important role in the collection of materials and the dissemination of information about AIDS. Information about the disease changes daily. Books and pamphlets become outdated before they are printed. Includes an annotated list of reading materials, resources and organisations that public and school librarians can use as a starting point in developing educational programs.

174. ALCOHOL AND DRUG ADDICTION.


The Wisconsin clearinghouse for Alcohol and other Drug Addiction Information circulates publications to schools, libraries, agencies, hospitals, treatment centres, business and individuals on alcohol and other drugs, primary prevention, mental health, youth development, and general health promotion. Discusses its inception and current and future directions.
175. -, -, COOPERATION, MEDICAL LIBRARIES.

HILL (Susan E). Examining the role of interlibrary loan. Medical Reference Services Quarterly. 5, 4; 1986; 41-46.

The central role of interloans librarian in the operation of a library is discussed from the specific viewpoint of the medical library and the availability of automated systems.

176. -, -, COOPERATION, PAKISTAN.


This paper delivered at the First Medical Librarians Workshop which was held at the Health Sciences Library of the Agha Khan University, 7-16 Mar. 87. The vast increase in the quantity of literature in the field of biomedical sciences has placed a huge responsibility on medical librarians to access and disseminate this information in order that disease may ultimately be eradicated. Takes stock of the existing position in medical libraries in Pakistan and identifies factors which are standing in the way of cooperation in the field of medical sciences and health care.
Kwan (Julie). DIALOG Medical connection an evaluation. 

California University at Los Angeles, Bio-medical Library assessed the capabilities of DIALOG Medical Connection, a front end system designed for end user access to over 21 medical related databases. The databases include specialist medical data bases (e.g. MEDLINE, PsychINFO, CANCERLIT) and a selection of general data bases (e.g. SCISEARCH, MAGAZINE INDEX). Tests were conducted to see how the system handled: a wide interest topic applying to many databases; and a standard medical topic designed to look at some of the technical aspects of MEDLINE. The subject of AIDS was chosen for the 1st study and family/genetic studies of cleft lip and plate for the 2nd. Front ends and other search aids (e.g. DIALOG-LINK), Costs and specialist training requirements are discussed.

Smith (Ev). The role of the Health Sciences Resource Centre and health information needs: the CISTI response.

The response of the Director of the Canada Institute for Scientific and Technical Information (CISTI) to the recommendations of the Canadian Health Libraries.
Association (CHLA) and special Resource Committee of the Association of Canadian Medical Colleges (ACMC) report 'The role of the Health Sciences Resource Centre and Health information needs'. The recommendations refer to: reference and bibliographic services; coordination and support of acquisitions; and provision of leadership in library practice, research and education.

179. ---, MEDICAL LIBRARIES, INSTRUCTIONAL PROGRAMMES.

Introduction and part I of a multi-part series on educational programmes in libraries. Many of the changes occurring in information services in the health sciences reflect the necessary responses to the evolving technological environment within which health sciences information is created, stored, disseminated and used. Discusses the background to the development instructional programmes and changes that have taken place in the instructional programmes of health science libraries. There is an underlying element of unrealised potential in most programmes.

180. ---, MEDICAL LIBRARIES, SCOTLAND.
Explain the administration of the National Health Service (NHS) in Scotland and exists to provide an online information service. Briefly describes the history and prospects of hospital libraries in Scotland along with problems relating to medical librarianship. The concept of the postgraduate medical education centre (PGME) which exists to provide opportunities for continuing medical education for all doctors within a catchment area, has been of enormous importance in the development of library facilities in the NHS.

181. -, -, MEDICAL LIBRARIES, TURKEY.


A brief overview of medical education in Turkey shows the impact of established social, educational, and economic patterns upon current medical library services. Current statistical information is given on the 22 medical school libraries in Turkey. Principal problems and chief accomplishment with library services are highlighted and discussed.

182. -, -, MEDICAL LIBRARIES, USE-TEACHING, CINCINNATI UNIVERSITY.
Since June 1985, the Health Sciences Library of the University of Cincinnati has introduced 3 end user services to the Medical Center Personnel. One system was developed by the staff of Medical Center Information and Communication (MCIC) to be a user-friendly system with little or no training necessary. The other two systems, BRS| Colleague and Mead Data Central's MEDIS, are introduced during training sessions of 60 to 90 minutes. The emphasis of the BRS| Colleague training session is on searching the biomedical literature, in particular, the MEDLINE files. Training for MEDIS is done by Mead Data Central personnel. The information services departments role in training is more of a one-to-one consultation after the basics have been taught in a group setting. Medical Information Quick (MIQ), developed by MCIC, is the prototype of an end user search service developed as a component of the National Library of Medicine's Integrated Academic Information Management System (IAIMS) project at the University of Cincinnati. The system provides the user with easy access to specific clinical and basic science journals found in the MCIC libraries.
183. --, MEDICINE.


Describes the history of the Library of St. Louis's Society for Medical and Scientific Education, the scope of its collections, and highlighted access to data bases and membership of a network.

184. --, MEDICINE, INTEGRATION.


Those elements are discussed: support of the institutional leadership; a critical mass of interested participants from diverse groups across the organisation who became committed to the project and felt ownership of the plan; a motivating level of dissatisfaction with the status quo; needs assessment and a picture of the desired future; technical and consulting help; a pilot project with replicable features to demonstrate the concept and feasibility of the approach; and participation of opinion leaders initially and later identification of additional opinion leaders who would become part of the pattern of acceptance of the innovation and future diffusion of the technology.
The IAIMS initiative of the National Library of Medicine (NLM) was designed to offer a planning framework support and encouragement to institutions that were ready to undertake an institution-wide plan for the development of integrated information systems. Describes common functional problems that emerged as US universities and academic health centres responded to the IAIMS initiatives. Discusses technical needs and scientific opportunities that have been identified in the course of IAIMS experiments.

Two queries: thy-1 antigen and effect of meclofenoxute on Parkinson's disease were searched on-line using JOIS and EMBASE. JOIS and EMBASE were compared from the viewpoint of differences in keywords (MeSH and MALIMET) and the use of classification codes and tree text searching described.

Selective Medical Library on Microfiche: an international experiment supported by the Rockefeller.
Bulletin of the Medical Library Association. 76,1; 1988, Jan; 44-53.

The selective Medical Library on Microfiche (SMLM) project is designed to improve access to the world's significant biomedical literature in developing countries medical school libraries through the provision of a first-rate, low-cost core collection of journals. 105 journals representing 36 biomedical specialties were selected using a method designed specifically for SMLM. The journals are provided on microfiche because of its relative low cost, durability, easy reproduction and rapid delivery by air mail. SMLMs have been established at test and demonstration sites in 4 medical schools in Egypt, Indonesia, Mexico, and Colombia. SMLMs are delivered as turkey systems consisting of the microfiche collection, a reacher-printer, 4 fiche readers, necessary furniture, and promotional and training materials.

188. --, MEDICINE, MICROFICHES, PERIODICALS.


The experimental replacement of certain printed journals with microfiche in a small specialist library, the Kennedy Institute of Rheumatology, London, is described. The reason for choosing this format, the selection of titles, the problems encountered, the reactions
of users and the effects of the experiment on library policy are discussed. Possible future plans are indicated.

189. -, -, MEDICINE, MICROFICHES, SEARCHING AIDS.


Discuss the Selective Medical Library on Microfiche (SMLM) project. The SMLM consists of 91 international biomedical and health periodicals. Describes the equipment used for reading and printing from microfiche; the rationale behind the selection of the periodicals; and the search aids available. Includes appendices listing the titles in the periodical collection alphabetically and by topic or medical speciality.

190. -, -, MEDICINE, NATIONAL LIBRARY.


Discuss the 2 inextricably related processes, descriptive cataloguing and classification, which allow the retrieval of books and audio-visual materials from health libraries. Choose to use the classification scheme of the National Library of Medicine, Bethesda, Maryland.
Describes some of the useful cataloguing products and services it provides. Differentiates between original and derived cataloguing suggesting that there should be little demand for original cataloguing in most small health libraries. Examines ways in which small health libraries can avoid or supplement original cataloguing.

191. --, MEDICINE, USES NEEDS, UK.


The National Health Service in England is an information intensive organisation and yet has made very little systematic use of information for management purposes. The introduction of general management, with its associated need for more efficient and effective use of resources has intensified the effort being placed on the search for information systems. Outlines the growing pressures upon managers to specify their information requirements, and suggests some reasons why managers in the National Health Service are finding the task difficult.

192. --, PUBLIC HEALTH, SYDNEY.

ERYANT (Moira L). Consumer health information services. Some options and the Westmead experience. Australian
In response to an increased emphasis on the participation by individuals in matters relating to their own health and health care, various types of consumer health information services have been developed. Some of these options are discussed. A more detailed description is given of the development and experience of a health information centre that has been established in Westmead Hospital, a large metropolitan teaching hospital in Sydney.

193. --, VIDEO, NURSING, ROYAL COLLEGE OF NURSING, UK.
BRAMLEY (Alison). The Library of the Royal College of Nursing. NISG Newsletter, 6,4; 1986; 4-8.

Discusses the collection, the video resource unit, the periodical collection and publication of the Nursing Bibliography, specialist collections, opening hours, and services to institute of Advanced Nursing Education (IANE) students, to RCN members and staff and to librarians. Future directions such as automation of the library, and the expansion and improvement of present services are outlined.

194. INFORMATION STORAGE & RETRIEVAL, INFORMATION SYSTEMS, MEDICINE, JAPAN.
KUMAGAYA(N). Medical Information System Development Centre and its development of medical information System. On-line
The Medical Information System Development Centre was established with the support of the Welfare Ministry and the Ministry of International Trade and Industry, in July 1974. Medical information systems comprise hospital information, regional health care information, and medical information service systems, especially medical record information, home care medical support, and drug information service system.

Mini MEDLINE is a bibliographic database to meet the information needs of students, faculty and health professionals by providing bibliographic access to an in-house journal collection. References are taken from the MEDLINE data base, but the advantage of the Mini MEDLINE system is that references can be limited to journals. The selection process used in establishing a Mini MEDLINE data base for the Health Sciences Library at the State University of New York at Buffalo.
Reports on the major library automation project, carried out by the Department of Health and Social Security (DHSS), based on the STATUS software. The system links a thesaurus of terms to Bliss Classification numbers as a special feature. Other system features include: acquisitions; cataloguing; circulation control; periodicals control; periodicals distribution. It can also produce a range of information bulletins and current awareness abstracting services.

Describes the development of an integrated library system, based on an information storage and retrieval package called STATUS in the Library of the Department of Health and Social Security (DHSS) in London. Software which has been specially developed for data entry and the thesaurus management is also discussed.

and outreach: Integrated Academic Information Management
System (IAIMS) at Maryland. *Journal of the American Society for Information*. 39, 2; 1988, Mar; 107-12.

The University of Maryland campus is now realising the first benefits of IAIMS. With the support of the National Library of Medicine, the Information Resources Management Division has joined with the Health Sciences Library to plan and implement change. Within the information utility concept, networked data communication and end-user computing function as a means to integration. Describes the following mechanisms for outreach which ensure that the potential of integration is realised: technology-assisted learning centers, informatics program development, special programmes, and new applications such as a conferencing system, video mail, videodisc development and interinstitutional resource sharing.

FENG (Cyril CH) and WEISE (Frieda O). Library center partnership. *Journal of the American Society for Information Science*. 39, 2; 1988, Mar; 126-30.

Contribution to part 3—Implementation of integrated information services—in an issue devoted in part to perspectives on Integrated Academic Information Management systems (IAIMS). Information technologies are changing the
traditional role of the library from that of a repository of information to that of an aggressive provider of information services utilising electronic methods. Various models of the integration of libraries and computer centres are emerging. At the University of Maryland at Baltimore the Health Science Library and the Information Resources Management Division have developed a partnership based on functional relationships without changing the organisational structure. Strategic planning for I-IHS acted as a catalyst in the process. The evolution of the partnership is presented and current projects being developed jointly by the 2 units are discussed.

KOSTREW3KI (Barbara). Biomedical information, education and decision support systems. Journal of Information and Image Management. 12, Y20; 1986; 63-69.

Biomedical information, a distinctive and important component of the total information science is particularly well suited to the application of information technology. It is therefore, beginning to assume a pioneering role in the development of information systems as, for example, in the provision of operating expert systems. Outlines current developments in this field.
201. —, MEDICINE, U.K.

Considers the provisions of information services within the health service. It also considers the recent growth in interest in health services information. The development of information services in Cambridge Health Authority is set within this context and reference is made to a recent project designed to devise a strategic plan for the development of information and information technology in Cambridge Health Authority.

202. —, MEDICINE, USA.

OMB Circula No. A-130, Management of Federal Information Resources, sets basic policy for the management of information and information technology by Federal agencies. The circular makes a distinction and explains the relation between access to information and dissemination of information. Focuses especially on electronic filing and the proper roles of the public and private sector.
203. NEUROLOGY, COOPERATION.


Paper in a collection reviewing the Federal government's involvement in and support of medical information. The Neurological Information Network of the National Institute of Neurological and Communicative Disorders and Stroke was a loosely structured assemblage of a variety of information—transfer activities that exist for 20 years, starting in the early 60s.

204. INFORMATION STORAGE & RETRIEVAL: MICROCOMPUTER, COOPERATION, HOSPITAL LIBRARIES.


Discusses the joint venture, undertaken by the good Samaritan Medical Center's hospital library and the Hospital information system department, to provide a microcomputer and software utility. The goal were: to provide a site for self-learning and microcomputer classes; and to provide facilities for all hospital departments to test applications and concepts.
Several years ago, libraries began introducing microcomputers for users. Most such experiments resulted in problems with hardware, software and peripheral support, security, and supervision. Some staff members expressed reservations about the appropriateness of microcomputers for users in the library. However, virtually not one library that introduced the services has discontinued it; rather, the service has grown in scope and importance. The experience of the Medical College of Georgia Library is an example of how far-sighted institutions have introduced microcomputers and have experienced significant growth in related library programmes.

Describes the use of personal computer for searching the Data-Star database Martindale and AMA Press Cuttings for references to the effectiveness of isoprinosine as a
A cure for AIDS. Compares the results of searches of the e data bases with references obtained from a manual search of relevant medical sources. References obtained from separate manual searches for isoprinosine and AIDS were input to a personal computer and an on-line search made to find references containing both terms. References retrieval from the Data-Star databases were not as current as those obtained from the manual search.

207. DATABASES, PSYCHIATRIC.
KEARNS (Patricia M) and REAVIS (Patricia A). Microcomputer-based automated indexing of audio-visual reviews. Small Computer in Libraries. 6, 6; 1986; June; 21-23.

Outlines the use of Sci-Mate to index audiovisual reviews in the western psychiatric Institute and clinic (WPIC) Library, University of Pitts-burgh, Pennsylvania. The collection of audiovisual reviews had grown so large as to become unmanageable on the existing card catalogue. Over 90% of the review articles were available in WPIC journal collection. Briefly outlines how Sci-Mate Personal Data Manager, a data base management program is used to provide access to reviews.

208. MEDICAL LIBRARIES.
PGwNE (Clare). First experiences with BOOKSHBLP at Fife Health Board. Program . 21,3; July; 26-72.
The benefits of microcomputer-based catalogue automation in the development of a small multisite health authority library service are discussed. Implementation of the Catalogue and enquiry module of the BOOKSHELF integrated library management package is described. Problems arising from the differing bibliographic record requirements of a special library and university medical library are highlighted, and some potential enhancement to the software suggested.

209. --, MEDICAL LIBRARIES.


-- Paper presented at Master or servant: Technology for Libraries, Learning and Living, the Annual study conference of the Library Association Medical Health and Welfare Libraries Group, New-castle, July 86. Attempts to summarise the microcomputer hardware and software situation for libraries and information services. There is a wide choice of hardware available, capable of supporting both single, stand-alone systems and networked services, and a growing range of software. Funding will continue to be a major influence on what can be achieved, but within budgetary limits a great deal can be done to improve or extend services to users through the implementation of microcomputer systems.
210. --, MEDICINE, SUBJECT BIBLIOGRAPHIES.


Describes the history of the 'Garrison-Morton' bibliography, originally published as a Medical Bibliography in 1943. Discussing the future publishing plans of the new editor, Jeremy M. Norman, which include changing the title of the 5th edition to Morton's Medical Bibliography, exploiting microcomputer technology in production, and exploring the possibilities for electronic publication.

211. INFORMATION STORAGE & RETRIEVAL, NETWORK, AIDS.


The dramatic increase in the number of cases and deaths from AIDS since 1981 has been accompanied by an information explosion on the topic. The government, health professionals, service organisation, consumers, and the media are each vital links in both formal and informal AIDS information networks. New information sources and systems have emerged from these 5 sectors, and their roles as information creators, seekers, and providers have come together.
Databases and systems which reflect a multi-sector approach, such as the computerised AIDS information Network (CAIN), are suggested as potential solutions to the AIDS information problem.

212. --, BIOMEDICAL COMMUNICATION, NATIONAL LIBRARY OF MEDICINE, USA.


The radical changes and improvements in health sciences libraries during the last quarter century have been primarily achieved through the leadership of NLM in the application of technology and the creation of biomedical communications network. Describes the Medical Literature Analysis and Retrieval System. Briefly summarises more access to and dissemination of health information.

213. --, COOPERATION, DOCUMENT DELIVERY, MEDICAL LIBRARIES.


 Discusses the use of fax at the College of Physicians of Philadelphia library. Initial use was for inter Library loan (ITI ) requests and document delivery, but the system is also used for sending and receiving correspondence and
reference questions. Benefits include increased client satisfaction at the rapid turnaround for ILL requests.

214. ---, COOPERATION, HOSPITAL LIBRARIES, SAUDI ARABIA.


The Saudi Arabia Ministry of Defence and Aviation, which contracts for Management of military hospital, responded to the libraries needs for more complete and extensive journal holdings. Better journal coverage was achieved through improved communication and cooperation among neighbour libraries, and through systematic implementation of a holder-of-record system. Inter Library loan activity was more evenly distributed, and 70% of requisitions which previously had to be handled by foreign libraries can now be filled in Saudi Arabia.

215. ---, COOPERATION, MEDICAL LIBRARIES.


Part I of an article devoted to cooperation as a means of combatting the rising costs of inter-library loans.
by small libraries with limited budgets. Describes
the formation of a no-charge cooperative called GRATIS
by a group of small health libraries in 1982. Discusses
the growth, rationale and operation of the network. The
philosophy of GRATIS is that cooperation is preferable
to charges, and the network's success is demonstrated.

216. --, COOPERATION, MEDICAL LIBRARIES, CHINA.
CRAWFORD (David S) and DIZHI (Xiong). Report of a
Cooperative venture between the China Medical University
Library and the Medical Library of McGill University.
Bulletin of the Medical Library Association. 76,1; 1988,
Jan; 65-72. --

Analyzes the operations of the CMU (China Medical
University) Library in Shenyong, China. Analyzes the
operations of the CMU library within the context of the
Chinese system of medical education, health care delivery,
and medical librarianship. The CMU library is described
in terms of collections, cataloguing procedures, filing,
public services (reference, bibliographic instruction,
circulation, copy services), inter library loans, net-
working, conversion of materials, and staff.

217. --, COOPERATION, MEDICAL LIBRARIES, MISSOURI,USA.
CORRY (Ann Marie) and THOMAS (DA). Kansas City Library
Kansas City Library Network, Inc. evolved out of a need for improved document delivery among medical libraries in the Kansas City Area and was founded in Aug. 1976. Special features of the service include: a courier system, established in 1977 and which handled 12,637 items during the period Aug.'82 to Jan.'83; a union catalogue of periodicals; a cooperative purchasing scheme; and cooperative use of MLNC, a computer data base vendor, enabling members to access the BRS service on their own passwords but be billed by the KCLN at a costless than they would pay as individual subscribers.


The UK library system has a 2 tier resource sharing network, with the regional Library services operating at local level and the British Library, Document supply Centre at national level. Discusses regional cooperation from the organisational, service and economic viewpoints. Inter library resource sharings is important because it provides a basis for the skills and ideas, and it also permits more general professional interaction. Several ideas have been put forward for the extension of inter-regional cooperation.
219. **-, Cooperation, Medical Libraries, WHO.**

**RUFF (Beryl).** The World Health Organization Library (Geneva) and Health Literature services Programme. *Bulletin of the Medical Library Association.* 76, 1; 1988, July; 58-63.

The origins and functions of the World Health Organization (WHO) Library and the global, regional, and National objectives of the WHO Health Literature services programme (HLSP reviewed. HLSP is involved in surveys, training, regional medical libraries, national and regional networks, bibliographic services and document delivery, promotion, coordination, and communication. Small rural centres receive more attention than large urban hospitals, and preventive medicine together with health education and community involvement are of more immediate concern than curative medicine.

220. **-, SERVICES, CANADA.**


This paper presented at the 11th annual meeting of the Canadian Health Libraries Association, in Vancouver 24-27 Mar 87. Describes a project report which aimed to gather and present information on health sciences libraries in Canada to day with comparisons to highlight the trends,
and in the light of this analysis to recommend steps which need to be taken to improve health information services nation-wide which might lead to a functioning health care information network across Canada. The five general sections include: a summary of the current situation in comparison with the Simon Report from the 1960's; aspects of the current situation with examples; suggestions and concerns raised by people across Canada; conclusions drawn; and recommendations for further development.


Describes the hospital outreach programme, information services network provided by the Montreal children's Library which serves several departments of the Montreal Children's Hospital, Shriner's Hospital.

222. Information Services, Medical Libraries.

SCHWARTZ (Diane G). New roles for the medical librarian in an information management. Medical Reference Services Quarterly. 6,4; 1987; 27-33.

As libraries automate, the role of medical librarian will change. To manage the change with ease Librarians must
begin now to equip themselves, their libraries and their clientele to function effectively in the new environment. Developing formalised instructional programmes that link individuals to information and to systems that provide those individuals with personal memory extenders and lifelong learning supports will be among the librarian's top priorities.

223. ---, INFORMATION SERVICES, MEDICINE.


Obstacles to reaching the vast quantity of health education information include the disease orientation of medical information services and the marketing of health and fitness as saleable commodities. Charts the network of information providers and printed information sources, explaining the use of catalogues and bibliographies and ways of exploiting libraries.

224. ---, INFORMATION SERVICES, MEDICINE, NATIONAL HEALTH SERVICE, U.K.

PARRIS (Gillian). Towards a coordinated approach for management information in the NHS. Health Libraries Review.3,2; 1986, June; 82-93.
Examines the provision of information services for National Health Service (NHS) management against the historical development of library and information services to all health service personnel, with particular reference to information needs. Patterns of provision and coordination through all levels of NHS. Particular attention is paid to documentary sources of information and recommendations for the functions staffing, management arrangements and computer policy of the District Information Service are explored in relation to Regional and National Networks.

225.--.-- INFORMATION SERVICES, MEDICINE, NATIONAL LIBRARY OF MEDICINE.

SMITH (Elmer V) and JASON (Florentia Scott). Exporting the American (information) revolution: the international import of the National Library of Medicine. Bulletin of the Medical Library Association. 74,4; 1986, Oct; 339–43.

The National Library of Medicine has had an enormous impact on health information services all over the world. NLM has provided a model for other national and regional health information services. It has been a catalyst, in that MEDLARS and other services it provides formed the nucleus of many regional networks. NLM helped such networks get started by giving advice on how to set up services and build collections.
The 20 years since the introduction of MEDLARS and the passage of the Medical Library Assistance Act have been especially eventful in the history of the National Library of Medicine. The library's collection and services have grown to keep pace with the expanding health sciences literature and the needs of health professionals. Networking has emerged as an invaluable method for disseminating biomedical information. NLM has assumed new responsibilities for information services in toxicology, pharmacology, and the environmental health, and for research and development in biomedical communications.

The study was designed to evaluate the progress of hospital libraries in Region 7 of the National Library of Medicine.
Medicine's Regional Medical Library Network since the pacific southwest Regional Medical Library Services (PSRMLS) started in 1969. Compares resources and services reported in 1969, 1971 and 1984. The 1984 data was measured against a set of core library services and resources that should be provided by a full-service hospital library. Growth in staff, collection size and services are documented. PSRMLS programmes were highly rated by respondents, who also indicated that participation in PSRMLS programmes improved specific library resources and services.

228. -, -, INFORMATION SERVICES, MEDICINE, SRI LANKA.


For the sharing of resources both at the national and regional level led to Sri Lanka participating in the Regional Network of Health Literature, Library and information services (HELLIS). At the national level a network of participating libraries was organised with the University of Colombo Medical Library as the local point. Describes the establishment of HELLS and provides background dates on the network of participating libraries, their scope functions and resources.
PORTER (Christine). Information management in a dis­

One current library and information services in

The Northallerton Health District are analysed and eva­\n
The trend, reflected both in recent developments in the

It presents a comprehensive history of the U.S. Regional

BUNTING (Alison). The nation's health information network: 

The bulletin is given, indicating how all information resources may be combined into Health Authority Library and information system.
and describes the establishment of the network (1967-70). Lists some of the programmes and services available and the operation of the network during specific phases of its development.

231. INFORMATION STORAGE & RETRIEVAL: SEARCHING STRATEGIES, MEDICAL LIBRARIES, U.S.A.

Between 1959 and 1984 important changes occurred in the biomedical library community which has a significant impact on inter-library loan activities, including the development of the Medical Literature Analysis and Retrieval System (MEDLARS) and on-line searching, the regional Medical Library (RML) network and union listing for serials. Describes a comparative analysis of 1984 serial loan requests, performed primarily by manipulation of automated request records.

232. -, -, MEDICINE, U.K.
BRYANT (Sue Lacey). Bridging the gap between information and health. The role of an information broker. Health Education Journal. 45,3; 1986; 180-82.
The stock focuses on 3 areas: communication and education; ill-health and use of health services; and social statistical and epidemiological information. Information searching is to be augmented on-line facilities. Links with community agencies and public libraries are described together with other promotional methods, such as leaflet catalogues, displays and information pa

233. ---, MULTIPLE DATABASES, MEDICINE.


Constructing a search strategy to search across several databases can be time consuming for users not familiar with the field labels and searching conventions of each specific field and database. The chart is designed to help determine which medical database on BRS contain the same field label and/or searching convention.

234. INFORMATION STORAGE & RETRIEVAL, TELECOMMUNICATION AND COMPUTER SYSTEM, COOPERATION, MEDICAL LIBRARIES.


Octanet is a computer-based telecommunications network for the delivery of services to the Medicontinental Region of National library of Medicines Regional Medical
library programme. In this describes the 4 octanent modules: interloans; electronic massaging; reporting; and union list production. Reports on a user satisfaction survey evaluating the Octanent system and provides information on the number of institution hours of usage, and requests input during each of the 4 years of Octanet operation.

235. ---, GATEWAY FACILITIES, MEDICINE.

The Canadian Medical Association (CMA) iNet trial was a pilot project sponsored jointly by the CMA and Telecom Canada to provided through Telecom Canada iNet electronic gateway. Summarises by findings of the trial and comments upon implications for health science libraries and librarians.

236. ---, HEALTH SCIENCE LIBRARIES.
Tio (Dorothy S). Local area networks for libraries—cast and recast. Electronic Library. 5,2; 1987, Apr; 94-98.

In 1984 the Health Sciences Library at the State University of New York at Buffalo created a local area network for the Library consortium of Health institutions
in Buffalo using a multi-user microcomputer. The rationale, methodology, capabilities and problems are discussed.

237. -, -, LAN, HOSPITAL LIBRARIES, USA.

ANGIER (Jennifer J.) and HOEHL (Susan B). Local area networks (LAN) in the special library: Part 1-a planning model. Online. 10,6; 1986, Nov; 19-28.

Describes the evolution of the idea and the planning and design of a local area network (LAN) at the Health Sciences Library at Allegheny General Hospital, USA. Presents a viable planning model with enough built-in flexibility to be used in a variety of situations. The model will help anticipate areas for potential problems.

238. -, -, LAN, MEDICAL LIBRARIES, USA.

HOEHL (Susan B) and ANGIER (Jennifer J). Local area networks (LAN) in the special library: Part 2-implementation. Online. 10,6; 1986, Nov; 29-36.

Examines the problems encountered during installation and implementation of the local area network (LAN) which have implications for planning at the Health Sciences Library at Allegheny General Hospital, USA.

239. -, -, MEDICAL LIBRARIES.

JOHNSON (Millard F). INFONET: Information for the health Sciences. Library Hi Tech. 5, 2; 1987; 75-79.
INFONET, developed by the Oregon Health Science University, provides 2 distinct types of service: Library to library; and library to client. Library to library activities include interloans and document delivery among medical libraries and electronic mail. Library to client services allow users to request searches from their own homes and offices and receive search results in hard copy via the postal mail or electronically.

240. ——, MEDICINE, GEORGIA.


National Library of Medicine to establish the Georgia Interactive Network for Medical Information (Gain). The GaIN project involves networking on 3 levels: the physician's practice site, the hospital library or local information resource and the MUSM library which houses the central computer. Through cooperation on all 3 levels, information is provided directly to the person who needs it. GaIN offers a variety of information services to network members including: GaIN Medline; Electronic Messaging; on-line catalogue; Continuing Education Bulletin Board; Information for Patient Management, Gateway to Remote database and consultant's Registry.
241. INFORMATION STORAGE & RETRIEVAL, VISUAL DISPLAY UNITS, HEALTH HAZARDS.


Summarises the technologies underlying different types of screens and displays, for visual display units, and presents characteristic data for 5 types of screen. Assesses some of the possible health hazards involved with VDUs.

242. OCCUPATIONAL HEALTH, HAZARDS.


Examines the known evidence for reported medical complaints blamed on visual display units (VDUS), in order to assess if the threat to health posed by VDUS is a real one. The following categories of complaints are considered: adverse pregnancy outcomes and the related question of radiation omissions; eye strain and visual fatigue; migraine; photosensitive epilepsy; muscle pain, aches, and strains, skin rashes, and stress. Concludes that all these complaints are preventable if good ergonomic practices are followed.
There has been a concomitant increase in concern about the radiation omissions from the video display terminal (VDT). Several types of radiation can be omitted by the terminal. Cataracts, reproductive problems and skin rashes have been reported by VDT operators and are alleged to result from radiation exposure. However, measurements of the radiation omissions, when compared to the present occupational exposure standards, lead to the conclusion that the terminal does not present a radiation hazard to the VDT operation.

The introduction of video display terminal may exacerbate lighting problems already present in the workplace. Describes the sources and characteristics of glare. Reviews glare control measures, including the location and design of lighting systems, managing outdoor light and using screen filters and hoods.
245. OCCUPATIONAL HEALTH, LONDON.


Describes the contents and availability of findings from an international meeting recently held in London (U.K.) on the impact of VDU's on the health of operators. Discusses reports on projects in Montreal, Michigan and London. Examines major research projects under way. Asks, should we be comfortable or uneasy? or both? Discusses the TUC Guideline on VDU's (1985) Handbook.

246. VOCABULARY CONTROL, LEXX


Discusses LEXX, an indexing and retrieval system and a component of the University of pittsburgh's Medical Archival System (MARS), a bibliographic retrieval system for biomedical information. The knowledge base for LEXX is a thesaurus of medical terms in which concepts are represented by a large network of interrelated terms. LEXX uses natural language processing tools to allow users to access relevant information through free text expressions.
thereby eliminating the need for a controlled vocab-
bulary.

247. - , MEDICAL SUBJECT HEADING, TERMINOLOGY.

MA$ARIE (Fred E) and MILLER (Randolph A). Medical
subject headings and medical terminology: an analysis
of terminology used in hospital charts. Bulletin of
the Medical Library Association. 75,2; 1987, Apr; 89-94.

Terminology which is used by the health pro-
essionals was compared with terminology in a standar-
dised medical vocabulary. About 50 written hospital
charts were selected at random and analysed by a computer
program that identified MeSH terms in the charts. Appro-
imately 50% of the words in a medical chart were found
to be MeSH related terminology and 40% of MeSH-related
words in the charts were either MeSH terms or backwards
cross-reference terms.

248. - , THESAURI, EVALUATION, MEDICINE.

RADA (Roy). Connecting and evaluating thesauri: Issues
and cases. International Classification. 14,2; 1987; 63-69.

Connecting and evaluating thesauri is an impor-
tant task for the systematic development of better infor-
mation retrieval systems. Connecting thesauri includes
not only determining when terms in different thesauri are
the same but also determining what kinds of relationships can be transferred from one thesaurus to another. Various experiments in connecting a particular thesaurus, the Medical subject Headings, with other medical thesauri are described. In these experiments, similar terms in 2 thesauri are recognised and then difference in 2 thesauri are exploited to create more powerful thesauri. Part of the evaluation requires the thesaurus to support automatic indexing and retrieving of documents.

249. ---, THESAURI, MEDICINE.
WINGERT(F). An indexing system for SNOMED. Method of Information in Medicine. 25,1; 1986, Jan; 22-30.

Describes a system for automated indexing based on the systematized Nomenclature of Medicine (SNOMED). The fundamental algorithms are independent of SNOMED and can also be implemented for other target languages. Evaluate the possibility of processing routine data with a sufficiently high degree of correct indexing. The system is constructed for use on German medical data.

250. ---, THESAURI, MENTAL HEALTH, MEDLINE.
CODOGNOTTO (Piera) and GALATERI (Eugenia; La nave dei folli (The ship of fools). Biblioteehcoggi.5,2; 1987, May-Apr; 67-74.

The Dewey Decimal classification and other general schemes are not suited to the needs of highly specific and
expanding subjects. The V. Chiarugi library in Florence therefore initiated the development of a thesaurus to meet the needs of libraries and information centres concerned with mental health, based on studies of EMBASE, MEDLINE, PSYCHINFO and the Italian database Dioniso. Outlines the basic structure of a thesaurus and its application to the field of mental health.
PART - III

INDICES
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