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Libraries and their Budgets

Libraries unlike other Central and Local Government institutions are not revenue earning. They are spending institutions. Equally they are growing and their financial demands are increasing and recurring. A library therefore cannot perform successfully without adequate financial resources.

The main sources of income to a library are:

a. Grants
b. endowments and benefactions
c. Gifts
d. Fees and Fines
e. Sale of publications and services

A Librarian should fully understand these sources in order to exploit them fully. But to know these alone is not enough. For these resources have to be managed against an expenditure. It is this which involves foresight, planning and skill and it is precisely here we encounter the budget.

A budget may be defined as a financial statement of the estimated revenues and expenditures of an insitution for a definite period of time. It represents a logical, comprehensive and forward-looking financial programme for the coordination of the activities of the various functional divisions of a library. As a definite financial plan, as a forecast of the means for carrying the plan into effect, as a current guide, as a cost summery of operations, and as a historical record and basis for the formulation of future policy, it is an indispensable instrument in the hands of the Librarian.

Main steps in preparing a budget

a. Prepare a forecast
b. Determine policy and goals; research and development
c. Compute requirements in terms of quantities required to comply with the forecasts and policies. This results in the initial budget.
d. Review the forecast, policies and the initial budget. Amend realistically policies or budget or both until an acceptable budget emerges.
e. Formally accept the budget. It then becomes an excentive directive.

A good system of budgeting therefore is a two-sided affair that provides -

a. formal planning process leading to an overall goal and to departmental objectives within that goal.
b. control reports and procedures that enable management to assure that such objectives become accomplished results.

Library budget - There are three ways in which the Librarian can prepare budgetary estimates -

a. Comparison with past performance
b. In accordance with the work programme
c. Using arbitrary standards and norms

It would be apparent that, because of the many variables which are involved and the variations in the needs of different institutions, no arbitrary standards will exactly fit a particular library - all factors have to be taken into consideration in determining what the budget of a given library should be at given time.

In this process of the preparation of the budget, the use of statistical evidence is most important.

Accounting - A properly conducted system of accounting is one of the basic prerequisites of an efficient financial administration of a library. The main purpose of accounting is to tell the authority as to how much amount has been spent out of the budget allocations under each head of expenditure and what the balances are, at a given time. It also helps the librarian against over spending, and against misappropriation and maladjustments.

In order to achive efficiency through accounting, the Library generally maintains the following records:-

1. General Invoice Register
2. Accounts Register (for each heads of expenditure)
3. Monthly statement of expenditure.

The source of funding of a library will vary according to the country and the kind of institution. And the true measure of a library grant lies in its ability to finance a service which meets the needs of its users. To the librarian then, a system of effective and realistic budgeting has many advantages - viz -

I. To map out the objective and goal aimed at.
II. To coordinate activities and secure cooperation.
III. To check the progress towards the objective and provide warning of danger.
IV. To show what success or failure in achievement has occured and where standards have been maintained.

Such system of budgeting and control is to him an indispensable tool for effective management.

AF1 SLSTIC Nairobi

SRI LANKA SCIENTIFIC AND TECHNICAL INFORMATION CENTRE (SLSTIC)

Sri Lanka Scientific and Technical Information Centre (SLSTIC) is a division of the National Science Council of Sri Lanka (NSC) which is a statutory body established by the Government of Sri Lanka by act of parliament No. 9 of 1968.

UNISIST National Committee - a statutory working committee appointed by the Minister of Industries and Scientific Affairs advises NSC in matters relating to SLSTIC.

NSC receives funds from the United Nations Development Programme (UNDP) for the development of SLSTIC.

SLSTIC which started functioning in May 1977 has inaugurated a number of information and documentation services for libraries and scientists in Sri Lanka.

COOPERATION

* SLSTINET - Sri Lanka Scientific & Technical Information Network.

  SLSTIC acts as the coordinating centre of a national scientific information network.50 Libraries in Sri Lanka participate in this Network.

* AGRINET - Agricultural Information Network.

  AGRINET is a sub-system of SLSTINET which includes about 20 Agricultural Libraries.

* UNICAST - Union Catalogue of Scientific & Technical Books.

  30 Scientific Libraries participate in this project. UNICAST helps to locate the Scientific publications acquired since 1977 by the major Libraries in Sri Lanka.

* UNILIST - Union List of Scientific & Technical Periodicals.

  UNILIST contains about 6000 scientific and technical periodical titles possed by 24 Libraries in Sri Lanka. It helps to locate a particular issue of a periodical available in major libraries in Sri Lanka.

* CAPS-Cooperative Acquisition Plans

  SLSTIC has drawn-up a cooperative plan for the acquisition of 71 major scientific abstracting journals by 25 Libraries in Sri Lanka.

  Another CAP for the agricultural journals is being drawn-up for AGRINET.

DOCUMENTATION

* National Reports Depository

  SLSTIC collects, organize and preserve unpublished and published

reports and other scientific documents issued in Sri Lanka.

* SLSI - Sri Lanka Science Index.

SLSI is an index to the local Scientific literature. It records reports, conference documents and Newspaper and Periodical articles issued in Sri Lanka.

INFORMATION

* EIS Environmental Information Service.

A specialised information service is being operated by SLSTIC for the benefit of the scientists carring out research in environmental Sciences.

* RERIS - Renewable Energy Information Service

SLSTIC operates RERIS to assist the Scientists engaged in research and study on Solar, Wind, Ocean thermal, Bio mass energy etc.

SERVICES TO LIBRARIES

* Photocopying

SLSTIC photocopying service is available to libraries and scientists to procure copies of scientific documents.

* NTIS Products

Being the National Cooperating Agency of the National Technical Information Service (NTIS) of the US Dept. of Commerce, SLSTIC undertakes location and procurement of American and Non-American research reports through NTIS.

* Inter-Library Loans

SLSTIC acts as a switching centre for Inter-Library loans.

* STEP - SLSTIC Training Education Programmes.

SLSTIC organizes workshops, seminars etc. to train library personnel and to educate users in information handling.

COORDINATION

* Focal Point

SLSTIC is the National Focal Point for:

CRRERIS -Commonwealth Regional Renewable Energy Resources Information System.

UNISIST - Word Information System for Science & Technology

NTIS - National Technical [illegible]

PUBLICATIONS

* Publications Unit

SLSTIC is the publishing unit of NSC. The following are the regular publications:

- Journal of the Nationl Science Council. Biannual.
- Vidurava (English,Sinhala & Tamil) Quarterly
- UNICAST: Subject index to the Union List of Scientific & Technical Books. Quarterly.
- Sri Lanka Science Index. Quarterly.

MODULE : E4

N.U. Yapa.

COMPUTERS IN LIBRARIES.

Library is a store house of organized information. Efficiency of a library largely depends on the speed at which any piece of information is retrieved.

Computer has a high capability of storing information in an organized manner and retrieve any information at a tremendous speed.

Libraries in the Developed world which are looking for methods to improve information storage and retrieval techniques to face the problems arisen from information explosion readily accepted the computer and carefully exploited its capabilities in the library work.

The capabilities that are relevant to information handling in a library are described below:

i. Storing - Computer has a tremendous capability to store data. Bibliographic information pertaining to about 100,000 documents could be conveniently stored in a readily accessible manner in a medium size computer.

ii. Searching - This is most welcome capability of a computer in the point of view of libraries. Computer can quickly scan through its stored information to search for a required information. A Boolean search (combined search of two or more concepts) could be efficiently carried out with the help of a computer.

iii. Sorting - Filing is a time consuming work in a library. The computer could arrange bibliographic data either alphabetically or numerically. Author, title or subject indexes therefore could be compiled quickly using a computer.

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iv. Merging - In a bibliographic tool which continues to grow, updating is one of the main problems to libraries. Interfiling, revising and weeding out takes substantial portions of the library staff time. Computer makes these jobs easy. Two files could be merged at a high speed creating a new and updated file.

v. Printing - A permanent record could be obtained as a computer print-out. A print-out could be duplicated reprographically and used to disseminate information. Current awareness services could be developed in this way.

vi. Report writing - Computer could produce various reports in different formats using the same type of information. This capability could be used in loan administration and in acquisition.

Above capabilities are appropriately employed to improve the efficiency of various library operations. Software is compiled to organize these operations. The activities which are computerized in libraries are described below:

Cataloguing - Bibliographic description of books and other library materials could be stored in the computer. The stored information could be searched by any bibliographic element without having to prepare multiple indexes to satisfy different approaches. The Catalogue can be updated, searched and could be obtained as a hard - copy or COM.

Circulation - Issue records can be handled by the computer. Cancellation of loans, reminding, recalling, reservation and recovery could be handled accurately and promptly using the computer.

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Indexing - Matching / sorting capabilities are successfuly employed in automated indexing. Title indexing is the most common technique. Keywords are detected and index entries are compiled by the computer. KWIC and KWOC indexing use these techniques.

Abstracting - This is an improvement of automated indexing where a cluster of keywords in the text is detected and absorbed as a significant sentance to compile the abstracts.

SDI Service - Readers profiles are matched by the computer against the in-coming information to list them separetely to be sent to individual readers.

Periodicals Control - One of the tedious task of of a library is controlling periodicals. Computer handles this work efficiently by preparing renewal notices, missing, statements, binding orders, exchange notices, etc.

Ordering - Ordering work could be computerized to issue orders, acknowledgements reminders, etc.

A software could be developed to undertake several of the above functions as they deal with bibliographical tools based on a common structure. The ordering file could be reformatted to make the catalogue. The catalogue could be used in Circulation systems and SDI services. Such an intergrated systems is called a Data Base management systems. These are available from commercial software houses.

Application of computer in libraries differ to a large extent from business and scientific applications. Hense software developed for such systems would not be suitable for library operations. The capabilities mentioned above, particularly

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the first three are most used in library software development.

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FST E6

Reprography

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The word "Reprography" is a comprehensive term invented in recent years in place of the word "duplication" which was used to convey the same meaning in a narrower sense. Accordingly, "Reprography" includes the narrower "Photography" & covers the Corpus of processes and methods used for both copying and duplicating documents in a complex technical process

According to the above difinition of the word "Reprography" copying & duplicating processes include methods using a Camera & without a camera. The Camera process would include Microcopying forms, such as Microfilm, Micro-fiche, Super-fiche, Cartridges, Jackets,Com, Micro-Cards & prints Aperture-Cards, Cassetrs & Micro-Opaques. Even a camera is used in the Photostat process. The other copying processes not using a camera would be electrostatic processes (Quick copies), stencil duplicators addressograph etc.

Photography still remains an essential element in reprography. Although it is a wet, slow & an expensive process, no other copying process so far divised could not reproduce its quality & versatility. Because of the slowness & expense of Photography the need was felt for a process, which, while approaching the photograph in quality, would be quicker & cheaper. This was earlier provided by the photostat.

Out of the reprographic processes "Micrography" could be regarded as the greatest reprographic process in the modern world. Micrographics combines the science, the art, and the technology by which information can be quickly reduced to the medium of microform, stored conveniently & then easily retrieved for reference & use. Accordingly, "Microreprography" is a photocopy of any object, though for our purposes usually a page of text, which has been copied on an unusually small scale, or as we more

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commonly say, at ratios of reduction such as to make reading difficult or impossible with the unaided eye. The Microforms cover all forms of Microimages, - may be transparent or opaque & they may be in the form of film rolls of various widths & lengths, in the form of strips, or in form of sheets or cards of various sizes.

The Pioneer in the field of reprography in this country is the National Archives which commenced its reprographic services in 1949 & specially microfilming in 1967. Although microfilming was introduced to Sri Lank in the second half of this Century, it has a long history, when in 1839 John Benjamin Dancer, a British scientist invented the technique of microfilming. This was commercially made use of by an American, George Macarthy in the 1920's. With the commencement of the second world war in 1942, Eastman Kodax Company popularised & developed microfilming in the west.

The greatest reprographic demand in manucripts repositories is for the Microfilm. Although microfilm was used widely as a means of reproducing documents since the second world war, its importance & use was not realised in this country till recent times. It has not yet spread to either document [illegible] information centres or libraries. However, Librarians,Documentalists & Information Scientists have realised its importance for storage & retrieval of knowledge to the community.

Microfilm may be defined as a transparent flexible material for the photographic reproduction of documents in reduced size or as a series of photographic reproductions on this medium that may be viewed optically and that may be used for making additional microfilm copies or enlarged to make eye-legible prints. There are three main types of microfilms in use today. VIZ; (1) the Silver-halide emulsion type, (2) Diazo or ozalid type & (3) the Kalvar type. The silver-halide emulsion films consist of a thin strip or roll of cellulose acetate, known as the base containing a Coating of the light-sensitive emulsion on one side. Usua the emulsion side of microfilm has little or no gloss, while the non-emulsion side is very glossy. The only permanent record films, i.e. those that have permanance are Silver-halide emulsion type.

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There are four classes of emulsion type microfilms according to use. VIZ; (1) Master or camera or original negative. This negative should be used only for making additional film copies. The only time it should be used in a microfilm reader is during the inspection process. (2) The master positive or Security copy. This copy is specially perpared for use in producing a duplicate in case the master negative is damaged or destroyed. (3) The positive or Reference copy. This copy, usually a second generation copy, also has the same tonal values as the originsl text photographed. (4) The Duplicate negative copy. This copy usually a third generation copy, has the same tonal values as the master or Camer negative.

In 1966, Eastman Kodax Company produced a negative microfilm from an original negative directly, without going through the intermediate stage of preparing a positive. This development makes it sensible to preserve the original negative as a "master" security copy & use the direct negati for production of positive prints for scholars.

The Ozalid or Diazo type of film consists of a thin strip of Celeulose acetate that has a light sensitive diazo dye either incorporated with the film base or coated on the base. With this type of film a negative image could be produced with a negative image.

The Kalvar film consists of a thin strip of polyester film that contains a diazonium emulsion. With Kalvar film a negative image will also produ a negative image.

One must not forget that Ozalid & Kalvar films are not so suitable for use in a microfilm camera, but only for preparing film duplicates. Neith one has been approved for archival permenance. Both these types are generally more suitable for the production of film copies from high cont materials, such as Newspapers or line drawings than they are for the reproduction of Archival documents.

The emulsion type of microfilms with silver-halide base are the ones sui for reproduction of archival materials. This type of film negatives are fine grade with resolving power, good sensitivity & contrast. For filmi

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archival records,non-perforated (without sprocket-holes) microfilms should be used as the use of perforated film results in the loss of 25% or more of the useful area of the film. This is so because the image on the film must be kept in the area between the perforations or holes.

The normal size of microfilm used for copying archival materials, newspapers & books is 35 m.m. on reels with a capacity of not more than 110 feet (33.53 metres). The m.m. measurement is the width of the film, & the standard roll length is 100 feet (30.48 metres). But rolls are often made shorter or little longer. The 16 m.m. films could be used for the production of card indexes & some letter size materials with good contrast between the writing & the paper base. 70 m.m., & 105 m.m. microfilms are used for the reproduction of large engineering or architectural drawings that cannot be microfilmed satisfactorily on 35 m. film.

The reduction ratio of a 35 m.m. microfilm is 12x-24x. a 16 m.m. 25x-30x of the original document. Most of the documents & books are microfilmed at medium reduction, i.e. usually between 16x-30x. Newspapers are usually filmed at 17x or 19x on 35 m.m. film, thus permitting legible images to be projected via medium magnification. 16 m.m. reels are primarily used for record material such as correspondence, checks & similar information. 105 m.m. microfilms may be used for large maps and plans. The roll micro films are available not only in reel form but also in cartridge & cassette, Jacket & Aperture - card forms. Microfilm Cartridges are convenient packging for rolls of microfilm.

Microfilms on reels, which require threading, Cartridges can be self threading. They are well protected & not subjected to finger prints & other possible sources of damage. The microfilm in cassettes gives added convenience to the handling of continous rolls of microfilm. Each cassette contains two film spools i.e. the feed & the take-up. There is no need to rewind a cassette film when it is removed from the reader Any frame may be held in viewing position for further reference at a later time. Microfilms could be produced & cut into strips and inserted in acetate Jackets. A Jacket is a plastic carrier with single or multip sleeves or channels designed to accept strips of 16 m.m. or 35 m.m. film Jackets both protect the microfilm & also ficilitate organization of material. Images may be copied or read directly from the jacket withou

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removing film. They can be visibly titled for a quick, easy file reference. Jackets are useful for storing microimages of case files, such as hospital records (case files of patients) or current personnel records which are active & cumulative. It is also possible to take individual microfilm images & with the aid of special machinery mount them on Aperture-cards or punch cards, which permit rapid retrieval of the information on them.

Apperture-Cards are available in many sizes, $3\frac{1}{4}$" X $7\frac{3}{8}$" tab size is most commonly used. They may contain a single image or up to eight pages-size images on one 35 m.m. frame. A table of contents, an abstract, and engineering drawings are available on Aperture cards. The Com recorder converts the data stored on Computer tape directly to microfilm.

Documents or books may be recorded & reproduced on reel film in four organized formats & styles, depending on the nature of the material & how it is to be used. Some users require a microfilm system that can reproduce documents within a wide range of sizes from large engineering drawings to a small file card. Some, like bank & law firms, need a system that can reproduce both front & back of a document (a cancelled check of a notary deed) side by side. Simplex - comic, Simplex - Cine, Duo & Duplex are the formats that documents could be arranged on the microfilm.

If the arrangement of the original documents on the film is in a sequential order & the text is arranged on images running parallel to the length of the microfilm, it is called the Simplex Comic arrangement. This arrangement is like in a comic strip. Most documents up to $8\frac{1}{2}$" X 11"(21.2cm X 27.5 cm.) are filmed in simplex-comic format. Simplex-cine format, is microfilm containing images in a sequential order, but the text runs across the width of the film. The standard archival microfilming is done by combining the two formats described above. Normally, oversized documents & books are filmed using the Simplex-Cine arrangement. In both simplex comic & Simplex-Cine arrangements it sometimes is the practice to film more than one page per frame. The facing pages of a book or document, might be photographed together.

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The two other commonly used formats, which each use one half of the film width, are Duo & Duplex formats. Duo format is, microfilm containing pages filmed in sequence on one half of the film's width with the film being reversed at the end of the roll to contain subsequent pages. Duplex format features the front & back of documents filmed side by side. This format is ideal for filming Bank cheques where signature & endorsemer appear in both sides filmed simultoneously thereby accomodating more frames on the film. The reductions used for both and Duplex formats usually range between 32 X & 45x.

The majority of microfilms used to-day for filming of achival documents are black & white, although the use of colour films is increasing. The colour film has one major advantage over black & white film, i.e. when colour is essential to the understanding of the subject matter, for instance in reproducing an art book, chart or diagram, or colour illustrations.

Microfiche is another popular microform which literally means small (micro) card(fiche) transparent sheet of microfilm containing micro images in a grid pattern. It usually contains identification information which can be read without magnification. They are available in a variety of sizes. i.e. 3"X5", 4"X6", 5"X8", etc. The most common size is the 4"X6" fiche. The maximum number of images that can be contained on a fiche depends upon the amount of photographic reduction. Most fiche are filmed at 18 X to 24X, but some are 48X. In a microfiche of 3"X5", 60-9. frames or images could be accomodated. 78 pages of a journal would be grouped on a microfiche of 10.5X14.7 cm.

An improved form of microfiche has been developed as ultrafiche containing images reduced more than 90x, thus permitting thousands of images per fich 11" X 8½" ultrafiche could accomodate 3200 images. Accordingly, ultrafich offers the advantage of storing more information in less space than a standard microfiche. A superfiche is also developed at a reduction rate of 75x, including about 1000 pages on one fiche. While planetary camera is used for filming roll micrororm, a camera called a "step & repeat" is used for microfiche.

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Micro-Opaque is another microfilm similar to microfiche. They are images on opaque stock i.e. images, may be stored on both sides of the f They are available in 5" X 3" & 6" X 9" sizes. The duplication of micro-opaques is rather expensive.

Microcard is similar to microfiche but reduced on an opaque card. It is produced by photographic process. A micro-print, another microform is similar to a microcard, except it is produced by a printing process.

Advantages & Disadvantages of Microforms

Advantages:

Today microforms have become very popular in reproducing books & documents as their advantages are much more than the disadvantages. Each microform has its strengths & weaknesses for the reproduction of original material. The economy, efficiency & the speedy retrieval of information are the advantages of microforms to the librarians, Archivists, Documentalists & Information Scientists. Even the user or the scholar is benefitted by the advantages of these microforms. The most versatile. & best suited microform for the reproduction of archival or library materials has been, and is, at the present state of technological development is the roll microfilm. The file integrity or the ability to retrieve & reproduce a document without the chance of its being lost or misfiled after use is assured in a microfilm. Secondly, the file security or the use of microf to duplicate irreplaceble records as assurance against, loss or destruction of the originals is also secured. It is said that 95% of space will be solved by storing microforms, than storing originals. Storage space is an important factor to an expanding library, specially in a metropolit where space is extremely important & expensive. As microforms could be stored in compact storage, they are considered as a great space saving device. Books & documents are produced in various sizes and as a result a librarian should order various types of racks to store them. In the case of microforms, as they are produced in standard formats, racks could be ordered or manufactured to one uniform size. This would save space and will be economical too.

The retrieval of information is considered less time saving in the case of microforms than obtaining information from originals. As these

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microforms are machine-readable records where information is obtained through a push button or other machanical device, it impresses readers handle, rather than handling fragile, brittle or faded original documer Librarians & Archivists would certainly produce their books or document the readers in microform, than allowing the readers to handle valuable originals through fear of loss or damage to them. The risk of loaning rare & valuable books to a reader could be overcome by giving a microf copy. Even this would prevent a library form engaging in recalling cos A librarian could afford loosing or damaging a positive copy of a micro loaned to a reader, if the negative is deposited in the library. Every librarian has experienced the rising costs of orignial books. This has hampered the purchase of new books to the library, in order to improve collection. Today, microforms have come to the aid of the librarian by supplying the new books at 1/3 of the price of an original book. An ex could be cited as 13 volumes of the Oxford Dictionary could be purchase in microform at 1/3 of the price of the original.

The use of the microfiche is the reproduction of printed, type or other high contrast materials such as periodical literature, pamphlets, & scientific research reports have gained popularity owing to the advanta of less cost than that required for conventional printing. Microfiche is being used increasingly for the reproduction of catalogs & various t of directories both in industry & government. When sections of catalog for example, that have been reproduced on microfiche are revised, the revisions are also placed on microfiche at a lower cost, thus avoiding the purchase of a revised printed catalogue which would cost more. The eye-legible titles that are prepared for a microfiche, enables the user file them in card catalog drawers. Microforms are more easily mailed a a lower cost than original books. It is clearly demonstrated that newspapers, the difficult of all printed materials to preserve, store & handle have been reproduced satisfactorily in microform to solve the ~~above problems faced by the Librarians and Archivists.~~

Disadvantages:

The significant advantages of microforms should not be looked upon as a panacea for solving all problems of records & books. The microfilming of records has been so oversold & sold in to many wrong places that the salsemen have often become their own worst enemies. Its capabilities

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have often been honestly & dishonestly mispresented. Sometimes very important cost factors have been, glossed over, treated as of no consequ or ignored completely. It is estimated that we could provide the space required for a longer period of the original document, far less than cost of microfilming & maintaining same. In this context, costs in respect of microfilm software, hardware, periodic inspection, servicing & air-conditioning should not be ignored. Accordingly, although microfor offer the largest saving in space, their costs are alarming.

Microfilms & fiche are normally very durable & would last for 500 years. At the same time, the film producers will furnish a set of specification for film storage that will scare you. You should know that excess of moisture will ruin the film by sweating or mold, where as a very cold or dry atmosphere will cause the film to become brittle. If the film is ke in a safe or vault of variable temperature, a slight distortion would ... and ruin the film completely. It should be remembered that permenence & durability of microforms depend on the maintenance of high technical standards during the process of production. The nature of the microform material, i.e. acetate film is a more delicate medium than paper records. Minimum archival storage conditions for microforms are filtered air-conditioning system which will maintain a temperature, between 6[illegible] X 70° Fahrenheit (15.5° & 21.1 C°; and relative humidity [illegible] about Therefore, the cost of maintaining & servicing records in microform may be more expensive than storing and servicing the originals.

It is argued by librarians and Archivists that retrieval of information from microforms is much more speedier, easy and efficient than in the cas of original records. Let us consider the physical operation for a moment. If you want a file or book in the original form, a record clerk or library assistant would walk to the file drawer or the rack, take the original & hands it to the reader. A matter of minutes as you see it. However, if you want to see a microfilm, you go to the index, find the number of the roll you want, go to the storage cabinet, find the film or films & proceed to the reader with it, you open the Carton, take out the can, open the can, take out the film, thread the film on the reader & start-looking. With 600 - 3,000 or more frames on a roll or fiche, you will have to find the necessary frame or frames. This operation is time consuming than going through an original record or book. If you

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happen to experiance a power cut or a failure, you will be frustrated. This would be the case if the blub of the reader fuses while viewing the film. Even viewing a microfilm in a dark room is a strain on your eyes.

In a microfilm, not more than one or two pages can be sacnned simultaneously. This may be inconvenient when a reader wants to compare facts apperaing in another page which is at the end of the film. Therefore, it is not possible to compare two images even on the same roll.

It is often said that the intrinsic value of an original document is lost in the film copy. The determination of the age and genuiness of the original document is not possible in the microfilm. Even the colour writing & illustrations are not shown in the microfilm & this woul be a disadvantage to a research worker in need of colour illustrations.

The necessity of using a viewing device in the microform, would prevent a reader from browsing or reading in a train, bus, que, or in bed. Every Librarian & Archivist think that legality of microfilm is pretty well established, as actually to date no major case has been challenged. The day someone challenges the legal validity of the microform in court of law, film as primary evidence will be rejected.

The Photstat is another process of reprography, using photography. It i a large camera with a prismatic mirror attached to the lens. It takes in a roll of silver-halide paper, onto which the copy is directly made. It can copy documents up to 40" X 30" but the largest print it can produc is 24" X 18" because 18" is the width of the roll of sensitized paper, 350' long.

There are few advantages of the photostat process. As the photograph is taken on to paper instead of the film, copies of same size of the original could be reproduced. However, the ability to vary the size of the prints is advantages in producing negative, eye-legible -cop..es for research purposes. Moreover, high quality reproductions are assured as wet chemicals are used in processing. The positive copy is more legible & the tone are reversed in obtaining positive copies. The photostat process is ideal to obtain copies of newspapers in its original size & format. Photostat process could be used with advantage to reproduce faded, brittle & oversiz

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archival documents. The use of ultra-violet-rays in this process is an advantage to reproduce original material with a poor contrast. The copying of Palm-leaf manuscripts could be done satisfactorily by using t photostat process.

However, the modern revolution in reprography began in 1950 with the invention of Xerox, Theremofix & other electrostatic processes of docum reproduction. As a result, reprography, which required trained & skille personnel was taken out of them & placed in well lighted offices where clerical personnel without any knowledge of photographic process were making reproduction of documents.

These quick copiers produced copies of documents at a cheaper rate with ressonable speed of copying thereby making the whole community aware of the advantages of reprography.

The Archivists, Librarians, Documentalists & Information Scientists have realized the importance of these copiers for reproduction of documents, mainly for dissemination of information to readers.

The electrostatic process could be used to reproduce single sheets of small volumes which contain valuable information to research workers at cheap rate. A page or part of a book, an article in a journal, a printe document could be reproduced efficiently.

However, large bound volumes or files & faded documents can not be copie satisfactorily in quick copiers. The maximum copying area is also limit to 11" X 17". Accordingly, Newspapers, engineering drawings, archtectur drawings, large maps & plans will not be accomodated in this type of copiers. To describe the uses of reprography to a library, archives & other centre engaged in storing & dissemination of knowledge, would encourage the personnel in these institutions to plan for the future to set up reprography centres in their respective institutions.

Broadly, there are seven major common uses of reprography. VIZ, repro-graphy for (1) Security, (2) preservation, (3) Disposal, (4) Acquisi-tion, (5) Reference, (6) Administration, and (7) Publication.

Cont'd. ..... 12.

(i) Security

The reprography of documents for security is done to provide insurance against the loss of valuable information in the documents in the event that the documents themselves should be destroyed by flood, fire, theft, insects, war of other calamity. As experience has shown, fire, theft and insects (specially Rats, white Ants and Silver fish) are the most common enemies of documents in Sri Lanka. The loss and damage caused by these hazards are irreplaceable. Fire risks on documents are more common in business organizations than in Archives and Libraries, as large number of people are employed using inflammable and other chemicals for production purposes. One must not forget the fire obutbreaks which are suspected sabotage activities caused by employees holding different political ideologies and belonging to various trade union organisations. The damage caused by insects and loss by theft are common occurances in archives and libraries. Accordingly, valuable and irreplaceable documents of an organization should be microfilmed or Xeroxed to prevent any hazards mentioned here. It is essential that the security copies of documents should be stored, in a place located in a different building from the one which the original documents are kept.

(ii) Preservation:

Reprography of documents for preservation is done for two reasons; (a) to protect records against possible deterioration from use, i.e. against ware and tear, and (b) to preserve the informational content of documents against deterioration and eventual loss. The use of "preservation reprography" of documents is ideal for Archives and libraries in Sri Lanka. It is essential for organisations holding old manuscripts in their possession. Specially the Archives and libraries could make good use of this technique of document reproduction. At present only the National Archives is engaged in this type of preservation filming. An organisation which possesses documents produced on poor materials, such as highly acid woodpulp, containing a P.H. value less than 5.5 or non permanent quick copies, or documents that are faded, brittle, charred or watersoaked should be transferred in to microfilm. Moreover, even an individual who possesses rare and invaluable records or books should adopt preservation filming to perserve and safeguard his collection. The archive and libraries should be compelled to rely on preservation filming owing to the constant use of their records and books which are

Cont'd. 13

accessible to scholars and the general public. The wear and tear and the loss of original documents in archives and libraries could be arrested only by preservation filming. The high cost of repairing of original records could be cut down at a fraction of cost by avoiding repairs on originals and filming them to be used by the readers. Accordingly, essential repairs can then be reserved for documents that have values or that not lend themselves easily to microfilming, such as documents (a) that contain vary fin writing, (b) that are oversize, (c) that are in colour or (d) t have poor contrast between the reading matter and the paper.

(iii) Disposal or space-saving

Although, disposal or space-saving filming of records is popular in the advanced countries, Sri Lanka has not yet ventured on this type of document reprography. According to the statistics plac before the 8th International congress on Archives held in October 1976, only eleven countries are using disposal filming. I am sur that there is no organisation or institution in this country enga-ged in or adopted disposal filming. This is a method used to save considerable amount of space (5% of the space required to store the originals, and to dispose the originals. For example, the Sarasa Pahana Newspapers for the period 1862-1900 were transferred in to four reels of microfilm. i.e. (400 feet of film). However, the filming of pernanently valuable records for disposal purposes alone is rather risky and expensive. This type of disposal filming will attract any organisation in this country as in most instances, they complain of lack of space to store the originals. Nevertheless the disposal filming should be undertaken with extreme care, as some of the legal problems involved in disposal filming are not yet internationally solved. The legislation will have to be amended and the problems of acceptence of the reproduced copy as equivalent to the originals must be settled before any project is undertaken for disposal filming. One must not forget that disposal filming may be undertaken only for records which have little permanent valu or when legal limitations are not specified for the permanent preservation of any series or type of records.

Cont'd. ..... 14.

Before engaging in any disposal filming project, the following factors should be considered. (a) the effect on reference cost, (b) the expense of additional microfilm readers, (c) the generall higher cost of obtaining eye-legible enlargements (on paper) from the original records and (d) the comparative cost of maintaining the originals in a dipository and establishment of a microfilming unit, its maintenance and cost of raw materials, such as reels and chemicals.

(iv) Acquisition

This method of document reproduction is defined as the filming of documents in other depositories or institutions or in private possession to supplement and strengthen ones own holdings. Acquis tion filming is more suitable and essential for archives and libr. It is an ideal method for colonial countries to obtain the copies of rare and valuable originals taken away by their masters at the time or before gaining independence and for documents created at the far end by the masters as a result of their administration of the colonies. In this way Sri Lanka could obtain rare and valuable documents pertaining to this country from the archives and libraries of Portugal, Holland, England who ruled this country for nearly 450 years. Moreover, copies could be obtained from the original docume containing material on Sri Lanka lying in archives and libraries o other foreign countries. This is an easiest and a low cost way o obtaining records which have left our shores, where the present owners are unwilling to part with them. A library or a documentation centre which is newly established could adopt this method to acquire the rare and valuable books and magazines held by other libraries and institutions here and abroad, in order to build up the collection. The acquisition of copies of originals in the format of photostat or xerox (quick copies) would serve a library, building up its collection of bc ks and magazines, than obtaining them on microfilms. It is because the users of libraries are more inclined to browse or read the material in the book form. A library could cut down it's cost for purchasing microfilm readers if acquisition of documents are obtained on the format of photosta or quick copies. Acquisition of copies of thesis and dissertation

Cont'd. ..... 15.

submitted to foreign universities on Sri Lanka by Ceylonese, which are unpublished would be a valuable acquisition, if obtained on microfilm or Xerox format, to any institution interested in deposi such material. Even an individual could improve his own private collection of documents by obtaining photocopies of originals whic are difficult or expensive to purchase.

I would like to mention that, the flooding of the market, of sophisticated document reprographic mechines which copies on plain paper, have even threatened the copyright laws, as institutions an organisations are busy making copies of original documents and boo for acquisition purposes.

(v) Reference:-

In filming documents for reference, the purpose is to provide the researcher with exact copies of documents at a cost farless than t cost of transcribing, typing or photostating the originals. It could be used as a substitute for note-making and the scholar or requesting institutions could make a copy without making use of original document over and over again. If a microfilm is made filming valuable records, a master negative should not be preserv the institution where the original document is preserved. Accordingly, any number of postive copies could be made for schola and others who request the same document. The retained negative c may also be used for security, preservarion or disposal purposes.

(vi) Administrative or facilitative uses:

Administrative filming is used in an institution to facilitate its services to the users of the material of a particular institut A book or a document which is badly deteriorated beyond repairs sh be filmed before any restoration work is undertaken on the documen This would enable a reader or a scholar to evaluate the original fo of the book and the format of it before the repairs have been effected to the original. Moreover, if writing of a book or recor is fading or faded, to facilitate reading it should be reprographe immediately. If a library or an Archives wishes to exhibit their documents to the public, it is much safer to exhibit the copies of originals reproduced in various forms so as to safeguard the

Cont'd. .....

originals from thefts or damage.

The efficiency of documentation and information centres and archives or libraries lies in its finding aids which enable these institutions to render a good reference service to the users. Accordingly, indexes, lists, calenders or other finding aids to bo and records could be easily supplied to researchers if they are on film.

(vii) Publications:

Copies of series of records or rare books can be published in thei entirerity on microfilm at far less cost, more rapidly and with less editorial labour than is needed for letter press publications Appropriate title pages, an introduction, a table of contents, ind and special lists could be reproduced on film to facilitate the investigator. The method of "microfilm publication" is now becomi popular in the western countries, where information is disseminate at a low cost and in a speedy manner.

Lastly, it is a foregone conclusion, that reprography could be used advantageously in a developing country like ours, to build up our nation by disseminating knowledge efficiently and at a lower cost to the whole community.

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E1 & E8

Topic - Reprography

Lecturer - S.M Aziz

Date - 15. 7. 81

Introduction

Reprography is a general term applied to photographic techniques of reproducing flat originals (documents, photographs, printed matter, pictures etc). Its scope covers copying as well as graphic art processes. Microfilming comes under this general term.

Microfilming is the photographic reduction on microfilm of all kinds of documents. A microfilm image is very minute and it is therefore very difficult or even impossible to recognize image details with the naked eye.

When we speak of microfilm we usually ~~men~~ mean a collection of micro-images made on a length of film. Apart from this, microfilm can be made on sheet film or paper. A group of micro-images on sheet film is called "microfiche" while micro-images on paper is called "microcard".

The ration in size between the document microfilmed and the microfilm can vary from 1:6 to 1:40. A reduction ratio of 1:30 is usually adopted for recording on 35 mm film; for 16 mm film a reduction ratio of 1:40 is used.

For this reason, microforms are usually read by using a "reader". But if microfilms are frequently or even continously consulted, it is more practical to make paper prints by means of a "Reader Printer".

Microfilming has greatly gained in importance during the last few decades. Modern microfilming techniques have contributed a great deal to a more rational filming system and administration in many industrial and commercial firms.

The use of microfilm ensures a quicker and more efficient execution of many tasks. While in the beginning, the use of microfilm files was rather passive, of late a far more active application of the various microfilming techniques has become apparent. This is due to the fact, that these techniques are now increasingly combined with other techniques such as, ~~reprographic copying and multiplication methods, and modern information techniques where computers and electric sorters~~ are used.

Micrographic Equipment

Cameras (microfilm and microfiche)
Processors
Duplicators
Reader and Reader Printer
Laboratory equipment

..../2

Cameras

Microfilm cameras are grouped into two main categories:

(a) Semi - automatic or planetary

(b) Automatic or flow type

Planetary Cameras

Planetary cameras use 35 mm and 16 mm microfilms. Documen sizes that can be filmed in these cameras are: DIN A3, DIN A2 and DIN A0

Automatic Cameras

Automatic cameras use 16 mm microfilm. Documents of 12 inches to 18" in width can be filmed in these cameras.

Micrographic Techniques

The following microfilm formats are used in microfilming

(a) Simplex - Cine

(b) Simplex - Comic

(c) Duplex

(d) Duo

Resolution and Density

Resolution and density are two factors that determine the quality of a microfilm.

General Requirements for Microfilming

1. Illumination of the original

2. Focussing

Indexing systems

(a) Flash Target

(b) Odometer

(c) Code Line

(d) Blip coding

Photo copying Equipment

(1) Flat Bed systems

(2) Rotary copiers.

MICROGRAPHIC DEFINITIONS

ALPHANUMERIC... Pertaining to a character set that contains letters, digits, and usually other characters such as punctuations marks. Synonymous with alphameric.

ARCHIVAL QUALITY... The degree to which a processed print or film will retain its characterisitcs during a period of use and storage. The ability to resist deterioration for a lengthy, specified time. See American National Standard PH4.8.

CAMERA PLANETARY... A type of microfilm camera in which the document being photographed and the film remain in a stationary position during t the exposure. The document is on a plane surface at time of filming.

CAMERA ROTARY ... A type of microfilm camera that photographs documents while they are being moved by some form of transport mechanism. The document transport mechanism is connected to a film transport mechanism and the film also moves during exposure so there is no relative movement between the film and the image of the document.

CAMERA, STEP AND REPEAT... A type of microfilm camera which can expose a series of separate images on an area of film according to a predetermined format, usually in orderly rows and columns.

CARD-TO-CARD PRINTER... A type of equipment which produces duplicate and mounted microfilm by contact printing.

CHARACTER TRANSFER RATE ... The rate at which characters are transfered from one place to another, e.g, magnetic tape to computer, computer to magnetic tape, computer to microfilm, etc.

COM ... (1) Computer output microfilm: microfilm containing data produced by a recorder from computer generated electrical signals (2) computer output microfilmer: a recorder which converts data from a computer into human readable language and records it on microfilm (3) computer output microfilming: a method of converting data from a computer into human readable language onto microfilm.

CONTACT PRINTING ... A method of printing in which the unexposed stock is held in direct contact with the master or intermediate bearing the image to be copied.

CONTAINER . .. A generic term for boxes, capsules, cartridges, magazines and cassettes or other structures for enclosing microforms.

CONTRAST... (1) an expression of the relationship between the high and low brightness of a subject or between the high and low density of a photographic image. (2) The rate of density change or the density change per unit exposure. A photographic image is said to have high contrast if the difference between the maximum and minimum density is great. Sensitized materials are graded from "hard" (high contrast) to "soft" in accordance with their inherent contrast characteristics.

COPY... (1) Noun-Duplicate (deprecated in that sense). The product obtained from reproducing an original. (2) Verb-To produce an original by hand or by machine.

CORE... (1) The center portion of a reel, spool, cartridge, magazine or cassette. A cassette has two cores (2) An unflanged, cylindrical form on which film or paper is wound. See American National Standard PH1.13.

DENSITOMETER... A device used to measure the optical density of an image or base by measuring the amount of incident light reflected or transmitted.

DENSITY, BACKGROUND.. The opacity of the non-information are of an image.

DENSITY, OPTICAL... The light-absorbing quality of a photographic image (degree of opacity of film and blackness for paper prints) usually expressed as the logarithm of the opacity. Several specific types of density values for a photograph may be expressed but diffuse transmission density is the one of greatest use in the case of microfilm and diffuse reflection density is generally of interst for papet prints. See American National Standards PH2.17 and PH2.19.

DENSITY, PACKING... The number of useful storage cells per unit of dimension; e.g., the number of bits per inch stored on magnetic tape or drum track.

DIAZO MATERIAL... A slow print film or paper, sensitized by means of diazonium salts; which subsequent to exposure to light strong in the blue to ultraviolet spectrum and development forms an image. Diazo material generally produces nonreversible images, i.e., a positive image will produce a positive image and negative image will produce a negative image.

DIRECT IMAGE FILM.. A film that will retain the same polarity as the previous generation or the original material; that is, tone for tone, black for black, white for white, negative for negative, or positive for positive with conventional procession. (See POLARITY)

DISTRIBUTION COPIES... A Microfilm copies, usually second or third generation, produced from camera microfilm or intermediate for distribution to points of use.

DOCUMENT... A written, typed or printed paper.

DRY SILVER FILM... A non-gelatin silver film which is developed by application of heat.

DUPLICATE... (1) Noun-In microcopying, a copy usually made by contact printing from a master or an intermediate. (2) Verb-To make multiple copies of a document, usually with the aid of a master.

EAM... Electrical Accounting Machine.

EBR... (1) Electron Bean Recorder: a type of computer output microfilmer specifically designed to generate images directly onto EBR microfilm. (See COM and EBR film) (2) Electron Beam recording: a specific method of computer output microfilming which directs a beam of electrons onto the energy sensitive-surface ofEBR film. (See COM)

EMULSION.... A single or multi-layered coating of gelatinous material on a transparent base carrying radiant energy reactive chemicals that create a latent image upon exposure. Processing techniques produce a final, visible, usable image.

ENLARGEMENT... A reproduction larger than the original or the intermediate.

ENLARGER-PRINTER...A machine which projects an enlarged image from microfilm, developes, and fixes the image on a suitable material.

FACSIMILE... (1) An exact copy of an original document. (2) The process or result of the process by which fixed graphic images are scanned, transmitted electronically, and reproduced either locally or remotely.

FILM... Any sheet or strip of transparent plastic, coated with a light-sensitive emulsion.

FRAME (FILM FRAME)... The area of a photographic film exposed to light in a camera during one exposure, regardless of whether or not this area is filld by the document image.

GENERATION... A measure of the remoteness of a particular copy from the original material. The picture taken of a document, cathode ray tube, etc., is termed first generation microfilm (Camera microfilm). Copies made from this first generation are second generation, and copies from the second are third generation etc. First generation negative appearing microfilm is designated 1N and second generation positive appearing microfilm is designated 2P, etc. (See NEGATIVE APPEARING IMAGE, POSITIVE APPEARING IMAGE)

GRAPHIC... Of, or pertaining to data in the form of pictorial communications, as for example, drawings charts, engineering designs, and plotted data.

HARD COPY.. An enlarged copy, usually on paper.

HYPO... Ammonium or sodium thisulfate. The agent used to remove unexposed silver halides from silver emulsion film. The term is generally used to refer to a fixer solution which may contain also certain acids and/or hardening agents.

IMAGE... A representative of an object such as document or other information sources produced by light rays.

INTERMEDIATE... A microfilm or other reproducible used to make distribution copies; microfilm intermediates are usually made from camera microfilm.

MAGNIFICATION... The linear ration of the size of the image to that of the object when viewed through or projected by an optical instrument.

MASTER... A copy of a document, or in some processed the original itself from which copies can be made.

MICROCOPY... A copy obtained by photography in a size too small to be read without magnification.

MICROFILM... (1) A fine-grain, high resolution film containing an image greatly reduced in size from the original. (2) The recording of microphotographs on film. (3) Raw film with characteristics as in (1).

MICROFORM... A generic terms of any form, either film or paper, which contains microimages.

MICROGRAPHICS... Micrographics is the industry which reduces any form of information to a microform medium (See MICROFORM)

MICROIMAGE... A unit of information, such as a page or text or a drawing, too small to be read without magnification.

MICROPUBLISHING... To issue new (not previously published) or reformatted information, multiple copy microform for sale or distribution to the public. (See MICROREPUBLISHING, DUPLICATE)

MICROREPUBLISHING .. To reissue material previously or simultaneously published in hard copy form in multiple copy microform for sale or distribution to the public. (See MICROPUBLISHING, DUPLICATE)

MOUNTER... A device for simultaneously cutting, positioning, and fastening film frames in aperture cards.

NEGATIVE APPEARING IMAGE... A photographic image with light lines, characters, and neutral tones on a dark background.

ORIGINAL... The document from which copies are produced

PAGINATION... A term referring to the arrangements of pages or microimages of pages on a microfilm or micro-opaque.

POLARITY... A word used to indicate the change or retention of the dark to light relationship of an image, i.e., a first generation negative to a second generation positive indicates a polarity change while a first generation negative to a second generation negative indicates the polarity is retained.

POSITIVE APPEARING IMAGE... A photographic image with dark lines, character, and neutral tones on a light background.

PRINT .. (1) Noun-A reproduction or copy on photographic film or paper. (2) Verb-To produce a reproduction or copy on photographic film or paper.

PROCESSING... The treatment of exposed photographic material to make the latent image visible, i.e., for silver emulsion films, a series of steps consisting of developing, fixing, and drying.

PULL-DOWN... The length of film advanced after each exposure.

READER... A projection devide for viewing an enlarged microimage with the unaided eye.

READER-PRINTER.... A Machine which combines the functions of a reader and an enlarger-printer.

REDUCTION... A measure of the number of times a given linear dimension of an object is reduced when photographed, expressed as 16X, 24X, etc.

RESOLUTION... The ability of optical systems and photomaterials to render visible fine detail of an object; a measure of sharpness of an image, expressed as the number of lines per millimeter, discernible in an image. Resolution in processed microfilm is a function of film emulsion, exposure, camera lens, camera adjustment, camera vibration, and film processing. Resolution is measured by examining a microfilmed resolution test chart under microscope to determine the smallest pattern in which lines can be distinguished both horizontically and vertically.

ROLL TO ROLL PRINTER... A type of equipment for producing duplicate rolls of microfilm by contact printing.

SAFETY FILM...A term designating a comparatively non-inflammable film support (base) composed mainly of cellulose esters of acetic, propionic, or butyric acids and which meets American National Standard PH1.28.

SILVER FILM... A film which is coated with a silver halide emulsion.

SILVER HALIDE... A compound of silver and one of the following elements known as halogens: Chlorine, bromine, iodine, fluorine.

SPOOL... A flanged holder on which unprocessed roll film is wound, designed to be inserted into cameras and processors. It is manufactured to close tolerances so that the film fits snugly within the flanges and keeps edge fog to a minimum. See American National Standard PH1.33, PH1.34, PH1.35 and PH1.36.

ULTRAFICHE... Microfiche with images reduced more than 90X.

UNITIZE... (1) The separation of a roll of microfilm into indivicuals or related frames and insertion in a carrier. (2) To microfilm on one or more sheets of microfiche a unit of information, such as a report, a specification, or a periodical.

E 9 & 10

N.U. Yapa.

AUDIO VISUAL MATERIALS.

Audio Visual Materials are defined in many ways. For the purpose of this paper I shall observe three important features common to all types of AV materials.

(i) They serve as eye and / or ear stimulants.
(ii) They cannot be used without machinery.
(iii) Information in them is presented in a manner different to other media.

Few decades ago AV materials were considered as teaching aids which help one to educate people who are not responsive to other media. But with the wide use of AV material for different purposes, now they have become an important component of a library collection. However there are certain misconcepts and prejudices with regard to use of AV materials in libraries.

(a) AV materials are considered as teaching aids which cannot be used alone without supplemented by a lecture or instruction programme. This is no longer true as many AV sources are comprehensive and could be used as a primary source of information.

(b) AV is considered as a mass media and hence not appropriate for individuals. This is no longer true as with the help of new equipment one could personally use AV materials without disturbing others.

(c) AV media has poor - quality or inferior information. This is not true as now many AV Producers are making AV programmes containing interlectual and specialised information which is sometimes not available from other sources.

AV materials could be divided into there broad groups: (a) audio (b) visual (c) audio-visual.

cont'd.....2.

Audio - phonorecords, audio cassettes.
Visual - film strips, slides, microscopic slides.
AV - video cassettes, video tapes, video discs, Motion Pictures, sound slide programmes.

These materials could be used in a library in four different ways.

(a) reference - to be used within the library. A special area with equipment should be allocated for this purpose. Readers have to borrow AV material from the librarian. Reader will be given instructions for self-operation of the equipment.

(b) Groups - Special AV programmes will be arranged by the library for groups of readers at its auditorium. These programmes could be conducted according to a schedule or on request of a group of readers.

(c) personal loans - Certain AV material could be borrowed by reader for personal use at home. Material has to be checked at the time of issue and return. The reader should have equipment to exploit them.

(d) inter-library loans - Library will issue AV materials for another library or another institution such as a School, professional association, Readers club, Welfare society etc.

The following table shows the loanability of each media:

type	media	reference	personal	ILL	Group
Audio	phonorecords	✓	✓	✓	✓
	Audio cassette	✓	✓	✓	✓
Visual	Film strip	✓		✓	✓
	Slides			✓	✓
	Microscopic slides			✓	
Audio Visual	Video cassette	✓		✓	✓
	Video tape	✓		✓	✓
	Video disc	✓		✓	✓
	Motion Picture			✓	✓
	Sound slide programmes	✓		✓	✓

Storage.

Special care should be taken in storage of AV material as they should be protected from dust, heat, humidity, fungus formation and other physical and cheminal hazards. Audio and Video Cassettes are recorded in magnetic tapes and hence they should be protected from dust particles. Air - conditioned room is ideal for these material. Special Storage equipment is available for the organization and protection of different types of AV material.

	Primary Storage	Secondary Storage
phono record	envelope	steel cupboard
Audio Cassettes	plastic box	cassette cabinet
film strip	cylinders	boxes or binder
slide	frames	binder or tray
Video cassette	plastic box	cupboard
Video tape	plastic box	cupboard
motion picture	container	cupboard
slide programmes	boxes (packs)	cupboard

For a small AV collection containing different types of media, multimedia cupboards could be used.

Equipment.

AV material needs equipment to utilize them. AV equipment is expensive and has to be maintained and protected properly. Spare parts and accessories are required for continuous operation of them. Trained personnel are required for operation, repair and maintenance of equipment. AV material are not sometimes standardized and hence not compatible with all models of equipment. Certain slide projectors could take only one type of slides.

Main types of AV equipment are given below:

Over head projector, opaque projector, filmstrip projector, slide projector, record player, cassette records, Film projector,

cont'd.....4

video cassette player, video tape player, video receiver, video projection system, sound / slide projector.

Organization.

A separate Accession Register should be maintained for AV material. A code and accession number could be used for identification and location. Material could be organized by accession number and not by subject or author. Cataloguing could be done according of AACR 1 (Chapters 12, 14, 15) or AACR 2 (Part I chapter 5, 6, 7).

AV Room.

A library having a collection of audio visuals for reference purposes should have a AV Room for listening or viewing the programmes. This should not distract attention of other users and should have essential equipment to use the material. Slide projector with a internal screen; head-phone; video receiver with a blocking screen will be useful. Plug points should be readily accessible. Instruction manuals in easy-to-understand language should be made available.

E 11

Mrs I Corea

LIBRARY PUBLICATIONS

The library is of no use to the reader if he is unaware of its existing resour Through the appeal of tasteful design the library can evoke and stimulate inte in its resources, services and objectives. Publications wisely produced with a lively and colourful style can be the long arm of the library reaching into ev corner of the community and into the world at large.

The library role in the organization is important when deciding which publicat are required to complement it. As the library is seen to provide effective information in the form of publications the librarian must be prepared to canc a publication the moment it ceases to be an effective information vehicle to h clients. The librarian should choose the type of publishing programme which i most appropriate and helpful in furthering the purpose of the library service.

Library publications mainly consists of the following :-

1. Library handbooks
2. Annual reports
3. Bulletins and booklists
4. Printed catalogues
5. Bibliographies
6. SDI System (Selective Dissemination of Information)
7. Reprint series

New: Bulletin

Library Handbooks

The production of this needs much care in its preparation and considerable ex in its printing if it is to be comprehensive. This would be of great use to serious readers and aid many who would hesitate to ask for personal help.

Points to be covered.

1. [illegible], phone numbers, hours of opening and names of all departmen and branches of the library service,
2. A brief description of the resources of the library system and their division between the different departments, branches and special collections;
3. An explanation of the system of classification in use, how to use the catalogues, how to find a book on the shelves and how to obtain books on the shelves by reservation, use of the interloan systems etc;
4. A description of the library system in detail with plans;
5. A brief history of the library system;
6. The rules and regulations of the library;
7. Brief account of stock and issues-pictorial rather than statistical;
8. Details of any other library publications available with prices;
9. Details of extension activities;
10. An invitation to ask staff for help;
11. Details of copying and reproduction services;
12. Availability of microfilm and microcard readers, any other special equipment (such as illuminated table for the examination of maps, listening room for gramaphone records, tapes etc.)

Annual Reports

Many libraries issue annual reports. Some libraries consider this their majo printing activity and a major public relations document. Therefore physical appearence and presentation of this publication should be done with an annua report is an accurate and historical record of work done, supported by stati This should be written with short paragraphs and catchy headings to make it interesting, and presented as attractively as possible. The cover design is all important. If there is a professional display artist among the libr staff he should be given the task of designing the cover or else outside hel has to be taken.

The layout should include illustrations if possible and also photographs of colourful displays in the library, children's activities in the library, views new library buildings, exhibition openings, close ups of rare books and manusc acquired, and before and after photographs of modernization schemes. The photographs should include people when possible and would be better if they ar not obviously posed.

Statistics can be given prominence by presenting them in graphs and charts pref ably done by a good artist. An attractive folder could be added with the main points of the report emphasized on it.

Bulletins and Booklists

The smallest of booklists is of help to readers. It gives them the opportunity to study its contents at leisure.

The most useful form of booklist is the bulletin, issued regularly, in which th library reports its principal recent additions and adds notes and news of development in its service. The popular format for these are folders. Other features included are:-

Feature articles on the work of authors or about books on various subjects.
Reminder of various facilities offered by the library.
Children's page if no separate children's bulletin is issued.
Illustrations - such as outstanding illustrations from books listed in the curr number, portraits of local people, illustrations of local scenes, etc.
Special articles should not be allowed to overshadow the booklists so much that the reader is likely to overlook the latter. ~~Some libraries have special booklists so much that the reader is likely to overlook the latter~~. Some libraries have special booklists devoted to individual subjects instead of regu bulletins, and others issue them in addition to a monthly bulletin.
If the library cannot afford to print these additional lists, they could supply lists to the press where some editors like to have them as a regular item.
The librarian should know beforehand of the forthcoming anniversaries, radio a TV programmes and paperback booklists related to them. It will be impossible to readers purchasing them though it might be decided to give them free to readers depending on the library budget.
Commercial bulletins are usually put out by special libraries in the commercial fields. Current awareness services have an important function in these librari They usually cover the type of information required by the management's adminis trative and sales personnel and will normally be a news sheet for immediate information rather than a regularly up-dated reference document. The subject matter might cover import and export regulations, tariff regulations, exchange rates, market news, raw material reports, notes on important industrial develop ments in the field of interest, activities of main customers and competitors, statistical information on production and consumption of selected goods, notes of new products and new markets for the company's range of products.

Printed Catalogues

Another publishing activity of many libraries is the production of printed catalogues. Most libraries have special collections of which they are proud of, and they produce catalgoues of these collections in permanent form. These can be put out for sale to the public and other libraries. The librarian must asses carefully the size of the edition and see that the permanent record is accurate, well indexed and well designed and printed.

With the growing availability of computers, it has become possible to convert in mation on the catalogue input of a library from catalogue cards to magnetic tape Libraries that use paper tape (7 or 8 - channel paper tape with stop codes or short codes) are able to convert their information on to magnetic tape automatic Once the input has been altered to computer form, then many additional services are available to the librarian. The computer becomes available to provide retrospective search print-out of library holdings or stock on new holdings. Wi the use of (COM) Computer output in microfom, it is easier to update catalogues month, or even more frequently. It enables branch libraries to have union catalogues of the complete library stock.

Bibliographies

Even the smallest library is occassionally called upon to compile comprehens bibliographies of special subjects. Some libraries put out scholarly bibliographies of local persons of importance. ~~Various aspects of local persons of~~ importance. Various aspects of local history form the basis for many of these, while special subjects of topical interest eg. a royal wedding or other events of importance, create special demands for comprehensive treat

SDI System

Selective dissemination of information can be practised just as effectively b personal knowledge, card index systems, or by computers. The method adopted depends on the size and complexity of the organization served. Its importanc lies in the efficiency by which the clients are fed with the information they require to practice their profession, technique or craft and by eleminating f them all extraneous and possibly time- wasting material.

In order to compare two dissimilar things, the clients' need and the informat input into the system, both have to be reduced to comparable terms. The librarian can question the client to discover the type of work on which he is currently engaged. The librarian may also be able to see the client's range responsibilities from staff charts of the organiztion and other sources. The client's intellectual capacity can be gauged. The librarian willl express his knowledge of the client by keyword, terms from a thesaurus of the subject field or classification symbols representing these terms, which ever system i in current use in the library. This is called "profile of the client's inter This profile need not be of one client, but could be of a group working on a project covering a limited subject field.

With the growth of information and the number of staff requiring an SDI servi inevitably mechanical methods have to be introduced. User profiles are edited that they will be compatible with this system used for indexing the library's intake of new material. The edited profiles are then fed into a computer to run against the organization's own data bank, limiting references produced to those issued within a fixed period, eg. the previous 7 days or the previous to provide a personalized print-out of current information. Alternatively th whole stock can be searched to provide a basic cover of the subject field for new member of the organization, upon which he can build with subsequent weekl or monthly SDI listings.

A number of organizations sell an indexing service on a computer base. One advantage of the computer service over the printed version is that in many ca the purchasing library can buy just those sections of its subject field which covered by the service and does not necessarily have to buy the whole.

Reprint Series

Quite a number of organizations, particularly research associations, consider that the work of the organization is enhanced by making available to its constituant members the results of research, usually limited to its own staff which have appeared in the professional or technical press. Where these are issued by the librarian or information service, they cannot only be useful disseminating information on the work of the organization, but are also valua as exchange material and in providing extended answers to queries received. will enhance the series if they are stapled or inserted into a uniform cover. copies are ordered from the publisher of the original article whilst the type still standing, then a run-on price is usually negotiable. The journal will produce a title page with the name of the organization printed on it and inse these into covers provided by the library.

Sri Lanka

Printing of library publications throughout Sri Lanka has been undistinguished Only a handful of libraries have their publications. Perhaps this may be due to most librarians not being aware of their importance or it could be due to a tight budget.

The SLSTIC (Sri Lanka Scientific & Technical Information Centre) of the NSC has quite a number of publications put out at regular and irregular intervals. So of them are:

Sri Lanka S & T Periodicals Directory

Union List of S & T Abstracting & Indexing Services in Sri Lanka, ...

Periodicals in Sri Lanka Libraries. 2 vols.

UNICAST - (Union Catalogue of S & T Books) Quarterly

Current Contents	- Environment	- Quarterly
Current Contents	- Energy	- Quarterly
Current Environmental Acquisitions		- Quarterly

The CISIR library too puts out publications which are of great use to many research workers and scientists. They have publications such as alert bulleti bibliographies, index bulletins and also their own publications which are available for sale.

In Sri Lanka it is mostly the special libraries that have library publications. The IDB, CRI, and ARTI are some of the libraries that issue useful publications The National Museum Library and the Central Bank Library too have thier library publications and also the SLNLSB, SLLA and the British Council.

It appears that most of the public libraries in this country do not take printi of library publications seriously. The Colombo Public is one of the few pubol_c libraries that has issued publications during the last 10-15 years. It has published guides in the form of souvenirs which are of great value to its clien and also bibliographies of special collections. Children's extension activity programmes are printed for distribution among children and parents. In additio to these the Colombo Public Library has to its credit three publications on librarianship namely "Libraries and people", "A manual for public libraries in Sri Lanka" and "Roads to wisdom" which are of immence use to librarians as well as students of librarianship.

Modules F 2.3 81-07-17

INFORMATION CENTRES

Clodagh Nethsingha
Librarian, CISIR

TYPES :

1. International
2. Regional
3. National - with general or specific functions
4. Specialized
   - 4.1 Subject-oriented
     - 4.1.1. Scientific and technological e.g. Geology, Meteorology, Pharmacology, Metallurgy, Electronics. Inter-diseiplinary: nuclear energy, water research
     - 4.1.2. Socio-ecohomic e.g. Law, Education
   - 4.2 Mission-oriented
     - 4.2.1 Public services oriented e.g. Health, Transportation, Communication, Defonso, Industry, Commerce, Municipal services, Education
     - 4.2.2 Resources oriented: Water, Energy, Natural resources
     - 4.2.3 Management oriented e.g. Management information Physical planning, Rural development
5. Information analysis centres
6. Data banks

FUNCTIONS & SERVICES

1. Information store
   - 1.1 Collection development : Documents, Information, Data
   - 1.2 Indexing / Classification & Cataloguing
   - 1.3 Abstracting
   - 1.4 Storage / Shelving
2. Information flow
   - 2.1 Channels of communication
   - 2.2 Co-operation
   - 2.3 User orientation and interaction

FUNCTIONS & SERVICES (Cont'd)

3. Information transfer
   - 3.1 Current awareness
   - 3.2 S.D.I.
   - 3.3 Retrospective search
   - 3.4 Referral
   - 3.5 Clearing-House
   - 3.6 Replies to inquiries
   - 3.7 Reprography
   - 3.8 Translations
   - 3.9 Conferences
4. Training
5. Consultancy
6. Research

PRODUCTS

Accesaions lists
Current serials lists / Serials holdings lists
Union lists / catalogues
Current awareness bullotins
Reading lists
Bibliographics
Digests
Reports
State of the Art surveys
Critical compilations
Data sheets
Translations
Newsletters
Thesauri
Conference proceedings
Directories
Diary of events

BARRIERS TO INFORMATION TRANSFER

Finance / Foreign exchange
Time facter - Delays in mail services
Language
Politi s
Over-production

MARKETING

Promotion / Publicity
Pricing

MANAGEMENT

Planning, programming, budgeting
Management by objectives
Performance evaluation
Cost - benefit

INTERNATIONAL CENTRES

FAO, UNIDO, COCONIS
Commonwealth Agricultural Bureaux
Asian Institute of Technology
RERIC, ENSIC, AGE

REGIONAL CENTRES

Regional Centre for Technology Transfer (RCTT), Bangalore

NATIONAL CENTRES

BANSDOC
IRANDOC
JICST
KORSTIC
PASTIC
TNDC

India - INSDOC, NISSAT
Sectoral Information Centres
Regional Information Centres

DATA CENTRES

Committee on Data for Science and Technology (CODATA)
National Standard Reference Data Service (NSRDS)
Crystallography
Rock-forming minerals
Thermodynamic tables
Mass Spectrometry

SRI LANKA

SLSTIC
CISIR
IDB
Bureau of Ceylon Standards
TRI
RRI
CARI
Ceylon Steel Corporation
National Museum
Centre for Development Information
ARTI
Central Bank
Peoples Bank
Labour
Trade and Shipping Information Service
Development Finance Corporation
Universities

READING LIST

1. Unesco - Planning national infrastructures for documentation libraries and archives. 1975

2. Unesco - World guide to technical information and documentation services. 1975

3. Unesco - Handbook of information systems and services. 1977

4. UNISIST Guidelines on planning national scientific and technological information systems. 1974

5. ARNOLD, D.V. - Management of the information department. Deutsch, 1976

6. ASLIB - Quantitative data in science and technology. 1971

7. Proceedings of CODATA Conferences.

8. UNISIST study on the problems of accessibility and dissemination of data for science and technology. 1974

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1.0 Information and Progress.

To achieve the goals of developing societies, less industrialized countries, and to make this world a better place to live in, it is necessary to have an effective world wide transfer of scientific and technological information. Development depends on knowledge being produced, acquired, promoted and applied, hence information services form an integral part of this process. Libraries, documentation centres and liaison information officers are essential information services if plans for economic development are to progress.

1.1 The information gap.

Most nations have limited resources and capabilities, both human and financial, to devote to the production and acquisition of scientific and technical information. Many of the developing countries produce less than one per cent of the world's scientific literature and even a lesser proportion of their technical information. Some advanced countries produce little more than 5% of scientific literature. These facts demonstrate that a country's development depends on the application of knowledge and information rather than in the production of new knowledge. This information is available somewhere in the world, it must be made available to all kinds of decision makers, entrepreneurs, scientists, engineers and technologists and means for communication and transfer must be established. In fact, in many countries it is the gap in information accessibility and transfer and therefore of use, which must be bridged if economic progress is to be made.

1.2 Communication of information.

Information has no value until it is used. The work of scientists, technologists, industrial workers and managers necessitates effective communication.

(Conto....2)

a) to stimulate thought and action by interaction with, other people's ideas, knowledge, experience and achievements;

b) to promote continuous awareness of what others are doing so that individual workers may be kept aware of developments in their own special fields and in wider fields;

c) to diminish the probability of duplication of work, to save time and effort;

d) to provide introductory and background information for work in unfamiliar fields;

e) to provide specific data for work in hand.

Today organized systems of communication are necessary and their scale and complexity will continue to grow.

a) the number of information users has increased;

b) science, technology and industry have developed in hitherto less developed parts of the world; Asia, Africa, South America;

c) specialization increases, also the inter-dependence of many branches of science;

d) science, technology and industry have become large scale cooperative activities, involving the co-ordination of the efforts of people.

1.3 The value of information.

a) Systematization of a country's research and development efforts in the light of knowledge already available.

b) Wider knowledge base for solution of problems.

c) New alternatives to the solution of technical problems.

(Contd....3)

d) Improved effectiveness and efficiency of technical activities in production and service sectors.

e) Better decision making in all sectors.

1.4 Barriers to access to information.

a) Lack of government recognition.

b) Currency exchange and import controls.

c) Mailing tariffs (postal rates being exhorbitant).

d) The language barrier.

e) Ignorance.

1.5 Towards improvement of information services.

a) Information stores to be surveyed, egs. - libraries, documentation centres, archives.

b) Information centres to be organized.

c) Government Information Sources.

d) Publishing and printing industry important as an information source.

1.6 National information Systems/Networks.

Information activities at the national level will have to be examined, network component identified, and organizational framework designed.

A national information system is basically a network of existing information resources together with new services for identified gaps, so co-ordinated to enhance the activities of the individual units and enable specific categories of users to receive information relevant to their needs and abilities.

(Contd.....4)

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2.0 National and International Information Networks/Services.

The network concept to support information services is an old idea of which inter-library loans and centralized cataloguing are most common. What is new is a widespread growth of interest in the possibility of improving operations by interconnecting information systems and services and library operations.

2.1 Some network functions.

Co-operative acquisitions describe joint action in acquiring and utilizing information resources. Beginning with book selection, libraries have come together in a network for actual purchase, resulting in joint ownership and use. The important aspect is the adoption of different subject specializations for the purchasing and preservation of materials within a group of libraries. These resources are then made available for mutual use. A good example is the Scandia Plan - an agreement between the 4 Scandinavian countries interlending items acquired.

In the Eastern Caribbean a "pool" collection is maintained at the East Caribbean Regional library for expensive, advanced and more technical non-fiction works. All the island libraries state that they have used the pool to great advantage as they find the service quicken and more economical than purchase of the wanted items.

2.2 Distribution of publications.

Exchanges are effected by one of two methods either directly between libraries or indirectly through central bureaux. The British National Book Centre and the United States Book Exchange are two of the 35 national exchange centres reported by Unesco which have contributed to international exchanges. Unesco's UNISIST programme opens up new prospects for international exchange.

(Contd.....5)

2.3 NATIS. (National Information Systems)

There are four distinctive characteristics.

a) NATIS embraces all fields and all disciplines. It can give to governments comprehensive guidelines which will relate diverse information activities to national information needs at all levels.

b) NATIS recognizes that various institutions involved in the transmission of knowledge are functionally inter-dependent and that networks exist in formal and informal ways. UNISIST and NATIS programmes are complementary.

c) NATIS is flexible. It takes account of variations in national, political, social, economic, and cultural development and conditions and is therefore applicable to developing and industrialized countries alike.

d) NATIS makes possible integrated planning of DLA services (Documentation, Library & Archives) with the other elements in the national plan or policy.

2.4 UNISIST.(Intergovernmental Programme for Co-operation in the field of scientific & technological information)

A programme in which UNESCO strives to create a world network of information services based on the voluntary co-operation of existing and future national information systems. It plays a facilitating role in assisting countries in the formulation of information policies.

3.0 Networks/Systems on International Level.

Since 1965 IAEA (International Atomic Energy Agency) in Vienna has promoted among its member states the establishment of an information network INIS (International Nuclear Information System). AGRIS in the U.N. agricultural agency FAO is another example.

(Contd.....6)

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3.1 INIS.

The experiences of all the major existing information Services were incorporated.

a) Standardized input is provided by all the nations participating. The language for bibliographical data and for indexing is English, whereas for the texts of the abstracts all four official languages of IAEA are admitted (English, Spanish, French, Russian).

b) Central processing at IAEA produces output products such as magnetic tapes, printed title lists and microfiches.

c) Centrally distributed output goes to the national nuclear information centres which serve their individual customers.

3.2 DEVSIS. (Development Science Information System)
Six organizations co-sponsored the feasibility study. IDRC, ILO, OECD, UN/ESA, UNDP, UNESCO.

In January 1974 IDRC circulated a paper called DEVSIS. The paper deplored the lack of information services available to development planners and policy makers and proposed that the principles of a mission - oriented decentralised co-operative system, combined with technologies for providing input and producing comprehensive files could be used to provide information service to the development community.

After the distribution of this paper IDRC, OECD & UNESCO sponsored a meeting in Ottawa to consider whether there was a general need for a system like DEVSIS. With further meetings the subject scope, technical aspects content and format of the system was designed (1976).

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Reading List.

1. Green, Stephen. "NATIS: the theme for the 1970s." Unesco bulletin for libraries. 117 - 123, May - June 1975.

2. "NATIS News." Unesco bulletin for libraries. 186 - 190. July - August 1976.

3. Tell, Bjorn. "Regional co-operation in information." Unesco bulletin for libraries. 130 - 139. May- June 1976.

4. Unesco. Handbook for information systems and services. Paris, Unesco. 1977. 259p.

5. Unesco. "UMISIST; Final Report. Paris, Unesco. 1975. 24p.

6. DEVSIS, the preliminary design of an international information system for the development sciences. IDRC. Ottawa 1976. 247p.

INTRODUCTION

Cost Accounting is a branch of Accounting. It has been developed due to limitations of Financial Accounting. Financial Accounting is also part of recording, classifying and summarising in a systematic manner those transactions and events which are in terms of money or are of a financial nature and interpreting the results thereof. It is primarily concerned with record keeping directed towards the preparation of Profit and Loss Account and Balance Sheet. It provides information regarding the profit and loss that the business enterprise is making and also its financial position on a particular date. This information concerning the business enterprise is helpful to the management to control in a general way the major functions of a business viz., finance, administration, production and distribution but details regarding operating efficiency to these divisions are lacking due to which it becomes difficult to evaluate operating management performance, to guide management decisions or lay down management policies and thus fails to serve the management in discharge of its functions.

Limitations of Financial Accounting

The following limitations of financial accounting have led to the development of cost accounting :

1. Financial accounting discloses only the net result of the collective activities of a business as a whole. It does not indicate profit or loss of each department, job, process or contract.

2. In financial accounting costs are not available as an aid in determining prices of the products, services, production order, lines of products.

3. In financial accounting there is no such system by which accounts are classified so as to give data regarding costs by departments, processes, products in the manufacturing divisions; by units of product lines and sales territories; by departments, services and functions in the administrative division.

4. It does not provide for a proper control of materials and supplies, wages, labour and overheads.

5. In financial accounting, expenses are not classified as to direct and indirect items and are not assigned to the products at each stage of production to show the controllable and uncontrollable items of overhead costs.

6. In financial accounting there is no well developed system of standards to appraise the efficiency of the organisation in the use of materials, labour and overheads costs by comparing the work of workers, clerks, salesmen and executives which should have been accomplished in producing and selling a given number of products in an allotted period of time.

7. Financial accounting is mainly historical and tells about the cost already incurred. It does not provide day to day cost information as financial data are summarised at the end of accounting period.

8. It does not provide complete analysis of losses due to defective material, idle time, idle plant and equipment. In other words, no distinction is made between avoidable and unavoidable wastage.

9. It does not provide adequate information for reports to outside agencies such as banks, government, insurance companies and trade associations.

10. It does not give cost data for comparison with previous periods.

11. It does not supply useful data to management for taking various financial decisions as introduction of new products, replacement of labour by machines etc.

12. Financial accounting will not help to answer any of the following questions :—

(a) Should an attempt be made to sell more products or is the factory operating to capacity ? (b) If an order or contract is accepted, is the price obtainable sufficient to show a profit ? (c) If the manufacture or sale of Product A were discontinued and efforts to increase those of B, what would be the effect on the net profit ? (d) Why the profit of last year is such a small amount despite the fact that output was increased substantially ? (e) If a machine is purchased to carry out a job, at present done by hand, what effect this will have on profits ? (f) Wage rates having been increased by 50 paise per hour, should selling price be increased, and if so, how much ?

What is Cost ?

Cost may be defined as that which is given or is sacrificed to obtain something. The cost of an article consists of actual outgoings or ascertained charges incurred in its production and sale. This word represents the cost to make and sell, but because of varieties of meaning, it is always advisable to qualify the word "cost" to show exactly what it meant e.g., prime cost, factory cost, etc.

What is Cost Accountancy ?

Cost Accountancy is the application of costing and cost accounting principles, methods and techniques to the science, art and practice of cost control and the ascertainment of profitability. It includes the presentation of information derived therefrom for purposes of managerial decision making. Thus, *cost accountancy is the science, art and practice of a cost accountant.* It is *science* because it is a body of systematic knowledge having certain principles which a cost accountant should possess for proper discharge of his responsibilities. It is an *art* as it requires the ability and skill with which a cost accountant

is able to apply the principles of cost accountancy to various managerial problems. *Practice* includes the continuous efforts of a cost accountant in the field of cost accountancy. Such efforts also include the presentation of information for the purpose of managerial decision-making and keeping statistical records.

Cost Accountancy includes the following subjects :

(1) Costing
(2) Cost Accounting
(3) Cost Control
(4) Budgetary Control
(5) Cost Audit

(1) *Costing.* Costing is the technique and process of ascertaining costs. The technique in costing consists of the body of principles and rules for ascertaining the costs of products and services. The technique is dynamic and changes with the change of time. The process of costing is the day to day routine of ascertaining costs.

(2) *Cost Accounting.* It is the process of accounting for cost which begins with recording of income and expenditure and ends with the preparation of statistical data. It is the formal mechanism by means of which costs of products or services are ascertained and controlled. Cost Accounting is thus the provision of such analysis and classification of expenditure as will enable the total cost of any particular unit of production to be ascertained with reasonable degree of accuracy and at the same time to disclose exactly how such total cost is constituted. It is not sufficient to know that the cost of one pen is Rs. 4 but the management is also interested to know the value of material used, the amount of labour and other expenses incurred so as to control and reduce its cost. Thus cost accounting is a quantitative method that collects, classifies, summarises and interpret information for product costing, operation planning and control and decision making.

Difference between Costing and Cost Accounting. Costing and Cost Accounting are two different terms. The following differences may be noted :

(i) Costing can be carried out by the process of arithmetic, by means of memorandum statements or by the methods of integral accounts but cost accounting denotes the formal mechanism by means of which costs are ascertained.

(ii) Costing signifies the technique and process of ascertaining costs while cost accounting denotes the formal accounting system set up for recording costs.

(3) *Cost Control.* Cost Control is the guidance and regulation by executive action of the costs of operating an undertaking. It aims at *guiding* the actuals towards the line of targets ; *regulates* the actuals if they deviate or vary from the targets ; this guidance and regulation is done by an *executive* action i.e., by the person responsible for causing deviation.

(4) *Budgetary Control.* It is the establishment of budgets relating to the reponsibilities of executive to the requirements of a

...with ... to ... of the ... or to provide a basis for its revision. In short, it involves the ... of budgets or estimated cost and comparison of actual cost with the budget fixed.

(5) *Cost Audit.* Cost Audit is the verification of the correct- ... of the cost ...

The main object of ... the true cost of production of every unit, job, process or operation by a close analysis and allocation of expenditure. The other objects may be summarised as follows :

1. To serve as a *guide to price fixing* of product manufactured or services rendered.

2. To disclose *sources of wastage*, whether of material, time or expense or in the use of machinery, equipment and tools.

3. To reveal *sources of economy* in production.

4. To disclose the *degree of efficiency* of the various departments of the factory, workers, plants and machinery.

5. To exercise *effective control* on the idle time of the machines and the workers, labour cost of each department, different kinds of wastages and receipt and issue of stores material.

6. To provide necessary information to develop *cost standards* and to introduce the system of budgetary control.

7. To *compare* actual costs with standard costs and take action where there is significant variation between the two.

8. To explain in detail the sources of profit or loss as disclosed by the profit and loss account.

9. To provide for the purpose of control and guidance of the management, *comparative statements* in which cost of the current period may be compared with the cost of the previous periods.

10. To provide *a perpetual inventory* of stores and other materials so that interim final accounts can be prepared without stocktaking.

11. To indicate whether it would be *more economical to buy from outside sources or to manufacture* articles of components in the factory.

Advantages of Cost Accounting

The advantages of cost accounting may be considered under the following headings :

... agement with records of the cost of products, ... functions and compares actual costs and expenses with predetermined budgets and standards. It also provides data for special cost studies involving alternative choices regarding products, operations and functions thus assisting management in making decisions with ... little or no benefit ... tion in order to render such activities more profitable ...

(*ii*) *It enables a concern to measure the efficiency and then to maintain and improve it.* This is done with the help of invaluable data made available for the purpose of comparison. For example, if material spent upon a pair of shoes in 1976 comes to Rs. 10 and for a similar pair of shoes the amount is Rs. 15 in 1977, the increase may be due to increase in prices of material or more wastage in the use of materials or inefficiency at the time of buying or unnecessarily high prices paid.

(*iii*) *It provides information upon which estimates and tenders are based.* In case of big contracts or jobs, quotations cannot be given unless the cost of completing the contracts can be found out.

(*iv*) *It guides future production policies.* It explains the cost incurred and profit made in various lines of business and processes and thereby provides data on the basis of which production can be appropriately planned.

(*v*) *An efficient check is provided on stores and materials.* Stores Ledger and Material Abstracts are maintained which provide an effective check on the stores and materials used in a business. By adopting the maximum limit for stores the total capital outlay is controlled and total financial loss due to over-stocking is obviated. Information of stock of various materials and stores is constantly available. This helps in planning the production according to availability of materials and fresh stocks can be arranged in time. Loss due to carelessness or pilferage or any other mischief is detected and steps may, therefore, be taken to minimise such loss in future.

(*vi*) *An efficient check on labour and machines* is provided by giving detailed information about the availability of machine and labour capacity. The work is so planned that no section is overworked and no section remains idle. The maintenance of time and job cards for workers disclosed the loss incurred by idle time and indicates the directions in which losses may be minimised. The relative advantages of remunerating labour on the time piece work or premium plans may be ascertained. It also measures the efficiency of the wage system in use.

(*vii*) *It helps in increasing profits* by disclosing the sources o loss or waste and by suggesting such controls so that wastages. leakages and inefficiencies of all departments may be detected and prevented.

(*viii*) It enables a *periodical determination of profits or losses* without resort to stocktaking.

(*ix*) It furnishes *reliable data for comparing costs* in different periods, for different volumes of output, in different departments and processes and in different establishments. This helps in maintaining costs at the lowest point consistent with the most efficient operating conditions.

(*x*) During the period of *depression* a businessman has to become very watchful and vigilant in tracking down the concealed inefficiencies and sources of wastage, so that he may reduce the cost of production to the minimum. He has to resort to price cutting to such an extent so as to recover variable costs. Cost Accounting makes a distinction between fixed and variable costs and helps the businessman in the determination of prices in the depression period.

(*xi*) The *fixation of prices* cannot be properly done unless proper figures of cost are available. If prices are fixed without costing information, it is possible that prices quoted may be too high or too low. In periods of depression, it may become necessary to reduce the prices even below total cost. It is only costing which will guide management in this matter.

(*xii*) The *exact cause of a decrease or an increase in profit or loss* can be detected. A concern may suffer not because the cost of production is high or prices are low but also because the output is much below the capacity of the concern. This fact is revealed by the cost accounts only.

(*xiii*) It helps the management to take vital *tactical decisions* such as introduction of a new product selection of a most profitable product mix, utilisation of spare capacity, exploration of additional market, whether to make or buy, problem of limiting factor, replacement of existing assets, appraisal of proposed investment to meet expansion programme etc.

(*xiv*) It provides the *use of budgets* and enables the management to correct inefficiencies before they enter into business. It is a co-ordinated plan of action for every responsible person for comparing the actual results with the budgets.

(*xv*) It provides the *use of standards* to assist management in making estimates and plans for future and to provide the basis for measurement of efficiency. Actuals are compared with predetermined standards to determine the operating efficiency.

(*xvi*) In all varied fields we are concerned to make the *best use of limited resources* that are available to us. Thus the intention is to obtain the greatest output from a given input. Cost Accounting

provides the reliable data of costs with regard to materials, wages and other expenses. These help management to get maximum output at the minimum cost.

(*xvii*) *Instrument of management control.* It provides management with valuable data for planning, budgeting and control of costs. The organisation and management of undertaking must be planned and controlled in such a way that the desired volume of production is secured at the least possible cost in relation to the scheduled quantity of the product. The measurement of the degree to which this objective is attained, is provided by cost accounting.

(*xviii*) The operation of a system of *cost audit* in the organisation will assist in prevention of errors and frauds. It will help to improve cost accounting methods and techniques to facilitate prompt and reliable information to management.

Thus costing has become an essential tool of management. It serves the management in the execution of policies and in the comparison of actual and estimated results, in order that, the value of each policy may be appraised and changed to meet the future conditions.

2. Advantages to Workers. Cost Accounting discloses the relative efficiencies of different workers and thereby facilitates the introduction of suitable plans of wage payment to reward efficiency and to provide adequate incentive to the less efficient workers. A good system of costing promotes prosperity of the business and thus ensures greater security of service and adequate reward to workers.

3. Advantages to Creditors and Investors. It enables the creditors and investors to judge the financial strength and credit worthiness of the business. A sound business concern with a good system of costing can attract more investors than a similar concern without an adequate system of costing.

4. Advantages to Government. It facilitates the assessment of Excise Duty and Income Tax and the formulation of policies regarding industry, export, import, taxation etc. It also facilitates the preparation of national plans for economic development. It provides ready figures for use by Government for application to problems like price fixation, price control, tariff protection, wage level fixation, payment of dividends or settlement of disputes.

5. Advantages to Public Enterprises. Public enterprises lack the personal initiative and interest of private enterprise. A good system of costing ensures efficient and effective control through a proper analysis of their working. It provides for graded financial control over expenditure and avoids conflict of authority. It measures efficiency and profitability of the undertaking to justify its running in the public sector. It helps the management in fixing

A3

D.B. Rajapakse

OFFICE MANAGEMENT

1. INTRODUCTION. Office management is the directing and controlling of an office in order to achieve its specified purpose in the most economical way.

2. FUNCTION OF THE OFFICE. To provide a service of communication and record, and in detail:

   (a) To receive information (e.g. letters, prices, quotations, etc.).
   (b) To record information (e.g. stock, price and personnel records).
   (c) To arrange information (e.g. as in costing, accounting, etc.).
   (d) To give information (e.g. sales invoices, estimates, etc.).
   (e) To safeguard assets (e.g. care of cash, stocks, etc.).

3. FUNCTION OF THE OFFICE IN BUSINESS.

   (a) It is usually secondary to the main purpose of the business (e.g. factory production comes before office administration).
   (b) It is complementary to the main purpose of the business thus, it is impossible to run the factory without compilation of wages, buying materials, etc.).
   (c) It is controlling the factors of production (e.g. by budgetary control, financial and personnel controls).

4. DEFINITION OF "THE OFFICE." It is any room where clerical work is normally carried on, whatever name it may be given.

5. ASPECTS OF OFFICE MANAGEMENT, i.e. of office efficiency. The subject is concerned with the following broad aspects:

   (a) Purpose: It is most important to assess and establish the purpose of an office or of its constituent parts.
   (b) Organisation: the arrangement of staffing and the allocation of duties to the staff.
   (c) Method: (equivalent to systems) is the sequence of operations and how and where they are performed.
   (d) Personnel: is concerned with the recruitment of staff, their placing, training, promotion and dismissal.
   (e) Environment: includes the office building, the furniture and the physical conditions inside the building.
   (f) Machines and equipment: all the inanimate things used in offices to assist the performance of work.

6. OFFICE SERVICES THAT CAN BE CENTRALISED (in detail). While centralisation means the emphasis on control from the centre, with office services it may mean, in addition, placing personnel in a central office, e.g. with a typing pool.

   Services that can be centralised include:
   (a) Dealing with the mail (incoming and outgoing).
   (b) Telephone, telegraph and other methods of communication.
   (c) Reception of callers.
   (d) Duplicating services (including photocopying).
   (e) Filing and records.
   (f) Typing (typing pool or central typing department).
   (g) Calculating.
   (h) Stationery and office supplies.
   (i) Forms control.
   (j) Office cleaning, and canteen.
   (k) Clerical employment and training.
   (l) Attendance records.

(m) Holiday arrangements and substitutions.
(n) First aid.

7. OFFICE SUPERVISOR. An office supervisor is one who supervises the work of others, and who may be subordinate to the office manager. Note that an office manager is also a supervisor.

(a) Main duties.
(i) Giving instructions to do the work.
(ii) Controlling the staff to see that it is done.
(iii) Training clerks to do their jobs.
(iv) Maintaining good human relations with staff.

(b) In relation to the work.
(i) Plan the work of the section.
(ii) See that work is done on time.
(iii) Secure accuracy.
(iv) Co-ordinate work with other sections or departments.
(v) Distribute work fairly.
(vi) Develop new methods of doing the work.

(c) In relation to subordinates.
(i) Train subordinates.
(ii) Develop understudies (for holiday reliefs, etc.).
(iii) Delegate responsibilities.
(iv) Settle personal friction, jealousies, etc.
(v) Give credit where it is due.
(vi) Maintain discipline, reprimand when necessary.

(d) In relation to superiors and associates.
(i) Accept responsibility for the work of the office.
(ii) Co-operate with other supervisors.
(iii) Permit and encourage interchange of staff.
(iv) Enforce the company's policies.

A 4 & A5

TOPIC : Systems Analysis

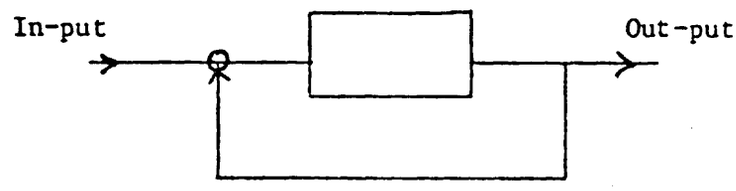
LECTURER : H.P. Fernando

INTRODUCTION TO SYSTEMS

1. DEFINITION OF A SYSTEM:

   A number of elements connected together in order to transform a given set of inputs into a given set of outputs.

2. THE SIMPLE CLOSED-LOOP FEED BACK SYSTEM



3. SYSTEM IN COMPUTER PROGRAMMING

4. MANAGEMENT SYSTEMS

PRODUCTIVITY

1. Definition : The ratio of out-put to in-put.
2. Aim : To increase productivity by increasing the out-put and for decreasing the in-put.
3. Selection of Productivity index.

Method Study as a Tool for Systems Analysis

1. Select
2. Record
3. Examine
4. Develop
5. Install
6. Maintain

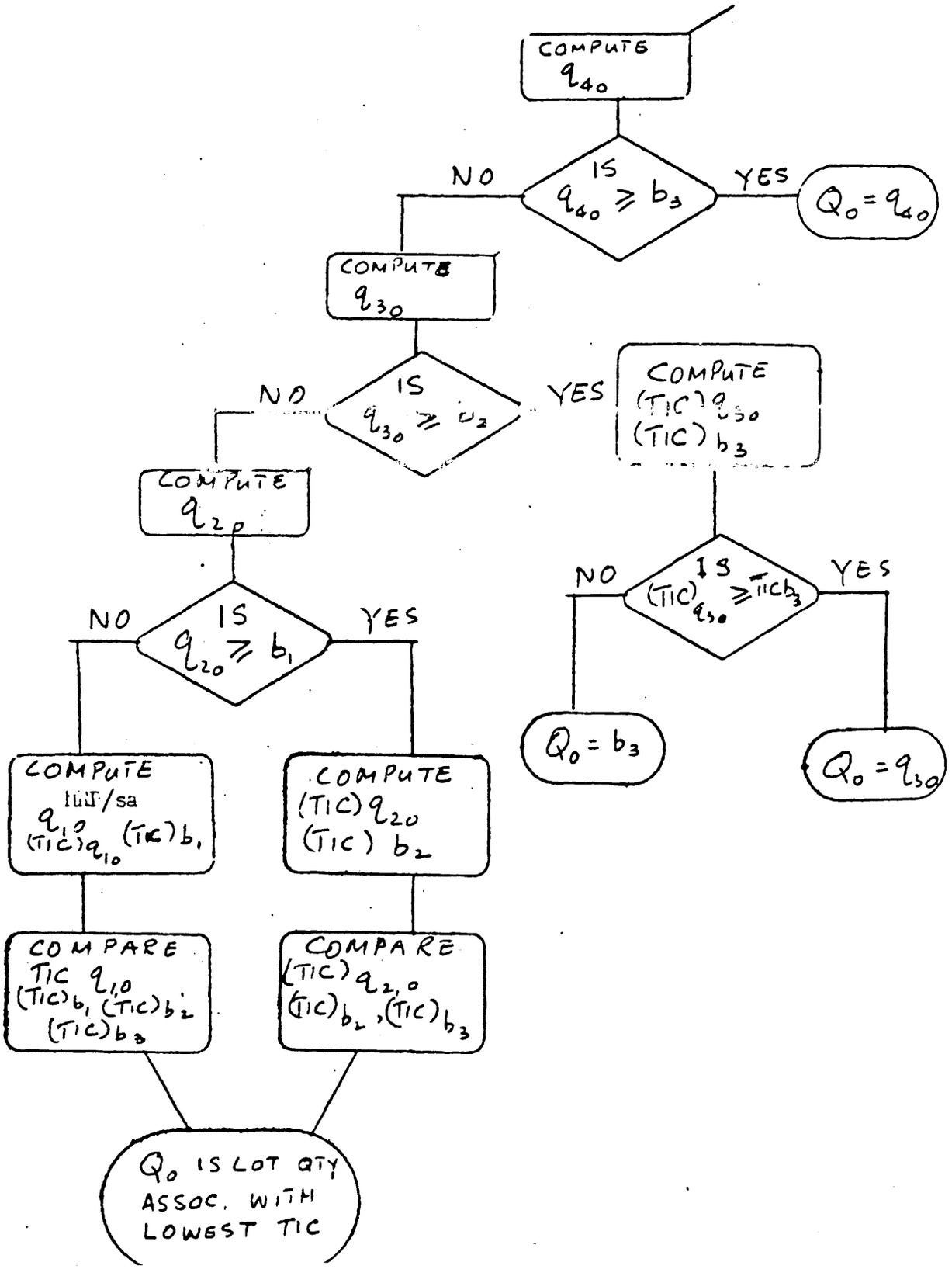
SPECIFIC SYSTEMS AND TECHNIQUES

1. Queueing
2. Work Measurement - Time Study
   - Activity Sampling
   - Predetermined Motion times
3. Layout Analysis
4. Materials Handling
5. Ergonomic Systems - Environment
   - Work place design
   - Man - Machine systems
6. Network Analysis
7. Stock Control
8. Linear Programming

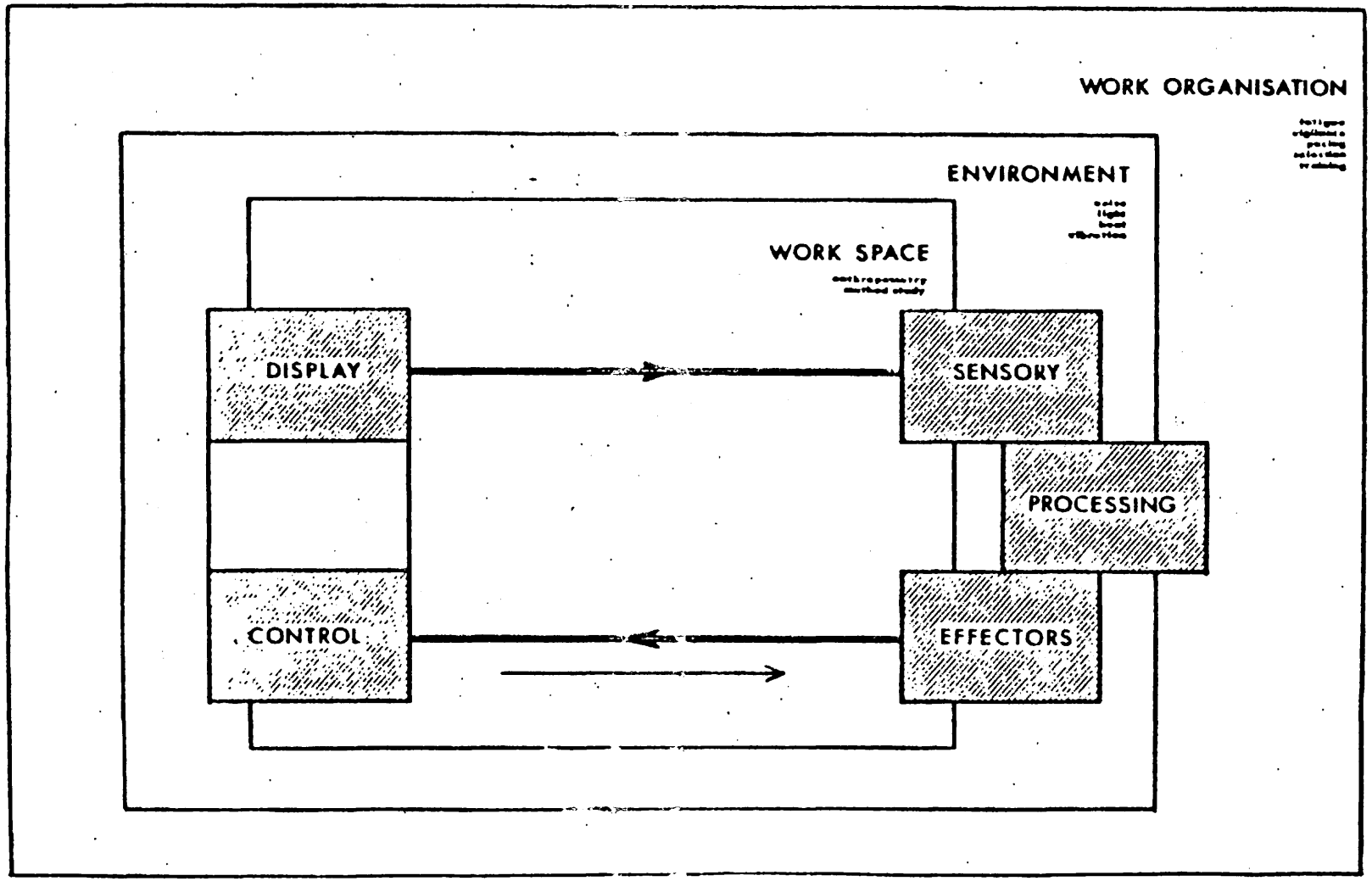
STEPS IN DEVELOPING ORDER RULES

1) Det. suitable method for forecasting future ~~wage~~. usage
2) Det. amount of time required to replenish each item.
3) Det. the basis of deciding how much, to order analysing the cost factors for one class of inventory
4) Det. the basis for deciding when to order.
5) Det the appropriate form of order ~~etc~~. Rule

DECISION FLOW CHART FOR INV. MODEL WITH 3-PRICE BREAKS AT QTYS b_1, b_2 & b_3



MAN:MACHINE SYSTEM



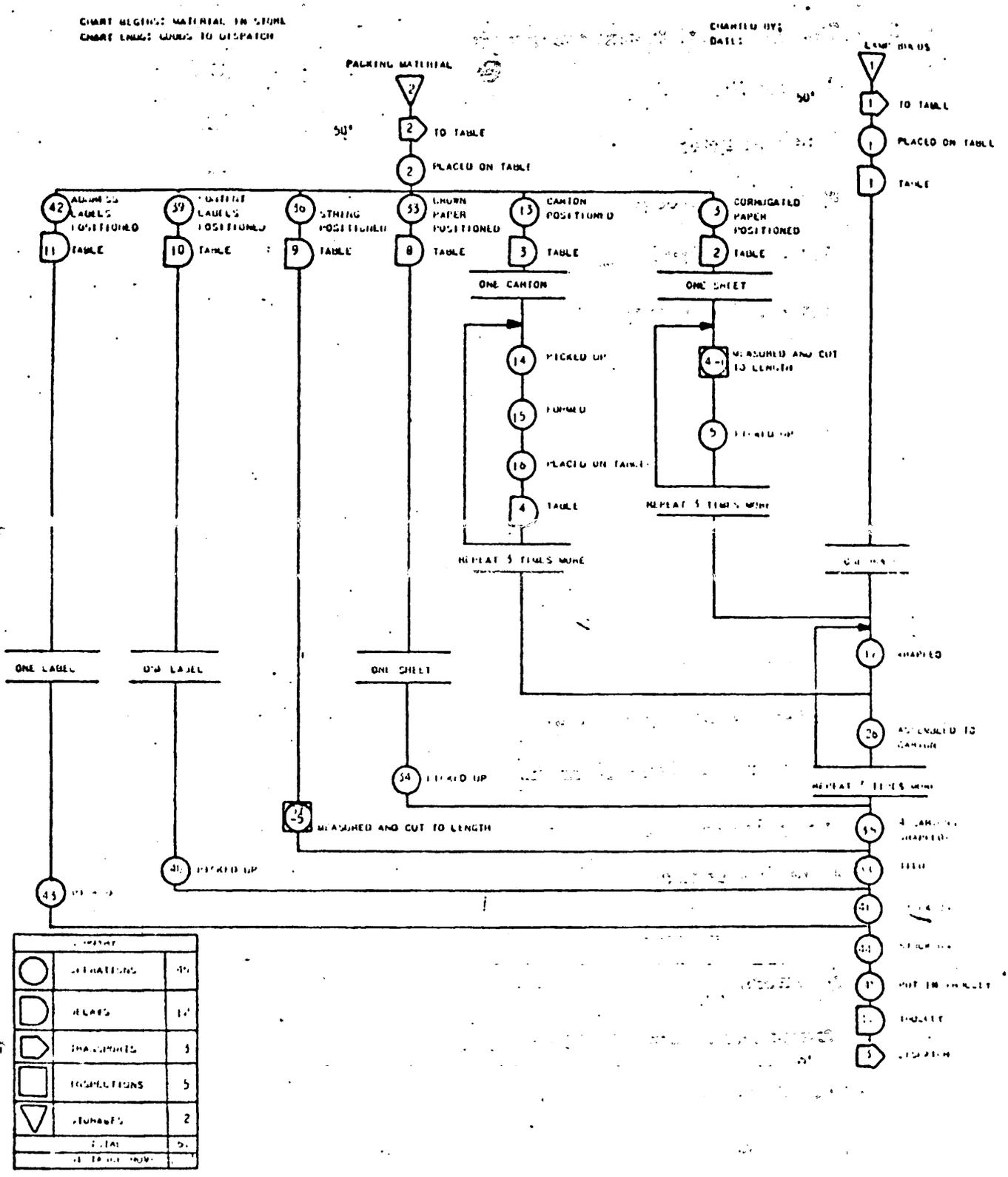
ERG/SBL/001/8/70
Ergonomics Laboratory
CRANFIELD
INSTITUTE OF TECHNOLOGY

T he second example is of a Flow Process Chart showing the work made necessary by th e use of a certain design of carton to pack projector lamp bulbs in lots of four for dispatch to the Army.

FLOW PROCESS CHART

PRESENT METHOD OF PARCELLING SMALL GOODS

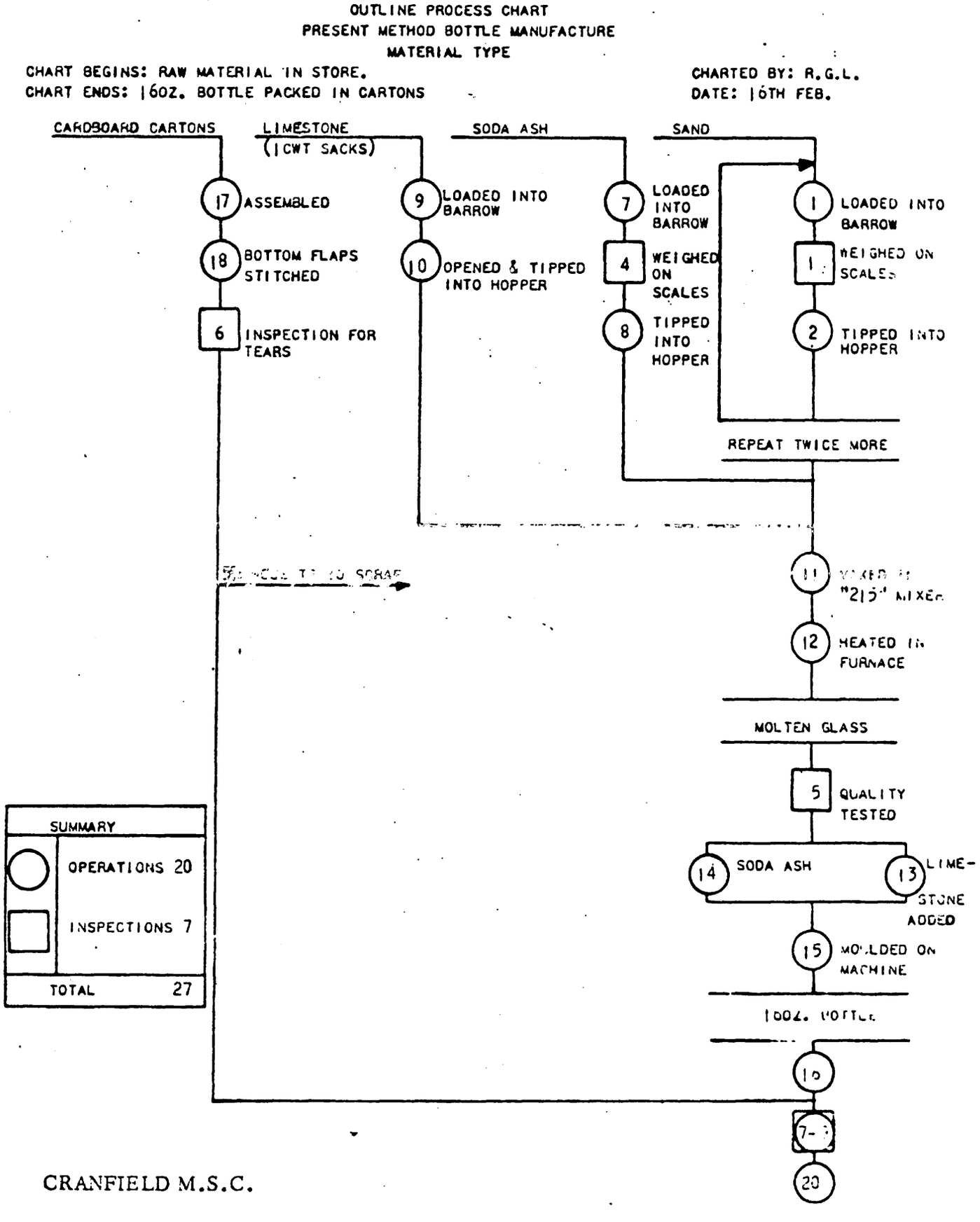
MATERIAL TYPE



C RANFIELD M.S.C.

Examples of Process Charts

The first example is of an Outline Process Chart showing in broad scale the procedure in making a batch of glass bottles from the raw materials.



DESCRIPTION OF ELEMENT

_____

Reference _____

Page _____

Date _____

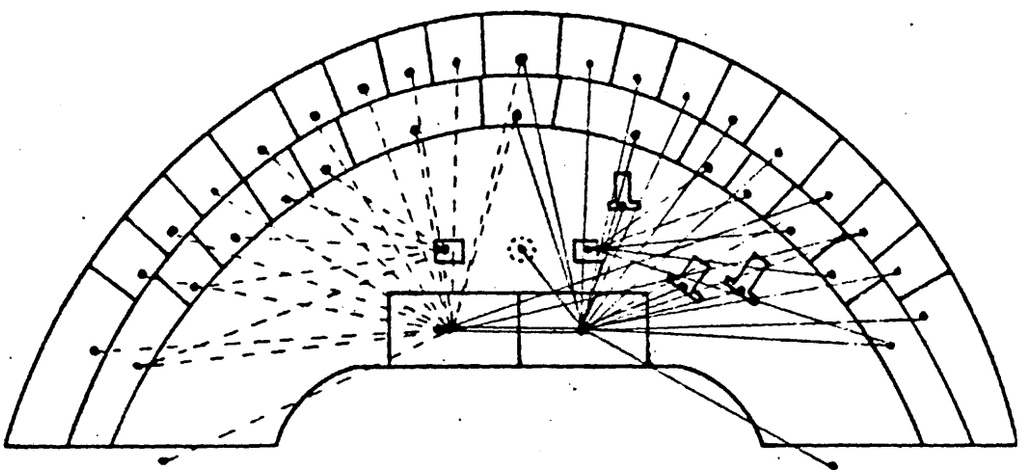
SHEET A
METHOD STUDY: CRITICAL EXAMINATION SHEET

The Present Facts		Alternatives	Selection for Development
WHAT is achieved ?	WHY ?	What ELSE could be achieved ?	What SHOULD be achieved ?
HOW is it achieved ?	WHY THAT WAY ?	How ELSE could it be achieved ?	How SHOULD it be achieved ?
WHEN is it achieved ?	WHY THEN ?	When ELSE could it be achieved ?	When SHOULD it be achieved ?
WHERE is it achieved ?	WHY THERE ?	Where ELSE could it be achieved ?	Where SHOULD it be achieved ?
WHO achieves it ?	WHY THAT PERSON ?	Who ELSE could achieve it ?	Who SHOULD achieve it ?

AN EXAMPLE OF A

STRING DIAGRAM

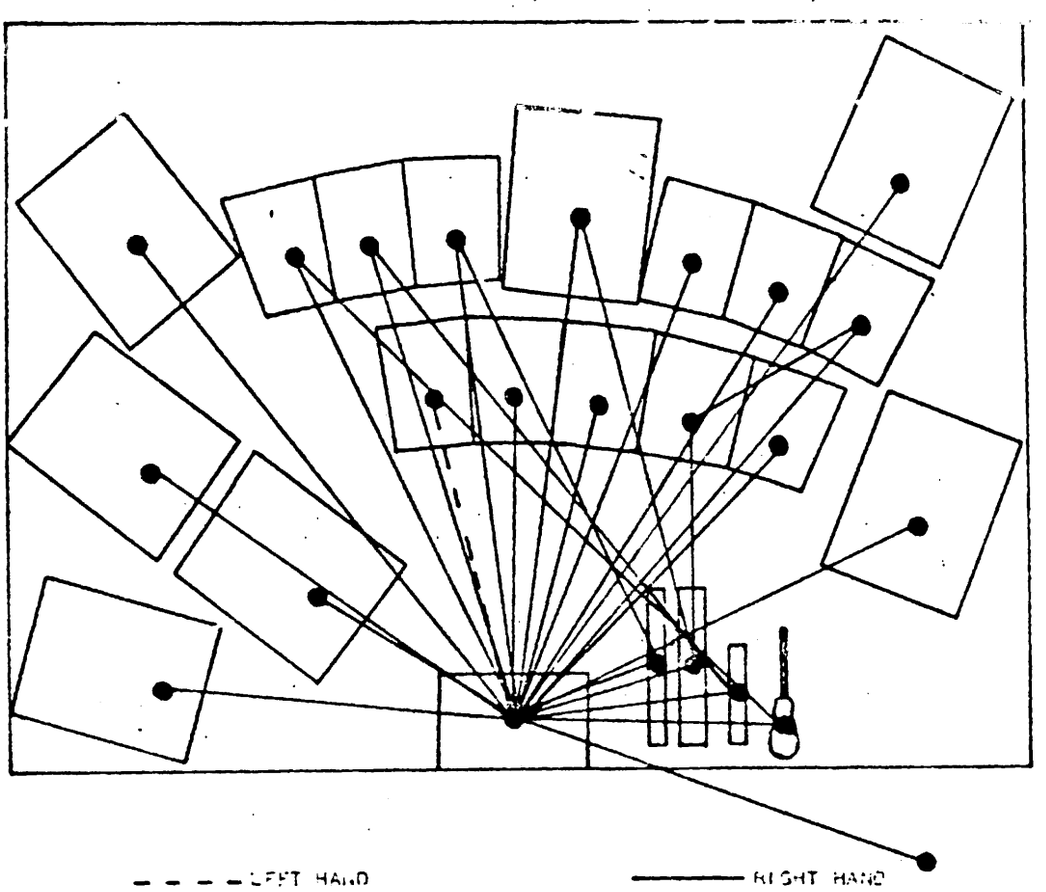
PROPOSED METHOD (DOUBLE ASSEMBLY)



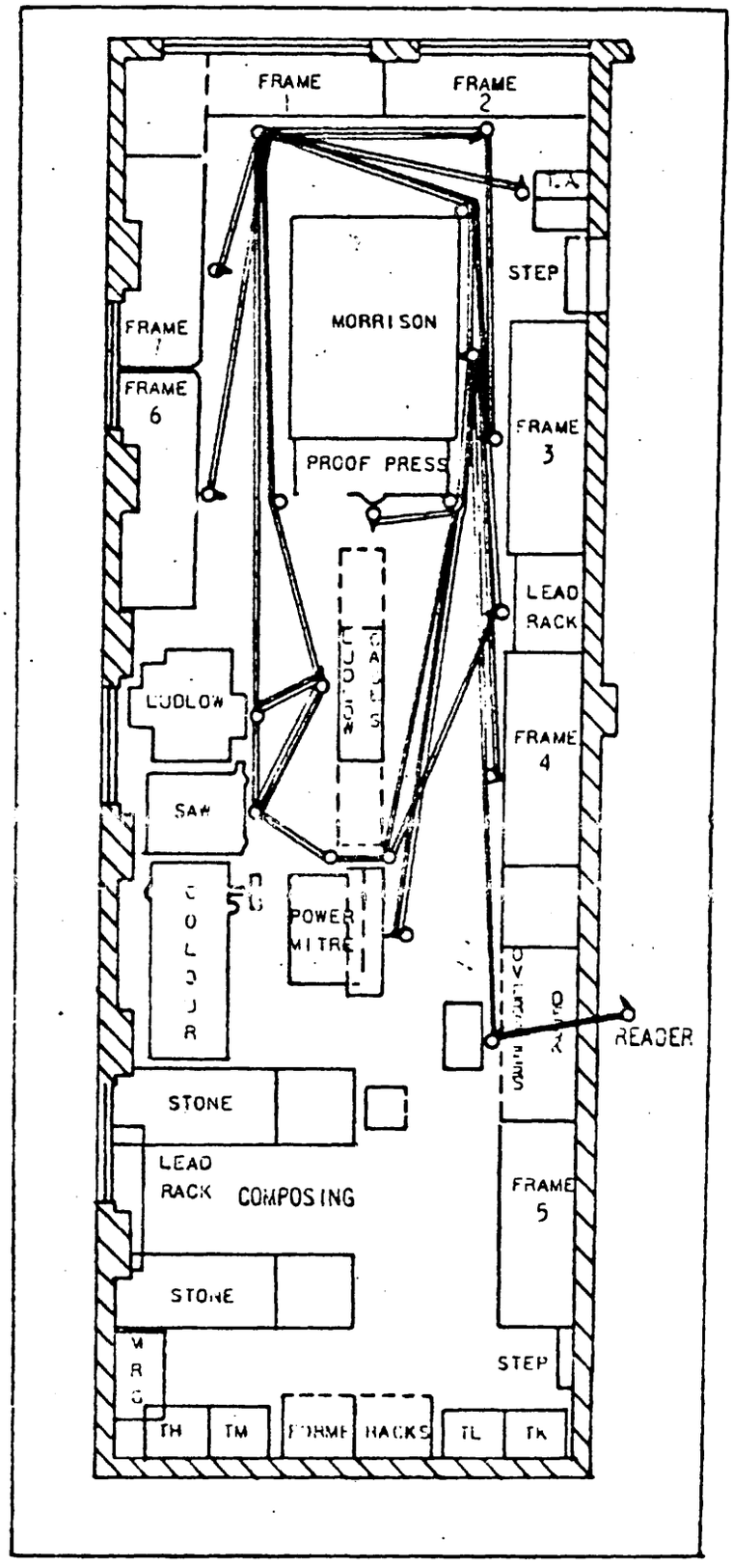
AN EXAMPLE OF A

STRING DIAGRAM

EXISTING METHOD (SINGLE ASSEMBLY)

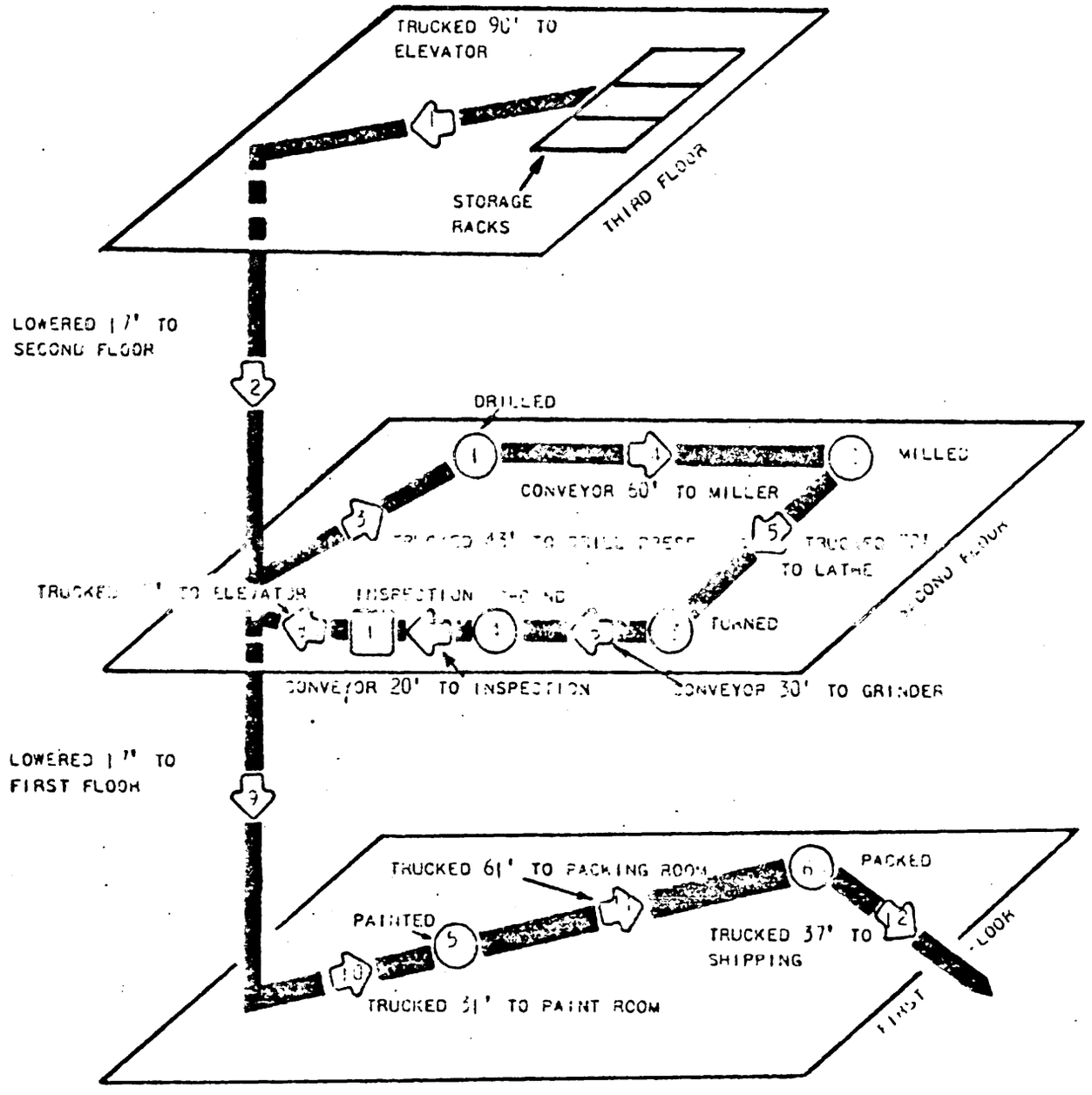


AN EXAMPLE OF A STRING DIAGRAM OF A PRINTERS COMPOSING ROOM

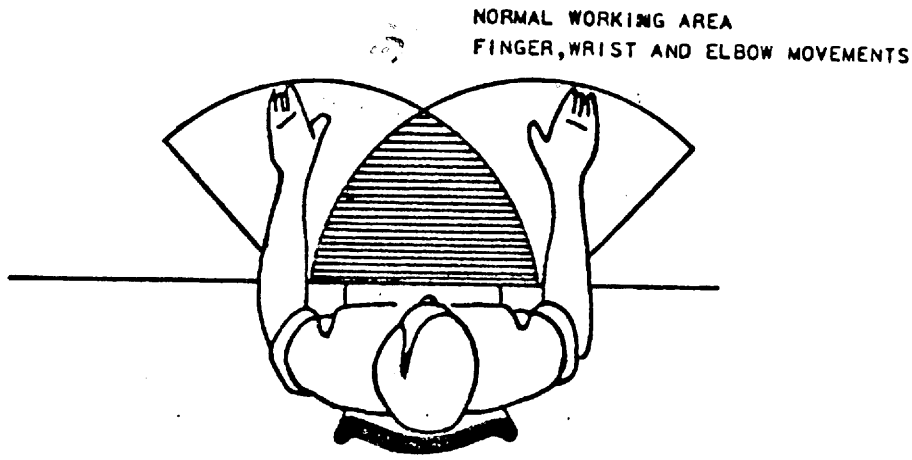


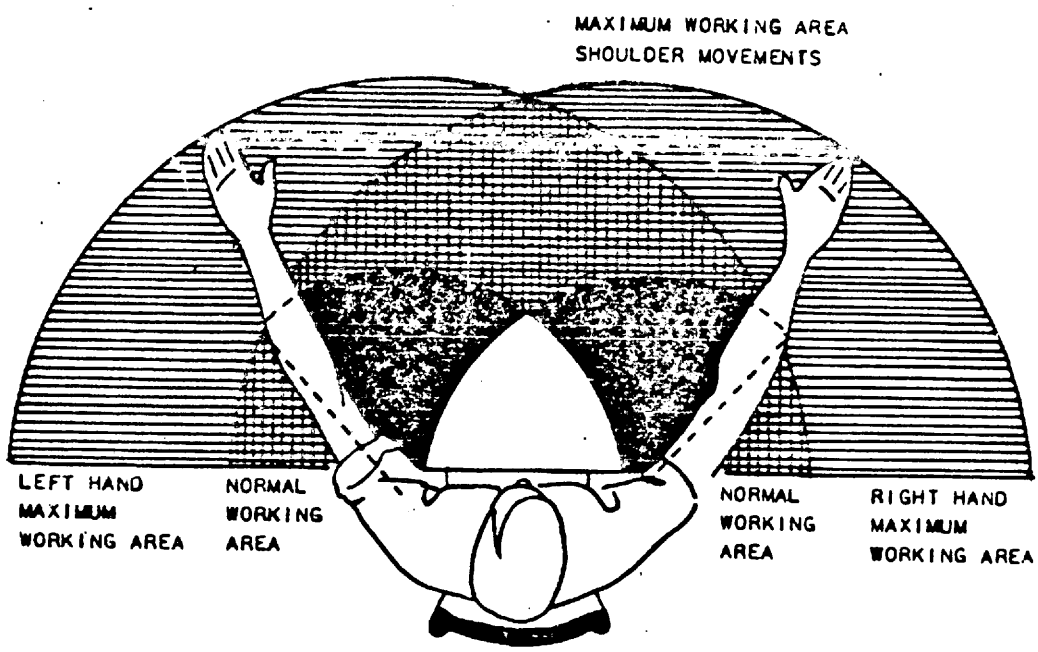
AN EXAMPLE OF A

THREE-DIMENSIONAL FLOW DIAGRAM



NORMAL AND MAXIMUM WORKING AREA





The height of the working area should be such that the work can be clearly seen with a comfortable body posture. The smaller the object, the shorter is the optimal visual distance and the greater the height must be of the working area.

Controls and hand tools should be so arranged in the working area such that the more frequent movements are made with the hands close to the body and the albows flexed.

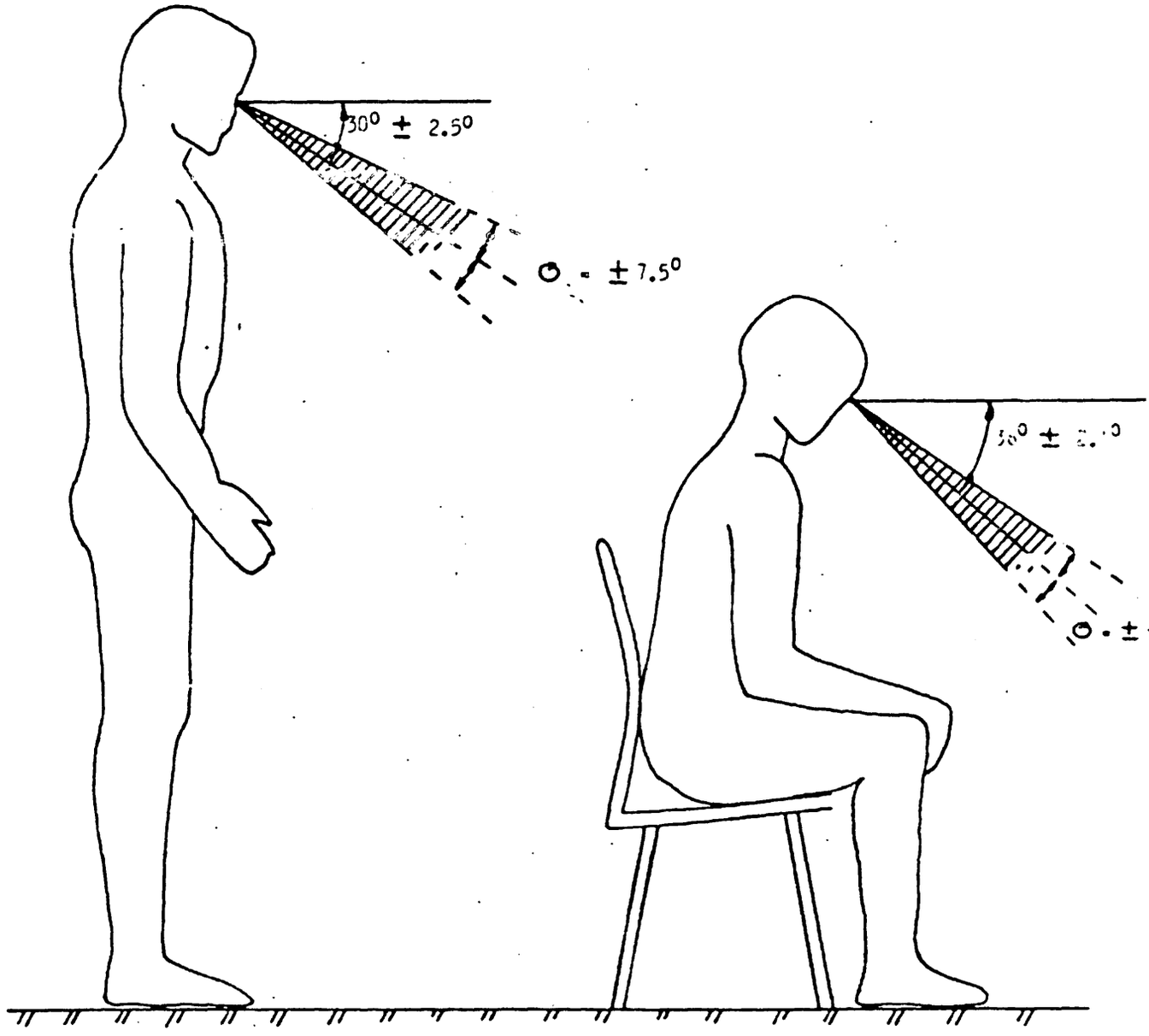
The hands can exercise the maximum power and skill when:

The distance from the eyes is 25 - 30 cms.

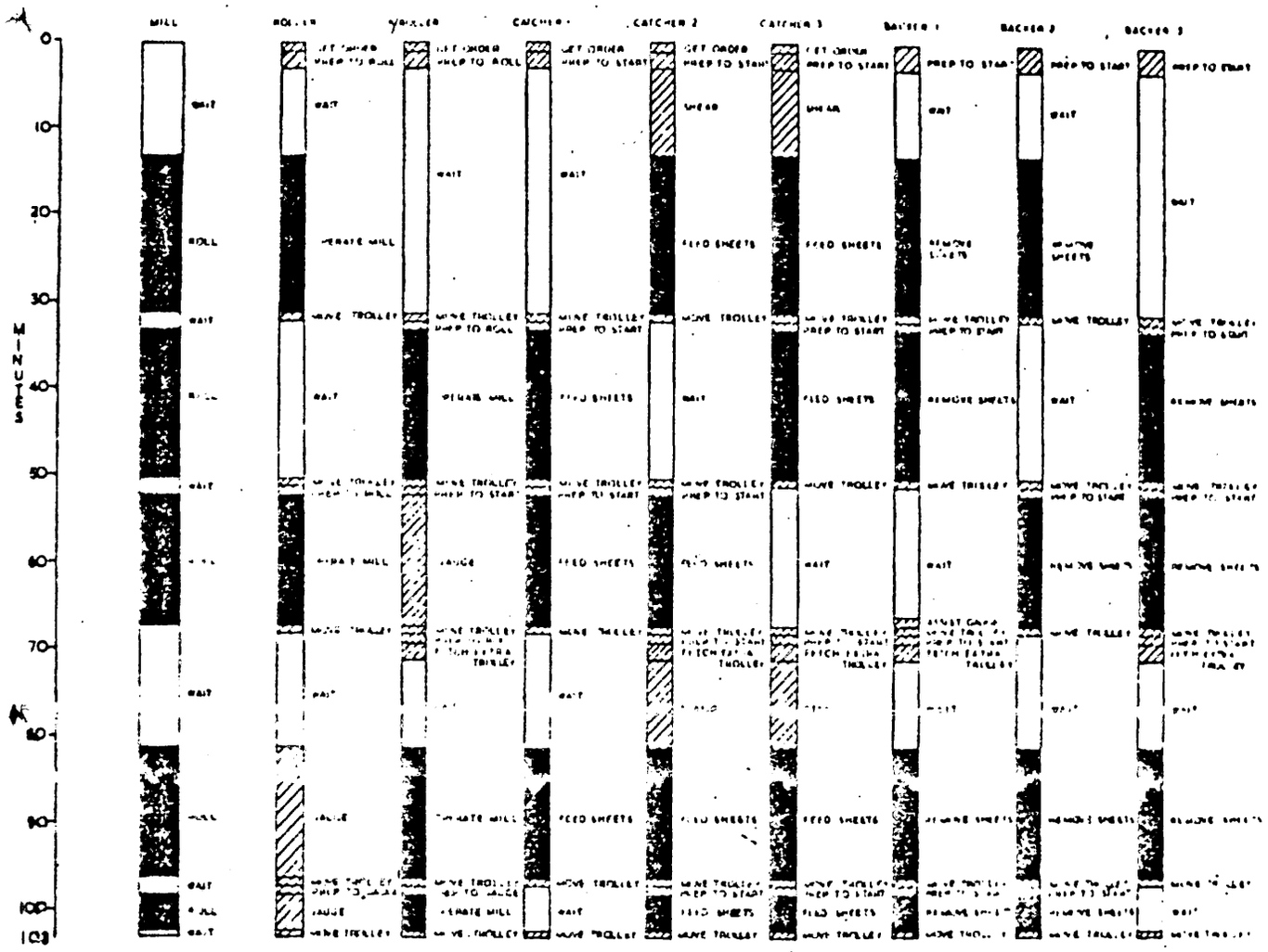
The elbows are bent at right angles and close to the trunk.

Static stress can be reduced or eliminated by providing supports for the hands, forearms or elbows. These should be upholstered with soft material and should be adjustable.

Head position: For sedentary work the most comfortable position for the head is one in which the line of sight is 32 - 44° below the horizontal with the body bent slightly forward. For standing operators this angle is 23 - 37°.



ROLLING MILL
MULTIPLE ACTIVITY CHART
PRESENT METHOD



KEY	MILL MINUTES	MILL %	MEN MINUTES	MEN %
PRODUCTIVE WORK	69	67 0	375	45 6
SUBSIDIARY WORK	-	-	171	20 8
WAITING	34	33 0	278	33 7
	103	100 0	824	100 1

A6

MODULE : A6

N.U. Yapa.

STANDARDIZATION IN DOCUMENTATION.

Standards are technical specifications containing a set of conditions to be fulfilled. These may be issued by a National, Regional or an International body. Standards describe a process, product, practice or presentation. Setting up of standards according to agreed specification is called standardization.

In documentation, standardization plays an important role in improving the effectiveness of information service by facilitating better communications and by increasing comparability and economical transfer of information. Speed transfer and acurate interpretation of information are possible due to international adoptation of standards in documentation. International Organisations such as UNESCO, ISO, ICSU, IFLA, FID are conserned about global programmes for the procession of information to develop a coherent system by setting up a standards.

Main areas of Standardization in documentation are:

(a) bibliographic descriptions. (b) bibliographical control.
(c) terminology. (d) subject analysis. (e) document repreduction.

Bibliographic Descriptions.

Standards are set up for the description of various types of documents. Selection of bibliographic data, method of recording, abbreviations and punctuations for proper interpretation are standardized. These standards which are used in the preparation of bibliographic tools such as catalogues, indexes, bibliographies, etc. helps one to identify a document and visualize its features.

The Anglo American Cataloguing Rules (AACR) and International Standard Bibliographic Descriptions (ISBD) are used to Standardize Cataloguing practices.

cont'd.....2.

Standards are set up by the International Standard Organization (ISO) for presenting citations in documents (ISO 690 - 1975).

In recording the name of a Journal, often a short title is used to save space. ISO 4 could be used for selecting a standard short title to be used in directories of periodicals, indexes, abstracting journals, union lists etc. ISO R. 639 gives standard abbreviations to record names of countries and languages.

Abbreviation are used in bibliographic descriptions. Standard abbreviations that should be used in bibliographic descriptions are given in ISO 832 and ISO 833.

Schemes of transliterations are used to record bibliographic descriptions of documents in foreign languages. ISO has set up a number of transliteration schemes to standardise conversion of script of one language to another. (ISO R9, ISO R233, ISO R259, ISO R343).

Bibliographic control.

Standards are used for proper control and identification of documents. The following are some of the schemes established by various International Organizations to control documents.

(a) ISDS - International Standard Data System - a joint programme of ICSU and Unesco. A Central Regriter has been created for scientific periodicals with a view to nmalize the citations of the journal literature. ISDS centre is at Paris; there are several regional centres.

(b) ISSN - International Standard Serial Number - a number is given to every serial for identification. This simplifies communication and recording of serial literature. ISSN is promoted by ISDS.

cont'd.....3.

(c) ISBN - International Standard Book number. A unique number given to a monographic publication. This number identifies a publisher and country of publication and help simplifying acquisition work.

ISO has set up several standards to control the quality of periodicals. ISO R5 describes the important parts of periodical; ISO R18 deals with preparation of contents lists of a periodical and ISO R30 describes the standard bibliographical strip which is recommended by ISO to be given in all serial publications for better recognision. ISO 999 (indexes) and ISO 1080 (title page) are also important standards for bibliographic control.

Terminology.

In any profession for clear communication and better understanding the terminology used by the professionals is standardize. Terms such as catalogue, index, citation, classification are used in documentation to define specific concepts. Also in term of global transfer of information these meanings should be internationally accepted. Standardization ensures that terminology is used consistantly. ISO R 704 plays a leading role in this. ISO R 360 (international unification of concepts and terms) ISO R 919 (Guide for the presentation of classified vocabulary). ISO R 1087 (vocabulary of terminology), ISO R 1149 (layout of multilingual classified vocabularies) are worth mentioning.

Subject Analysis.

The subject of a document is interpreted in a document in two ways; (a) by giving a classification number. (b) by giving a standard subject heading. In both these ways attempts are being made to standardize the scope of a subject. Universal Classification schemes such as Dewey Decimal Classification, library of congress classification, Universal Decimal Classification, International

cont'd.....4.

Patent Classification, International standard Industrial Classification or mission-oriented classification schemes such as INIS subject categories, AGRIS classification schemes, National library of medicine classification scheme could be used. For selecting standard subject headings one could use sears list of subject Headings, LC Subject Headings, OECD Micro Thesaurus, DOE Thesaurus or Thesaursus of Engineering and Scientific Terms.

Document Reproduction.

Document reproduction is one of the most important technical processes which assist the documentation and information transfer.

Standards are used in document reproduction for quality controlling and cost reduction. Also these standards increase the compatibility of copies produced using different processes.

With respect of this matter more emphasis is given to micrographs. Standards dealing with material, equipment, quality and testing of microforms have been set up by ISO and other organizations.

Reference.

1. International Standards Organization
Information transfer : Handbook on International Standards governing information transfer. Geneva, ISO 1977, 516 p, (ISO Standard Handbook 1).

2. MARTIN, M.D.
Reference manual for machine-readable bibliographic description, prepared by the UNISIST / ICSU - AB working Group on Bibliographic Description ....; compiled by N.D. Martin, Paris, Unesco, 1974, 71 p.

3. UNISIST International Serial Data System : Guidelines for ISDS, Paris, Unesco, 1973.

A7 + A8

NSC-UNDP NATIONAL WORKSHOP ON LIBRARY & INFORMATION SCIENCE.

6-24 July, 1981.

LIBRARY PLANNING.

6th July, 1981.

S. RUBASINGAM

Introduction

"We require from buildings, as from men, two kinds of goodness: first, the doing their duty well; then that they be graceful and pleasing in doing it; which last is itself another form of duty".

John Ruskin: "Stones of Venice".

"The Plan is the generator of architecture" Le Corbusier.

The objectives and tasks of any type of library can be more easily and economically achieved in a well planned functional building than in a badly planned one. A poor building can seriously handicap its users; a good one can contribute to the intellectual health of the whole institution. Moreover, buildings are expensive and a badly planned building will end up as an enduring monument to clossal wastage of money and may force the library year after year to spend much more on operation and maintenance than it would be required by a well planned one.

The Role of the Librarian

The physical planning of a library or part of it, is no doubt an activity in which most Librarians may have only a limited experience. But it is one of paramount importance- perhaps the most challenging and most satisfying experience in his career. Left to themselves, the architect or even the management of the institution served by the library, may not be able to plan a good functional library building, because they may not understand clearly the functions and various activities of a library without the closer collaboration of the Librarian. It is the Librarian who understands the details of the functions, activities and tasks of a library and should therefore be actively involved in the planning of a Library building.

Pre-Planning

In most cases, the Librarian will know in advance that a new library or change of quarters is contemplated and therefore has ample time to prepare himself for the task of planning it. If he is willing, the lack of experience will not be such an overwhelming disadvantage as it may have seemed.

During the pre-planning stage, the Librarian should:

1. Study the special problems involved in the planning of a library building. He should obtain the required information by studying the literature on the subject, which is fortunately quite extensiv

contd...

He may also bring such literature to the attention of all others involved in the planning of the building.

2. Examine carefully the aims and objectives of the parent organisation including any future changes, the users and their needs etc. and collect relevant data. After such an analysis, he should define the aims and objectives of the Library, its users and their needs, the features of the proposed services etc. not only taking into consideration the present but of the future as well. These information will be vital for the brief he later prepares to the architects.

3. Have frequent consultations with those whose advice and suggestions will prove useful, in particular his own staff, the users and the management.

4. Visit as many libraries as possible, partitularly those built in recent times.

The Site

1. Accessibility:

   The location chosen for a library, partitularly a special library will depend on a number of factors such as the type of organisation served, the location of the main users, the availability of of space on the site, the kind of services expected of the library etc. If the library is intended to serve whole organisation, some fairly control position is desirable, since the number of times a person uses such a library is usually inversely proportional to his distance away from it. It should be sited closer to common services of the organisation concerned. Common services are such things of canteens, lecture theatres, computer services, document reproduction services etc. Another alternative is to site it near the main entrance to the organisation.

2. Orientation:

   No single orientation is ideal for all seasons, climates and other conditions; but it is a factor to be considered carefully, particularly in areas where extremes of heat, rains, winds, sunlight etc. may be expected. The most sensitive parts of the library are the reading and storage areas. When direct sun light streams into a building it creates glare and over-heating which is bad for the documents stored so is the moisture resulting from the rains and the effects of the monsoon.

3. Space for Expansion:

   The chosen site should provide adequate space for future expansion.

   Parking and delivery problems should not be forgotten in the chose of a suitable site.

Preparation of a Programme

One of the most important task of the Librarian in the planning of a Library building is writing a programme or brief to the architects. The Librarian is perhaps the best person to do this, because it is he who knows best and most about the requirements of the building. If he is not sufficiently competent to write the programme, he should be very closely associated with it and the task as such may be assigned to a planning team appointed by the management. The Purposes of the programme are:

1. to determine and define the essential space needs of the library.
2. to point out to the management and others concerned all requirements of the library and obtain approval for them.

3. to form the basis on which an architect can design a satisfactory functional building.

The programme should be written after carefully analysing and considering the needs of the community to be served, the varieties and forms of library services to be offered, the environmental and other factors likely to influence the service in the future. etc. It should also answer questions relating to the size of the collection to be housed, the number of readers to be accommodated, the number of staff who will provide both public and technical services etc. It should indicate for how many years ahead the building is planned.

Internal Planning

The planning process of assignable space consists of essentially three steps:

1. Determining that relationship between the functional units of the library which is likely to lead to the most efficient operation of the library as a whole.
2. Determining the amount of space which is required for each unit.
3. Using the information obtained from 1 and 2 to designa a practical layout.

The first two steps are taken by the Librarian (or a Planning Team) who during the preplanning stage should have collected all the basic data required for this purpose. The third stpp is achieved by the Architect in close co-operation with the Librarian.

Determining the Relationships between the Functional Units.

The functional units of a special library is generally determined by three flow patterns, viz:

1. the flow of materials
2. the flow of information
3. the movement of users.

The first two are interlinked and easy to define. The typical sequence of the flow of materials for example may be (I) acquisition, (II) cataloguing, (III) Display & (IV) storage. Similarly the sequence of the flow of information may be (I) scanning, (II) abstracting & endearing (III) competing and (IV) disseminating..(see annexure I). On such a basis, it would be possible to group each individual components into a number work units establishing the relationships among them. Such analysis will help to determine the space requirements, their location within the library, etc. The movement of users however will be more difficult to define and determine. It will depend on categorisation of readers, their behavioural patterns etc. which should be carefully done at the pre-planning stage and the data collected provided to the Architect, in the brief given to him. User surveys made in similar organisations can be very useful for this purpose.

After carefully testing the units or areas in which the various activities of the library will be carried out, the next step is to determine whâch should be near to each other and which could or should be separated. (see annexure II). The relationships established should indicate the most useful relative locations for the various units of the library. But before proceeding to a tentative layout it is necessary to know how much space each of the area or unit whuld require, not only for the present but also for the future.

Determining Space Requirements

The purposes of assignable space in a library building are to provide for:

1. Housing the collection, to store and display books, periodicals, reports, trade catalogues, non-book materials etc.
2. Reader accommodation and activities: reading spaces including use of special collections & special materials, carrels in the stacks, seminar rooms, service counters, public catalogues etc.
3. Staff activities: offices, work rooms, typing services, document copying, rest rooms etc.
4. Sefvices: stairs, lifts, corridors, cloak rooms, entrance halls etc.

The space required for services (4) should be fixed at the outset and preferably grouped in one area so as to preserve flexibility in the rest of the building. The space required for reader services and staff activities (2 & 3) will grow comparatively slowly if the planning has been done with some foresight. The space needed for housing the collection (1) however will grow steadily until the full capacity of the building is reached in X years ahead. It is best, initially , to estimate requirements for 1 and 2 as a single unit space, for physically these two activities overlap.

LIBRARY PLANNING

ANNEXURE I FLOW OF MATERIALS & INFORMATION

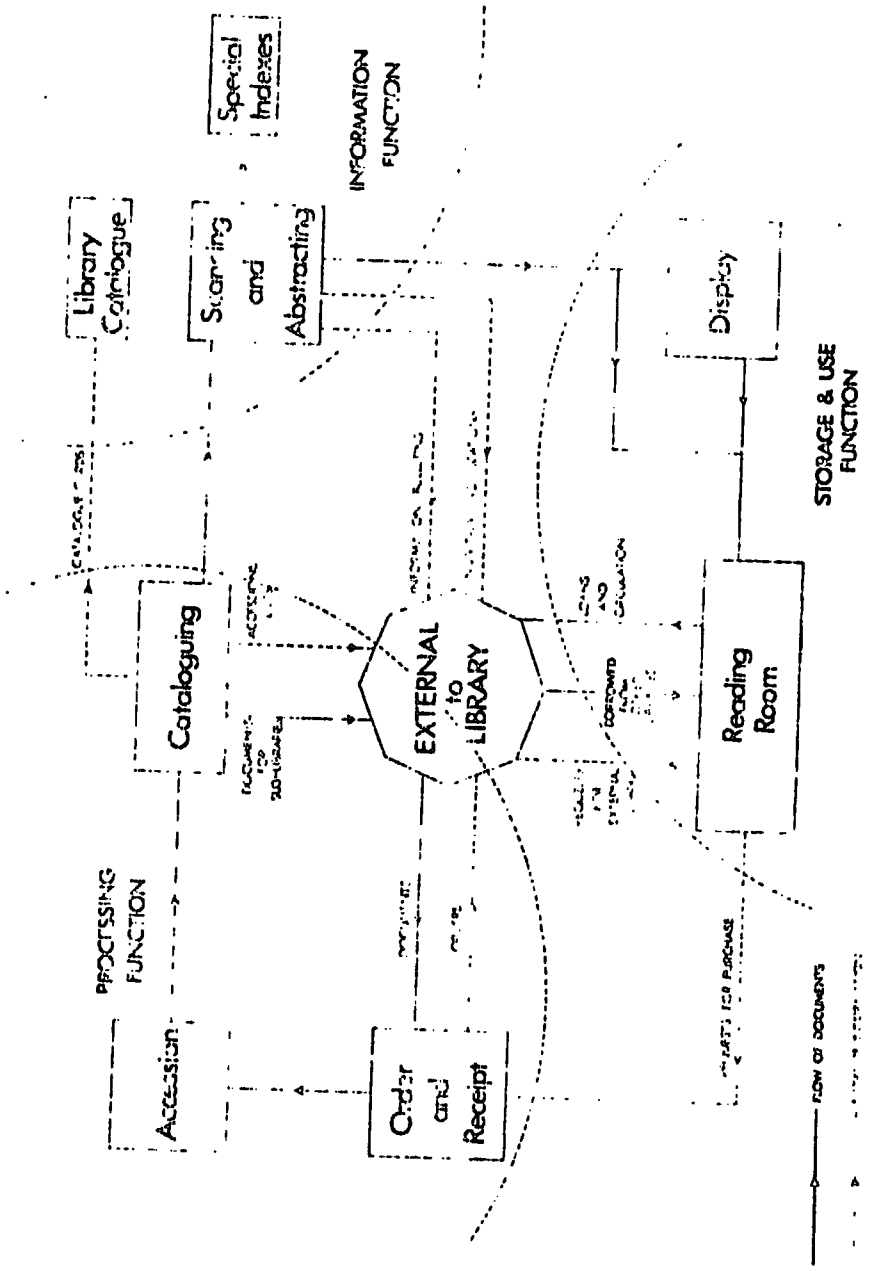


FIGURE 2. *Flow diagram for materials and information*

LIBRARY PLANNING

ANNEXURE II

RELATIONSHIP CHART

KEY

SYMBOL	CLOSENESS
A	ESSENTIAL
B	IMPORTANT
C	DESIRABLE
D	UNIMPORTANT
X	UNDESIRABLE

FIGURE 3. *Relationship chart*

A9

Mr N Ramasingha.

SPECIAL LIBRARIES : COLLECTION BUILDING

Consideration of the nature and functions of special libraries:

- Almost exclusively concerned with the literature of a particular subject or group of subjects;
- Clientele: persons with special interests in specific fields of study or activity
- Services geared to needs of a particular organisation or institution

Broadly classifiable into 4 categories: (a) Educational or academic i.e. school libraries, polytechnics, technical colleges, teacher-training colleges, universities;
(b) Learned societies and institutions, catering to the needs of members for study and research, information and matters relating to employment;
(c) Government Departmental libraries covering wider fields than research libraries, often multi-faceted involving wide variety of fringe subjects;
(d) Business and industrial libraries (Governmental and non-Governmental. Simillar to Departmental libraries but special material is needed for production and experiment staff.

Literature needs of the four categories broadly examined, in contrast to other types of libraries to understand the distinction between the two and the characteristic features of scientific libraries. Special reference to (a) needs of clientele (b) nature of materials acquired, and (3) Techniques used in organisation, retrieval and dissemination

Collection building is technically selection and acquisition of library materials. The operation requires high professional skills. and administrative skills. Definition of book selection : " knowledge ascertained by observation and experiment, critically tested, systematised and brought under general principles". Basically ma matter of organisation, necessitated by challenges of info ormation explosion, dwindling budgets, inadequate staff and storage facilities.

Acquisition policy: Sound policy decisions are basic to good management. Hence the need for a well thought out acquisition policy.
Role of the librarian in formulating policy.

Acquire knowledge and awareness of the purposes and functions of the mother organisation

Awareness of the user needs
Methods of identifying the user needs(visits to depts., meeting with priciple users, attending meetings where projects are discussed, listening to discussions of future developments, studying annual reports, publicity brochures, handouts, press notices, publications; analysing inquiries/requests for information

Acquisition policy demarcates the scope of acquisitions. Should be flexible, material on core subjects and fringe subjects, indications of physical type, language. Interlibrary loans, photocopies

Cooperative acquisition

Methods of acquisition of different materials also may be included as a guide line for the staff. Purchases, subscriptions, exchanges, solicited gifts, gratis materials, donations etc

Selection

Book selection the prime factor in enhancing value of library
Well built stocks fundamental to satisfactory service

How the librarian should be equipped for the task of book selection
Knowledge of the subject
Knowledge, awareness and use of relevant bibliographic tools to identify relevant materials
Soliciting user participation
Personal contacts - formal and non-formal

Principles of book selection

Assessing the value i.e. the quality and standards of presentation and production.

Judging the merits of a publication: points to be considered - authors credentials, publisher's reputation, authoritativeness, expert opinion on the work, consensus of opinion on the matter treated vis-a vis author's viewpoint, clarity in ecpression, reliability of factual information, credibility of interpretations and conclusions, accuracy of reference to literature, how complete the treatment of the subject, how logical is the sequence of presentation, is the material new or is it a new approach to known facts.

Some basic bibliographic tools of book selection

Use of reviews in assessing publications.
Expert opinion.

Acquisition procedure

Devise methods of obtaining material quickly, cheaply, and with minimum procedures
Departmental regulations. Prices. Discounts. order procedure
Importance of finding a good supplier - local, foreign. problems encountered. Cost, delay, specialisation, material unobtainable from publishers or book sellers

Deposit accounts, charge accounts (USIBS), standing orders, - blanket orders (not applicable to some libraries) subscriptions

Exchange, solicited gifts, donations, gratis materials

Maintenance of records - Invoices, bills, reciepts
Registers, card files, computer
Accessioning

SUPPLIES MANAGEMENT. D.B. Rajapakse

1. ORGANISATION OF PURCHASING. Outstanding problems in the organisation of purchasing, are concerned firstly with the degree of centralisation of purchasing in the whole concern, and secondly to whom the purchasing department should be responsible.

2. FUNCTIONS OF THE SUPPLIES DEPARTMENT. In its work, the purchasing department must co-ordinate with design , planning, production, sales, and accounts departments, but its main functions are:

   (a) Purchase of the right materials required by all users in the concern (in the main, the users will decide); and purchasing on the right authority.

   (b) Purchase of the right quantities, and goods of the right quality.

   (c) Purchase of goods at the right time, and for delivery at the right time, i.e. the dates required, and to "follow up" when not received at those times.

   (d) Purchase at the right price, and keeping within the prescribed budgets.

   (e) Use of the best methods of purchasing, and forms of contract, etc.

   (f) Responsibility for the control of stores; this is sometimes given to the purchasing officer.

   (g) Certifying of purchase invoices for goods supplied.

   (h) Carrying out of testing procedures on goods purchased.

3. SUPPLIES POLICY. Goods may be purchased in many ways, and usually separate methods prescribed according to the type or value of goods purchased.

   (a) Spot purchase: Where goods are bought on the spot, either at an outside showroom or warehouse, or from sales representatives who visit the buying Department.

   (b) By quotation: Where several printed forms of quotation are sent to selected suppliers asking them to quote for prescribed goods, and the quotations are then compared and the order given to the most acceptable one.

   (c) By contract. suitable to bulk purchase, and where a large order is placed for (say) a year's supply of a certain commodity at a special price, and deliveries may be had as required.

   (d) By tender. a method mostly used by public bodies, where newspaper advertisements invite suppliers to tender their prices for certain commodities on the basis of which contracts are then awarded.

In manufacturing concerns, methods (a), (b) and (c) are all used - according to the value of individual order.

4. SUPPLY PROCEDURES. Procedures will depend on the purchasing policies adopted, but important points are that:

(a) All requirements for goods from all departments of the concern must be on standard printed requisitions, and be signed by authorised persons.

(b) The requisition number is then quoted on quotation and contract, and other forms sent out to suppliers.

(c) All orders must be on official company order forms, bearing the number of quotation, contract etc.

(d) On receipt, goods will be received in the stores, and liaison with them is necessary for checking that goods agree with specification and sample.

(e) When cleared, goods received notes are received by either the purchasing or accounting department.

(f) Purchase invoices when received are then checked with official orders, and the goods received notes.

(g) Before goods are ordered, the purchasing officer must ensure that finance is available within the company's budgets.

A11. LIBRARY SURVEYS.

TYPES OF SURVEYS.

i. Field Surveys - descriptive, fact finding survey in the field.
ii. Comparative Field Surveys.
iii. Experimental Surveys. - Comparisons between two or more groups which differ as to one variable.

Surveys can also differ in terms of size, from an in-house survey of a small library to large scale surveys involving many libraries.

PURPOSE OF CONDUCTING A LIBRARY SURVEY.

To collect information indicating the patterns, trends, strengths and weaknesses in the library so that we can use this information to
a) Answer queries and complaints
b) Detect faults in the library service
c) Improve and expand the service
d) Discover new facts useful to the study of librarianship.

DO'S & DONT'S FOR THE NOVICE

Survey methods are a part of social science research methodology and consist of specific procedures and methods. Therefore do not consider a survey as something which only needs common sense and instinct.

When you embark on your first library survey
a) Look for an earlier survey on the subject and study its methods.
b) If this is not possible, discuss the projected survey with a social scientist who has participated in surveys.
c) It is essential that you read up on survey methodology and for this any basic book on social science research methodology is recommended. They will usually carry a chapter or two on surveys. There are books specifically on surveys too. The following are the best available at the moment:

LINE, M.B. Library Surveys London: Clive Bingley, 1964

MOSER, C.A. & KALTON, G. Survey methods in social investigation. 2 ed. London: ELBS, 1971.

HOW TO CONDUCT A SURVEY.

If the findings of the survey are to be acceptable, the survey must not contain ~~clude~~ biased or distorted data. It must be an objective survey and the findings must appear to be reasonably accurate. Accuracy in a survey cannot

Be achieved after the survey is over, by juggling the data. (like erasing mistakes in a drawing) It must be achieved at the point of planning and operationalising the survey. Therefore, PLAN THE SURVEY CAREFULLY. DO NOT RUSH INTO IT.

STAGES IN PLANNING & OPERATIONALISING A SURVEY.

1. Define the aims and objectives of the survey.
2. Decide the size and type of survey. - Total survey or sample survey. Single or comparative field survey - experimental survey etc.
3. Determine the specific libraries that will participate.
4. Data required from the survey. (eg. subject preferences of users, types of users)
6. Select the sample, if it is to be a sample survey.

   The sample must be carefully selected, if it is to be representative of the whole. In a small in-house survey, a random sample could be selected by taking ~~everything~~ every third reader or registered borrower. But large surveys need more complicated methods of selecting samples and it is best to consult a statistician who will advise on the kind of sample suitable (quota, cluster, stratified sample etc) and the statistical frame that should be used. Keep in mind that much of the later statistical interpretation of the data will depend on how the statistical sample has been selected.

   Most books on research method carry a chapter explaining the techniques of sampling for those who are not statisticians.

7. Data collection.

   There are different types of data collection methods to suit different data. Inanimate data relating to libraries, such as budget, equipment, buildings, stock and circulation records can be obtain by studying the records obtained from official sources. Weaknesses in the recording of such data must be kept in mind. (eg. Are renewals included in the loan statistics, or are they counted seperately?)

   Obtaining information from human beings is not as simple as examining a register. There are different methods of studying human behaviour in a social survey, such as participant observation, keeping of personal diaries by the respondents etc. The two main methods of obtaining information from people however are - Questionnare and Interview.

7 a. QUESTIONNAIRE DESIGN.

   A survey questionnare (hereafter referred to as: Q) is not simply a list of questions. Designing a questionnare must be considered a

a technical or specialised activity where certains safeguard have to be considered and choices made between alternative formats and styles. It needs time and much thought. Do not try to dash it off in a hurry.

If you are designing a Q for the first time, look up a book on questionnare design. There you will find examples of questionnares. Most reports of surveys now carry the full Q as an appendix and these are also helpful. Best of all, try to find a Q similar to the one you prppose to design and study it.

The elements in Q design are:

1. Type of Q - Postal - quicker, lower response rate - accuracy mary be affected
   Face to face administration of Q or supervised adminstration.
   - more laborious but surer of accuracy of response.
2. Length of Q.
   Should not be too long, as the respondent may tire of answering.
3. Whether Q should be anonymous or not.
4. Question content. i.e. what aspects the questions should cover.
5. Qestion format.
   2 alternative formats are available and these can to used in combination where neccessary.
   i. Open question which merely asks the question and provides an empty space for the answer. eg. " In what ways do you use our library?.....'
   ii. Closed (or structured) question where a choice of answers are given after the question. eg. "Do you use this library for a
      a) Borrowing books.
      b) Reference work
      c) Reading periodicals
      d) Reading newspapers
      e) Private study
      f) Other .....
   Please tick off the relevant items and if neccessary add further information at f) "

   The advantage of the closed question is that it can be coded and therefore analysed statistically more easily than the open answer.
6. Question wording.
   Questions must be clear and unambiguous to the respondent. The fact that the question is clear to you, the designer of Q does not mean that the respondent will find it so. Do not ask ' Are you familiar with our library' The responderts may think you mean any of the following: Have you heard of the library? Know where it is? Seen it? Entered it and used it? and you will get replies covering all these aspects. 'Are you a member of the library' is clearer
   Similarly, avoid library jargon. Do not ask a reader ' Are you satisfied

with our circulation procedures.' Ask ' Do you find our procedures for lending and recalling books satisfactory?'

7. Questionnare lay out.

Instructions for answering should be clear - there should be sufficient space for writing the answers - sequence of questions should be logical and preferably should move from the general to the specific. eg: Q should begin with questions like ' Are you a member of this library' and proceed later to questions such as ' Do you consult the author catalogue?" rather than the other way round.

8. Pre-test.

Q should be tested on a small sample similar to the main sample before the survey begins. This is called a pre-test and its purpose is to detect flaws in the Q such as the ones outlined in the preceding section 4-7.

7b) INTERVIEWING

Interviews can range from formal interviews which could be little more than a verbally administered Q to informal or 'open ended' interviews where the interviewer has greater freedom to decide what questions to ask and how far the respondent should be allowed full freedom to reply. The former are useful when short specific replies are needed, such as in market research. The latter are more useful where opinions on complex ... topics are needed.

Since it is the interviewer who records what the respondent says, some degree of subjective bias could occur when using this technique. The dress, mannerisms, personality and interviewing technique of the interviewer can affect the way the respondent performs in your survey.

If interviews are used, then interviewers have to be trained first. In a small inhouse library survey, it may be sufficient if you brief your staff as to how the interviews should be conducted. In very large surveys trained interviewers are used.

Keep in mind that many data collection techniques could be used in one survey. eg. Q data and loan records could be used together to study the efficacy of a library.

8. Other aspects of administering a survey include the following:

- getting permission to conduct the survey from all concerned.
- choosing times and places so that the survey does not hit any snags. (eg. avoid doing a survey during the Sinhala New Year period in April)
- choosing times and places convenient to the respondent. (eg. do not try to interview a respondent when he is in the middle of his lunch)

PROCESSING & ANALYSING SURVEY DATA.

Processing the data: In large surveys where there is a great deal of raw data (i.e. the actual replies, ~~added up~~) it is not possible to do all the processing by hand. The data is therefore prepared for various types of manipulation ~~using~~ by punch cards or the computer etc. For this purpose, the raw data has to be translated into symbols and numbers andt this is called coding. There are various methods of coding and these are discussed in advanced texts on methodology.

In a small in-house survey however, it should be possible to tabulate the raw data manually by marking the answers in different columns and adding them up.

Analysing the data: In large surveys, the coded data is given sophisticated statistical treatment to draw out patterns in the responses. This is a skilled and complicated business for which a formal training in statistics is usually neccessary.

In the case of a small in-house library survey, however, it is possible to analyse the data using the arithmetic and mathematics learnt in school. The data could be presented in simple percentages, graphs, bar diagrams and pie-charts and proportionate responses can be ~~gueged~~ gauged from them.

INTERPRETATION OF THE FINDINGS

How far you are able to make useful and insightful inferences from survey data will depend in the last instance on how alert you are as a librarian and how much experience you have in interpreting survey results. It will also depend, ~~in your first survey in brief~~, on how well you, as the researcher are familiar with the problem being studied, how well you have observed the context in which the data is being collected, and how familiar you are with the weaknesses of survey methodology.

Findings can be interpreted at two levels. Firstly, survey data could be used to indicate the existing state of affairs. (eg. What types of users, subject preferences etc) It can also be used to throw light on why a situation has occured. (eg. If your Q included the following questions, 'Do you use this public library? Are you a secondary school student? and Does your school have a large library? it may be possible to see whether the students who use the public library excessively are those from schools which do not have large school libraries.)

In general, it is best to use data from surveys to find out the existing tendencies and patterns and ~~use~~ supplement this with other information such as your own observations, knowledge, experience together with discussions with others, in attempting to explain why these tendencies and patterns have come into being.

WRITING THE REPORT.

In a large scale formal survey it is customary, and in some cases, mandatory, that the findings be written up and presented in a report. In such a case, it is not sufficient simply to report the findings alone. The report must include the aims of the survey, the sample used, data collection methods employed and why they were selected, how the survey was administered and problems encountered in doing so, how the data was analysed, the statistical measures used, the findings and what they appear to indicate about the problem under study. Statements must be supported by evidence from the survey in the form of examples or statistical tables. In very elaborate surveys, it is now customary in icnlude all relevant formats used, (such as Q) as appendixes .
Even in a small survey which you have done for your own information, in your own library, it is best to write down the procedure and the findings, and keep it in a file, with the raw data, in case you need to refer to it in later years. Do not expect to carry it all in your memory. You wont.

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NSC - UNDP NATIONAL WORKSHOP ON LIBRARY & INFORMATION SCIENCE,
6 - 24 JULY, 1981.

B 1 & B 2

PERIODICALS - II.
22 JULY, 1981.

S. RUBASINGAM

TYPES OF PERIODICALS.

Several categories of scientific and technical journals have evolved since they first appeared. Any attempt to classify them by type can only be arbitary and at times conflicting, though for purposes of study it must be attempted.

It may be possible to categorise periodicals by certain inherent qualities or by functions as: 1) Primary journals, 2) Secondary journals, and 3) Hybrid journals. Primary journals are those which denote themselves to reporting original research and are also known as 'recording' journals. They constitute the bedrock of scientific and technical literature. The secondary journals are those designed to digest, comment on, and interprit the research reported in the primary journals.Indexing, abstracting & current awareness journals are also considered as secondary source journals. The hybrid are those which contain both the research papers and secondary materials.

It may be possible to categories periodicals by their publishing origin, as those of:

1) Learned Societies & Professional Institutions
2) Commercial Publishers
3) Industrial & Commercial firms

Types of Periodicals according to purpose

1. Scholarly Journals.

These were published to enable philosophers and scientists to communicate their new ideas and thoughts to those interested in the same or similar subjects, because communication by means of journal was found to be more speedy than by a book. In some cases publication in book form may follow, but in most cases the papers published in journals are the only easily available record of results of research. Such journals are the principal media for publishing original learned papers and state of art reviews.

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Scholarly journals may be published by:

1.1) Learned or professional societies, Universities and other seats of learning; &

1.2) Commercial publishers either on their own or on behalf of learned & professional societies etc.

1.1) Scholarly Journals of Learned & Professional bodies.

Most learned societies & professional bodies produce more than one journal:

i) each donated to a particular subject or aspect within the main field, eg. IEEE Transactions, or

ii) containing different types of levels of materials. eg. Royal Statistical Society's Journal series A (general) contains articles, reviews, obituaries etc.; Journal series B (methodological) however contains the papers discussed at meetings.

It should be noted that whereas most scholarly journals of such bodies include papers in a variety of subjects within their field or fields of interest, others such as Annals of the American Academy of Political & Social Science denote each issue to a number of papers on one overall topic with a special editor for each issue.

1.2) Scholarly Journals of Commercial Publishers.

These are similar to those produced by societies and institutions and some publishers such as Pergamon Press, John Wiley, Academic Press etc. put out a formidable number of specialised scholarly journals. eg. Nature, The Lancet ... The category of scholarly journals also include bi or multi lingual and translation journals. These too may be either published by societies and institutions or by commercial publishers.

1.3) Bi or Multi Lingual Journals.

Some journals with an international readership, particularly those issued by international organisations, are available in editions published simultaneously in two or more languages. eg. 'Official Journal of the European Communities.' Sometimes the text is given in more than one language in the same edition eg. 'Welding in the World', sometimes abstracts only of the papers are included in languages other than the original which may give sufficient indication as to whether or not a translation is required.

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1.4) Translation Journals.

For better dissemination of information in the fields of science and technology contained in important Slavonic and Japanese literature, there are 'Cover to cover' translation journals, which contain full English translations of all the papers in the original journal, but not necessarily the accompanying materials and advertisements. eg. 'Polymer Science USSR'. (Pergamon) Some cover to cover translation journals are selective, including English translations of only some of the originals, but usually including abstracts of the remaining papers. eg. 'Electronic Technology USSR (Pergamon)

There are also journals which contain English translations of selected papers from a number of core journals on one subject and also including translated content pages of all of them. eg. 'International Chemical Engineering: translations of the best in Chemical Engineering.' (Am. I.C.E.)

Most translation journals are issued by commercial publishers eg. Consultants Bureau of New York (Russian), Scripta Publishing Co. Russian & Japanese) In some cases the publishers of the original journals also issue either English editions (eg. Trans. of the Iron & Steel Institute of Japan) or abstracts of papers eg. Chemistry letters (Japan)

It should be remembered that cover to cover translation journals are not issued simultaneously with the original journals, but the publishers aim to produce them as quickly as possible and sometimes the delay may be even two years.

2. Synoptic or Communication Journals:

These were founded mostly in the late 1950's and early 1960's and arose due to the demand for a faster flow of information. Pressure to publish, particularly within the academic community is enormous, with competition among authors rife. New journal titles proliferate, but there is no solution as yet to the problem of space within journals. The publication of substantial papers in scholarly journals can also be slow because of editorial policy of refereeing. Hence, for the purpose of altering those interested in new developments and results, some publishers include a section in their primary journals for "letters", which are different from

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correspondence. Others issue independent synoptic journals for this purpose. Still others issue special synoptic journals which contain only one or most two pages of synopsis of each paper, the full texts being made available separately in microfiche or mini-print form. Such synopsises are longer and carry more information than in Informative Abstracts. It should be remembered that for speed of dissemination these synopsises are published in an unedited form. Examples:

Applied Physics Letters (AIP)
Electronic Letters (IEEE)
Chemical Physics Latters (North-Holland)
Journal of Chemical Research (Br.Chemical Society)
Engineering Synopses (I.Mech.E.)

3. Review Journals.

This is a particular manifestation of scholarly but secondary journal destined to play a crucial role in the future. Review papers may either be literature surveys, which summarise the progress in a particular subject or field including the minimum of factual information but a wealth of bibliographical references which may be followed up. Or, they may be state of art reviews which include substantial amount of information about the subejct in question supported by bibliographical references. There is now a growing number of review journals containing only the state of art reports. They are usually published by Commercial publishers or learned bodies and are of immense value to scientists who wish to familiarise themselves with the state of art in a particular field before committing themselves to a research project. Examples:

Applied Mechanics Reviews (ASME)
Chemical Reviews (Am.Ch.Soc.)
Mathematical Reviews (Am.Math.Soc.)
Critical Reviews in Food Science & Technology (CRC Press)

4. General Purpose Journals

In addition to their scholarly journals majority of the learned bodies, issue a'general purpose' publication to act as the link between the body and its members and general public. They may contain articles of general interest in the form of reviews of

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progress, items of current developments within the field and in science & technology generally, news & comments in social & economic aspects of the subject, summaries of papers to be read, book notices letters to the editors, accessions to the library etc. Examples;

Chartered Mathematical Engineer (I Mech E.)
Chemistry in Britain (Ch. Soc.)
Scientific American
New Scientist

5. Technical & Trade Journals

These publications aim to cater for the information needs of the trade and industry by repackaging information culled from other, often primary sources, in an easily digestable form for the producers, wholesalers retailars and others concerned in one way or another. Their main functions are to report on new techniques within the industry and to monitor and report on new techniques developed outside the industry which are of potential interest to their readership. The articles are usually produced by professional journalists and are invariably of broder appeal than the papers contained in the primary scholarly journals. They may also contain highly specialised articles by commissioned authors. They may also include some commercial information relating to the industry which they serve - information on contracts, prices, market & company news etc. Examples:

Shipping World & Shipbuilder (Br.)
Paint Technology
Oil & Gas Journal

6. Controlled Circulation Journals.

This is a particular class of commercially published journal issued to promote the products of the firms active in a specific industry. They carry a large proportion of advertising matter and are financed almost totally by the sale of advertising space and services to advertisers. They include short feature articles, brief newsy information about products and guide to suppliers. There is usually a subscription price for such journals, but copies are normally available free to selected recipients who are potential buyers of the products described Morgan Grampion Ltd., is a specific publisher in this field. Examples:

Contd ...

Engineer (Br.)

Machine & Production Engineering

Electronic Components News

7. House Journals.

These are issued by large commercial, industrial and other organizations for circulation to employees, to customers or both. They are usually free of charge. Usually they began as house organs for interval distribution, many later widened their readership to include customers and others interested in their activities and progress. Journals issued for internal distribution within the organisation are produced with a view of encouraging staff interest, as a source of communication between the staff in the various departments & branches and between management and employees at all levels. Examples:

ICI Magazine

Shell World

Ball Bearing Journal

House journals intended for external distribution are prestige publication aimed at fostering goodwill amongst the public and discreetly advertising the Company's image. Examples:

APE Engineering

Lubrication

8. Indexing, Abstracting & Current Awareness Journals.

Most of the early journals in science and technology were in part abstracting organs and aimed at summarising the significant papers appearing in contemporary literature. Since the early learned journals were catholic in coverage embracing contributions from the arts, the sciences, theology etc., the first abstracting publications reflected the nature of journals on which they reported. It was only with the emergence of the literature of Chemistry and Physics in the late 18th century and the proliferation of journal titles that specialised indexing & abstracting journals as we know them now appeared. Virtually all the early abstracting publications resulted from the heroic efforts of energetic individuals who sought to serve scholarship with the development of specialised literature the task of reading, assimilating and summarising the contents of thousands of communications were outside the powers of

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even the most selfless abstractor-scholar. The task of controlling the growth tide of information was therefore assumed by the professional and learned societies who saw this organisation and dissemination process as one of their basic duties to the members they served. Consequently they were willing to fundamentally subsidise the publication of abstracting journals. This aspect of publishing was naturally not attractive to the commercial houses, because of the high cost of labour involved in the production of acceptable abstracts and relatively small circulation of resulting journals. Examples:

Chemical Abstracts (Am.Ch. Soc.)
Physics Abstracts (IEE & IEEE)

Finally another type of secondary source journal is the current contents journal, in which the content pages of recent journals are reproduced to an alerting service. Examples:

Current Contents.

BIBLIOGRAPHIC CONTROL OF PERIODICALS

As to the intrinsic value of periodicals as a source of information and new knowledge, there is no doubt. But we are confronted with an ever increasing mass of periodical literature. They are expensive to buy, store and use. These publications are not only for communication but also for priority and prestige reasons. Evidence is also accumulating that the actual use made of them is becoming relatively restricted. Studies have also shown that a large number of articles are concentrated in a minority of 'Core' journals. There is also the problem of 'scatter' that the material of potential importance to an individual user is 'lost' in a welter of irrelevance. All this means an efficient bibliographical control of periodicals is of paramount importance.

In the comprehensive bibliographic control of periodicals three elements could be identified, viz:

1) Obtaining access to bibliographic information about whole periodicals
2) Obtaining bibliographic information about the contents of periodicals to locate specific items of information within whole periodicals.

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3) Guides to the location of files of periodicals in libraries which will enable whole periodicals or articles contained in them to be used or borrowed.

Bibliographic Information about whole Periodicals.

Efficient bibliographical control of whole periodicals may be required either for selection of suitable titles of periodicals or varification of details regarding titles, publication details, subscription rates frequency etc. For selection of periodicals in particular a subject approach is often required to discover what periodicals exist in specific subject fields. An alphabetical approach by titles may also be acquired, if the purpose is to verify the correct title or other details of periodicals known to exist.

There are no doubt many bibliographical sources for the selection of periodicals. But, they are by themselves not a good means for selection. Most of them are useful to obtain the full bibliographical details, when the items assuch have been selected.

Some of the sources for selection of new titles are:

1) Publisher's announcements
2) Specimens
3) New periodicals listing - in national bibliographies Ulrich's Quarterly publd. by Bowker which contains details of new titles, changes in titles, cessations etc. which will eventually appear in their Irregular serials and annuals.
4) Reviews
5) Information from Users

Many bibliographies and lists of periodicals are available for the selection, varification of details etc. of the established titles - for both current titles and retrospective searching. It should be remembered that in work with periodicals, the directories of periodicals available, both complement and supplement each other and the more one has, the better the coverage would be.

Among the current bibliographies of periodicals, the best known are "Ulrich's International Periodicals Directory" published by Bowker, 'Willings Press Guide' published by Skinners Directories and 'Willings European Press Guide'published by Skinners Directories. As a subject guide Ulrich in particular is very useful, but good enough

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only to compile a list for consideration and not for evaluation. Also available for selection of titles are numerous national listings of titles for most of the periodical publishing countries and specialised lists for specific subjects. Examples:

1) Directory of Canadian Scientific & Technical Periodicals: a guide to currently published titles.

2) Current serials received by the NLL.

3. A World list of computer periodicals.

The retrospective bibliographies of periodicals is considerable. Examples:

1) Theodore Besterman's Periodical publications; a bibliography of bibliographies.

2) M.J. Fowler's 'Guide to scientific periodicals'.

It should be remembered that National Union Catalogues of periodicals through compiled for locating periodicals in the holdings of libraries can also be used as lists of both current and retrospective titles are available. An example is:

"An evaluation of British scientific journal's by J. Martyn & A. Gilchrist.

Bibliographic control of articles in periodicals.

For the analysis of the contents of periodicals to discover single articles of interest within periodicals, two main types of bibliographic sources are available, viz; 1) Indexes and 2) Abstracts.

Indexes & Indexing Services.

Many periodicals facilitate searching by the publication of regular indexes; usually annually, to a group of issues, either separately or bound integrally. But all periodicals do not issue such indexes. A few periodicals also issue cumulative indexes to a group of volumes, to improve even further the searching facility.

Whilst the availability of such indexes to individual periodicals is valuable, it is essential that there should exist the means to search whole groups of related periodicals quickly and economically. For this purpose there is now a category of aid known as 'periodical indexing services'. These are usually alphabetical subject analysis of the

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contents of pre-selected lists of periodicals within a specific subject field. They publish at short intervals and cumulate frequently to improve searching efficiency. Example:

British technology index.

Abstracting & Indexing Services.

Abstracting & Indexing Services are perhaps the most useful bibliographical service for the use of periodical literature. With the deluge of periodical literature, there has also been a corresponding growth in this service as is illustrated by the graph below:

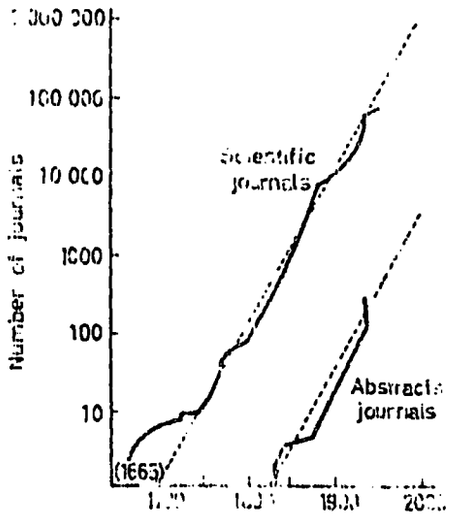

Figure 3. Growth of scientific journals and abstracts journals. Cave

Th. P. Loosjes: "On documentation of Scientific Literature" p. 22.

Abstracts are short summaries of original periodical articles or other forms of record and collections of them are often published as periodicals in their own right. Abstracting & Indexing services have been defined as continuing bibliographic services - bulletins, journals, card services, microforms, magnetic tapes and search services, offered by various types of organisations and containing abstracts and/or references to currently published literature including periodical articles. Their functions are:

1) Current awareness - providing rapid & current information.
2) Archival - providing retrospective information.

Abstracting and indexing services are either discipline or mission oriented. A discipline oriented service aims to provide comprehensive coverage of a given field of knowledge by capturing the literature at the time of its primary publication, adequately abstracting and indexing it, and making the information available as quickly, broadly and

Contd...

storing it for later use. They are directly related to the divisions of knowledge such as Chemistry, Biology, Engineering etc. A mission oriented service on the otner hand aims to serve an indentified user group that has a specific area of interest, usually inter-disciplinary. Example:

Abstract bulletin of the American Petroleum Institute.

This service is likely to be less permanent than the former, as the services will fluctuate according to demand.

As an aid to bibliographic control of periodicals, abstracting services certainly have more advantages over the indexing services, but are more expensive and take more time.

____ o ____

Module B 3 81-07-20

PATENTS

Clodagh Nethsingha
Librarian, CISIR

PATENT : A means by which a monopoly is granted to an inventer of something useful and novel to make, use, exercise or vend for a specified period of time 16 - 20 years, depending on the country. During this period, others are prevented from using this invention, except under licence from the inventer.

INTELLECTUAL PROPERTY : Patents, copyright, trade marks, designs

1884 : International Union for Protection of Industrial Property

BIRPI : International Bureau for Protection of Industrial Property Similar to the Berno convention for Copyright, there is a Paris convention concerned with rationalisation of patent law in member states (about 90 st present). BIRPI coordinated Copyright and Patent conventions. First headquarters was in Berne. From 1960 - Geneva.

WIPO : World Intellectual Property Organisation - established in 1967, taking over BIRPI. In 1970, WIPO bedame a specialized agency of U.N.

INVENTION: Anything new and industrially useful. For an invention to be patentable, it must be a new article, process or material, or a method of testing applicable to a manufacturing process.

PATENTABILITY : An invention cannot be patented, if it is
'frivelous' e.g. a perpetual metion machine
(ii) if its use would be contrary to law or morality
(iii) if it amounts to a mixture of known ingredients to produce a substance capable of use as a medicine or food.

PROVISIONAL SPECIFICATION : Describes the invention, without any claims Date of provisional appliation can be taken as the priority data.

COMPLETE SPECIFICATION : Must be filed within 12 months of the provisional application. It describes the invention, describes best method of carrying out the invention, and the claims which define the scope of the invention.

CLAIMS : Most important part of the specification. Usually in the form of numbered paragraphs. Legal phrasing used. Whether or not another person is using the invention, will depend on whether what he is doing falls within the wording of the claims.

DISCLOSURE : That part of the patent specification which describes the invention and method of carrying it out.

PATENT EXAMINER : Carries out a novelty search; checks wording of claims checks adequacy of disclosure and patentability (manner of manufacture).

ACCEPTANCE : When examination is successfully completed, the patent is accepted and given a serial number.

DATES : Date of filing previsional specification (Priority date)

Date of filing complete specification

Date of acceptance of specification

Date of application in a different country

Priority date helps in establishing equivalence of patents filed in different countries, since the title and text may vary due to different practices in different countries.

ASSIGNMENT : Conveying the ownership of the rights in the patent to a beneficial owner-usually the inventor's employing firm.

LICENCE : Written agreement in which the patentee authorises the licensee to use a patented invention, subject to certain conditions laid down by the licenser, e.g. payment of royalty.

Exclusive licence - Permits licensee to use invention to the exclusion of all others.

Sole licence - Prevents patentee from granting other licences, but does not prevent him from using the licence himself.

INFRINGEMENT : Any activity such as making articles, using a process, selling articles made from a patented process, using any articles made in accordance with the invention, without the authority of the patentee amounts to infringement of the patent rights.

RENEWAL FEES : Maintaining a patent in force is subject to payment of periodic renewal fees.

BRITAIN : New patents act in 1977. Unexamined application is published within 18 months after search, but before examination. This is the A series. After examination it is published in the B series, with the same serial number. If reprinted after amendment, it is published in the C series. Bibliographic data is arranged in a column at the left, with a code for each element. e.g.

(21) Application number
(22) Filing date
(58) Field of search

Top - Abstract (150 words). Bottom - Diagram

GERMANY : Published in 18 months, on yellow paper. If applicant wants to proceed with it - print on green paper while being examined. After acceptance, printed on white paper.

BELGIUM : Granted within 1 month of sealing. Available to the public in 3 - 6 months. Not printed - xerox copies supplied.

U.S. : Includes cross references to other patents. Official gazette of U.S. Patent office gives illustrated abstracts of patents.

INTERNATIONAL PATENT CLASSIFICATION (IPC) : 1st came into force in 1968.

ICIREPAT : Committee for International Co-operation for Information Retrieval among Patent Offices - Under Paris Union. Established in 1972, to develop IR computer-based systems.

TCST : Technical Committee for Standardization - Standardizing format

TCSS : Technical Committee for Search Systems

PCT : Patents co-operation treaty 1970 - Came into operation in 1978. Has designated international search authorities : European Patent Office - Washington - Moscow - Tokyo. Administered by WIPO. Useful for 3rd world countries, where novelty searches are difficult.

PCPI : Permanent Committee on Patent information, WIPO (1978) - replaced IPC, ICIREPAT, PCT/Committees. Organised as:

SIG - Search systems
GIG - Standardization
DIG - Patent information matters of interest to developing countries - training needs, user needs, IPC guides.

INPADOC : International Patent Documentation Center. Vienna, Austria. Founded 1972. Data bank on patents. 1973 + Bibliographic data on magnetic tape, covering 28 countries.

Services:

ASD/T Accumulated standardized data tape $ 8,000 for 70,000 documents.

PFS - Patent family service - By priority date and publication date Family of patents: Collection of patents showing the same priority date 1st - Base and the others - equivalents.

PCS - Patent classification service - By IPC
Inquiry service - by patent family/IPC $ 1 per page
Microfilm/Paper copies supplied

EUROPEAN PATENT CONVENTION : June 1978 Covers 16 countries.
A single application at the European Patent Office, Munich.
Literature search at Hague. After 18 months, patent search published. Claims in 3 languages.

DERWENT PUBLICATIONS: (a) Country patent reports covering selected subject fields - Belgium, Britain, U.S.A., Japan

(b) Abstracts : e.g. British Patent Abstracts

(c) World Patent index in 4 sections ; General - Mechanical - Electrical - Chemical with Patentee index, IPC/subject index, Patent concordance, Patent number index.

(d) Subject alerting bulletins and abstracts - Plasdoc, Farmdoc (Pharmaceuticals), Agdoc (Agricultural chemicals) Chemdoc.

SRI LANKA - Code of Intellectual Property

: Act 52, 1979

READING LIST

1. COMMISSION OF EUROPEAN COMMUNITIES
Patent information and documentation, Verlag Dokumentation, 1976

2. FINLAY, I.F.
Guide to foreign language printed patents and notification.
Aslib, 1960

3. GRACE, H.W.
A handbook on patents.
Charles Knight, 1971

4. LIEBESNY, F., ed.
Mainly on patents.
Butterworth, 1972

5. DUDD, V.S.
Developments in patent documentation
Aslib Proc. 31 (4) 180 - 190 (April 1979)

6. OPPENHEIM, C.
Recent changes in patent law and their implications for [illegible] information services and information scientists.
J. Documentation 34 (3) 217 - 229 (Sept. 1978)

Module B 4

81-07-23

REPORT LITERATURE

MISS. C. L. M. NETHSINGHA
LIBRARIAN

Report : A formal record of the activities of a Corporate body, or, the results of an investigation - a scientific investigation / investigation of a project by a special committee. Survey Report

History: 1915 - Report series : U.S. National Advisory Committee for Aeronautics

During World War II - Contract research initiated by U.S. Office of Scientific Research and Development

1945-- Office of Publications Board, U.S.A. - for collection and distribution of reports.

Office of Technical Services (OTS) took over these functions. CIOS BIOS FIAT

British Intelligence Sub Committee
Objective
Common Intelligence Sub committee
objective

Research project: Proposal or Request for investigation
Progress reports
Interim report
Final report

Test reports Reports of special investigations Annual reports
Reports by Special committees Travel reports Information reports

Report numbers : Accession number
Originating agency
Contract / Grant number
Project number

PB - Accession numbers assigned by the Clearinghouse for Federal Scientific and Technical Informstion

N - National Aeronautics and Space Administration

AD - Defense Documentation Centre

Dictionary of report series codes - Redman - correlated AD and PB numbers

Security grading - Unclassified Restricted Confidential
Secret Top secret

Accountability - Records of use of classified reports

CFSTI : Collects, analyses, disseminates unclassified Federal documents.

NTIS replaced CFSTI in 1970.

Publications : GRA Government report announcements
GRI Government reports index

UN Document Index & Special Issues are not Covered by FAO

Scientific Information Exchange

British reports : Technology Reports Centre - Publishes :

R & D Abstracts

R & D Announcements - now called Selected Reports announcements, in 4 series - Aerospace technology, Electronics and Communication, Materials, Manufacturing methods and design, Physics.

Techlinks - Digest

TRC topics - from a computer data base

US Government reports announcements as a Microfiche accessions list from NTIS tapes.

KENT - Tech. Report Centre → British Library Lending Division

R 3C Abstract
R 3D Announcements

BLLD Announcements bulletin

Atomic Energy and Space Research:

~~UAE~~ European Space Agency

NASA - Scientific and technical aerospace reports (STAR)

U.S. Atomic Energy Commission - Nuclear science abstracts

IAEA - Austria

IAEA - INIS being carried out through Cairo

Other centres :

Rand Corporation - Selected Rand Abstracts

Defense Documentation Center - Technical abstract bulletin (TAB)

Educational Resources Information Centre (ERIC)

AID R & D Abstracts

COSATI (Committee on Scientific and Technical Information)

Subject category list - Fields and groups

TREC University - several fields - Engineering field

COSATI Code - Rules for descriptive cataloguing

Accession no. - Corporate author - title - Descriptive note (sub-title or progress report etc.) - Personal author - Date - Pagination - Contract no. - Report no. - Availability - Supplementary note - Security classification.

Corporate author - Source or originating agency

The agency responsible for financing the report and controls distribution is called the monitoring agency.

Two elements are chosen - Largest and smallest

Catalogue entry:

EPA - 450/3-79-00£a
Environmental Protection Agency, Research Triangle Park, North Carolina Emission Standards and Engineering Division.
GLASS MANUFACTURING PLANTS
D.R. Gordon. Mar. 79. 100p.
Contract NSF GB-1762
EPA - 13211
NTIC PC $ 3.00 / MF $ 0.95

STANDARDS

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Librarian, CISIR

SPECIFICATION : Set of requirements to be satisfied by a Product - Material - Process

STANDARD : Specification accepted by a recognised authority

TYPES :
- Dimensional - Preferred sizes / Tolerance
- Performance / Quality
- Standard methods of test
- Terms / Symbols
- Classification / Grading
- Code of practice

TYPES (By Use) :
- Engineering - Tolerance, Terminology, Drafting practice
- Product standards - Drawing, Formula, Material lists, Description
- Purchasing - Materials, Equipment, Parts
- Office procedures - Report forms, Inventory control
- Safety

BY ISSUING BODY :
- Company (In-plant)
- Association
  - Society of Automotive Engineers (SAE)
  - Society of Motor Manufacturers and Traders
  - National Electrical Manufacturers Association (NEMA)
  - Technical Association for the Pulp and Paper Industry (TAPPI)
- National
- International

Commodity specifications - Raw materials, components

Process specifications - Services

Design specifications - Engineering drawings, circuit diagrams - serve needs of one organisation

PREPARATION : Divisional Committee
Technical Committee
Drafting Committee
Draft - circulated for comment - amended - approved
- published

FORMAT : A few lines - Single sheet - Several sheets - Booklet
Foreword
Scope : Purpose and applications
Terminology
Grades / Types / Classes
Specification - often tabulated
Marking - Packaging - Labelling
Sampling - Test methods
Appendices

IDENTIFICATION : 3-part code :
Issuing body
Serial number or letter
Year of approval or revision
DIN - German industrial standards (English translations of some of the standards available)
AFNOR - France
JIS - Japan
GOST - USSR

CERTIFICATION MARKS : Licence granted to manufacturers to use these marks on products which conform to the standard

AVAILABILITY : Purchase through issuing body - individually or through a membership subscription covering all.
Amendment slips - Free
Revisions
Withdrawn/Superseded
Handbook - annual
Additions lists - Monthly
Sectional subject lists

INDEXING : UDC

FILING : Binders (25 - 50 in each) Bulky loose-leaf binders
Filing cabinets (15 - 25 in each file) Lateralfiling
Box files Bound form

SRI LANKA : Standards Advisory Council - 1955

Department of Industries

Tentative standards

Bureau of Ceylon Standards - Act 38, 1964

Objectives: Promote standardization

Preparation specifications and standards

Testing and calibration of instruments

Testing commodities

Control standardization mark

Educational work

Functions: House primary standards of weights and measures

INDIA : Indian Standards Institution established 1947

Joint venture of government, industry and technical organisations

Aims and objects:

Preparation of standards relating to -

Products - Commodities - Materials - Processes

Promote adoption at national, international level

Certification of industrial products

Promote standardization, quality control, simplification in industry

General Council - Representatives of Industry, Central/state governments, Sci & Tech organisations Subscribing members, Divisional councils

Formulation - Technical committees under Divisional Councils; Expert representatives - Manufacturers, Purchasers, Consumers, S & T organisations, Government departments

Time - Draft to standard - about 52 months.

U.S.A.

FEDERAL SPECIFICATIONS : By Federal Supply Service of the General Services Administration, which is the purchasing agent for the Federal government.

Covers materials and supplies needed by civil departments and government organisations

Identification - 3-part letter symbol + number

Group of materials - 1st letter of 1st word in title - serial number. Revisions denoted by letter e.g. d - 4th rev.

Interim Federal specifications - By individual government depts to satisfy immediate need.

Federal standards - Mandatory - Numerical.

National Bureau of Standards

Product standards - Voluntary

SPR - Simplified practice recommendations : sizes, materials

CS - Commercial standards - Materials, construction, Performance, testing, marking

American Society for Testing and Materials (ASTM)

Books of standards. Covers engineering materials, recommended practice, definitions CODEN

American National Standards Institute

Federation of trade associations, technical societies, consumer organisations, affiliated company members

Approves standards of other stadards bodies.

INTERNATIONAL

ISO - International Standards Organisation f. 1947

Facilitates international exchange of goods and services, co-ordination and unification of national standards

IEC - International Electrotechnical Commission f 1908

Affiliated with ISO as the Electrical Division, in 1947

CEE - International Commission on Rules for Approval of Electrical equipment

Codex Alimentarius Commission - To implement joint FAO/WHO food standards programme

INFODOC : International Information Centre on Standards in Information and Documentation f 1974 Located at DIN

INFOTERM : Information activities in the area of standardized terminology

TERMNET - Network of terminology preparing and terminology documentation bodies

Sub-nets AFTERM HISPANOTERM NOROTERM COTERM CIRSTERM

NORMATERM ; Automatic dictionary developed by AFNOR in 1973 for access to terms used in French and English standards

ISONET : International information network for standards f 1974

READING LIST

1. Indian Standards Institution - Guide to literature on standardization and basic reference books useful for standards library.

2. Indian Standards Institution - Training programme for procurement storage and retrieval of standards and specifications 1968.

3. Houghton, B. Technical information sources. Bingley, 1967.

C 1 & C 2

THEORY AND PRACTICE OF UNIVERSAL DECIMAL CLASSIFICATION

Mrs. Malani Wijesinghe

UDC is a general classification covering the whole field of knowledge. It is devided into 10 major classes numbered 0 - 9.

0. Generalities of Knowledge.
1. Philosophy. Metaphysics. Psychology. Logic. Ethics.
2. Religion Theology.
3. Social Sciences.
4. Linguistics. Philology.
5. Mathematics and Natural Sciences.
6. Applied Sciences. Medicine. Technology.
7. The Arts. Recreation. Entertainment. Sport.
8. Literature. Belles-Letters.
9. Geography. Biography. History.

Each main closs is subdivided into sub classes, each of these into more subclasses, each of these into yet more, and so on:

Example of subdivision of Main Table

6	Applied Sciences. Medicine. Technology.
62	Engineering Sciences.
621	Mechanical and Electrical Engineering.
621.22	Water power.
621.223	Water wheels.

This manner of division inevitably subordinates certain aspects of a subject to others.

Certain secondary aspects which are needed to qualify these basic divisions are listed separately in tables known as Ausiliary Tables.

They are of 2 Types:

1. Common Auxiliaries.
2. Special Auxiliaries.

Cont'd. ..... 2.

Common Auxiliaries

Certain aspects (e.g. Place and Time) are applicable to a large range of subjects. They may be used as subdivisions of any main class or sub-class if needed. These aspects have been identified and grouped together and a distinctive symbol given to each so that no confusion will arise as to which auxiliary is being used.

Place (1/9)

Designates geographical (i.e. topographical and geopolitical) features of a subject.

e.g. (420) England. (548.7) Sri Lanka (22) Islands.
(267) Indian Ocean (-11) East

Note: In two major classes 91 Geography and 93/99 History. Place is enumerated as direct subdivisions of the Main Class. Thus Geography of Sri Lanka is 915.487 and not 91(548.7)

Hints regarding its use

(a) The regional aspect of a subject may be gicen priority by reversal.
e.g. 711.4(73) is Urban or town planning in the U.S.A. If the regional aspect needs to be given priority it could be written as (73)711.4.
It can also be intercalated at any desired level in the main number for the subject.
e.g. 711(73).4.

(b) Different aspects of place may be combined within the same brackets if required.
e.g. Mountaineering in the islands of Scotland 796.52 (411:22) or the East coast of England 914.2(210.5-11), assuming one wanted to keep together material on the coast rather than the direction or orientation.

(c) If there are private regional schemes they could be incorporated with the U.D.C. numbers as long as they are distinguished by an asterisk.

Cont'd. ..... 3.

e.g. South East Inter library loan region in Great Britain could be 024.68(410*SE) where SE stands for the region.

Race and Nationality (=0/=9)

Indicates racial aspects of subject. These are based on the language numbers of class 4.

e.g.492.4 Hebrew, hence (=924) Hebrews or Tews.

Jewish minorities in Europe. 323.15(4=924)

Time

These serve to specify date, period or other time aspect of a subject.

e.g. Islam in the 12th century 297"11"

(i.e. 1100-1199AD)

Productivity in Great Britain in nineteen-fifties

338.011(410)"195".

Points of view .00

These are used to indicate the broader aspects of a particular subject. They can be used in two different ways.

(1) They can be added directly to the class number itself. e.g. Research into librarianship 02.001.5

This is also useful to provide subdivisions for any collection on the activities of an organisation, industry ect. e.g. to group together material on its programme, research, production activities, economic and financial aspects etc. e.g. Accomodation for a soap industry may be subdivided as follows:

668.1.006 Space, site, accommodation point of view.
.006.1 for directorate and administration.
.006.2 for study, research and design.
.006.3 for factories, workshops, yards etc.

They can be added to a subject in order to give a more helpful grouping than can be achieved by direct coloning to the base number.

e.g. 668.1.006:333.325 Temporary housing.
:347.27 Mortgages

:368.1 Fire and loss insurance.
:643.3/.4 Kitchens and canteen space.

Method (2) should not be combined with Method (1) since confusion might arise due to overlapping.

Care must be taken in the use of point of view numbers as they might overlap other provision for concepts involved.

e.g. 651.001.5 Office management - point of view research.
651.001.1 Office management - research
or 022.006 Libraries - point of view of space and size
022.1 Libraries - situation, site.

A new subdivision .000.0/.9 (not found in the Abridged ed.) has been introduced to indicate authors point of view e.g. 162.6.000.335.5 Dialectics from the Marxist point of view.

Alphabetical and Numerical (non - UDC) Subdivision A/Z and No.
They are two forms of notation added to the normal UDC notation in order to specify individual names or numbers.

(1) To specify persons, places, stars, plants, machine parts etc. the name or alphabetizing mark is added.
e.g. 820 (Shaw) Shaw's works.

(2) When a private code of numbers gives a more helpful arrangement within a class, the numerals are prefaced by 'No.' to distinguish from UDC numbers.
e.g. 656(548.7).132.022 No. 138 - S.L.C.T.B. Bus service and route No. 138.

Hyphen nought - 0
This is a new subdivision. The only example of it is - 05 Persons. Earlier this aspect was under 3 Social sciences. This has now been transferred to the Common Auxiliaries and can be used at any point in the tables.
e.g. 02 - 055.1 Male librarians.

Cont'd. ..... 5.

'Relation' signs - Colon : square Brackets / / and Double Colon::

See note

Colon:

Two or more concepts can be linked together by using this sign. (There are 2 ways of entering these documents in the classified catalogue)

(1) Single Entry Method

Each document gets only one entry in the classified catalogue i.e. the first subject listed. Other subjects get entries in the subject index file.

(2) Multipal Entry Method

Each document has several entries in the classified catalogue.

e.g. Harvesting machinery for grain crops.

633.1.631.35

Entry in classified file at 633.1:631.35

Entry in classified file at 631.35:633.1

If the multiple entry method is used in the classified catalogue then the colon is used to specify a subject even if there is provision to specify it more directly by using a special auxiliary.

Two disadvantages in the use of colon.

(1) The number is lengthened.

(2) Filing Order produced is un-helpful.

e.g. 631.1 Agriculture, grain crops.

633.1:631.55 Agriculture, grain crops : harvesting

633.1(02) Agriculture, grain crops (treatise on)

633.1(410) Agriculture, grain crops (Great Britain)

In single entry system it is inadvisable to use the colon except when specification in any other way (i.e. by enumeration as a main table number, by Special auxilaries, by Common auxiliaries) is not possible. In a multiple-entry system however the colon is essential.

Cont'd. ..... 6.

Square Bracket /¯ ¯/

1. This is used to indicate a subordinate concept in a multiple entry system, where no separate entry is required by reversal.

   e.g. Grammer School - admission 373.5/¯ 371.212 ¯/
   (noentry is required under admission).

2. It can be used for altering the citation order in a single-entry system. ( ) and " " allow intercalation so that Place and Time can be cited at any desired point when constructing a compound number. This is not possible for other concepts as they have no closure symbol in their sign. Square brackets which have a closure symbol can remedy this.

   e.g. The Industry fact could be cited at any point in a file on Economics by enclosing the industry number within square brackets.

   33/¯622.33¯/ Economics /¯coal mining industry¯/
   33/¯622.33¯/1 Economics /¯coal mining industry¯/ labour.
   33/¯622.33¯/1.881 Economics /¯coal mining industry¯/ labour trade unions.

If the /¯ ¯/ are not used the notation may be long and the filing order unhelpful in certain instances.
e.g. 33:622.33.331.881 for Trade unions in the coal mining industry.

Double Colon ::

Can also be used to indicate a subordinate concept which does not need a separate entry by reversal.

Aggregation devices + and /

The preceeding auxiliaries are methods of dividing a class. The aggregation device allows the scope of a class to be enlarged bringing together classes which are spearated or adjacent in the UDC notation.

1. For adding non-consecutive UDC nos. + sign. Useful in designating two or more topics associated in the literature, put separated in the UDC.

   e.g. 622+662 Mining and metallurgy

Cont'd. ..... 7.

However the use of the + sign is now discouraged. Separate catalogue entries are recommended treating them as separate documents.

2. For adding consecutive UDC numbers / sign.
   This is useful in bringing together subjects that are adjacent in the UDC.
   e.g. 624 / 628 Civil engineering.

Form and Language as Document (0) and =

The methods dealt with so far show how subject concepts can be specified in the UDC.

Two common auxiliaries are available to show the manner in whic the information is presented.

1. Language of the document = ... can be shown by adding the language number from class 4 (Linguistics) after an equals sign.

2. Form of presentation is shown by adding to the subject a "brackets naught" number.
   e.g. Dictionary of organic chemistry in Russian.
   547(03)=82.

Note:- They should not be added un-necessarily.

Special Auxiliaries

These are more restricted in scope than the Common Auxiliaries. Each series can be used only in that section of the main tables where it is listed or in related sections as indicated but not throughout the main tables generally. The same number can have different meanings in the different sections.

They are introduced by the - hyphen or .0 point nought. In Chemistry and associated fields the ' apostrophe can be used to build up the compound number for a substance derived from 2 or more components. The ' apostrophe is used to replace certain main - number figures common to each component.

Cont'd. ..... 8.

e.g. Glass 666.113
Calcium 546.41
Silicon 546.28

∴ Lime - silica glass is 666.113'41'28

Citation Order in the U.D.C.

See Introduction to the (third) Abridged English Edition B.S. 1000A: 1961. p. 9 - 10 (para F.5)

If a classifier wants to keep all aspects of a particular subject together it can be done by using the linking sign.

e.g.	3-053.2	Children
	:159.9	Psychology
	:331.1	Employment of
	:343.62	Cruelty to
	:362.7	Welfare
	:613	Health, hygiene

Standard Filing Order of Symbols

See Introduction to the (third) Abridged English edition B.S. 1000A: 1961. p. 10 (para 6).

Note:- If the = is used at all, file it immediately after the simple number.

e.g. The Russian book 651=82 may be the same work as the one marked 651 but in translation.

In certain instances Time has to be placed before Place in order to maintain a general - before - special sequence.

e.g. 617"18" Surgery - 19th century.
617(410) Surgery - Great Britain.
617(410) "18" Surgery - Great Britain - 19th century.

Cont'd. ..... 9.

Otherwise the order would be

617(410)"18" Surgery - Great Britain - 19th century
617"18" Surgery - 19th century

The filing position of the colon is also not satisfactory since it locates a precise topic before a general topic. (see note on colon).

The location of the / / is also not helpful in that it too gathers all the entries on a precise facet before the general material on the subject.

e.g. 651 Office management.
651/332.1/ .5 Offices - in banks - records and their filing.
651(03) Encyclopaedia of office management.

INDEX

The index to the abridged edition is fairly satisfactory. There are cross references and synonyms are indicated. Sometimes however the index does not indicate the detail subdivisions found in the schedules. It should be used only as a key to the classified schedules.

Reading List

1. BRITISH STANDARDS INSTITUTION — Guide to the Universal Decimal Classification (UDC). BS 1000C:1963.

2. FOSKETT, A.C. — The subject approach to information. 2nd ed. (rev. & enlarged). 1971. p. 238-255.

3. FORSKETT, A.C. — The Universal Decimal Classification, 1973.

Cont'd. ..... 10.

4. MALTBY, Arthur ed. Classification in the 1970's. 1972. p. 147 - 165. Universal Decimal Classification by G.A. Lloyd.

5. MALTBY, Arthur Sayer's manual of classification for librarians. 5th ed. 1975. p. 159 -173.

C3

CLASSIFICATION - PRACTICALS I

1. A student's text book of textile science.
2. Plants of West Africa.
3. Wines of France.
4. Encyclopedia of medicine.
5. Binds of Scotland.
6. The story of maps : a guide to cartography.
7. Turkey farming.
8. Libes of famous chemists.
9. Year book of trees and shrubs.
10. A history of agriculture.
11. Guide book to the Science Museum collection of motor vehicles.
12. Manual of cotton spinning.
13. Processing of dairy products.
14. A catalogue of matchbox covers.
15. Dental anthropology.
16. The Amateur Skin Diver (Periodical).
17. Free masonry in North America.
18. Welfare services in communist countries.
19. Educations tests in secondary schools. (Tests of school performance)
20. Foot-ball in European Countries.
21. The Oxford dictionary of English etymology.
22. Psychosocial aspects of drug - taking : proceedings of a one day Conference held at University College, London.
23. The technical writer : an aid to the presentation and production of technical literature.
24. Books are essential. (deals with the book trade).
25. India and Pakistan : a general and regional geography.

MCDELL LIB.

MR. A. SENGUPTA

CHAIN INDEXING

Preliminary considerations

Chain indexing is a method of constructing subject index entries, without permutation of components of a subject, by citing terms contained in a particular chain. The credit for developing this method of subject indexing goes to S.R.Ranganathan. In creating subject index entries to the Decimal Classification, Dewey devised a method similar to chain procedure, as a means of finding economy in printing the index. The chain procedure is a further improvement of the method devised by Dewey.

In 1934 Ranganathan first used the chain procedure in creating subject index entries to the Colon Classification. In 1945 when the second edition of his Classified Catalogue Code was published, he formulated a set of alternate rules for chain indexing. During the next 25 years chain indexing methods were considerably amended and improved. BNB, after a year of experimenting, started using the chain procedure on the Decemal Classification in preparing its alphabetical subject index. BNB continued to use chain indexing till end of 1970. In January 1971 the BNB switched over to PRECIS indexing (PREserved Context Indexing System). Importance attached to chain indexing is now receding in library circles as more modern methods of subject indexing amenable to mechanisation are currently available.

Chain indexing is a method of compiling alphabetical subject indexes. Alphabetical subject [illegible] to classified catalogues. Therefore, it would be appropriate for us in the first instance to have some [illegible] classification, classified catalogues and alphabetical subject indexes, before we go into chain indexing.

Classification

It is a systematic method for arrangement of books and documents exhibiting hierarchical relationships between subjects. A notation of numerals, letters or a combination of both may be used as a basis for the systematic arrangement of subjects, according to a predetermined plan. Classification involves determining the subject content of a book/ document by the classifier and allocating the relevent notational symbolto it. Notational symbols are also used as a means of arranging materials in a helpful order for the purpose of retriving them on demand pinpointedly, without contamination of irrelevent information.

Classified Catalogue

Classified catalogue is a subject catalogue in which entries are arranged in the order of the notational symbols of the classification. The arrangement by notational symbols makes it necessary to have a devise for translating the notational symbols into correct names of subjects in natural language. There are therefore essentially two parts to a classified catalogue:

1. A systematic sequence of subjects filed according to the order of notational symbols of the classification. We call this part the CLASSIFIED FILE.

2. An alphabetical list of subjects corresponding to the notational symbols used in the classified file. We call this part the ALPHABETICAL SUBJECT INDEX.

Alphabetical Subject Index

There are several methods of compiling an alphabetical subject to a classified file. Of them the most simple method would be to make an alphabetical list of subjects followed by their notational symbols.

Example:	Analytic chemistry	543
	Industrial chemistry	660
	Botony	581
	Chemistry	540
	Medicine	610
	Sociology	301

In the case of the compound subjects, there is a possibility that the reader will look under two or more entry words. If we take the example given above a person looking for books on Industrial Chemistry might look under Chemistry and find the class number 540 where books on Industrial Chemistry are not found. In the light of this difficulty it becomes necessary to make additional inverted entries for such subjects. The list shown above has therefore to be modified as follows:

Analytic chemistry	543
Industrial chemistry	660
Botony	581
Chemistry	540
Analytic	543
Industrial	660
Medicine	610
Sociology	301

Permutation of components has been the popular method of creating such subject index entries. Permutation unfortunately increase the number of entries to unmanagable limits. For example a three element subject like ' Reclamation of marshes, hydrolic engineering' will generate the following 6 entries by permutation:

Marshes, reclamation, Engineering	627.54
Reclamation, Engineering, marshes	627.54
Engineering, marshes, reclamation	627.54
Marshes, engineering, reclamation	627.54
Reclamation, marshes, engineering	627.54
Engineering, reclamation, marshes	627.54

Subject indexing in the Decimal Classification

By way of finding a solution to the problem of increased index entries, Dewey in his subject index to the DC (14th ed.) followed an entirely a new principle for ordering the elementary terms of a compound subject. In this process, the hierarchical structure of the classification scheme itself was used. Thus the terms of compound subjects are arranged in the hierarchical order specific to general and usually entered in that form alone.

Let us for example, take a subject like 'Surgery of the nose'. The hierarchical structure of the classification in the area concerned is as follows:

Medicine	610
Surgery	617
Regional surgery	617.5
Face	617.52
Nose	617.523

Each of these words is considered as an entry word,which may require to be qualified by one or more of the terms proceeding it, on the hierarchical ladder.

According to Dewey the subject index entries derieved would be

Medicine	6I0
Surgery	6I7
Regional Surgery	6I7.5
Face surgery	6I7.52
Nose surgery	6I7.523

This rule appears to have not been followed regidly in DC. Some times in the case of established cases a further entry is made in the inverted form. Hence in the above-mentioned example

Surgery	
Face	6I7.52
Nose	6I7.523

becomes necessary. In fact,whole application of the technique is flexible and deviations may be readily found.

Chain indexing procedure of Ranganathan

Chain indexing procedure may be described as a more coherent and more rigorous application of the methods devised by Dewey in his search for economy.

As was done by Dewey, for ordering the elementary terms of a compound subject the hierarchical structure of the classification is used. The components of all compound subjects are also cited in Specific-to-general order and entered in that form alone. Therefore it follows that no term can have as an index sub-heading a division which may appear under it in the classification schedule. No multiple enteries are provided by permutation. As far as possible all adjectives are replaced by their corresponding substantives. The subject index so built up relates by collocation various aspects ~~aspects~~ of the subjects not brought together in the classification scheme.

E.J.Coates in his excellent work 'Subject Catalogues: Headings and Structure' devotes 2 chapters for a detailed study of the chain procedure. This should form the basis for anybody studying the technique of chain indexing. Since Ranganathan has devised the chain procedure based on his Colon Classification, it would be more appropriate to take a notational symbol from the Colon Classification and see how the index entries are devised. We are quoting an example given by Coates:

NA56I,J37,67:8 (meaning Model of the tower of a Tuder castle)

First we write down the meaning of each degit from right to left.

Model	8	Tudor Period	J
Energy	:	Period	,
Tower	7	England	I
Roof	6	Great Britain & Ireland	6
Part	,	Europe	5
Castle	7	Architecture	A
Dwelling	3	Fine Arts	N

Of the terms mentioned over leaf those denoting connections between components are eleminated. This is because the readers will not look for subjects under such terms. Ranganathan calls them 'False Links'. Hence we delete 'energy','part' and 'period' from this list. The remaining terms are taken as raw material for the chain index.

Now we rewrite the list of subjects with the corresponding complete notations:

Model	NA56I,J37,67:8
Tower	NA56I,J37,67
Roof	NA56I,J37,6
Castle	NA56I,J37
Dwelling	NA56I,J3
Tudor period	NA56I,J
England	NA56I
Great Britain & Ireland	NA56
Europe	NA5
Architecture	NA
Fine Arts	N

Apart from the last 2 terms, the rest of the terms require qualifying subheadings in order that they correctly signify the symbols assigned to them. Subheadings so needed are drawn from the terms that follow in the list. If more terms are needed, they are given in the order they appear in the list. We may now add qualifiers following this rule.

Model: Tower: Castle: Tuder period	NA56I,J37,67:8
Tower: Castle: Tudor period	NA56I,J37,67
Roof: Castle: Tudor Period	NA56I,J37,6
Castle: Tudor period: Architecture	NA56I,J37
Dwelling: Tudor period: Architecture	NA56I,J3
Tudor period: Architecture	NA56I,J
England: Architecture	NA56I
Great Britain & Ireland: Architecture	NA56
Europe: Architecture	NA5
Architecture	NA
Fine Arts	N

Let us now examine a class number from the DC:

331.818 292 (meaning work hours in automobile industry)

In the case of DC it is easier and safer to start writing down the meaning of degits from ~~right to~~ left:

Social Sciences	3
Economics	3
Labour economics	I
Industrial Sociology	8
Work hours	I
Work hours by occupation	8
Automobile industry	292

We leave out 'Work hours by occupation' being a false link. We now rewrite the list in specific-to-general order with corresponding complete notations:

Automobile industry	331.818 292
Work hours	331.81
Industrial sociology	331.8
Labour economics	331
Economics	330
Social sciences	300

Qualifying subheading have to be added on to the first 3 terms in order that they correctly signify the symbols assigned to them.

The final list of chain index entries would read as follows:

Automobile industry: Work hours: Labour economics	331.818 292
Work hours: Industrial sociology: Economics	331.81
Industrial sociology: Economics	331.8
Labour economics	331
Economics	330
Social sciences	300

Three important claims are made for chain indexing:

1. It is economical compared to any other method
2. It is a mechanical method of subject indexing
3. By collocation of terms in the index it effectively signals subject relationships not expressed by collocation in the classified sequence.

Let us examine these claims.

Economy of chain procedure

Chain procedure is more economical than other procedures based on permutation, but the degree of economy depends on the number of components in the subject represented.

In the case of terms of 2 components there is no economy. In the case of higher number of components in a subject the saving is as follows:

No. of components	No. of entries		Saving p.c.
	By permutation	By chain indexing	
2	2	2	0
3	6	3	50
4	24	4	83.33

Therefore it is justified that chain indexing is more economical than permutation. However, this economy has to be viewed in the context of 2 other considerations:

1. In the case of permutations all combinations are generally not required as index entries. Therefore the actual number of permutable entries is less than the real number of permutations.
2. Except for the first specific entry chain indexing procedure generates a series of general subject headings. This not satisfactory because the reader is not directed to the specific material he is looking for.

Is it a mechanical method of subject indexing ?

The chain procedure is not entirely an automatic process because of the nature of systematic arrangement. Chain procedure in fact generate a certain number of entry words, which it seems unlikely , that any enquirer will ever use as approach terms for any conceivable subject. Ranganathan defines them as'unsought links'. Some of them sometimes fall within the area 'possibly sought'.

Another possibility is that this procedure generates 'false links'. /errors they arise mainly because of the/of the classification scheme used. For example let us examine the following sequence from the DC:

600 Technology
620 Engineering
621 Mechanical engineering
621.3 Electrical engineering

In fact Electrical Engineering is not a subsidiary discipline of Mechanical Engineering, but are 2 equal disciplines coming under Engineering. Therefore in chain indexing mechanical engineering has to be considered as a false link.

The questions of unsought links, possibly sought links and false links suggest that chain procedure involves decisions to be made by the cataloguer at the indexing stage.

Although it offers a methodical treatment of subject indexing, it is not totally mechanical. The reason for the BNB to change from chain indexing to PRECIS indexing in 1971 was that the former was not totally mechanical and therefore amenable to mechanisation, while the latter was mechanical and amenable to computor handling (MARC).

How effective is chain indexing as a process of subject indexing ?

This matter has to be decided on 2 fundamental questions:

(a) To what extent is the chain procedure efficient, in terms of its ability to produce a subject index which will be helpful to the reader ?

It is accepted that the enquirers choice of words for purposes of consulting the catalogue is determined by the relative concreteness of the component words. Arrangement of terms in order of increasing (in the order of decreasing concreteness) is too well known as PMEST. Based on this formula a general facet order of decreasing concreteness can be formulated as:

Things-Kinds-parts-materials-properties-processes-operations agents-space-time.

Classification schemes are also following the same citation order in varing degrees of uniformity. When chain indexing entries are derived on such schemes- in other words- when chain indexing is applied to notations of such schemes, entries are derived in the order of the increasing concreteness, which is not helpful to the reader. Let us examine the following entries based on D4I5,4:78 Measurement of the gradiant of rail roads, a class no. from Colon classification:

Measurement: Gradiant: Rail roads	D4I5,4:78
Construction: Gradients: Rail roads	D4I5,4:7
Gradiants: Rail roads: Engineering	D4I5,4
Rail roads: Engineering	D4I5

In this instance, it is very likely that the enquirer will formulate his enquiry in the order: Rail roads-gradients-measurements. Unfortunately there is no index entry in that order, since all index entries are derived in the abstract to concrete order. This is not helpful to the reader and can be brought out as a reason against the effectiveness of chain indexing.

(b) How effective is chain indexing in terms of its ability to demonstrate subject relationships other than those embodied in the classification scheme used ?

P.T.O.

In enumerative schemes of classification, the systematic arrangement brings together the topics which form primary facets. The rest of the topics (foci) are scattered in the other parts of the classification. The purpose of the subject index is to bring together these concepts which are related but scattered (distributed relatives). The index to a classification therefore has to play a dual role.

1. It enables us to find notations for a particular topic and its place in the over all arrangement.
2. It also shows all the places in the scheme where a particular concept occurs, although they are scattered according to the scheme.

Dewey realised the importance of the second point and his index brings together distributed relatives. Chain procedure too brings together the distributed relatives. But the chain index headings are not satisfactory because, the majority of subject headings are more general in subject content. PRECIS index headings are better in this respect because they are more specific.

Conclusion

Chain indexing is important as the first systematic procedure laid down for subject indexing. It is nearly mechanical in its working. When applied to a classification with a good hierarchical notation (such as Colon) its efficiency increases to a considarable degree. On the other hand, when applied to a classification with a less hierarchical notation such as DC its efficiency decreases. It scores heavily on economy. It provides the entry word approach for compound subjects in the abstract to specific order. It has been pointed out that this order is not helpful to the reader. Finally it brings together the distributed relatives in the classification. However its usefulness is limited because the subject headings produced by chain procedure are mostly less specific. As was pointed out earlier, importance attached to chain indexing is now receding, but its usefulness in manual compiling of suject indexes will continue to remain for many more years.

Further reading suggested

Ten references are given below. The first two references are very important for a student who makes a detailed study of indexing systems in sciences and social sciences. Ref.3-5 deal with general problems pertaining to calssification, cataloguing and indexing. All references I-5 discuss in varing degrees of detail the subject of chain indexing. Ref.6-7 are works of the creater of chain indexing. Hence, they are useful as basic source materials for chain indexing. Ref.8 is well known to any student of library science. Its subject index is useful for comparison with the other types of indexes. Ref.9 and IO are two national bibliographies where chain indexing was used based on DC. When consulting them, please note how inadequacies of DC were remedied to suit chain indexing.

I. VICKERY,B.C. Classification and indexing in science. 3rd. ed. London: Butterworths,I975.

2. FOSKETT,D.J. Classification and indexing in social sciences. 2nd ed. London: Butterworths, I974.

3. COATES, E. Subject catalogues: Headings and structure. London: Library Association, I960.

4. FOSKETT,A.C. Subject approach to information. London: Clive Bingly, I969.

5. VICKERY,B.C. Faceted classification: A guide to construction and use of special schemes. London: Aslib, I960.

P.T.O.

6. RANGANATHAN,S.R. Classified catalogue code. London, I957.
7. RANGANATHAN,S.R. Colon Classification. 5th ed. London,I957.
Please go through the classification and the subject index.
8. DEWEY,Melvil. Decimal Classification. I6th ed. New York, I958.
Vol.I Tables. Vol.2 Index. Please go through tables and index and see how index entries have been derived.
9. BRITISH NATIONAL BIBLIOGRAPHY. Please go through an annual volume published during the period I95I-I970 and see how index entries have been derived.
IO. CEYLON NATIONAL BIBLIOGRAPHY. Please go through several issues published during the period I963-I970 and see how index entries have been derived.

(Lecture notes for Module C4 and C5 NSC-UNDP National Workshop on Library and Information Scienece IOth July I98I prepared by A.Senadeera Senior Assistant Librarian, University of Peradeniya.)

CHAIN INDEXING - PRACTICALS

Please make subject index entries for the following using the chain indexing procedure.

1. 6I0 Medicine — Title: Anatomy of the mouth.
   6II Anatomy
   6II.3 Digestive system
   6II.3I Mouth

2. 6I0 Medicine — Title: A textbook of dental physiology
   6I2 Physiology
   6I2.3 Physiology of the digestive system
   6I2.3I Oral Physiology
   6I2.3II Mastication
   6I2.3III Teeth

3. 330 Economics — Title: Changing pattern of women employment in Britain
   33I Labour economics
   33I.4 Women
   33I.40942 Great Britain

4. 370 Education — Title: Girls in the college: a changing perspective (based on a study conducted in University College, London)
   376 Education of women
   376.8 Colleges
   376.84/9 Colleges in special localities
   376.842 Great Britain
   376.8421 London

5. 620 Engineering — Title: Miniature circuit breakers
   62I. Mechanical Engineering
   62I.3 Electrical Engineering
   62I.3I Electric generating systems
   62I.3I7 Control devises
   62I.3I73 Switches
   62I.3I736 Circuit breakers

6. 270 Christian church — Title: Missionary organisations in Sri Lanka.
   274/279 Church history- special countries
   275 Asia
   275.4 India
   275.48 Sri Lanka

7. 5I0 Mathematics — Title: Arithmatic for business
   5II Arithmatic
   5IIaa Arithmatic for
   5IIaa65 Business

8. 300 Social sciences — Title: Man and evolution
   30I Sociology
   30Ie in relation to other subjects
   30I ed expounded through
   30Ied570 Biology
   30Ied575 Evolution

C 84 C9 COORDINATE INDEXING MJ Perc

Indexing using the conventional method by way of cataloguing using classification schemes are known as pre-coordinate indexing. In this instance coordination takes at the in-put stage. In pre-coordinate indexing overall subject of a document is summarised and such compound subjects are strung together in a fixed order. Here there is a given citation order - (It is taken into consideration that the students are familiar with the citation order, facet analysis, multiple entry system permutation, chain indexing, K.IC & K.OC).

Purpose of Subject Indexing is to facilitate the ① retrieval of documents that are ② relevant to a request for information on a particular subject. Deciding the subject content of a document involves subject analysis of the docu--ment. Also, in deciding exactly what the clients need one has to enter into a dialogue with the client.

Post coordinate system

Various problems encountered in the pre-coordinate indexing system as students have already studied can possibly be tackled by shifting the process of combination to the search stage (out put). These methods are all based on the principle of concept coordination. Venn diagrams, a pictorial representation of the Boolean algebra of sets, have been found to be useful as an illustration of coordination in information retrieval. (set a few examples). Post coordination if elimi--nates all the problems associated with it, by using only single concepts at the input or indexing stage and transfer--ing the act of coordination to the output or searching stage.

The use of a post coordinate system implies the need of some kind of new physical media lends itself to this new kind of searching. Entries remain just the same as in any pre-coordinate system. To facilitate searching, the document descriptions are usually reduced to a number which indenti--fies but does not describe. To obtain the description it is necessary to turn to a subsidiary file kept in a number order. This file is an essential part of most post-coordinate systems and search through the subject file will yield, not a series of documents but a series of numbers, which will have to be looked up in the subsidiary file. No browsing is possible in this system. (Examples to be worked out)

Term entry system - In this system we make entries for a document (which we identify by its description) under each of the appropriate headings, and file these in the correct place in an alphabetical or classified sequence. Mostly all manual systems are of this kind eg. card catalogue, peek-a-boo and Uniterm Systems.

Item entry - Those in which entries (items) are searched for those having relevant terms assigned to them. (Single entry for each term, using some physical form which permits access to the entry from all the necessary headings). eg. Edge-notched system. (Examples to be shown)

SPECIFICITY in indexing refers to the Generic level of a concept. If we name a species in indexing we are employing a higher degree of specificity being more specific.

Examples when constructing Thesaurus. BT, NT

* Relevant

Two characteristics of indexing (exhaustivity and specificity) affect two important measures of the efficiency of an information retrieval, RECALL & PRECISION operating at the output or searching stage. By retrieving all the documents in a collection that are relevant to a request for information on a particular subject we achieve 100% RECALL. In this situation PRECISION would be very low i.e. precision in locating the relevant documents. PRECISION RATIO. RELEVANCE RATIO is the number of relevant documents retrieved, in response to the number of documents searched and retrieved. There is an inverse relationship between recall and precision. As recall is increased, precision is lowered and vice versa.

Recall devices are used to increase the likelihood of retrieving a greater no. of relevant documents by such controls as the grouping of synonyms and compounding of word forms.

Precision devices are used as a check against the retrieval of non-relevant documents and depend on such factors as coordination.

The principle behind coordinate indexing is an attempt to increase precision and it is this technique which has brought the words 'Roles' and 'Links'.

False drop - One of the dangers of using single terms in the approach to information retrieval is that unwanted combinations are likely to occur at the retrieval stage resulting in what are known as 'false drops'.

Links are devices to avoid false combination of terms from the set allotted to an item. They show which terms are related (but not how) and become increasingly important as the number of allotted indexing terms increase.

Role Indicators - A role indicator is a signal which is attached to a thesaurus term at the indexing stage in order to indicate the context or the sense of use of that term in the set of terms making up a descriptive statement concerning an item. They state explicitly the relationships existing between document classes. The need for roles arises in english language because of the nature of the language in which meaning relies heavily on syntax & a word has a number of possible interpretations out of context. Terms which summarises the subject contents of a document or readers request are always terms in relationship - change the relationship you change the subject. History of Philosophy is not Philosophy of History.

Weights - Symbols often numbers added to terms by the Index to indicate their relative importance in the document. The allocation of weights to descriptors allotted to a particular document is a precision device which takes account of the fact that the meaning of a description is not invariable and depends on the other descriptors with which it is correlated.

Precoordination, links, role indicators and weights are devices which enable us to reduce the number of unwanted items retrieved in response to requests.

Edge-notched Cards Any single card will usually carry bibliographical Information for only one document, each concept relevant to the subject matter of that document being represented in code form by a series of notches punched out from holes along the margin.

To find out what library has on a given topic, the searcher must first ascertain which code position represent that topic, and extract the cards which have that position notched to the edge by a process of needling.

Uniterm : The simplest form of post coordinate Index. Introduced by Mortimer Taube in 1953. A uniterm card has a space at the top for the headings - rest of the card being devided up to 10 columns. When deciding the term for the heading a new card is made if there is none or the card is taken out from the index and document number entered on them, using terminal digit posting. This simply means that it is the final digit which determines the filing column-cards are then refiled in the alphabetical sequence. Searching - decide search term take out cards from these terms and see which numbers appear on them all. This is unsatisfactory as we have to rely on our ability to notice matching numbers on cards we are scanning. It is easy to miss a number. Once the number appearing on all the cards are noted, information is sought through the subsidiary file which is in accession order.

Optical Coincidence Cards - This system translates numbers into positions on cards by punching out a hole at its position. By holding the relevant cards into a light, which will shine through those positions which are punched out on all the cards we are holding. These cards, are known by Batten Cards, optical coincidence cards, peek-a-boo cards, feature cards, peep hole cards. Optical coincidence is probably the best description but peek-a-boo and feature cards the most widely used. Light box, peek-a-boo card, contains a space at the top for the heading, but the body of the card is devided up into numbered sequence. A card will contain 500, 1000 or 10,000 positions. A useful piece of equipment in this system is the light box.

Advantage in search strategy, if we wish to coordinate 4 terms and working to the light we see no holes coincides in all of them we can broaden the search by reducing the number of cards to 3 in four different ways in turn.

Peek-a-boo cards may have certain refinements to make their use easier. e.g. A series of notches along the bottom edge fit in to a corresponding set of rods in the bottom of the card tray; these rods enable each card to be

stepped in relation to its immediate neigbours. Space for the heading at the top right hand corner, if a card is removed from the stepped sequence, instead of a heading. e.g. see the wordout or a row of dots or a similar symbol to indicate that a card is missing from the sequence. Refiling is made easy. Space printed on the cards to note useful information such as related headings.

Comparison of Uniterm & Peek-a-boo - Principle is the same. Uniterm is cheapest and easy to establish - no special appratus required at all. Peek-a-boo system involes considerable capital outlay. Searching a large uniterm index is a very tedious process and the probabi--lity of error is high - numbers being missed. Interest--ing compromise is to use the Uniterm System to start with and transfering to peek-a-boo when some experience has been gained in the choice of vocabulary.

Problem of correcting errors in peek-a-boo is a significant point in comparison. A hole punched in the wrong place is not each to correct.

Withdrawals can be shown by means of a coloured translucent sheet which is punched in the appropriate place when on item is withdrawn. This sheet is included in every search in the pack of peek-a-boo cards. The card is punched in the relevant position when an item is withdrawn and such withdrawn items can be noted through such positions on the colourd card.

Systems Design - Thesaurus construction is one example of system design. There are only two ways of making a thesaurus. (1) Make an alphabetical list as one come across terms in the literature. (2) Sort out the categories first, arrange the terms in them, and then go out to make an alphabetical index.

Thesaurus - definition. The term thesaurus is by no means novel but not widely understood outside Information Science circles. Some describe as a list of terms (authority list) especially designed for coordinate indexing system. Websters Dictionary as a book contain--ing a store of words - about a particular field or set of concepts - a dictionary of synonyms. This still does not go far enough although it covers the classic example of Roget's Thesaurus. U.S.Dept. of Agriculture does better 'a structured arrangement of terms in seve--ral levels which, in conjunction with an alphabetical listing, represents the subject content of a body of literature. The structural arrangement is intended to show the relationships of the terms in a hierarchical order at the same time conveying broad subject concepts'. The best description in the present context is given by the (ISO) Int. Organization for Standardization. "A con--trolled and dynamic vocabulary of semantically and genetically related terms which comprehensively covers a specific domain of knowledge. This vocabulary is a systematical and/or alphabetical collection of descri--ptors, non descriptors (auxiliary terms) as well as indecators of their relationships. Unlike classification schemes, the vocabulary does not necessarily use notations and categories.

Relationship that exists between descriptors can be grouped into the following commonly accepted categories:

Preferential

USE - Refers from a non-acceptable term to a descriptor
UF - 'Used for' being the recipocal of USE

Hierarchical

BT "Broader term" Relative degrees of ~~co~~ coverage within
NT "Narrower term" A specific category

Affinitive

RT "Related term" Used to refer from once descriptor to others that are related in concept yet not hierarchically or preferentially.

cn.

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Sidney Webb & Beatrice Webb (Passfield Corner)

Grant

Passfield Corner, Liphook, Hants.

Freehold

Sidney Webb, Baron Passfield, of Passfield Corner, Liphook, Hants. and Beatrice Webb, Baroness Passfield, of Passfield Corner, Liphook, Hants.

Passfield Corner, Liphook, Hants.

Freehold

Sidney Webb, Baron Passfield, of Passfield Corner, Liphook, Hants. and Beatrice Webb, Baroness Passfield, of Passfield Corner, Liphook, Hants.

Passfield Corner, Liphook, Hants.

Freehold

Sidney Webb, Baron Passfield, of Passfield Corner, Liphook, Hants. and Beatrice Webb, Baroness Passfield, of Passfield Corner, Liphook, Hants.

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Modules D1 & D2 - Sources of Medical information. 13thJuly 1981

Mrs.M.A.I.Canagaratna.

Libraries exist primarily to meet the information needs of it's users. The goal of a library should be to provide the user with the information he needs when and where he needs it in the form best suited to his use. This involves not only the provision of required documents in the library but also the exploitation of available documents by the librarian on behalf of the user. A librarian must have a very good knowledge of the various sources of information, if he is to meet the information requirements of his readers effectively. An awareness of the types of users and their information needs too, is essential.

Medical information is required by a wide variety of persons. The users of medical information could range from the lay man who wishes to know the first aid for a burn to a professional involved in research whose needs are much more demanding. It is possi-ble to categorise the seekers of medical information into the follow-ing:

1) Students -Undergraduate and Postgraduate
2) Clinicians - Persons who practise their profession
3) Researchers
4) Teacher in a University
5) Supporting staff- lab. technicians, nurses etc.

and 6) Lay persons requiring general information.

The requirements of each of the above categories vary. For e.g. undergraduates require basic information obtainable from text-books while postgraduates require access to periodical literature as well. Clinicians are mostly interested in information pertaining to diagnostic aspects of diseases and how to treat them and are less interested in anatomical, biochemical or physiological aspects of diseases. Though the actual needs of the different groups vary, it is helpful if some generalisations can be made. Studies on the inform-ation requirements of Scientists and Technologists have shown that they require 3 types of information viz.

a)Current information
b) Retrospective information

and c) Everyday information.

Current information

The term current information refers to the type of information that is required by users to update their knowledge. Scientific concepts, hypotheses, techniques etc. keep changing and it is important for researchers in particular to be aware of what is new in their field. Current information also contributes towards innovative ideas.

Retrospective information

The term retrospective information refers to the type of information required by the user who wishes to have information on what is already known on the subject. Information about the state of knowledge at any point in time helps the researcher to identify the 'gaps' in knowledge. In addition, it helps the researcher to avoid embarking on projects that have already been tried and thus, aids in preventing unnecessary duplication of research. Finally, it assists one to adopt techniques and procedures already known. Users are likely to require this type of information before they embark on research projects.

Everyday information

Practitioners and Researchers need facts and data to do their work. This type of information is usually available in a specified form and may be applied directly to the work in progress. A user needing the molecular weight of albumin does not set about measuring it. There are standard tables giving this information. He merely looks up the tables and having got the value, proceeds to use it in his calculations. Everyday information helps the researcher to do his work better.

Having considered the types of information required by users let us now consider the sources of information available to them.

Sources of information

Studies on the communication behaviour of scientists and technologists have shown that they make use of the following:

1) Colleagues at the place of work,
2) 'Experts' in the field, within or outside the organization in which he works,
3) Conferences, Symposia, Colloquia etc.,
and 4) Published literature.

The use of the first three sources involves communication at a informal level, While the use of published information is more formalised. Studies on the information gathering patterns of scientists and technologists have also shown that they prefer to obtain their information from colleagues and experts in their field than use the library and hence published information. It has also been shown that in research institutions that there are few persons who use the library extensively and that many of the other researchers obtain their information from these persons. The users of the library who supply the information are termed 'gate keepers' of information. Surveys of the processes by which drug information is disseminated in communities of Physicians have tended to show that in respect of new drugs, atleast, the process is dependent on a few individuals who advise their colleagues while at the same time keeping in touch with both professional including published sources of information and commercial ones. These studies are important because they highlight the importance of sources other than libraries in providing information, and also enable the librarian to facilitate the use of these channels where possible. The librarian can help the user, for instance, by identifying the experts in a field and referring the user to these persons. Also, the 'gate keepers' in a particular research group may be identified and well supplied with information.

Discussions with colleagues at the place of work serves as a very useful source of information. It enables the researcher for example, to obtain clarifications on difficult concepts, new ideas, new ways of thinking etc., . Discussion with an expert becomes particularly useful when the field of research is new and there is a dearth of literature. The use of colleagues or experts rather than published information by scientists is subject to certain limitations. It is difficult to obtain detailed information such as the precise conditions under which an experiment is carried out. Published information is therefore preferable for detailed and authoritative information. Due to the long time lag between the time and article is written and the time it appears in print communication between scientists on an informal level has gained momentum. Attendance at conferences, Symposia, Colloquia etc., have become very valuable not so much for the value of the papers that are read at this meeting but more for establishing links with persons working in the same field.

Even though users may prefer to use the informal channels of communications, they cannot avoid having to use published information for atleast some of their needs. People seem to prefer informal sources of information not because they think that the quality of the information obtained that way is superior to that got from published sources. Preference for informal channels have been indicated largely because it is easier to get the information from a colleague than hunt for it from the large mass of literature available in the library. Since most people prefer to settle for information of lower quality if it is more easily accessed, it is important for the literature in a library to be arranged so that it can be used with minimum difficulty.

Obtaining of information from published sources is difficult because the information may be scattered among a large number of publications. In the field of Bio medicine alone, approximately 20,000 journals are currently being produced. The availability of aids to retrieval however help to ease the difficulties considerably.

The publications on a subject may be divided on the basis of the type of information contained in them into the following three categories.

a) Primary literature,
b) Secondary literature,
and c) Tertiary literature.

Primary literaure consists of documents in which medical information such as new innovations, results of research, case reports, etc., are first published. They are a good source of current or latest information on a subject. Primary literature includes the following types of documents:

Periodicals
Research reports
Conference proceedings
Trade ot commercial literature
Patents
and Theses or dissertations.

The term periodical refers to literature which are issued in parts usually at regular intervals. The different parts are issued under the same title. Periodical literature is important because it is the method adopted to impart new knowledge, as quickly as possible, in a brief and usable form. It serves therefore as a prime source of upto date information. Periodicals may be of three different types:

1) Periodicals devoted to news and opinions and comment - these publish preliminary communication of research. These are short articles giving results of research and may be published subsequently as full length articles. These periodicals have been deviced to over come the long delay associated with publications. eg. Biochemical and Biophysical research communication.

2) Periodicals that publish original articles - These may be of two kinds. Those covering the subjects in general from basic research to political aspects of medicine and usually circulated widely. They aim to inform the general medical reader of important and significant advances of which any one involved in should be aware and command wide readership. e.g. British Medical Journal, Lancet, New England Journal of Medicine etc. The second kind is the specialist journal containing articles in a restriced field. eg. Blood, Journal of Haematology, Journal of Medical Microbiology, Brain, Journal of Neurology etc., .

3) Periodicals devoted to review articles - these contain only review articles. e.g. Bacteriological reviews, Physiological reviews, etc., .

Consulting periodicals on a regular basis is a common means by which users obtain current information. Scanning of current journals by the librarian on a regular basis is the first step in a set up producing current awareness bulletins etc., .

Research reports are of less significance in medicine, than science and technology. This is partly due to the some what less goverment controlled institutional research in medicine. There is therefore less need for research reports. The medical research council research reports and American public health services, equivalents are published as normal publications of the respective state publishing systems and are therefore much better organized bibliographically and easy to acquire.

Conference proceedings are difficult to locate and organize because they are produced by a variety of organizations such as, government bodies, International organizations, private societies etc., . Delay in publication may result in the information being dated. Nevertheless, they are useful if the papers are of good quality. Indexed Medicus, indexes some of these publications. Published catalogues, of HMSO, British Medicine, and Index of conference proceedings are useful to find details of published conference proceedings.

Trade or commercial literature are publicity material put out by trade and commercial organizations. They contain particulars relating to products of the organization. In the field of medicine, trade literature is of great value to clinicians to gather information about latest drugs. Information about equipments, chemicals, etc., are also obtainable from this type of literature.

Patents are obtained by inventors or organizations primarily to control making and selling of their invention. Details pertaining to new drugs are patented by the drug companies, and these are useful in research connected with synthesis of drugs.

Theses or dissertations contain results of research submitted for the award of a degree by an institution of learning. Parts of a theses may be re-written and published as a periodical arrticle. But the thesis remains a first and often fuller statement of results. It is therefore of use to a researcher commencing in a new field and to others as a source of idea. Aslib's indexes to theses accepted for higher degrees by the Universities of Great Britain and Ireland and the Council for National academic awards serves as a guide to theses published in the U.K., Dissertation Abstracts International is a guide primarily to American and Canadian doctoral theses though some produced in European Universities too have been included.

Secondary literature consists of documents that contain material that have been extracted from primary sources, generally after a considerable lapse of time. Secondary literature therefore is not useful as a source of current information on a subject. Secondary literature includes the following:

Books
Reference Material
and Review serials.

Books may be categorised into text-books, treatises and monographs.

Text-books usually cover a broad subject area and are heavily used by those preparing for examinations. They can be aimed at the undergraduate or the postgraduate student and differ accordingly in the level of presentation of the subject.

Examples :

Macfarlane, D.A, and Thomas, L.., Textbook of surgery, 4th ed. Churchill Livingstone, 1977.

Green, J.H., An introduction to human physiology, 4th ed., Oxford University Press, 1976.

Macleod, John, Davidson's principles and practice of medicine, 12th ed., Churchill Livingstone, 1977.

Treatises give an advanced and systematic treatment of the principle of a subject, usually with many references to both primary and secondary literature. They bring together a large body of facts on the subject in one place and are useful for reference as well as detailed study of a subject.

Examples:

Duke-Elder, S., System of ophthalmology in 17 volumes.

Smith, R., Operative surgery in 15 volumes.

Florkin, M. and Stotz, E.V. Comprehensive biochemistry in 31 vols

Monographs are mini-treatises and usually deal with a single subject, They are a good source of retrospective information and contain extensiv bibliographies on the subject.

Examples:

Werner, S.C., The thyroid

Jelliffe, D.B., Infant nutrition in the tropics and sub-tropics.

The documents classed under the general heading reference materials are designed primarily to supply everyday information. The term referenc materials includes the following viz.

Encyclopaedias,
Handbooks,
Directories,
Dictionaries,
and Vital statistics and statistical tables.

Encyclopaedias give short accounts of a subject written by experts and give references to other literature. They are useful provided they have a wide coverage, the contributors cover the subject adequately and are updated regularly. Medical encyclopaedias should be regarded mainly as recording the state of the subject at the time of writing and are therefore mostly of historical value.

Examples:

Mc Graw Hill Encyclopedia of Science and Technology, 3rd ed. 1971, 15 volumes.

British encyclopaedia of medical practice, 2nd ed., 1950 - 1953 12 volumes. (Annual supplements after 1953 entitled Medical progress)

Encyclopaedia of Biological sciences, Edited by P. Gray, 3rd ed. 1970.

Handbooks may contain authoritative surveys by writers with inter-national reputations reviewing the literature historically and bibliographically.

Examples :

Handbook of Physiology published by the American Physiological Society (Washington)

Handbook of clinical neurology edited by G.W.Bruyn.

Data handbooks on the other hand are intended to provide basic scientific data in concise form, and they include such information as mathematical, statistical, chemical and physical tables, dosages, toxicities, melting points, physiological activities etc.

Examples:

Documenta Geigy, Scientific tables Edited by K. Diem and C.Lentner, 7th ed., 1970

The Merck Index : An encyclopedia of chemicals and drugs, 9th ed., 1976.

The Biology data book, P.L.Altman and D.S.Dittmer, 1972-74.

Biological handbooks published by the Federation of American Societies for Experimental biology.(FASEB)

British Pharmacopoeia.

Directories provide names, addresses, telephone numbers etc. of institutions and persons.

Examples:

Medical directory UK

WHO World directory of Medical schools

WHO World directory of Dental schools

World of learning - gives information on universities, colleges research institutions, libraries and museums the world over.

Scientific research in British universities and colleges

Medical Research Council's handbook - HMSO.

Dictionaries give in alphabetical sequence the spelling, pronunciation and definition of words in one or more languages or of terms in one or more special fields.

Examples:

Butterworth's medical dictionary, 2nd ed., Butterworths, 1978.

Dorland's Illustrated medical dictionary, 24th ed., Saunders, 1965.

Stedman's Medical dictionary,22nd ed., Williams and Wilkins, 1972.

Dictionnary of medical syndromes, S. Maglini, Lippincott, 1971.

Origin of medical terms, H.A.Skinner, 2nd ed., Williams and Wilkins, 1961.

Vital statistics and statistical tables supply data on the population, statistics of diseases, health personnel etc.

Examples :

UN - Demographic year book.

WHO - World health statistics annual, 3 volumes.
volume 1 ;:vital statistics and causes of death.
volume 2 : infectious diseases - cases, deaths and vaccinations
volume 3 : health personnel and hospital establishments.

Statistical tables for Biological, Agricultural and Medical research, R.A,Fisher and E.Yates, 6th ed., 1963.

Review serials contain articles in which work done or information produced during a period are reviewed. These serve as a good starting point for an exhaustive retrospective information search.

Examples:

Year book series of Year book medical publishers (Chicago)

Advances series of the Academic press

Recent advances seriesof Churchill livingstone

Annual reviews series of Annual reviews Inc.

Medical annual of Wright

Clinics of North America series of Saunders.

Modern trends series of Butterworths.

Tertiary literature Consists of documents that have been develop-ped to assist retrieval of information from both the primary as well as secondary literature.Consequently they do not contain the information per se but serve to guide one to the document in which the required information is found. Tertiary literature include the following viz.

Abstracting and Indexing periodicals
Guides to periodicals
Bibliographies
Bibliographies of bibliographies
Subject guides
and General guides.

Abstracting and Indexing periodicals act primarily as guides to the contents of periodicals but may also cover reports, patents, theses, conference proceeding etc. Abstracting periodicals draw attention to relevant publiaations along with a summary of the content in the form of an abstract. Indexing periodicals on the other hand provide only the bibliographical details of the relevant publication. The publications are usually listed on the basis of their subject content as well as the author of the publication.The effectiveness of abstracting and indexing services is dependent on their comprehensiven-ess, rapidity of their production and the ease with which information contained in them may be retrieved.

Examples:
Index Medicus
Excerpta Medica
Biological abstracts
Bulletin signeletique
Nutrition abstracts and reviews

Index Medicus

Index medicus is an indexing periodical.Since January 1960 Index Medicus has been published monthly. Each monthly issue is divided into author and subject sections. Both sections are arranged alphabetically. Within each heading the articles are grouped on the basis of the language in which the article was published. Articles published in English are listed first.

The subject indexing is based on a list of alphabetical subject headings referred to as Medical Subject Headings. New headings are continuously added to the list and a list of headings used in any particular year may be got by referring to part 2 of the January issue of Index Medicus.Reference to the list of subject headings helps to decide on the correct heading when a search is being done.

Part 1 of the January issue of Index Medicus contains a list of journals indexed in Index Medicus. Beginning May 1976 issue, Index Medicus covers selected congresses, symposia, proceedings and muli-authored monographs. The monthly issues of Index Medicus are cumulate annually into Cumulated Index Medicus.

Index Medicus covers about 2400 periodicals. Some of these are indexed selectively.Each citation provides the follwing bibliogr-aphic details - author, title of article, title of periodical, volume, issue number and pagination.

Each issue of Index Medicus has a section entitled Biblio-graphy of Medical reviews. Review articles published in the periodicals indexed by Index Medicus are listed seperately in this section. This section is valuable in tracing upto date review articles on a subject.

Excefpta Medica

This is an abstracting publication. It is published in 47 different sections. The individual issues of each section appear month -ly. The abstracts are arranged in a classified order. Subject and author indexes are provided with each issue of Excerpta Medica and for the annual volumes. Excerpta Medica covers about 3500 periodicals. The abstracts are more of the indicative type. The average timelag between the appearance of the original article and publication of the abstract is around 12 months. Excerpta Medica has a good coverage of foreign language material.

Biological abstracts

This is useful for the medical worker interested in subjects such as genetics, biophysics, biochemistry and nutrition. It has a coverage of nearly 8000 periodicals. The abstracts are of the informat -ive type. Issues appear bi-monthly and abstracts are arranged in a classified order with author, biosystematic, generic, cross and subject indexes which are cumulated semi-annually.

Bulletin Signeletique

Bulletin signeletique an abstracting periodical covers around 9000 periodicals. Theses, congress proceedings and reports are also covered. The abstracts are in French.

Due to the time lag in appearances of indexes and abstracts abstracting and indexing periodicals serve mainly as a source of retrospective information. The need for services to provide current information was met with the publication of the periodical Current contents. It is published in 6 sections.

Current contents - Life sciences is a good source for current medical information.It is published weekly and consists essentially of reproductions of the contents pages of the periodicals covered. Each issue of Current contents lists the titles of periodical covered in that issue. Each issue has a subject index and an author address directory, which facilitates acquisition of reprints. Current contents is despached by airmail and hence arrives long before the periodicals covered by them are received in the library.

Science Citation index is another tool of great help in cpmpiling bibliographies. Starting with a reference to a key paper on a subject it is possible to build a complete bibliography.

Guides to periodicals are useful to identify the periodicals that cover a particular subject.

Examples:
UlRICH's International Periodicals directory
List of periodical indexed by Index Medicus, Excerpta Medica, Biological abstracts etc.

Bibliographies are essentially lists of books giving details such as name of author, title, publisher etc. They are useful to find details of a book via subject, author and in some cases title.

Examples:
British Books in Print
Books in Print (Bowker's)
British Medicine - gives information on new books, pamphlets, official publications and reports of British origin.

Bibliography of bibliography helps to identify the bibliographies on a subject.

Examples :

Walford, A.J. Guide to reference material, 2nd ed., 1966-70
Blake, J.B., Medical reference works 1679 - 1966, a selected bibliography, 1967.

General guides are for general reference and are useful as a starting point when dealing with an unfamiliar subject.

Examples:

Grogan, D., Science and Technology - an introduction to the literature.
Lasworth, E.J., Reference sources in Science and Technology

Subject guides serve as guides to the literature of a particular subject.

Examples :

Morton,L., Use of Medical literature, 2nd ed., Butterworths, 1977.
Kerker, A.E. and Murphy, H.T., Biological and Medical resource literature, 1968.
Bottle, R.T. and Hyatt, H,V., The use of Biological literature, 1971.

References:

1) Atherton, Pauline, Handbook for information systems and services, Unesco, 1977.
2) Matthews, D.A. and Picken, F.N., Medical librarianship, Clive Bingley, 1979.
3) Morton, L.T., Use of Medical literature, 2nd ed., Butterworth 1977.
4) Vickery, B.C., Techniques of information retrieval, Butterworths, 1970.

D3 + D4

Module D4: Practical exercise on Medical information. 14th July 1980.

Mrs. M.A.I.Canagaratna.

1. Give the name of the disease for which Sodium Aminosalicylate is used as a drug.

Answer:

Source:

2. Give the name of the plant from which reserpine is isolated.

Answer:

Source:

3. Give the name of the disease treated by using Cimedone.

Answer:

Source:

4. Give the meaning of the word Hypercalcaemia.

Answer:

Source:

5. Give the meaning of the word Melanoma.

Answer:

Source:

6. Give the number of registered Physicians in Sri Lanka, in 1972.

Answer:

Source:

7. Give the number of cases of Leprosy in Sri Lanka in 1974.

Answer:

Source:

8. Journal of Medical Genetics is a journal covered by Current contents. Give title of article published by Carter,C.O. & others in Vol.17,NO.6, Dec. 1980, issue of this journal.

Answer:

Source:

9. Find the bibliographic details of an article titled "Pacemaker induced hypotension" from Current Contents Vol.24, No.15, April 13, 1981.

Answer:

10) Find the address of the ~~xxxxxx~~ author of article in 9.

Answer:

11) Find the publisher of the periodical "Journal of chronic diseases"

Answer:

Source:

666

details

12) Find the missing bibliographical of the book 'Practical meat inspect-ion by A.Wilson.

Answer:

Source:

13) Give the correct title of the book on epidemiology by D.T.P. Barker.

Answer:

Source:

14) Supply the missing bibliograph-ical details for the following periodical article:

Holden, W.D., The interphase between undergraduate and graduate medical education.
JAMA, 242, (11), 16 March 1979, p. ----

Answer:

Source:

15) Give details of a review article on Hypoglycemia, by S.K.Varma published in 1979.

Answer:

Source:

16) Give the appropriate MESH heading for the following article: Paracetamol (~~xxxxx~~ Acetaminophen) clearance in patients with cirrhosis of the liver.

Answer:

Source:

D5403

AGRICULTURAL INFORMATION

18th July 1981 J.V.Fernando

Synopsis

The flow of information in Science is from research to research in an upward spiral, ~~of science~~. The scientific results find application in industry or in the community for the purpose of development work or applied science. Therefore the information chain must contain an extension to practice and this extension forms a vertical column of information. The information usually pass to practice in stages and the scientific information does not go further than the management or the information service as in Agriculture. These groups ensure that the ~~xxxxx~~ research results adapted to the conditions are applied.(see diagram Scheme of information chain to industry and commerce.)

Agriculture is governed by climate,geological conditions,vegetation, pests etc. and the pattern of the Agriculture literature is world wide on a zonal or regional basis rather than purely national. Since Agriculture is closely connected with national economy, governments have an abiding interest in it. This has resulted in recording most of the agricultural material in the National Bibliographies, catalogues of most ~~government~~ governmental publications. Some of the research works are being published by the Trade as books. Such books are brought to the notice of the scientists in review articles in importatnt general journals like Nature,New Scientist, Science, Science Progress and in journals covering Agriculture and food Science like the Journal of Agriculture, Phytopathology ~~etc.~~ etc. These journals could be located either in Ulrich's International Periodicals directory or Faxons Librarians guide to ~~Periocals~~ periodicals.

According to a survey by Boyle and Buntrock in 1971 on the Agricultural literature it was revealed that there are 124 title indexes and 230 abstracting services covering 41 countries and 21 languages and has a ~~xxxx~~ total of 632,000 title citations and 1,137,000 abstracts. The current position with the advancement of computerisation is very much more.

Current Awareness Services

Bibliography of Agriculture compiled in the United States Department of Agriculture National Agricultural Library (NAL) and published from establishment and is now ~~xxx~~ computer tape by Macmillan Information. At present the bibliography is published by Oryx Press from the data provided by NAL. It is a monthly publication and includes citations of ~~journal~~ journal articles,pamphlets, government documents, special reports The entries are divided into 10 sections namely a Main entry section; five main entry sub-sections, a geographic index, a Corporate and Personal author index and a subject index. It also carries a list of journal title abbreviations. Each issue of the bibliography records all titles of United States Department of Agriculture publications State Agricultural Experiment ~~xxx~~ station publications, F.A.O.Publications and a list Translations.

Current Contents- Agriculture,Biology and Environmental Sciences. A ~~xxxx~~ weekly publications of the Institute of Information Science,Philadelphia. This publication reproduces the content pages of over 1035 journals reporting the results of world wide research in the Agricultural,biological, environmental,food and Veterinary Sciences. Current Contents is particularly useful for monitoring journals not taken by the library or not easily accessible at first hand. It is pocket size and a temporary bibliographical tool. It is also used to check references to papers published too recently to be incorporated in the Bibliography of AGriculture. Entries are arranged in subject ~~groups~~ groups and each issue list the list of journals carried in the issue. ~~Thexxxx~~ Separate Author and Subject indexes and a directory of addresses of authors are included in each issue. It is an excellent alerting service and this comprehensive service enables Scientists, research workers and practioners to keep up new developments in their own and related fields. Current Contents is an effective and economic solution to the treble problems of literature scanning,reading selections and rapid dissemination of information.

National Agriculture Library Catalogue

A monthly publication arranged under 20 broad subjects similar to the divisions of the Bibliography of Agriculture. Each issue carries a Personal and Corporate Author Index, title and and Subject index all of which is cumulated twice a year in June and December. Entries are broadly based on the Anglo American Cataloguing Rules. There are a few annotations and added entry tracings and carries Library of Congress Classification class marks.

AGRINDEX(Agriculture Index) Rome, F.A.O.

A printed and categorised bibliography which was first published as a monthly in 1975. The International Information System for the Agricultural Sciences and Technology (AGRIS) formally began operation in 1975. This system has been created through the cooperation of Food and Agricultural Organisation of the United Nations, governments and other institutions to found a data base which would provide reference to current literature collected from world wide sources related to Research and development in the Food and Agriculture sector and allied fields. AGRIS has been an outcome of UNISIST- the UNESCO programme of International cooperation in Scientific and Technical Information. The Input for the production of the AGRINDEX is provided by cooperating centres which identify Scientific and Technical Literature within the scope of this system and produced in their own country or region. The input is received in 3 forms(1) magnetic tape (2) the Punched paper tape and (3) work sheet Ultimately it is hoped that all input will be received in magnetic tape only. The second and third methods are allowed as most of the developing countries are not in a position to supply the input in magnetic tapes. When the input is received at the F.A.O. they are merged into a magnetic tape data base from which AGRINDEX is printed. (see annexure for a typical entry).

Bioresearch Index : Philadelphia.

Sponsored by the Union of American Biological Societies. is a monthly publication which contains indexes to research reports not covered in the semi monthly issues of Biological Abstracts. Instead of abstracts the format for this publication utilizes reference citation (titles) which are editorially supplemented with key words. Significant title words and keywords are alphabetically permuted by computer and indexed in the same manner as the title of research articles included in the Biological Abstracts. Each issue incorporates the following (in order of appearance) list of publications, Bibliography; author index;Biosystematic index; cross index; subject index. In the Bibliography section the consecutively numbered citations are arranged by journal and include Author, title, added key words and pagination. To locate a particular journal in the Bibliography consult the list of publications indexed. This list is arranged alphabetically by Coden(a five letter designation for the journal name) and provide the number of the first citation from each of the journal issues covered in Bioresearch Index.

Most countries produce similar alerting services with or without annotations. In our own Sri Lanka too we have a few publications which serve as an alerting service.

Sri Lanka Science Index published quarterly record information received by the Sri Lanka Scientific and Technical Information Centre during a given quarter. This index is arranged under broad subject headings by the Uiversal Decimal Classification Scheme,Within each subject heading the entries are alphabetically arranged by author. Most of the Special Libraries publish lists of new materials acquired for their Libraries and prepare handouts to keep the Scientists in their Institutions informed of the latest materials received in the Libraries.

Abstracts

Abstracting journals are available after a lapse of time from the appearance of the Primary Sources as more preparatory work is involved. They are much more informative than Indexes. There is a profusion of abstracting journals covering Agriculture and food production and the time lag between the primary and secondary publications is being progressively reduced as more and more services are employing computer methods to speed up printing and publication.

COMMONWEALTH AGRICULTURAL BUREAUX (CAB)

The CAB is an organisation in that most of the Bureaux are located at research Stations working in the same subject field. for example Horticulture at East Malling: Nutrition at the Rowett and Animal health at the Ministry of Agriculture8s central veterinary laboratory. Most of the stations prepare the abstracts in their field and the abstractors and the Scientists are in close touch with each other. The abstracts cover the following fields: Entomology, biological control: Agricultural Engineering abstracts: Animal breeding abstracts; field crop abstracts; horticultural abstracts. Index Veterinarius etc. They also specialist abstract journals like Soyabean abstracts, Rice Abstracts etc. The CAB scans over 8000 journals for articles of agricultural interst and prepare approximately 150,000 abstracts each year. Regular periodic collections of abstracts from the CAB data base are reporoduced on special topics of wide interest as for example Rice Abstracts.

Biological Abstracts . Philadelphia 1926.

The abstracts sponsored by the Union of American Biological Societies is a source for supplementary literature of interest to Agriculturists. It is a semi monthly publication.. It is a continuation of Abstracts of bacteriology and Botanical Abstracts It is a most comprehensive and ocvers the whole range of biological activity including agriculture, bacteriology, biochemistry, microbiology, vetrinary science. Each issue contains a table of contents, Abstracts, author index, alphabetical listing of subject headings which appear in the Cross index. Abstracts are prepared by specialist. It is an indispensable reference work for all workers in the biological sciences.

Aid Research and Development Abstracts (ARDA). Washington, U.S. Agency for International Development (A .I.D.,. This is a quarterly abstract journal issued by the Division of Documentation and Information Office of Development Information and Utilization Bureau for Development support. It is published in October, January, April and July. The function ARDA is to transfer development and technical information to active practitioners in development assistance. ARDA announces that AID materials are available by presenting abstracts of current and significant documents on selected development subjects. The selection of materials for abstracting is done from the materials produced by by AID or which has resulted from AID funded projects. The abstracts are arranged by subject fields and the table of contents at the beginning indicates the serial numbers under each subject field. There are a number of indexes in each issue: personal and Corporate author; Contract Grant number index, Geographical Index and Index of Issuing Offices. Instructions in the procedure for ordering either printed copies or in microform is given. Developing country institutions on the authorized ARDA mailing list may order upto 5 paper copies at no cost or they may order an unlimited amount of titles on microfiche.

Abstracts on Tropical Agriculture . Amsterdam Royal Tropical Institute, 1975.

This abstracting service was started in 1975 and every month it offers in the region of an average of 500 abstracts. Each issue containing the abstracts carries a subject index, geographic index, affiliation index and an author index. An annual cumulative subject and plant taxonomic name index is also included. The subject index is designed for scanning and one may find it preferable to simply scan the entire monthly subject index. A list of subject headings under which you can regularly consult the general subject headings in your field of interest and obtain a quick overview. For greater detail, consult the specific key words(in italics) if necessary before reading selected abstracts. For example

" Studies on the maize-soybean intercrop system by H.P.M.Gunasena, R.Sangakkara and P.Wickramasinghe of the Faculty of Agriculture, University of Peradeniya, Sri Lanka which appeared in the Journal of National Agricultural Society of Ceylon Vol.15 , p.27/36 (1978) has been abstracted in the issue of Vol.6(5) May 198.

continued

under abstract No.30119. and this ~~carrier~~ abstract is indexed under four headings in the Subject Index.

1. Cereal crops- Maize	SRILA (abbreviated form for Sri Lanka)		30119
2. Maize intercropping soya bean economics	SRILA		30119
3. Intercropping maize soya bean yield	SRILA		30119
4. Soyabean intercropping maize yield economic	SRILA		30119

Another salient feature in the index is that in the geographic index are grouped all abstract numbers referring to the country. In the affiliation Index the Authors' affiliated organisations are indexed and the relavant abstract numbers are given. Retrospective bibliographies on subjects of choice could be obtained from the Royal Tropical Institute files which contain over 300,000 titles 1916/1952.

#INVISIBLE COLLEGE"

Scientists often contact their colleagues personally and nothing is simpler than to exchange views and results of research through correspondence. De Solla Price has called such groups "Invisible Colleges"- a sort of closed community with their own language and exchange of information. In this method separate communications take over the function of the reprint of the scientific journal. In a sense such titles of Monographs as World of Learning and the Europa Handbook type are good sources to try first. In the field of Agriculture and international in scope are the following monographs.

Agricultural ~~Index~~ Research Index: a guide to agricultural research including dairy farming, fisheries, food, forestry, horticulture and Veterinary Science . 6ed. ~~Editor~~ J.Buckett, London ,Longman Group 1978. 2 volumes.

The publishers have attempted to provide a comprehensive guide to establishments throughout the world which conduct, promote or encourage research in agriculture and related subjects such as dairy farming, fisheries, food, forestry, horticulture and Veterinary Science. The arrangement of this reference guide is by country in Alphabetical order. Universities are arranged under the name of the place even if it is not the first word in in the title. Under each country and institution the names of Research Staff together with the subjects of their interest is given. A General Index at the end of the volume includes references for all establishments under the full title. Each country section is arranged in alphabetical order following the language of the country except in the case of countries which do not use the Roman alphabet; in these cases the title is given in English translation. One particular advantage of this is to assist the user to discover where research in a particular field is carried out or promoted. For example under Brazil yoy find this entry

Institup de Quimica Agricola (Institute of Agricultural Chemistry)
address 1024 Rua Jardim Botanico, Rio de Janeiro, Brazil
Director: Dr.Fausto Aita Gai.

List of Rsearch Workers in Agricultural Science in the Commonwealth published by the Commonwealth Agricultural Bureaux,
This book contains name and postal address, telephone number, telegraph address of research workers in the agricultural sciences at Government and State aided institutions and indicates generally the line of study in which the research worker is specially interested. This is prepared according to the pattern laid down by the British Commonwealth Scientific Conference of 1936. It is strictly limited to those who are engaged in research or actually concerned with its organisation. Only senior workers are mentioned and the junior technical assistants have been omitted. This was extended to research workers in the Universities but ~~excluded people in~~. The volume is divided into four parts. Part A gives details for the Commonwealth Institutes and Bureaux; Part B gives names and addresses of research workers by countries; part C lists the names of the Institutes mentioned in the list and Part D an/ index of the names of the research workers.

Professional workers in state agricultural experiment stations and other cooperating state institution published by the U.S.Department of Agriculture (Agriculture Handbook No.305) This gives details of workers, their qualifications, departments in which they work in state order. An index of names is provided. No references.

Directory of Scientific Research Projects in Ceylon 1970. Colombo. C.I.S.I.R.

This is the first attempt at collecting, in one publication, information of the Scientific research projects carried out at Universities and the Public sector in Ceylon. The information has been gathered from questionnaires sent out to all the research institutes. The projects are listed under the names of the Departments, Institutions arranged alphabetically. The following information is given : Title and brief description of the project; date of commencement of work; name of Scientists engaged in the research work including names of collaborators from other institutions Publications and the Funding agency. There is a name index and subject index to locate projects carried out by a particular scientist,

This Directory has been updated by the National Science Council of Sri Lanka for 1970/73. In this an Alphabetical list of subject headings is given

In special subject fields too there are publications giving the list of the workers for example Horticultural Research 2 ed issued by the International Society for Horticultural Science.

WIPIS - Who is publishing in Science. a by product of the Current Content service by the Institute for Scientific Information Philadelphia.

Scientific Research in British Universities and Colleges issued by H.M.S.O. England Vol. 2 Biological sciences contain the research workers involved in research in Agriculture.

RESEARCH

Theses

Index to theses accepted for higher degrees in the University of Great Britain. London, Aslib.

Each entry consist of the Surname, followed by the Initials of the Author of the Thesis. Letters in paranthesis indicate the University and the degree for which it was accepted. e.g. 4900 Wellington D.J. (R) Studies in relation to toxicities to plants... Ph D. (R) denote Reading University.

Dissertation Abstracts International published by Xerox Microfilm.

This is published in 2 volumes Section A Humanities Section B Science and Engineering Copies of these thesies are available in microform. This publication carries an abstract of the thesis. The publication is monthly and more than 510 cooperating institutions in the United States and Canada supply the materials..

Highlights of Research 1978 from the regional research centres and Experimental Stations of the Department of Agriculture Sri Lanka.

Records the research that is being done at the various stations. There is a content list but no index.

Abstracts of Project reports of Final Year Students 1975-79 of the Faculty of Agriculture, University of Peradeniya published by the Education and Training Division of the Department of Agriculture.

Records the abstracts of the projects done by the Final Year Agricultural Students in the University as a part requirement for the B.Sc Agriculture degree. It is a valuable pool of knowledge useful to students, teachers, extension workers and researchers in Agriculture.

International Rice Research Institute, Manila Philippines have a number of publications dealing with the ongoing research in rice and each year publishes the Research highlights for the year and the theses accepted for higher degrees that have been deposited in the Library.

Research continued

Tropical Agriculture

International Institute of Tropical Agriculture , Ibadan Nigeria. issues publications on the research highlights for the year in the various fields in Agriculture.

RETROSPECTIVE LITERATURE

"The compilation of a bibliography of any branch of knowledge or learning may be compared to the erection of a milestone in the corridors of time to act as a guide c signpost or a beacon light to generations of on-coming seekers after truth and knowledge. If this bibliography relates to the natural resources,history or culture of a country or nation, the contribution is more praiseworthy. This is nc only because of its intrinsic merit and value as a stimulus to national development and the progress and welfare of the people, but also as a testimony of, and an urge to patriotic endeavour in any field of human activity." A.W.R.Joachim in tne forewor to tne Soil Science Bibliography compiled by M W.Thenabadu.

Agricultural writers from Sir Walter of Henley to Arthur Young 1200 - 1800 by D.MacDonald Lemon. Horace Cox,1908. 228 pp.
An exhaustive bibliography of older materials. It reproduces extracts from the actual writings and revised from articles which have appeared in the "Field" from 1893-1907.

Ministry of Agriculture & Fisheries. Chronological list of early agricultural works in the library of the Ministry of Agriculture and Fisheries by G.E.Fussel London. H.M.S.O. 1930 43pp.
It lists 359 items. Details of books dating from 1533-1860 are given including the earlier works in the "Cowan Memorial LibraryW. It is a unique collection relating to bees and allied interests. A list of other sources of bibliographical information is given in the form of an appendix.

Baker,E.A. & Foskett,D.J. Bibliography of food: a select international bibliography of nutrition,food and beverage technology and distribution 1878-1956. London, Butterworth,1958. 331 pp

Contains many items of agriculturalinterest such as distributuion,marketing. Periodical article with a few exceptions are not included. It is outdated now.

Blanchard,J.R.& Ostvold,H: Literature of Agricultural Research. Berkeley, University of California Press,1958. 231 pp (University of California bibliographic guides)

Lists 1296 references. A comprehensive guide: has six main headings A - Agriculture general; B Plant Science ; C Animal Science ; D - Physical sciences; E- Food and nutrition ;F= Social sciences(legislation and economic statutes. Under each heading there are sub headings for types of materials and special topics. Annotataions are liberally provided and often evaluative. In general it has included only the main valuable reference tools with emphasis on American publicati ons.

E.A.Bush : Agriculture - a bibliographical guide. London Macdonald 1974(Macdonald Bibliographical series guide. 2 volumes

The author was the Deputy Librarian of the Ministry of Agriculture,Fisheries and Food and has long experience in this particular field and is pre-eminently qualified for the task. His painstaking effort has proved to be a highly effective contribution to the documentation in Agriculture. The information is presented in a three column format and in chronological order within the section as is done in other Macdonald series. It aims to draw the attention of Librarians, information and research workers to the existence of essential reference "book" and periodical material covering the period 1958-1971 with some earlier entries included to ensure the presence of ~~impdrtnt~~ important basic material. The arrangement of the bibliography is based fundamentally on the Universal Decimal Classification. It contains a list of periodicals cited and their abbreviations based on the World list of Scientific Periodicals.

Walford A.J. editor; Guide to reference material 3ed. Vol.1 Science & technology: Agriculture. London, Library Association 1973.

This guide is arranged according to UDC and the pages constitute section 63. Comprehensive details of over 150 standard agricultural books are given.

Neal,K.W. Library guide to agriculture and horticulture 2ed. London 1969. 28pp. It is aimed at the agricultural student. This pamphlet aims to show how libraries can help both during formal study and in the post qualification period. Details of bibliographies,reference books, statistics,periodicals are given together with many useful hints on library usage.

United States Department of Agriculture. National Agricultural Library. Selected list of American agricultural books in print and current agricultural periodicals Washington. 1967. 67pp.

~~This issue supplements and updates the 1963 issue.~~
2nd Supplement issued in June 1975 updates the earlier issues. This gives the bibliographical details for ordering . and contains the Library of congress number.

United States Department of Agriculture. National Agricultural Library (NAL) : Dictionary catalog of the National Agricultural Library 1862 to 1965.New York Rowman and Littlefield 1970- 73 volumes.

A catalogue of the stock of the National Agricultural Library of the United States of America. Probably the most comprehensive list of agricultural material ever produced. Kept upto date by the National Agriculture Library Catalog published monthly. This is a good source to know the older materials in Agriculture . A good and comprehensive materials on Agriculture published in Ceylon is contained in Volume 12 under the subheading Ceylon.

Singhvi,M.L. & Shrimali,D.S. Reference sources in Agriculture : an annotated bibliography. Udaipur Rajasthan 1962. 420pp.

It lists 1413 references annotated .Understandably more of the Indian material has included. The physical presentation is poor.

Biological and Agricultural Index published by H.W.Wilson 1964.

The earlier title was Agricultural Index which was published in 1917. This publication includes a wide range of serial and reports including those of the U.S.State Agricultural Experiment Stations listing them as they are published and later cumulated which makes retrospective searching easier.

Bibliography of Soils and related sciences of Ceylon compiled for the Soil Science Society of Ceylon by M.W.Thanabadu 1973.

This bibliography has been divided into sections on the basis of the subject matter Within a section the entries are arranged alphabetically by Author's name and in chronological order.

The coverage in the Agricultural field is very comprehensive though there is a degree of duplication of effort- not all of these is wasteful. In fields where abstracts overlap very often there are a number of slants or view points deliberately emphasising some component discipline, As for example report on the application of fertiliser on a particular crop could be covered by two or three abstracting services with emphasis on the crop or fertiliser or the residue.Perhaps with the advancement of mechanical indexing a single service rather than a multi-form indexing or abstracting could be utilised to cover a much wider range of literature.

Bibliography Use of Report Literature edited by C.P. Angell. 1970.
Technical Literature Search and Unwritten report by D.J. Mullin. 1972
E.A. Bush : Agriculture a bibliographical Guide Vol. I & II - 1970

Annex. 2

Typical Entries

From AGRINDEX

A — **F00 – Plant Production**

B — F20 – Soil science

C — *F25 – Soil fertility, fertilizers, and plant nutrition*

1 — **000139** Societe Commerciale des Potasses et de l'Azote, Mulhouse (France). Services Agronomiques. **[Annual report on fertilization tests 1972].** (Fr). Rapport annuel des essais de fertilisation 1972, Mulhouse (France). SCPA. Jan 1974. 322 p.

12 — Experimentation et Etudes Agronomiques (France). Graphs; Tables. *CNRA, Documentation, Versailles (France).

4, 5, 6, 11, 7, 13, 15

A — **H00 – Plant Protection**

B — H10 – Pests of plants

D — **Citrus fruits – general (1000)**

1, 2 — 000183 Chabassou, F. (Institut National de la Recherche Agronomique, Centre de Recherches Agronomiques, Bordeaux (France). Station de Zoologie). **Physiological conditioning of citrus as a means of controlling animal pests of citrus.** (Fr). Le conditionnement physiologique des citrus comme moyen de lutte vis-a-vis des ravageurs des agrumes. *Fruits (France)* (Jan 1974). v. 29(1)p. 23–33. Graphs; 48 ref.; Summaries (En, Es, De, Fr, Ru). [World Meeting on Citrus Crops. Murcia; Valencia (Spain). 29 Apr 1973.]

14 — 13

3, 5, 6, 7, 10, 12, 11

Commodity Index

D — **Barley**
B — **H10** 000367
L30 000456
N20 000457
C — **P12** 006398

Beef Cattle
A — **L00** 006489—096754

Bees – general
L20 000045 000058 000153
1

Elms
F25 000578 000629
F27 000743
H20 000892

Feed grasses
L30 000111 000245

Figs
E70 003336 003367 003377 005781

Annex 1

information. Information usually passes to practice in stages. In other words, scientific information does not go further than the management or the information service (as in agriculture). These groups ensure that the research results (adapted to commercial conditions) are applied. Fig. 4 gives this scheme.

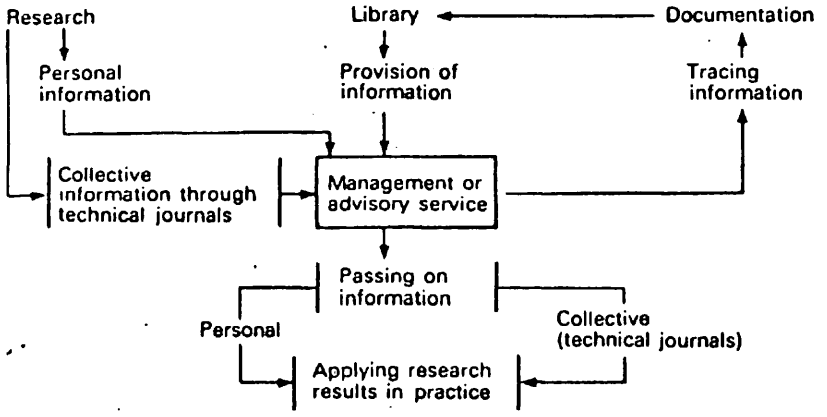


Fig. 4. Scheme of the information chain to industry and commerce.

In the following chapters we will not deal with all aspects of the information chain, but only with those which concern the scientist. In essence, there are three subjects:

the tracing of literature on a given subject and the writing of a literature survey;
the processing of research results into a research report;
the passing on of research results to practice.

Further reading

Loosjes, Th. P. (1973). *On Documentation of Scientific Literature.* 2nd edn. Butterworths; London.

Vickery, B. C. (1973). *Information Systems.* Butterworths; London.

(Reproduced from Technical Literature Search and the written report by D.J.Maltha, 1977.)

2 Purpose of the literature survey

The advancement of science means that people try to shift the frontier of knowledge. At this frontier one can see innumerable problems. The advancing of science amounts to choosing one problem from the many and attempting to solve it. Before beginning on this work one must be aware of how far knowledge of this problem has progressed, at least that knowledge which has already been published. This is always the starting point for one's own research.

The most important means of recording scientific information is still the publication. Publications take many forms; examples are: the reference book, the monograph, the journal article, the report, the congress report. All publications collectively are called the *scientific and technical literature.*

2.1 The publication as a medium in the information chain

A scientist must record his experimental results in a documented report of the research, in which he justifies the path he has followed to reach his results. His report must meet high standards of accuracy, completeness and logic. It is often preceded by a short preliminary report (preliminary note, short communication, letter to the editor) in which only results are given. The purpose of this is usually to gain priority (Section 4.3.1).

Reports take different forms but they are all *primary publications* (Section 4.1). Besides primary publications, there are secondary and tertiary publications. *Secondary publications* are derived from primary, and may take the form, for instance, of abstracts or review articles. There is an intimate relationship between documentation and information services and these secondary publications. Libraries and documentation and information services depend heavily on these secondary publications. You could even say that the literature would be completely inaccessible without this sort of publication.

D 7 & 8 - WORK SHEET

1. Name the Instituion and the Personnel involved in the following ~~projects~~ research projects in Sri Lanka

   A. Grain storage and preservation

   B. Intercropping with rubber in Ceylon.

   C. Cheese production as a cottage industry in Ceylon

   D. Fertiliser utilization in the coconut plantation.

2. Give the name and address of the Institution

   A. Centro internacional de Agricultura Tropical (CIAT)

   B. Commonwealth Bureau of Plant Breeding and Genetics

   C. Agricultural Economics Research Institute of Czechoslavakia.

   D Institutul de Cercetari Pentru Pomicultura -ICP Romania.

3. Give the name of the Author and the name of the Publication in which the following titles have appeared.

   A. Postharvest storage of cassava tubers

   B. Study on the technique of crossing soybean.

   C. Investment regulation for Agriculture and horticulture

   D. Production and marketing of small farmers.

4. Name 5 recent research papers on Sri Lanka that have appeared in the Bibliography of Agriculture.

5. List a few research papers on obtaining fuel from agricultural sources (some of Key words : Alcohol; beet sugar : cassava : sugarcane; Fuel and energy)

6. Give the full bibliographical details of the following documents

   A. Proceedings of the National workshop on Agricultural Education & Training held at Peradeniya in November 1979.

   B. Report on the spice and essential oils crops of Sri Lanka by S.T.W.Kirinde

   C. Crop Diversification and land settlement programme as integrated appearance to Agricultural Extension in Sri Lanka.

   D. Agriculture/Fertiliser industry of Sri Lanka.

7. Name the author ~~and the address~~ (together with his address) of the following research articles that have appeared in periodicals.

   A. Seed germination.

   B. Abundance of the housefly... in a tropical village.

   C. Hypotheses on paths of dissemination of soybean in China.

   D. Contamination of maize with mycotoxins.

8. Give the full name of the abbreviated form.

   1. B.A.S.I.C.
   2. Cent.Path.index.
   3. Frm mgmt notes Univ.Nott.
   4. Scient.Res.Br.Univ. Coll.
   5. Trop.anim Hlth Prod.

9. ~~From the existing~~

9. List ~~the~~ 4 titles of the project reports published by the Facylty of Agriculture, University of Peradeniya together with the name of the author.

   A. Ttiles in Plant Pathology.

   B. Titles in Entomology

   C Titles in Food Technology

   D. Titles in Planation Crops.

10. From the Literature available list

   A. ~~E~~ 3 Conference ~~papers on~~ proceedings that you think suitable for a library.

   B 3 publications on Indian Agricultural Economics do

   C. 3 abstracting journals

   D. 3 titles on poluution control & environmental sciences.

D 9, D 10

NSC- UNDP NATIONAL WORKSHOP ON LIBRARY AND INFORMATION SERVICES. - 6 - 24 July 1981.

INDUSTRIAL INFORMATION

BY

MRS. I. UNAMBOOWE

INDUSTRIAL DEVELOPMENT BOARD

INDUSTRIAL INFORMATION

What is an Industrial Enterprise

It is a growing organism or a dynamic unit which is changing constantly.

Features

It is an organism which is engaged in the production of goods and services.

It has financial investment and therefore aims at making profits.

It requires technical know-how at each level of operation & production.

It requires skills

It requires machinery & equipment & knowledge of their operation & adaptation.

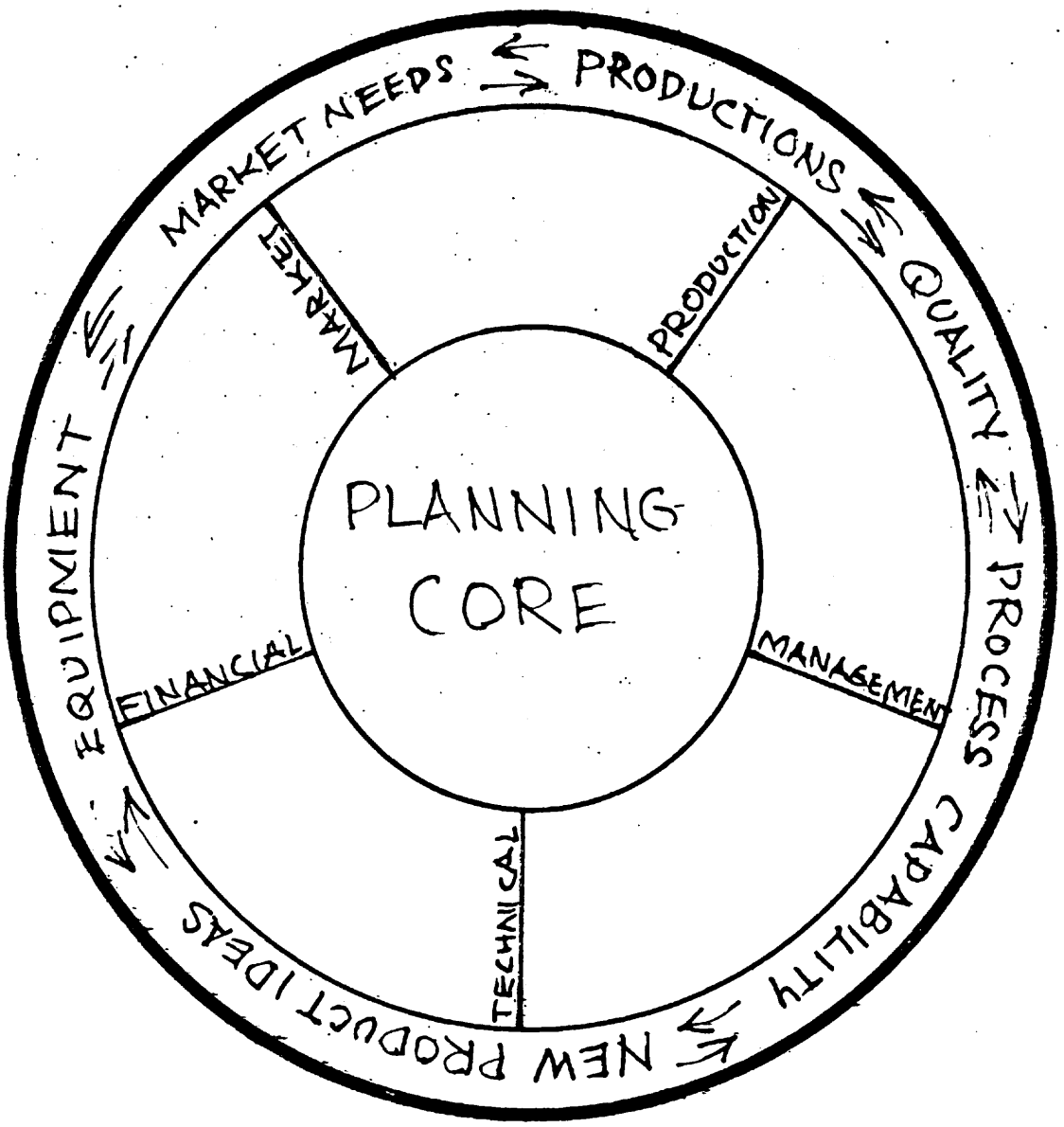
The product is aimed at a market and hence should meet market specifications.

As a growing mechanism, it requires product development & deversification.

It requires financial management.

It requires planning & innovation.

It requires overall management.



FORCES INTERACTING IN AN ENTERPRISE

FIGURE I

At each of those levels of operation an enterprise requires information. Information is the Right Lubrication for the Right Action. An industrial ventures requires

(a) A flow of information within the enterprise which leads to the effective operation of the enterprise, planning & programming & solving of problems.

(b) A flow of information from outside which is aimed at-solving problems, where information available within is insufficient; planning expansion; production of quality products, for markets etc. see figure II.

The inter-action of information facilitates better management decisions. Information which is knowledge & data is valuable only when it is utilised & in this context utilised for improvement, production etc.

Thus information for industry has the concept of an intellectual effort to stimulate management & staff members of individual enterprises within the private and the public sectors, to improve present operations and to innovate methods, processes and services by requesting and converting into practical results knowledge of any kind procured in any form.

<u>The aim of information for industry is to foster industrial growth and by this to contribute to the socio-economic evolution</u>

As mentioned earlier knowledge is of no valuc unless utilised <u>& exploited. Consider it as a commodity. A product or a Com-</u> modity has no value if it is not utilised and its utilisation. is dependent upon the extent to which the users or the consumers are made aware of it. This we describe as MARKETING OF COMMODITIES which entails accessibility advertising, sales promotion etc. KNOWLEDGE - AN INTELLECTUAL COMMODITY - requires all this.

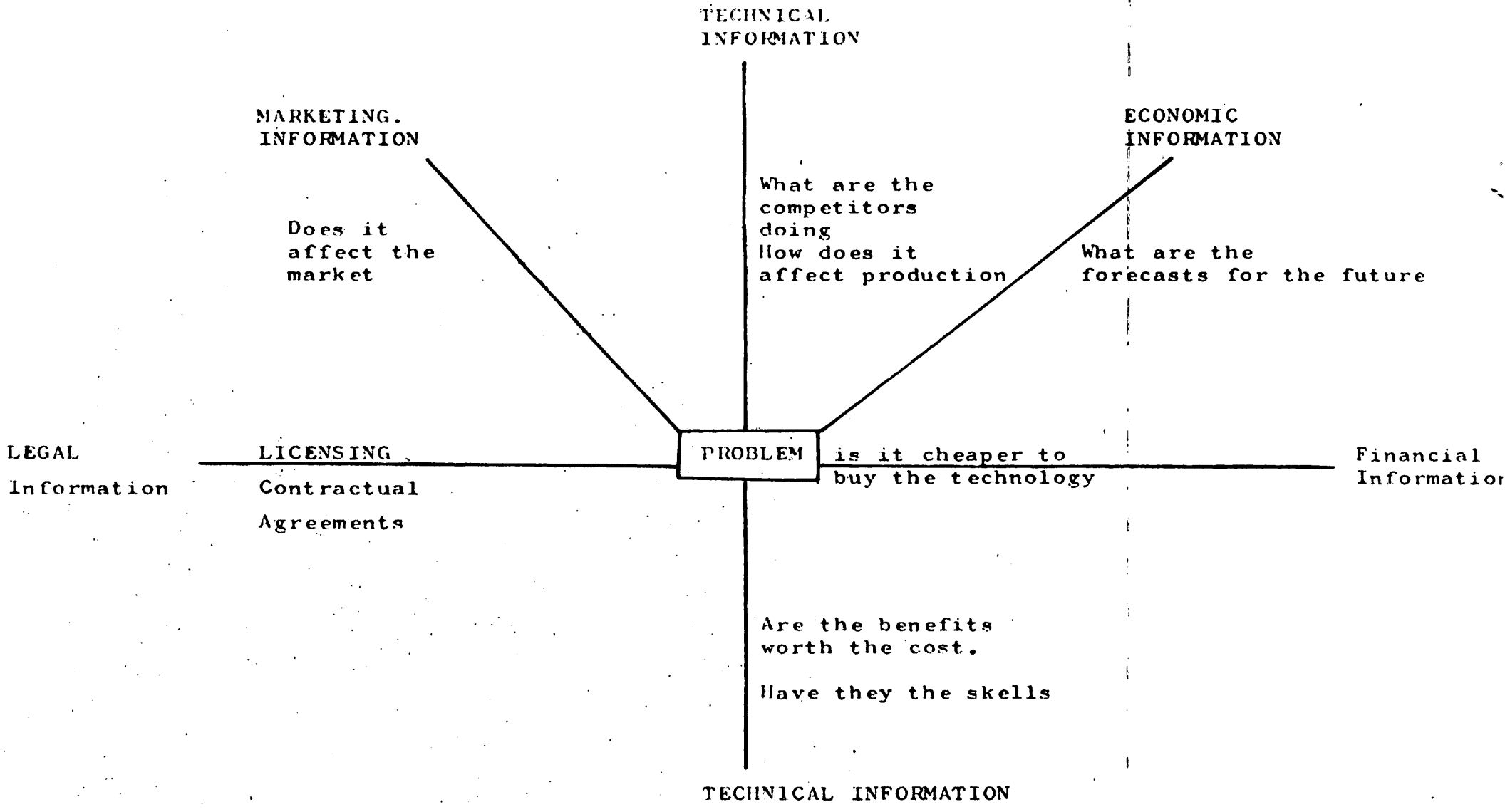
The most important aspect of Industrial Information is the communication aspect or the Marketing Aspect. Research has indicated that majority of the people do not read and are not aware of knowledge available in any field or the important contribution it could make. This is more relevant to Sri Lanka than any other country. The place of information in an enterprise or organisation could be exemplified by the following progression.

Observation & thinking	——>	Fact
Fact & understanding	——>	Information
Information & sharing	——>	Communication
Communication & mutual understanding	——>	Inter Action

What one seeks to achieve in relation to industry and information is sharing and mutual understanding between users and the "givers of information" leading to close interaction beneficial to both. Thus a primary fact of Industrial Information is Communication. Knowledge of sources would be of no value if it is not purposefully communicated. Library & the information materials are a means to an end; which is its utility. It is based on the concept of servicing the users of information and the stress in this course of lectures would be on information and its uses rather than on the things in which information is stored.

Pre requisites of an Information Service

1. Information base - (plate 4)
2. NNetwork of National Information Centres
3. International & Regional Network of specialised & other Organisations.
4. Roster of Individual Expertise.



INFORMATION FOR DECISION MAKING

Fig. 1

Strategy of Marketing Information

1. Study the structure or nature of the market - here the prospective information users. Pose the questions

    a) Who are they?
    b) In what do they require information?
    c) Where will they apply it?
    d) Why do they seek it?

2. What is the diversity of demand. ie. What diverse types of information do they require - (Process Technology, Machinery equipment, management, financial, marketing etc.)

    This would lead to the compilation of the USER PROFILE.

3. Development and stimulation of a demand for information.

4. Active presentation of "Commodity" (Information).

5. Training in Searching.

6. Liaison between "Users" & "Stores" (Information Centres)

7. Reporting on appropriateness of information.

Services Provided

1. ACTIVE INFORMATION SERVICE

    a) Searching for information & compilation of information packages according to the Profile of users. This should be compiled after a survey of demand.
    b) Dissemination of information selectively - Uninvited.
    c) Provision of photo-copies & reprints of articles

d) Keeping the clients up-to-date on the latest developments, attitudes and techniques through current awareness services - UNINVITED.

e) Making the clients aware of all the information available on a particular field or sector through bibliographies, Documentation bulletins and literature reviews.

2. QUESTION & ANSWER SERVICE

a) Transfering knowledge, documents, etc. on requests from the users.

b) Provision of advisory services.

c) National & International referral service

d) Stimulating a demand for questions.

3. FIELD LIAISON SERVICE

1. Visiting industries uninvited.
2. Stimulating a demand for information by discussions & interviews.
3. Promoting the use of specialised knowledge available
4. Compilation of profiles of fields of interests.

4. CONFERENCES & SEMINARS

a) Promotion of the effecient use of knowledge in a particular branch or sector of industry.

b) Stimulating the cross-flow of information on an important topic, throggh discussions.. Utilisation of persenal knowledge & expertise.

c) Promotion of specialised information services.

d) Training on how to organise the information flow to and within an enterprise.

5. FEED BACK

In all these there whould be a feed back promoted through a close dialogue with the users. Such a feed-back would enable the determination of the effectiveness & the appropriateness of the service.

Of these a very valuable & important service is the field Liaison Service. It is this which determines the value of the information service. However the importance of communication & an understanding of the individual plays a very important role.P.4.

This function contributes lowards interaction between the communicates and the recipient (p.4) Fig III

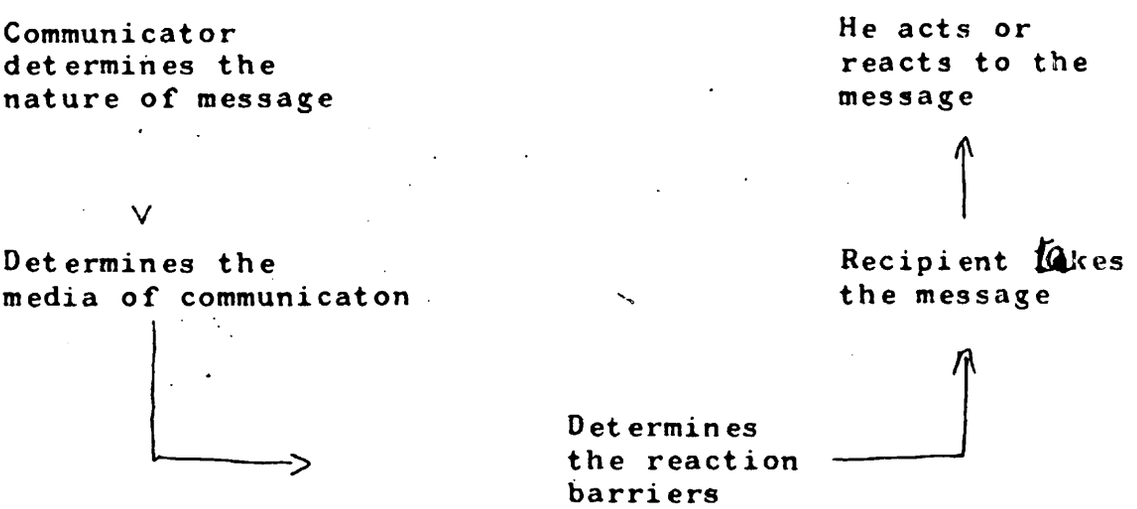


Fig III. Process of Interaction

Taking all this into consideration the information officer should be positive on the message he is to convey. He must ask himself.

a) What is the problem which confronts the recuestor of the communication
b) What is the information which would help him to overcome his problem.

c) Does the information officer have the information within his sources or does he have to search elsewhere.

The next step would be to communicate the message & obtain a feed-back. Communication in any field requires an understanding a basic human psychology. The communicator should seek to transmit the message in such a manner that it appeals to the rational side of man. The ability to rationalise is variable in every individual & in communication, it is important to determine the frame of reference of each individual & transmit the message to suit the individual frame of reference. (P.7. & 8).

In order to market the information one must win the confidece of the buyer. This is of primary importance in an industrial information service.

SEARCH - The basic steps in a search.

1. Clarification
2. Sources-Identification of documentary sources
   - Identification of national, international & Regional institutions which could provide an input.
   - Identification of specialised Research Institutes
   - in the field that could contribute
   - Industification of external data bases that could be utilised.
   - Identification of personal expertise
3. Compilation of information thus collected into a comprehensible document.
4. Repackaging of information as required.
5. Transfer.

(P.4) See Fig IV.

D 11 & D 12

Practicals

1. An Industrialists, wishing to purchase equipment would like to have the names and addresses of Manufacturers of Rubber Rollers and Polishers in Sri Lanka.

2. A potential investors seeks the names, addresses and prices of machinery for the production of Chalk.

3. Technical Information of rice milling machinery.

4. Ethyl alcohol/Ethanol - its uses. Methods of manufacture.

5. Density of water, Acetic acid, Ethyl alcohol.

6. Sources of Information on Cheese making with raw and pasterised milk.

7. Specification for tamarind pulp manufactured in India.

8. Information on Manufacture of Glucose from Cassava.

9. Sources of Information on distillation of Cinnamon leaf oil/ Essential oil.

10. The preferential tarriffs on DC Motors and Acetic acid imported to Sri Lanka and what are the SITC Nos.

11. Exports of Activated Carbon from Sri Lanka and the countries exported to.

Module E1 + E2

NSC - UNDP NATIONAL WORKSHOP ON LIBRARY & INFORMATION SCIENCE

6 - 24 JULY, 1981.

Topic : SDI Service : Manual and Computerised SDI Services.

Date : Monday 13th July.

Lecturer : Malkanthi Nanayakkara.

MANUAL AND COMPUTERISED SDI SERVICES - OUTLINE.

1. What is SDI?

   Definitions.

   The significant characterstics of an SDI Service.

   (i) provides specific information on the topics of interest to the individual.
   (ii) eliminates irrelevant literature.
   (iii) focuses on current information.
   (iv) alerted speedily.
   (v) systematic coverage.

2. Reasons for the development of SDI Services.

   (i) increase in the total volume of literature.
   (ii) multi disciplinary approach to issues (in the literature).
   (iii) dispersal of subjects over a range of journals and other types of publications.
   (iv) dispersal of subjects geographically i.e. global interest in a topic.
   (v) growth of data bases and information services.

3. Nature of SDI Services.

   (i) tendency to be associated with large commercial data banks.
   (ii) computer based or aided services.
   (iii) possibility of having effective small manual systems.
   (iv) The need for the service to be backed by library services.

cont'd.....2.

4. Concepts common to Manual and Computerised Systems
   (i) The need to match two dissimilar things - clients intent with information input.
   (ii) need for a systematic analysis of current information.
   (iii) need to construct user profiles.

5. Construction of User Profile.
   (i) Methods of construction in manual system.
   (ii) in a computer based system.
   (iii) difficulties.
   (iv) need for modification after a pilot phase.
   (v) need for periodic review.

6. 15 minute individual exercise on construction of a profile, and matching profile with system for information analysis.

7. Manual System.
   (i) possible applications of SDI in small S & T Libraries.
   (ii) procedures in detail.

8. Computer Based SDI Services.
   (i) Applications with special reference to CAN/ SDI.
   (ii) Other examples.
   (iii) Advantagers of these systems.
   (iv) Constraints.

Cyclostyle - 2

Date

To:

From:

Subject: Readers' Interest Profile Form

To learn the programme and professional interests of each Population Division staff member, so that material coming into the Reference Centre can be brought to their attention, individual Readers' Interest Profiles are being compiled.

The basic information serving to make up the Profile will ... be taken from the attached form. In order to assure that the Profile is kept-out-to-date, each staff member will be asked to complete a new form each six months, or more often if he wishes. As each member's interests expand and change, the Reference Centre should be informed so that the additional information can be recorded.

The information from the forms will be collated by subject area, country, and periodical. When new material comes into the Reference Centre, it may be circulated to the appropriate staff members, after an initial display period in the Reference Centre.

... A sample, completed form is also attached for information.

United Nations ECAFE Population Division

READER INTEREST PROFILE FORM

1972 [ ] First Half [x] Second Half

pleted: 15 November 1972

f reader:

1) KAP (knowledge, attitude, and practice) surveys of population groups within the ECAFE region.

ame and ofessional eas, ase be ecific

2) The effect of the practices of polygamy and polyandry upon fertility all countries.

3) Examples of the use the "Effectiveness Index" in measuring relative change, over time, among several groups each beginning at different levels of, for instance, knowledge, attitute, and practice of contraceptive methods.

ntries of terest, ase be ecific

Burma
Papua New Guinea
China, People's Republic
India

rnals and her serials nterest, cific titles, publishers issues and t, if known, language.

Journal of Science and Technology (Burma)

New Guinea Research Bulletin (Australia)

Bulletin of the Institute of Rural Health and Family Planning (India)

you supply sample copy e be returned)

tional ents or stions

Would like to know the current addresses of workers in the fields of population and family planning through out the world.

PS: I'm happy to see this service finally get started!

CAN/SDI PROFILE FOR GLORIA SMITH

I WOULD LIKE TO BE ALERTED TO PUBLICATIONS ON ALL ASPECTS OF HEAT SHIELDS IN SATELLITES AND OTHER SPACECRAFT. I AM ALSO INTERESTED IN PROBLEMS CAUSED BY HEAT TO THESE VEHICLES. I SUBSCRIBE TO THE JOURNAL OF SPACECRAFT AND ROCKETS AND DO NOT NEED TO BE ALERTED TO ARTICLES FROM IT. I WOULD LIKE MY PROFILE SEARCHED AGAINST THE COMPENDEX TAPES.

TWO USEFUL REFERENCES IN THIS TOPIC ARE:

1. Silical reinforcement and char reactions in the Apollo heat shield. Gagliostro, D.E. Goldstein, H. et al. J. of Spacecraft and Rockets, Vol. 9, 1978,pp. 346-350.

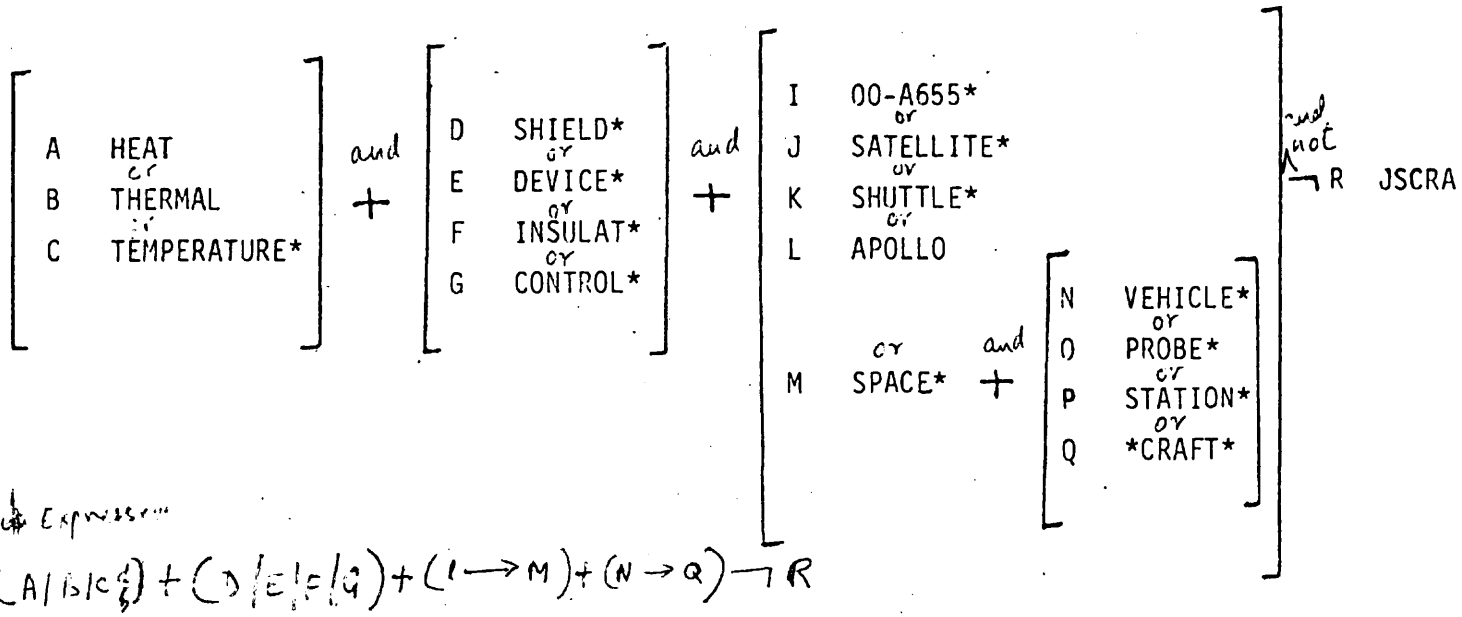
2. Diffusion bonded columbium panels for the shuttle heat shield. Korb, L.J. Deuyukian, C. et al. SAMPE Q, Vol. 3, 1979, pp. 1-11.

CAN/SDI PROFILE FOR GLORIA SMITH

CONCEPT MAPS

DIAGRAM SHOWING KEYWORDS TO BE SEARCHED AND THE CO-OCCURRENCES, NON-OCCURRENCES, AND RELATED TERMS (BOOLEAN LOGIC CONDITIONS).

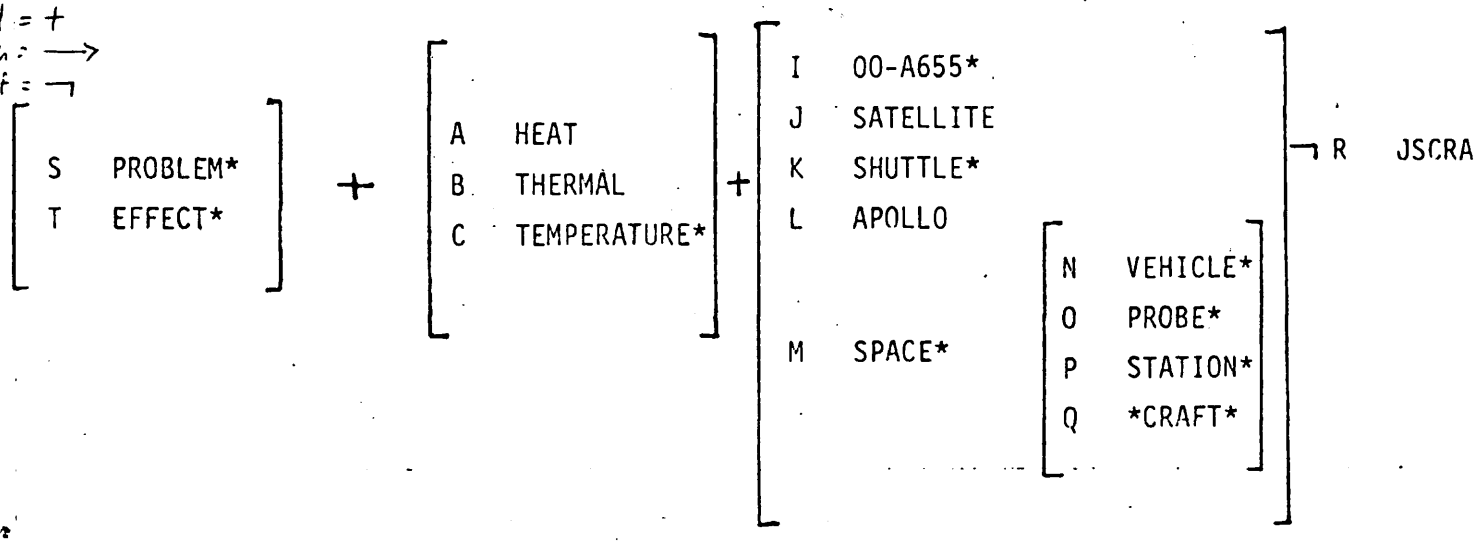
and / or / not

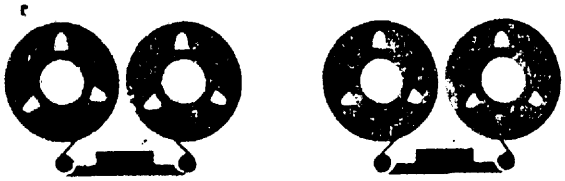


Search Expression

$(A|B|C) + (D|E|F|G) + (I \rightarrow M) + (N \rightarrow Q) \neg R$

or = |
and = +
through = →
and not = ¬





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Organization / Organisme

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Address / Adresse

VANCOUVER

BRITISH COLUMBIA

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T		B	THERMAL				
T		C	TEMPERATURE*				
T		D	SHIELD*				
T		E	DEVICE*				
T		F	INSULAT*				
T		G	CONTROL*				
K		I	OO-A655* (Spacecraft)				
T		J	SATELLITE*				
T		K	SHUTTLE*				
T		L	APOLLO				
T		M	SPACE*				
T		N	VEHICLE*				
T		O	PROBE*				
T		P	STATION*				
T		Q	*CRAFT*				
C		R	JSCRA (J Spacecraft & Rockets)				
T		S	PROBLEM*				
T		T	EFFECT*				

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OF INTEREST?

To:

From: Colvilles Limited
INFORMATION SERVICE
Central Research Dept.
Meadow Road, Motherwell

ABSTRACT OF A TECHNICAL PAPER IN ENGLISH

Mulflur, W.H. B. 1581 RMP5

Algoma's 106-inch wide hot strip mill. (A.I.S.I. Chicago Regional Technical Meeting, 14 pages, September 30, 1964)

Gives details of Algoma's development programme which began in 1957 with particular reference to the hot strip mill. This is said to be the widest in the world rolling coiled products and it is claimed to have the most up-to-date control technique short of an on-line computer.

	Cost	*Please indicate choice thus
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Figure 5.6.5b Selective notification sheet.

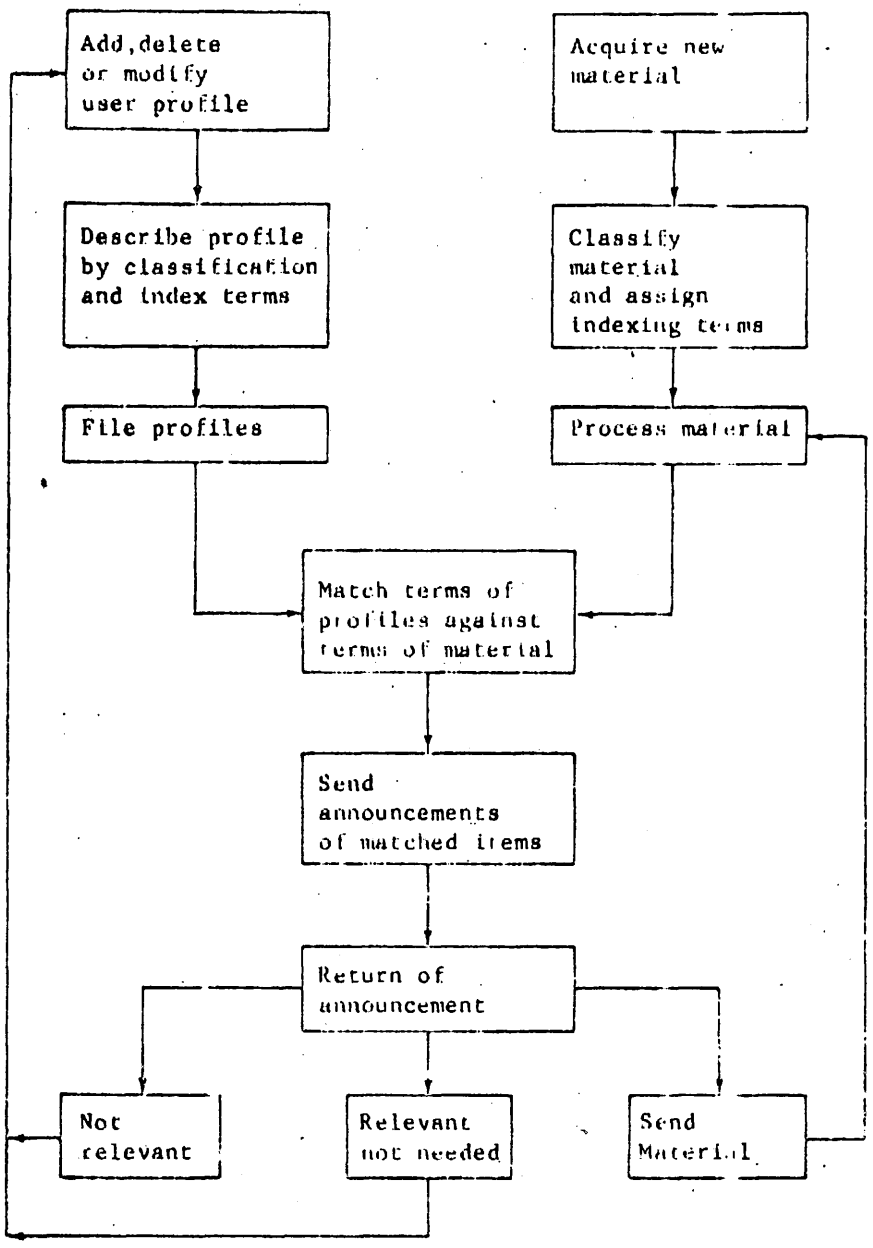
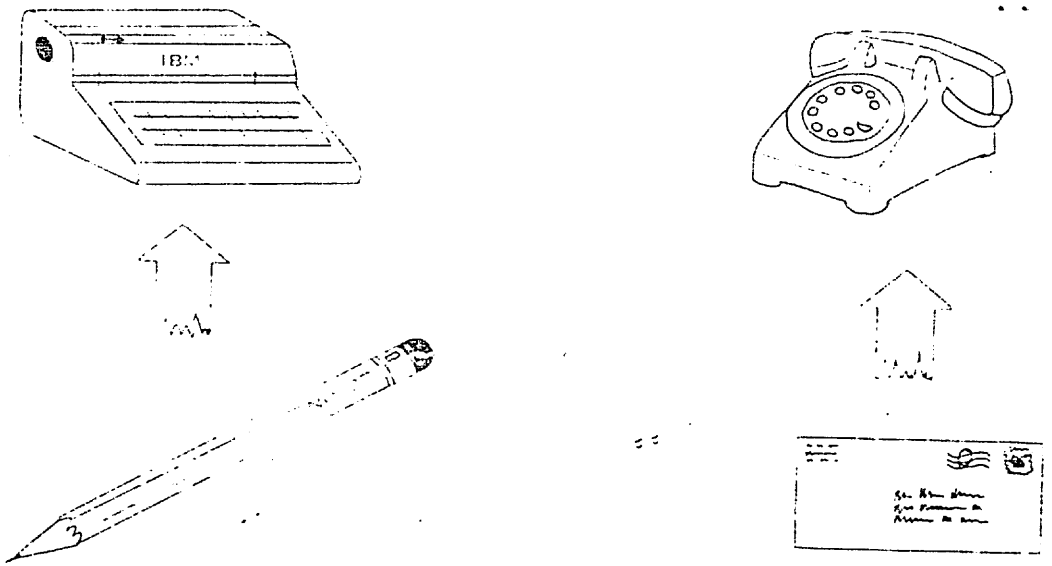


Figure 4.4.5 SDI service centre - operational flowchart

E 3.

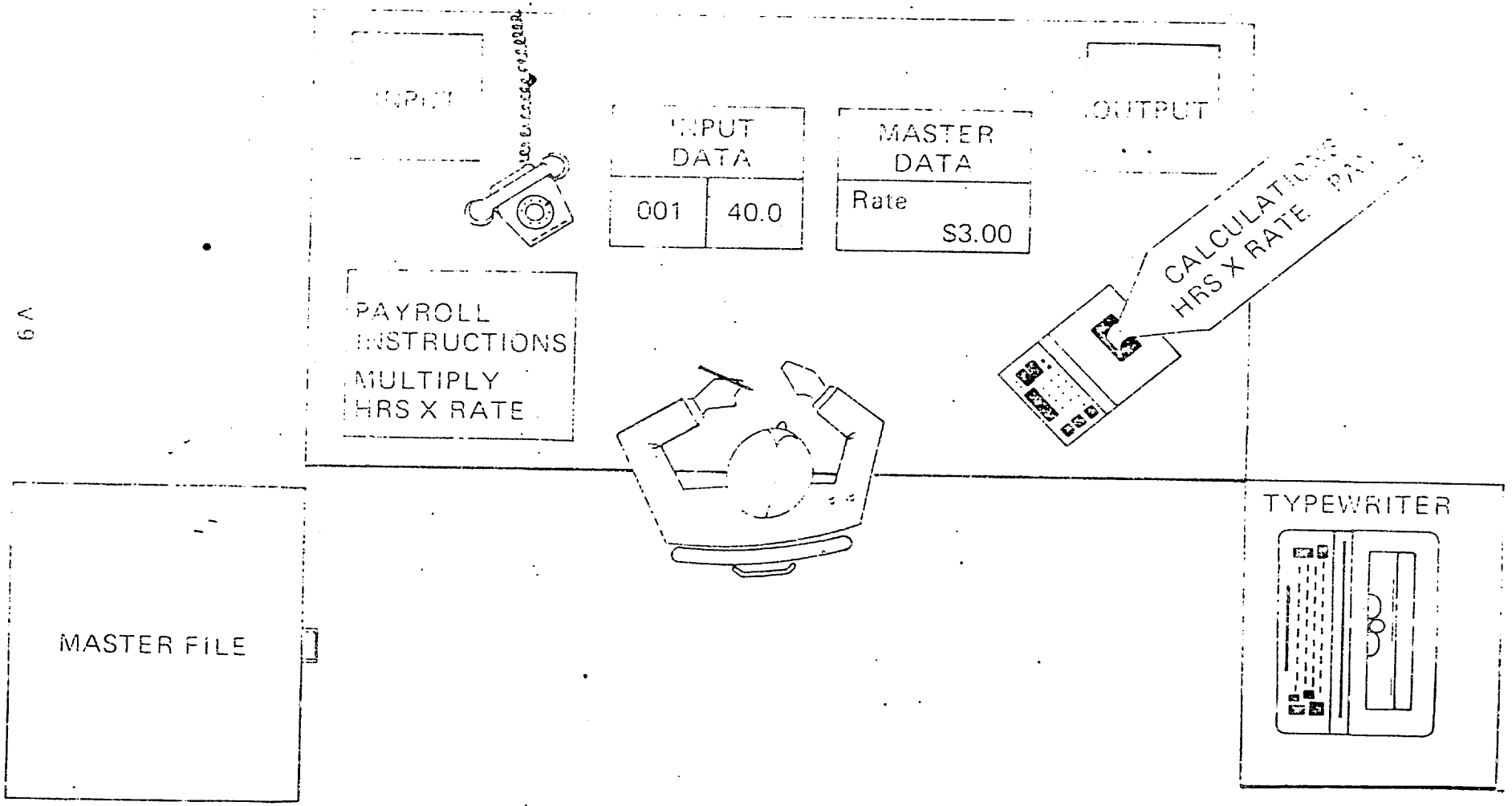
DOES THE NEW REPLACE THE OLD?



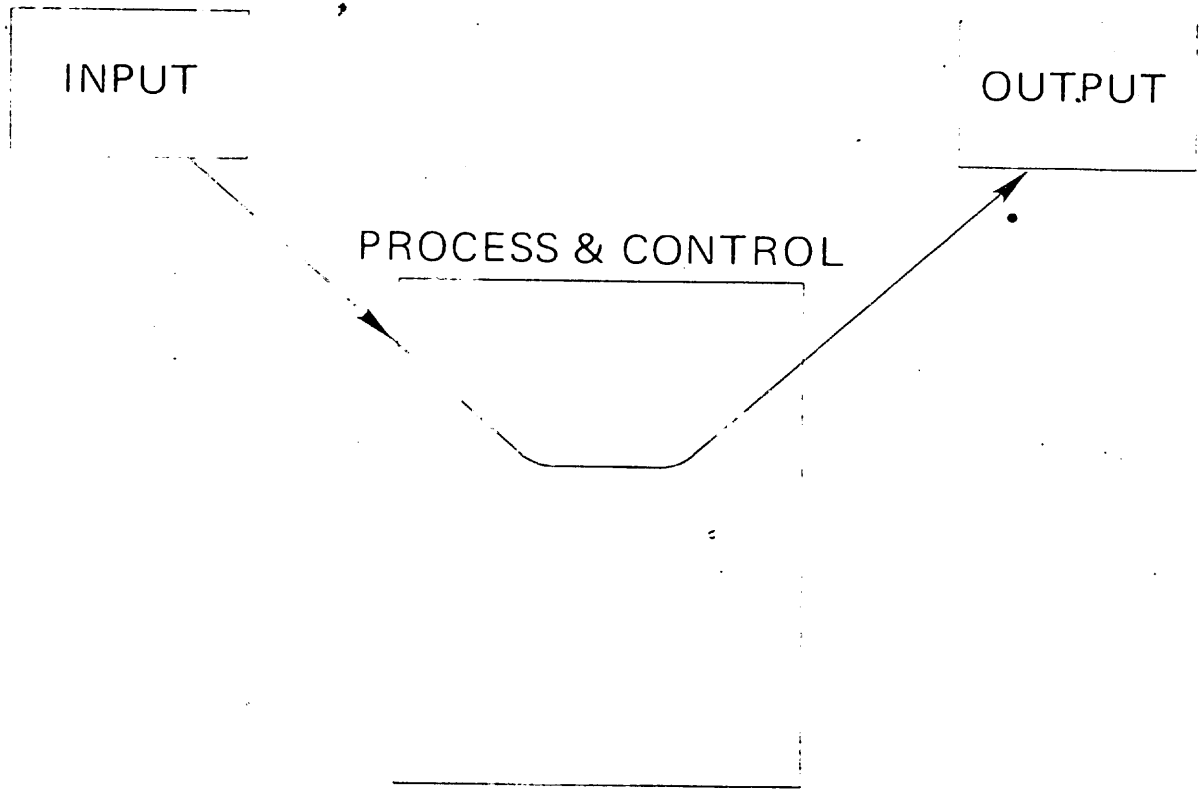
V-3

OR DOES IT SUPPLEMENT THE OLD?

A DATA PROCESSING SYSTEM

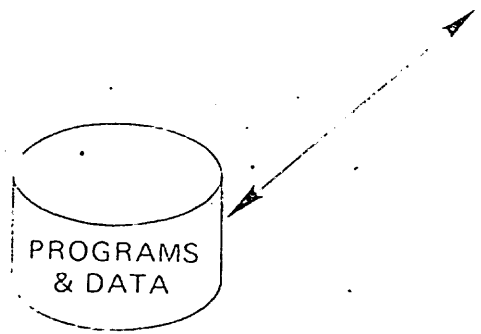


COMMON ELEMENTS



V-24a

V.24b



AUXILIARY STORAGE

V-24c

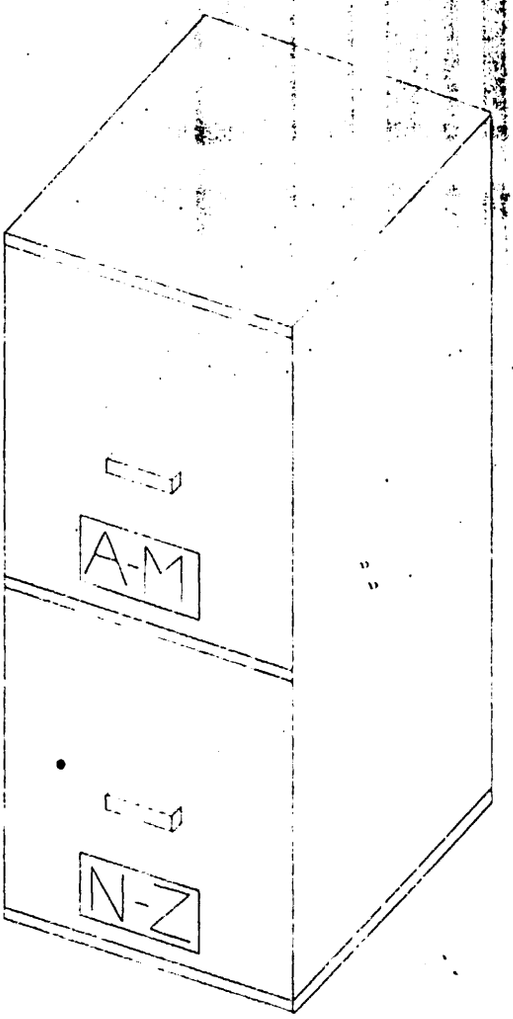
CONTROL PROGRAM

USER PROGRAM AND DATA AREA

CENTRAL PROCESSING UNIT (CPU)

MAIN STORAGE

FIELD–RECORD–FILE

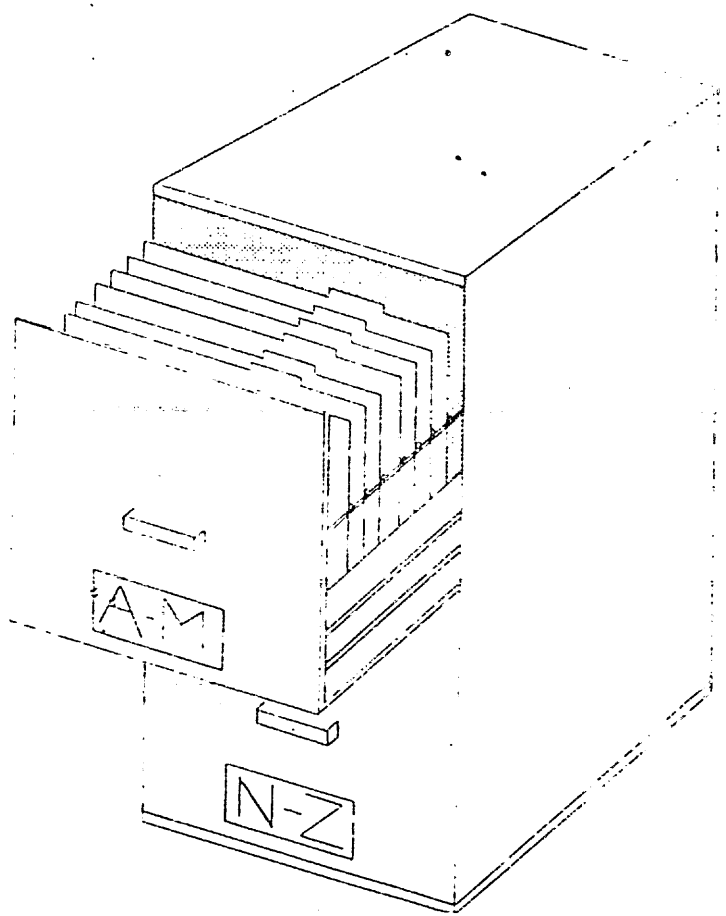


EMPLOYEE MASTER FILE

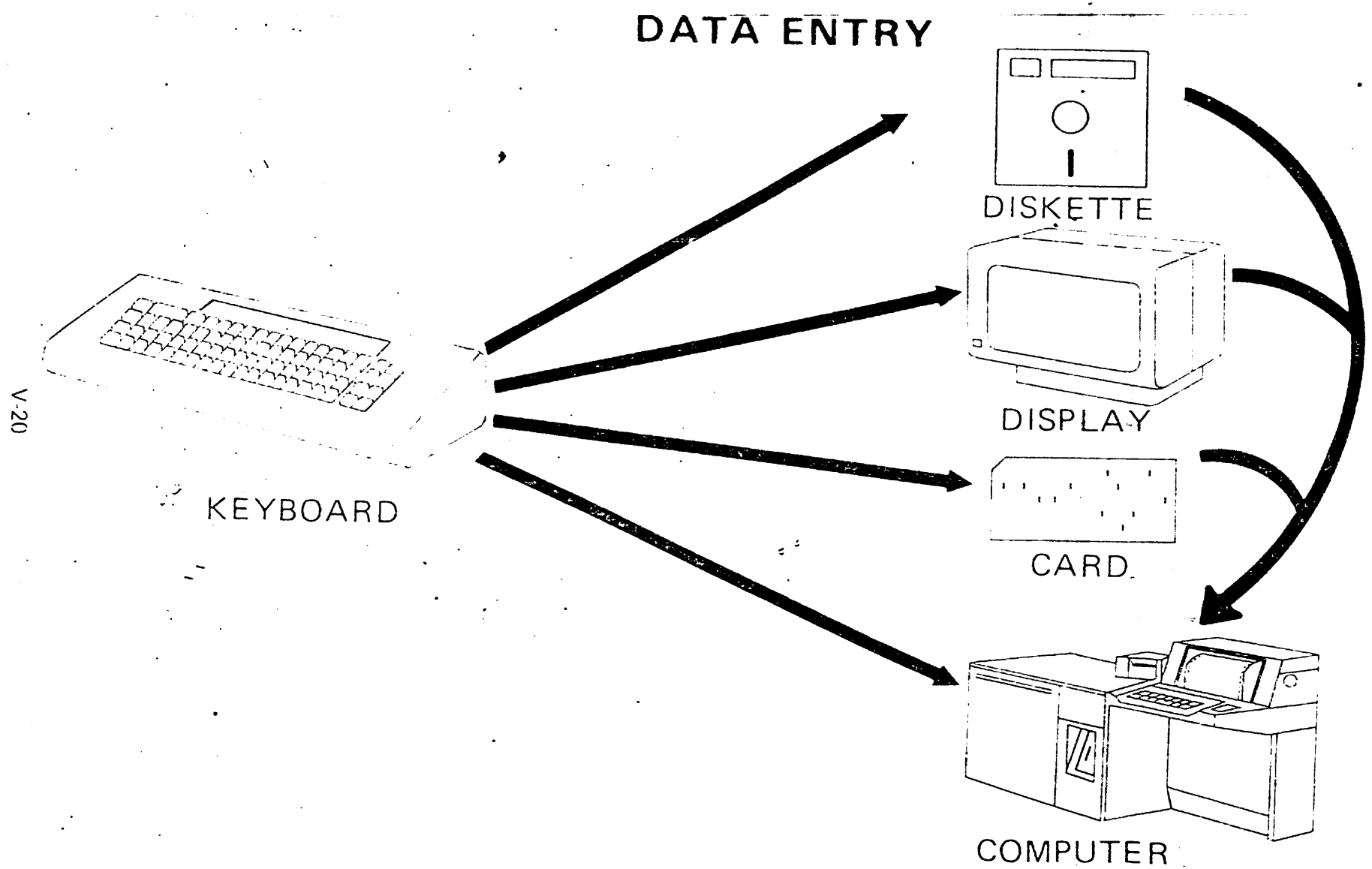
MASTER RECORD

EMPLOYEE NUMBER	NAME	HOURLY RATE	DEDUCTIONS BONDS	FICA
001	JOHN JONES	$3.00	5%	6%
ADDRESS	65 BROADLEAF PLACE, WILLOWDALE, FLORIDA		YTD GROSS $9315	YTD FICA $558.90
NUMBER OF DEPENDENTS – 6				

PROCESSING METHODS



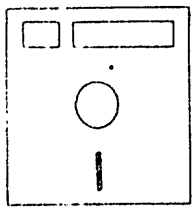
- SEQUENTIAL
- RANDOM



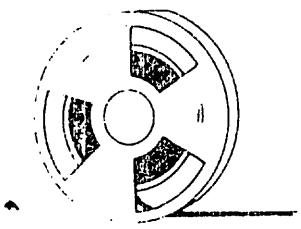
V-20

COMPUTER FILES

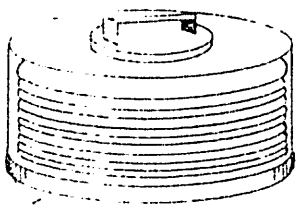
CARDS



DISKETTE



TAPE



DISK