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LETTERS

Data Please

Among professional librarians, there is a developing awareness and interest in unions. The efforts of unions to organize within the publishing industry, at least in two sections of the country, and the organizing drive within governmental agencies are two instances of the direct impact of unions on special libraries.

The Research Committee of S.L.A. has asked me to prepare a paper studying this impact on special libraries and its implications for professional and non-professional staff members.

It will be helpful to have data from many types of special libraries in a broad geographic area. I would appreciate any information from readers concerning union activities and their effect on special libraries and librarians in:

a. colleges and universities
b. the public library
c. governmental agencies
d. independent research libraries
e. not-for-profit agencies
f. corporations
g. and other situations

Information concerning non-professional staff unionization would also be appreciated.

Please forward any information to: Herbert Biblo, Assistant Librarian, Reader Services Division, John Crerar Library, 35 W. 33rd St., Chicago, Ill. 60616.

Herbert Biblo
John Crerar Library
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Hammers Are Costly

It is indeed very amusing to read yet *another* article describing yet *another* method for successfully killing a gnat with a platinum sledge hammer. Dr. Collins, in his article, "Data Management Systems. Part I. A Model Approach to Automating Small Library Files" March 1975 issue of *Special Libraries* suggests the applicability of user oriented, commercially available data management systems (the platinum sledge hammer) in small- or medium-sized libraries in order to free personnel from mundane housekeeping chores (the gnat).

Dr. Collins seems to have avoided one very important point in his paper, the omission of which, I feel, generally leads the less experienced librarian considering automation, to assume that commercially available data base management systems are inexpensive (fly swatters) and as such are well adapted to the smaller special library.

The basic RAMIS system Collins briefly mentions is available from Mathematica, Inc., on either a one-time license fee of $28,000 or a monthly license fee of $840. Or consider you can obtain the System 2000 he describes for $30,000 or $2,700 for 12 months. If you're inclined toward expensive, imported data base management systems look at ADABAS available from a German firm, Software AG for $120,000!

My point is: Librarians, data base management systems can solve many of your housekeeping chores as Collins' suggests, but don't look for them in the Gaylord or Demco catalog.

Clarence A. Sturdivant
Marathon Oil Company
Littleton, Colo. 80120

Author's Reply

It is difficult to understand why Mr. Sturdivant became so heatedly vexed upon reading my article. Throughout the paper I indicated that data management systems are run in conjunction with large centralized computers. I suggested that the kind of small- to medium-sized special libraries usually found in the industrial, educational, and governmental spheres should begin to consider using the data management systems often made available by their parent organizations. In fact, I indicated that a minor disadvantage to this approach is that a library may have to accept some shortcomings in the software package *already* available through its parent organization. Finally, I concluded that librarians should consider the great potential of these systems for library automation if certain conditions can be met, namely, the pre-existence of both a large computer and a data management system package for the librarian to use (see conditions 3 and 4 in the Conclusion).

Nowhere in my article did I so much as hint that a librarian should purchase these expensive packages strictly as a fancy toy for the exclusive use of the library. Why Mr. Sturdivant chose to assume this was my intent is beyond me. I was gratified to note, however, that he basically agreed with my fundamental premise that data management systems can play a useful role in simplifying many library housekeeping chores. I wanted to make librarians aware that these systems are often available but have been sadly neglected by them.

Dr. Kenneth Alan Collins
Chevron Research Co.
Richmond, Calif. 94802

User Criteria for Selection of Commercial On-Line Computer-Based Bibliographic Services

An Industrial Practical Case Study

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■ Many interrelating factors with examples have been cited as criteria for selection and proper use of commercial on-line computer-based bibliographic services in an industrial environment. These complex factors have been analyzed under the needs of the users, the selection of hardware, the selection of mode of transmission, the selection of vendors and systems, the selection of data bases, the development of productive search strategy and the considerations of measures to test it, the attitude of management, and the interaction of the user with the system. In the author's experience exhaustive and comprehensive searches were minimally requested, thus posing questions for determining measures of evaluation.

KING AND Palmour *(16)* have indicated, as reported by the American Chemical Society, that industrial chemists spend nearly 12 hours per week in literature searching and current awareness reading. Since the figures have indicated that the scientists spend only about 5% of their time using formal primary media, and an even smaller time using abstracting and indexing media, the implication is that even small improvements could result in large gross savings in scientific manpower utilization, assuming the saved time would be reallocated to useful pursuits.

In describing the benefits of networking, Greenberger and colleagues *(12)* have listed four developments which are applicable to interactive on-line retrieval: the greater variety and richness of available resources; improved computer communications technology reflected in the widened availability regardless of size, location, or financial status; the decreasing cost per unit of information stored or processed; and payment for information processed as it is obtained, with virtual elimination of huge capital costs and budgetary uncertainties. In the industrial environment of the author, the latter was one of the deciding factors for trying on-line bibliographic data retrieval.

In the case under study, information has been of great value many times. Provision of the right information at the right time has saved time and money, but no attempt has ever been made to quantify it. The industry has also found that the absence of necessary information can be costly—as in the duplication of its own work and the work of others—with regard to manpower, equipment, time,

and patents. Costs must be considered in obtaining objectives.

In trying to find reasons engineers were not using external bibliographic retrieval services, Rippon *(23)* found lack of encouragement by management to make use of the services as one reason. In the author's case, management approved, encouraged, and gave the final impetus toward the use of on-line bibliographic data retrieval.

Methodology

The development of the methodology gives a breadth of process observation that is characteristic of case studies. Rae *(22)* in discussing the use of the SUNY biomedical network pointed out that pioneers have to learn by experience, as this author found. Townley *(29)* was not able to find any examples of successful solutions of practical problems in using external information services, and she wished that many people would be prompted to come forward with their own experiences, in order to shed light on a number of problems, which are also applicable to on-line retrieval. Cooper *(7)* found that the value of information cannot be ascertained until examined. The value of the use of on-line services has, therefore, to be determined by experience.

In this report, prior research or experiences linking the use of each system component to ultimate value or effectiveness have been noted. Applications to prior studies have been made to on-line data retrieval as possible criteria for selection and use of components of the total system. Applications have been related to case history experience. The selection process and implementation of commercial on-line computer-based bibliographic services in an industrial environment are related to many separate factors that are interrelated. These factors are considered under the component interactive parts of the total retrieval system.

The Needs of the User

Garvey and colleagues *(11)* found that users had variation of needs at various stages of research. A rather exhaustive search prior to the beginning of a project, a detailed but narrow search needed where only methodology was in question. Information needed varied with scientific discipline, and workers in applied sciences had needs varying from theoretical and research scientists. Needs for browsing and broad scientific knowledge were noted. The experience and educational background of the users varied the needs. The information scientist has to have some feeling or understanding of what a user does know, as well as what he wants to find. Burton *(5)* has reported the selective dissemination of information service that was user-dependent met the needs of the users both in research support and for educational purposes.

McCarn and Leiter *(18)* found that a large percentage of on-line users were not seeking complete information or exhaustive bibliographies. They considered measures of performance of information and retrieval systems based on precision and recall to be somewhat inappropriate. A fellow participant of the author's at a recent workshop *(24)* remarked that her staff referred to on-line searches as "quick and dirty," because they were done quickly with incomplete recall, but with sufficient recall to fill the need. The author has had the experience of trying to meet a request, "Do what you can for $100." The pertinence of a particular document to a particular need can be decided only by the person with the need, according to Kemp *(15)*. In the author's experience, information systems were of less value when new or novel applications were required.

Hardware Selection

At the time of the decision to "go on-line," the author had had no experience with any type of terminal used for data or document retrieval. Management sought advice from systems and data processing personnel who were knowledgeable about data retrieval, final computations, but not familiar with intermediary, often changing, search strategy statements. The author had to emphasize repeatedly the absolute necessity of having print ca-

pability; a leased cathode ray tube (CRT) was useful for scanning and group demonstrations, but not for retaining the search strategy. Problems followed of not being able to break leasing contracts, not being permitted to upgrade contracts, not being able locally to interface one company's printer with another company's CRT. The teletype that was used to "fill in" was slow, ten characters per second, and noisy, being an impact rather than a thermal printer. To use the CRT, a dataphone had to be installed. Users need to consider the number of characters per line a terminal can handle, installation and rental or purchase costs, cost of supplies, availability of supplies, service availability. In the author's case, the terminal has been moved four times, and will possibly be moved again, so relative portability should be considered. If the service will be used extensively, a back-up facility may be needed.

Transmission

The author found little information in the published literature. The transmission agent should have a local number or be geographically close so that the transmission system can be accessed. WATS (Wide Area Transmission Systems) use is at lower rates than direct long distance, but more expensive than use of a transmission agent such as Tymshare. If direct long distance is used, the costs are directly proportional to the geographical distance from the computer. Atmospheric conditions sometimes influence transmission fidelity, and this can be detected from the printout. Transmission by satellite had been available. If search strategy is lost due to transmission difficulties, determine in advance if the cost is recoverable in some way.

The System and the Vendor

Brandhorst and Eckert *(4)* have listed several features of good system design, which are: 1) ability to enter any command any time; 2) ability to select which records or elements to print; 3) ability to qualify retrievals by date or language or other qualifiers; 4) ability to print on-line or off-line; 5) unrestricted use of Boolean operators and number of search terms; 6) on-line thesaurus; 7) ability to link search statements; 8) protection against file or program destruction; 9) user query language as close to natural as possible. The author could cite problems encountered with almost any of the nine features! Ability to use word adjacency is also important.

Training procedures are desirable, and also tutorials built into the system, if they can be bypassed by the constant user. Training manuals and word lists and data base descriptions should be provided by the vendor. Some free on-line learning time should also be provided.

Fast response time is desirable and a minimum of "down" time, when the computer is not operating *(9)*. The flexibility provided by a system has to be judged by experience, but its ability to handle more than one data base or its ability to update searches readily would be two indications.

The terms of the contract with respect to cost should be examined critically. On a subscription basis the user must pay for a specified number of hours whether use is made of them or not. Some vendors have combinations of subscription rates and use rates, or for only certain initial periods. Some require purchase of hard copy material or combinations of hard copy subscriptions up to a specific sum. Most charges are made by connect time only, which is most economical, and the user pays only for the time actually used. These charges vary not only from one vendor to another, but also by data base used. Direct assistance is essential from a contact person or subject specialist. The vendor should demonstrate sensitivity to users' needs.

Data Bases

Back *(1)* and Kabi *(14)* have indicated that completeness of coverage within the time period covered, and keeping the data base as current as possible are the most important criteria for measurement of an information service. Corbett *(8)* asked if the data base covers the core journals of the specific discipline, and Helliwell *(13)* felt that index changes affected the data

base user. Various investigators *(25, 26)* have considered time lag in abstracting, number of indexing terms, accuracy of data as criteria for selection. Consistency should also be a consideration; Tate *(28)* explained that grouping the first twenty *Chemical Abstracts* sections into a subject-interest field called "Biochemistry" indicated concentration, not exclusivity. Natural language used has been touched upon. Degree of overlap must be considered because a searcher must make the decision to search more than one data base with the full realization that duplicate results indicate waste of time and money. Abstracts as well as bibliographic data are also helpful. The present costs range from $25 per hour to $150 per hour.

Search Strategy and Evaluation Measures

Recall and precision have been the primary evaluation criteria for systems for several years. These relate not only to the system, however, but the search strategy used, the searcher performing the task, and the judgment of the user as to pertinence of material retrieved. It is not within the province of this report to describe search strategy using Boolean operators, or index language devices such as coordination, term weighting, or links and roles, but it is important for the search strategist to understand the concepts, and to be aware of how the system utilizes them. Carmon and Park *(6)* have related the familiarity of the searching personnel with the data base, the ability to structure a search question properly, and the interaction between the end user and the searcher as critical to successful use. The searcher must have some knowledge of which data base contains relevant material and be relatively familiar with the search terms within a data base. In addition to structuring his strategy before he goes on-line, the searcher must analyze results. Examples of failures noted in the literature were terms retrieved in wrong context, wrong correlation of terms, deficiency in statement of interest, use of ambiguous terms, inadequate concept expansion, too restrictive statement, mistakes in spelling or keypunch errors in the data base, inadequate titles, inadequate or improper indexing *(2)*. An overriding "NOT" term may produce a failure, particularly in a comparison. The author found that the user did not always state what he really needed, or how his need fitted into a larger problem. The searcher has a choice of approaches directly related to the flexibility of the system, which greatly influences total cost and efficiency. In the author's case exhaustive searches have been minimally requested. The value may be inherent in the information found, or the cost benefits in the method of finding it, or the value of finding the amount of information, or the value of finding no information.

User-System Interface

Summit *(27)* has stated that truly interactive information retrieval systems properly depend on the terminal operator as an intellectual decision-maker not as merely a clerical keyboard operator answering computer-initiated questions. Bennett *(3)* related user acceptance of interactive systems to many factors: 1) the "bullying" effect of the terminal prodding the user to move at a faster pace than optimal, 2) the consciousness of the high costs being incurred, 3) the resentment of the user being watched by colleagues, and 4) the human eye as a limiting factor in CRT design and use. According to Cuadra *(7)*, the user first regards the system as remote and mysterious, then he may feel "molded and manipulated." Totally different systems have to be learned and assimilated in order to access different data bases. Lancaster and co-workers *(17)* found that casual users never became expert users, and consequently experience was a factor. Fox *(10)* has stressed the importance of the physical environment directly relating to noise, lighting, placement of the terminal too high or too low, and so on. Melnyk's article *(19)* about frustration was classic, relating the user's fear of appearing foolish, fear of destroying the system, and fear of asking for help—and the author's experience of finding few persons locally or at a distance who knew the answers anyway! Special frustrations

Table 1. Quick Checklist for Criteria for Selection, Use, and Evaluation of Commercial On-Line Computer-Based Bibliographic Services

Needs of the User	Varies with: Background education Background experience Subject discipline Value to user: Effectiveness Efficiency Convenience Time savings Cost savings Encouragement of management	Function of use: Research support, theoretical Research support, applied Short query Exhaustive retrospective search Extension of subject expertise Extension of broad scientific interest
Hardware Selection	Systems compatibility Print capability Characters per line Upper and lower case Speed of operation Noise of operation Need for visual scanning Black on white screen White on black screen Positioning of cursor Information flow Demonstrations Ease of visual use	Ease of installation Location Ease of moving; portability Ease of manual use Servicing Availability of supplies Cost of supplies Ease of duplicating printed copy Need for back-up facility Rental cost Purchase cost Can contract be changed? Terms of contract
Transmission	Long distance, direct Long distance, WATS Transmission vendor Local accessibility Local representative	Dataphone necessary Installation Rental cost Noise or interference Satellite Cost recovery for lost strategy?
System and the Vendor	Training provision Manuals Indexes Workshops Cost, transportation Cost, housing Cost, workshop Other aids Cost of all above Ability to print off-line and on-line Compatibility with hardware Ability to select records to print Ability to qualify retrievals Cost by subscription Cost by computer time used Must hard copy data base be purchased?	Flexibility with single data base Flexibility with multiple data bases Protection of privacy Protection of file Natural query language Option of level of use Availability of assistance Fast response time Number of search terms unlimited Availability during day Use of Boolean operators not restricted Ability to link search statements Ability to command system readily Off-line print charge by page, citation, or number of lines Must back-up files be purchased or leased? Sensitive to user's needs
Data Bases	Time-span covered Extent of articles covered Time lag from date of publishing to date of indexing Indexing aids available	Number of journals covered Core journals in discipline covered Time lag in updating data base Document types covered; e.g., patents? Exhaustivity in indexing

Table 1. Quick Checklist for Criteria for Selection, Use, and Evaluation of Commercial On-Line Computer-Based Bibliographic Services (contd.)

Data Bases (contd.)	Thesaurus available	Number of errors or fidelity
	Abstracts included?	Users notified of index procedures changes
	Limitations	Reference to hard copy
	Time availability	Allowance for time zone differences
	Cost	
Search Strategy and Evaluation Measures	Knowledge of data base construction	Precision failures of terms in wrong context
	Experience with system	Precision failure of use of non-specific word fragments
	Knowledge of search terms	Precision failure in use of ambiguous words
	Communication with user	Inadequate concept expansion failure in recall
	Ability to structure search statement	Statements too restrictive
	Analytical evaluation of results	Mistakes in spelling
	Recall failure in having NOT terms present	Recall failure with inadequate indexing
	Search strategy not logical	Interest statement deficient
	Wrong terms combined	Value of information found
	New uses learned	Cost-benefits
	Value of time saved	Value of finding no information or amount published
	Time saved permitting more searches made	
User-System Interface	Noise disturbs operator	Visual disturbances
	Improper lighting	Physical placement of terminal, high or low
	Temperature	Distance of terminal from user's office
	Privacy from onlookers	General comfort during operation
	Space for demonstrations	Fear of making expensive errors
	Place for concentration	Frustration by not obtaining a telephone line
	Not "bullied" by speed of operation	Fear of making "ridiculous" errors
	Fear of destroying system	Frustration of having transmission problems
	Initial distrust	Frustration by not being able to access computer
	Inexperience cuts efficiency	Forgetting special terms or "lingo"
	Frustration with delayed responses	Available time for use overrides other user considerations
	Instruction manuals being unavailable	

of the author have been distance required to gain access to the system, not enough work space near the terminal, time delays in accessing the data base, special knowledge of special languages or special codes needed, inability to duplicate printout, permanence of output (some Hi-Liters react with thermal print paper), and allowing the time for use to override all other time requirements. A new corollary to Murphy's Law would be, "During any given demonstration, *some* problem will develop."

Table 1 is a quick checklist for criteria for selection, use, and evaluation of commercial on-line computer-based bibliographic services, relating to the needs of the user, hardware selection, transmission, system and vendor, data bases, search strategy and evaluation measures, and user-system interface. It is hoped that these experiences, these selection criteria, these correlations, will help others make the selection and use of on-line systems, workable, practical, valuable, and enjoyable.

One of our research staff members stated that the author had been far too negative in this report. He suggested that the author tell how within six minutes, eleven precisely pertinent references had been found by entering just one term,

thereby making a "believer" of the staff member, after he had searched manually for a long time. In conclusion, therefore, it is not all frustration—if you have faith, and are facile, you will find on-line searching fast, factual, fruitful, frugal, fabulous, fun, fascinating, and seldom a failure!

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The Electric Power Research Institute

Coordinated Energy Research to Meet a National Need

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■ To meet the challenge of the nation's electric energy problems effectively, the electric utility industry, in 1972, formed a unique institute responsible for coordinated R & D for the industry. An electric utilities R & D data base and a technical library are being developed to provide for the information and research needs of the institute.

THE ELECTRIC POWER Research Institute (EPRI), Palo Alto, Calif., is a nonprofit organization engaged in coordinated research and development in the field of electric energy. The institute was formed in 1972 in direct response to the utility industry's need for industry-wide organization and cooperation in its efforts to solve electric energy problems relative to the environmental and economic interests of the nation.

Investor-owned companies, publicly owned agencies, rural cooperatives, and the Tennessee Valley Authority voluntarily sponsor EPRI.

A total of 275 full-time staff members compose an administration division and four technical divisions: Nuclear Power, Fossil Fuel and Advanced Systems, Transmission and Distribution, and Energy Systems, Environment and Conservation. The 1975 budget for R & D contract appropriations totaled $108 million.

Utilities R & D Data Base

An electric utilities research and development projects data base is being established at EPRI. The data base is being compiled from closed-ended questionnaires sent to all utility companies in the United States. A thesaurus for gaining access to the data is being developed based on the "Engineering Index Thesaurus," "INIS Thesaurus" (International Atomic Energy Agency, Vienna), "Thesaurus of Engineering and Scientific Terms," and the "Thesaurus of Water Resources Terms." The data base will provide immediate access to on-going projects sponsored and/or being conducted by the nation's utilities. Access to the data base is unrestricted, and is free of charge to all EPRI member bodies; for non-EPRI members there will be a minimal usage charge.

Technical Library

A centralized agency providing for the procurement, organization, and dissemination of information relevant to the needs and interests of the institute was established in the form of a technical library in 1973 when EPRI began active operations.

The library, staffed by two professional librarians and one clerk, is a full-service information center. It provides reference service, bibliographies generated on request and on an information alert basis, and computer literature searches. Computer literature searches utilize the

Lockheed DIALOG system—ABI (Abstracted Business Information), BIOSIS Biological Abstracts, CMA (Chemical Market Abstract), Predicasts, COMPENDEX Engineering Index, ERIC (Educational Resource Information Center), INSPEC (Institution of Electrical Engineers) NAL (National Agricultural Library) CAIN Data Base, NTIS (National Technical Information Service), and the Energy Research and Development Administration's (ERDA) RECON system—NSA Nuclear Science Abstracts, ENG Energy Data Base, TOX Toxic Materials Data Base, WRA Water Resources Abstracts, ERD Energy R & D Projects, NSR Nuclear Structure Reference, HEF Heated Effluent Bibliography, PRD Power Reactor Dockets, and EDB Energy Data Base.

The library's collection is comprised of books, journals, newspapers, federal and state documents, governmental and non-governmental reports, U.S. and foreign patents, EPRI-member utility companies' annual reports, pamphlets, and maps. ERDA and National Aeronautics and Space Administration unclassified scientific and technical documents form the nucleus of the government report collection.

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Selected Basic Reference Publications in the EPRI Library

Abstracts:

Air Pollution Abstracts (U.S. Environmental Protection Agency, Technical Information Center)
Abstracts of literature accessioned by the Air Pollution Technical Information Center. Author and subject indexes.

Air Quality Abstracts (La Jolla, Calif., Pollution Abstracts)
International in scope. Classified subject listing of periodical articles, conference proceedings, reports, etc.

Ceramic Abstracts (American Ceramic Society)
Classified subject arrangement. Abstracts of periodical articles, etc. Includes U.S. and foreign patents.

Energy Abstracts (Engineering Index, Inc.)
Abstracts of the world's technological literature and conferences on energy-related topics. Main subject headings with subheadings. Author index.

Energy Abstracts for Policy Analysis (Oak Ridge National Laboratory and U.S. Energy Research and Development Administration Technical Information Center)
Formerly *NSF-RANN Energy Abstracts.* Abstracts of selected publications—government documents, books, reports, proceedings, etc. Author, subject and report indexes.

Energy Review (Energy Research Corporation)
Abstracts of periodical articles, government documents, reports, proceedings, etc. Subject index.

Engineering Index (Engineering Index, Inc.)
Compilation of abstracts of significant international technical literature in engineering-related fields. Classified subject arrangement. Includes author index.

Environment Abstracts (Environment Information Center, Inc.)
Formerly *Environment Information Access.* Contains review section, abstracts of periodical articles, etc., conference listing, films, and book reviews. Subject and author indexes.

Fuel Abstracts and Current Titles (Institute of Fuel—London)
Abstracts of technical and scientific world literature dealing with fuel and power. Classified subject listing. Author and subject indexes.

Gas Abstracts (Institute of Gas Technology)
Classified subject listing of patents, books, reports, etc. Author index.

Nuclear Science Abstracts (U.S. Energy Research and Development Administration)
Comprehensive abstracting of the world's nuclear science literature. Coverage: technical reports of ERDA and other government agencies, books, proceedings, patents, journal articles, etc. Subject, author, corporate author, and report number indexes.

Selected Water Resources Abstracts (U.S. Department of the Interior. Water Resources Scientific Information Center)
Abstracts of monographs, journal articles, reports, etc. Coverage: water-related aspects of physical and social sciences. Classified subject arrangement. Subject, author, organization, and accession number indexes.

Solid Waste Management: Abstracts from the Literature (U.S. Environmental Protection Agency)
Abstracts of international literature relevant to solid waste management—laws, storage, disposal, recycling, hazardous waste, etc. Includes subject, personal and corporate author indexes.

Indexes:

Current Titles in Electrochemistry (Society for Advancement of Electrochemical Science and Technology—India)
Classified listing of titles and news selected from literature in electrochemistry and related fields.

Energy Index (Environment Information Center, Inc.)
Annual. Selective guide to energy-related publications: journals, articles, government documents, reports, proceedings, etc. Includes statistical data. Subject and author indexes.

Environment Index (Environment Information Center, Inc.)
Guide to international literature—articles, documents, reports, books, etc. Subject arrangement. Includes author and subject indexes.

Environment News and Index (Edison Electric Institute)
Cites current information dealing with the physical environment relative to the electric utility industry. Emphasis on the technical and economic aspects.

Dictionaries:

Edison Electric Institute. Statistical Committee. / *Glossary of Electric Utility Terms.* New York, Edison Electric Institute, n.d. 86p.
General descriptive glossary.

Godfrey, Lois E. and Helen F. Redman, eds. / *Dictionary of Report Series Codes.* 2d ed. New York, Special Libraries Association, 1973. 645p.
Dictionary of report series codes assigned to technical reports giving originating agency or agency responsible for code assignment. Corporate entry section with corresponding codes, and code section with corresponding agencies.

Institute of Electrical and Electronics Engineers / *IEEE Standard Dictionary of Electrical and Electronics Terms.* New York, Wiley-Interscience, 1972. 716p.
Defines terms according to IEEE Standards, American National Standards, and the International Electrotechnical Commission.

Mehra, Raj / *Dictionary of Electrical Abbreviations, Signs, and Symbols.* New York, Simon and Schuster, 1965. 642p.
Abbreviation-term and term-abbreviation sections. Includes letter symbols, abbreviations for drawing, graphic symbols, etc.

Directories:

Eastern Hemisphere Petroleum Directory. Tulsa, Okla., Petroleum Publishing Company 1974. 459p.
Includes companies engaged in exploration, refining, engineering, etc. Alphabetical by country. Address, personnel, brief statistics (when available) given for each entry. Company and personnel indexes.

Electrical World (periodical) / *Electrical World Directory of Electric Utilities.* New York, McGraw-Hill, 1974. 980p.
Annual. Listing by state of electric utilities—municipal, investor-owned, etc. Includes Canada. Statistics, personnel, and addresses are included. Includes electric power system pools and coordinating groups, consulting engineers, and national and state organizations sections.

Energy: A Guide to Organizations and Information Resources in the United States.

Claremont, Calif., Center for California Public Affairs, 1974. 204p.
Organized by subject. Coverage from broad energy-related organizations to specific concerns, e.g., oil, natural gas, nuclear fusion.

Environment Information Center / *The Energy Directory: A Comprehensive Guide to the Nation's Energy Organizations, Decision-Makers, and Information Sources.* New York, Environment Information Center, 1974. 418p.
Overview of energy. Includes federal and state governmental agencies, professional and trade organizations (international and national) and industry listing. Brief summary of energy interest areas (when available), address, and personnel given for each entry.

International Atomic Energy Agency / *Directory of Nuclear Reactors.* Vienna, International Atomic Energy Agency.
Annual. Classified arrangement. International in scope. Each entry includes purpose, type, owner and operator, main reactor characteristics, date of information, etc. Diagrams.

Mineral Resources Industries Corporate Profiles. New York, McGraw-Hill, 1974. 286p.
Data on 500 leading mineral resource companies. Includes business and financial profiles. Alphabetical by company.

Encyclopedias:

International Petroleum Encyclopedia. Tulsa, Okla., Petroleum Publishing Company, 1974. 468p.
International presentation of petroleum exploration and refining. Statistics. Illustrated.

Handbooks and Manuals:

Corcoran, Peter J. / *EEI Rate Book.* New York, Edison Electric Institute, 1974. 471p.
Electric rates in effect as of February 1974 in communities of populations of 1,000 or more. Includes examples of simple rate forms and their computation. Alphabetical by state.

Keystone Coal Industry Manual. New York, McGraw-Hill, 1974. 859p.
Annual. Includes articles on various facets of coal—transportation, coal seams utilization, etc. Industry statistics for coal production, stock and reserves, among others. Directory of coal mines, associations, and consumers.

McNerney, N. C. and Thomas F. P. Sullivan, eds. / *Energy Reference Handbook.* Washington, D.C., Government Institutes, Inc., 1974. 280p.
Glossary of energy-related terms. Conversion factor tables for common energy units.

Moody's Public Utility Manual. New York, Moody's Investor Service, 1974. 2,300p.
Annual. Financial statements of American and Canadian public utility companies.

Purdue University. Lafayette, Indiana. Thermophysical Properties Research Center / *Thermophysical Properties of Matter.* New York, Plenum, 1970. 13v.
Purdue University data series on the properties of matter—thermal conductivity, specific heat, etc.

Sawyer, John W. / *Sawyer's Gas Turbine Engineering Handbook.* Stamford, Conn., 1972. 2v.
Volumes include: theory and design, applications, and maintenance and fundamentals.

Tipton, C. R., ed. / *Reactor Handbook.* New York, Interscience, 1962. 4v.
Declassified literature dealing with reactor technology: materials, physics, fuel processing, and shielding.

Wick, O. J., ed. / *Plutonium Handbook.* New York, Gordon and Breach, 1967. 2v.
Topics concerning the use and technology of plutonium.

Statistics:

Bituminous Coal Data. Washington, D.C., National Coal Association, 1974. 143p.
Annual. Statistics on production by mine size, state and district, coal markets, and stocks energy production and fuel use, etc.

Edison Electric Institute / *Historical Statistics of the Electric Utility Industry Through 1970.* New York, Edison Electric Institute, n.d. 166p.
Statistical presentation of generating capacity, energy resources, generation, sales and customers, among other facets.

—— / *Report on Equipment Availability for the Ten Year Period, 1964–1973.* New York, Edison Electric Institute, 1974. 44p.

Statistics of electric generating facilities availability and outages in the United States. Appendix of definitions.

—— / *Statistical Year Book of the Electric Utility Industry.* New York, Edison Electric Institute, 1973. 70p.
Annual. Total electric utility industry represented statistically—generating capacity (by year and state), sales, customers, fiinancial profile, etc.

Guyol, N. B. / *World Electric Power Industry.* Berkeley, University of California Press, 1969. 366p.
162-country study of the electric power industry. Statistical presentation of uses of electricity by industry, electric loads, electricity use per capita, etc.

Statistics of Energy 1959–1973. Paris, Organization for Economic Cooperation and Development, 1974. 253p.
Statistics of Organization for Economic Cooperation and Development member countries for each major source of energy and production and uses of energy sources.

Steam Electric Plant Factors. Washington, D.C., National Coal Association, 1974. 110p.
Annual. Data on capacity, generation, fuel costs and consumption.

U.S. Federal Power Commission / *Performance Profiles: Private Electric Utilities in the United States, 1963–1970.* Washington, D.C., U.S. Govt. Print. Off., 1973. 278p.
An economic and cost performance statistical presentation of private electric utility companies. Includes definition and computational section. Main emphasis on selected classification data and performance ratios—revenue from sales, expense per customer, production per KWH sold, and other data.

—— / *Statistics of Interstate Natural Gas Pipeline Companies.* Washington, D.C., U.S. Govt. Print. Off., 1972. 709p.
Annual. Financial and operating statistics of 80 natural gas pipeline companies under FPC jurisdiction in 1972. Includes balance sheets, research and development costs by company, gas prepayments, sources of funds, etc.

—— / *Statistics of Privately Owned Electric Utilities in the United States.* Washington, D.C., U.S. Govt. Print. Off., 1973. 804p.
Financial operating statistics of large privately owned electric utilities. Annual.

—— / *Statistics of Publicly Owned Electric Utilities in the United States.* Washington, D.C., U.S. Govt. Print. Off., 1973. 111p.
Financial and operating statistics of large publicly owned electric utilities. Annual.

U.S. Library of Congress. Science Policy Research Division / *Energy Facts.* Washington, D.C., U.S. Govt. Print. Off., 1973. 539p.
Compendium of selected U.S. and foreign energy statistics on resources, production by source of energy, consumption, research and development, coal, oil, solar energy, uranium, and nuclear energy.

Thesauri:

Engineers Joint Council / *Thesaurus of Engineering and Scientific Terms.* New York, Engineers Joint Council, 1967. 690p.
Includes thesaurus of terms, permuted index, subject category index, and hierarchical index. Thesaurus of terms indicates use of each term (subject field) broader and narrower related terms.

NTIS Master Frequency List of Subject Terms. July 1969–December, 1972. Springfield, Va., National Technical Information Service, 1974. 4v.
"Alphanumeric" listing of terms used in indexing research reports in *Government Reports Announcements.* Intended for users of the NTIS Bibliographic Data File.

U.S. Department of the Interior / *Thesaurus of Water Resources Terms.* Washington, D.C., U.S. Govt. Print. Off., 1971. 339p.
Compendium of water resources and related terms. Use of each term is indicated, and broader and narrower related terms are listed. Thesaurus of terms and subject category indexes.

Miscellaneous: Energy

Energy User's Report. Washington, D.C., Bureau of National Affairs, 1974. 3v.
A weekly review of energy policy, supply, and technology. Includes reference file of information on federal statutes and programs affecting energy supply, demand, and technology. Statistics.

Hydrogen Energy: A Bibliography With Abstracts. Cumulative Volume. 1953–1973.

Albuquerque, N.M., Technology Application Center, 1974. Various pagings.

Cites journal articles, reports, patents, etc., in areas of hydrogen energy. Each entry is annotated. Includes author, permuted title, and permuted subject indexes.

Interagency Advanced Power Group Project Briefs. Philadelphia, Power Information Center, 1973

Briefs on on-going research in power-related fields. Each entry includes project title, directing agency(ies), funding, years involved, project description, and related projects.

Inventory of Current Energy Research and Development. Washington, D.C., U.S. Govt. Print. Off. 1974. 3v.

Compendium of energy-related research projects. Includes research facilities, sponsoring agencies, etc. Four sections: Energy Sources, Health and Ecological Effects, Electric Power, and Energy Uses as of January 1974.

Solar Energy: A Bibliography. Oak Ridge, Tenn., U.S. Atomic Energy Commission, 1974. various pagings.

Covers solar energy conversion, solar radiation, solar thermal power plants, etc. Includes proceedings, reports, journal articles, books, and patents. Subject arrangement with author, subject, and report number indexes.

Miscellaneous: Environment

Coal Processing: A Bibliography. 1930–1974. Washington, D.C., U.S. Atomic Energy Commission, 1974. 757p.

Covers coal gasification, liquefaction, and desulfurization research. Includes patents, journal articles, proceedings, and reports. Glossary of processes, author, subject, and report number indexes.

Environment Reporter. Washington, D.C., Bureau of National Affairs, 1974. 12v.

"A weekly review of pollution control and related environmental management problems." Includes air, water, and solid waste laws by state. Listing of Federal regulations. Volume of pollution-related monographs.

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An Evaluation of the NASA Scientific and Technical Information System

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■ The best assessment of a scientific and technical information system is obtained from users. NASA has conducted system evaluation studies by talking with those the system is intended to serve—engineers and scientists working in their professional roles. The purpose was to assess the usefulness of the present system and to identify areas and ways in which the system can be made more effective. Emphasis was placed on NASA's announcement and current awareness media, its publication program, and its interactive retrieval system (RECON). The results show that the system is responsive to users' needs in most areas. Specific areas for improvement are identified and the steps NASA has taken are outlined. The major effect was a vastly improved communication with the users regarding what is available and how these resources can assist in solving information problems.

THE VALUE of a scientific and technical information system is ultimately established by how much and how effectively it is used—and not by the potential value of the information itself. A system evaluation then, must include talking with actual and potential users. This the NASA Scientific and Technical Information Office did during late 1973 and early 1974.

The goal was two-fold: to have the system rated by those it is primarily created to serve, scientists and engineers working in NASA installations and for its prime contractors; and to identify ways in which the system could be improved. Specific objectives fell out into three general classes. The first was to determine the usefulness of our announcement media and our on-line, interactive retrieval system, the value to the user of the information obtained from the system, and to assess the publications effort. Second, to learn how effective the dissemination system was and how the centralized system helped the installation and contractor libraries serve their customers. Last, the office wanted specifics on what was not now available but should be, what seemed to have little value, and what system improvements should be made.

The Format

More than a hundred currently productive scientists and engineers to be interviewed were identified at ten NASA locations and three contractor facilities. For consistency, a single member of the Scientific and Technical Information Office staff conducted all interviews. In all, 114 one-hour interviews were conducted. A worry that this sample—about one-hundredth of the potential user population—would hardly be representative dissolved by the time a third of the interviews were completed. The basic in-

formation needs of scientists and engineers just do not vary that much. As interview followed interview, a consistent pattern unfolded of user likes, dislikes, worries, problems, and needs. There were individual variations and anomalies but the underlying pattern remained constant throughout all interviews.

A structured format for the interviews was developed, tested, and revised. The interview format benefited from the critical appraisals of two experts in the field of statistics and market sampling. It was believed important that no significant changes in the interview pattern be made once the process began.

Each interview moved from identification of the user, his age, academic training, current professional specialities, publication record, to his reading habits. Next, questions regarding his general information habits were posed: journals read, meetings attended, frequency of use of local library, reliance on colleagues and peer group, nature of personal collection, use of other libraries, professional societies, and foreign sources. Becoming more specific, each was asked about use of such resources as abstract/announcement and current awareness media, on-line interactive systems, report and journal literature, microfiche and microfilm, literature searches and bibliographies, published indexes and standard reference works.

Questions were then posed on individual NASA products:

- *Scientific and Technical Aerospace Reports (STAR),* a semimonthly abstract/announcement journal covering worldwide aerospace *report* literature.
- *International Aerospace Abstracts (IAA),* a semimonthly abstract announcement journal published by the American Institute of Aeronautics and Astronautics (AIAA) for NASA covering worldwide aerospace *published* literature.
- *Selected Current Aerospace Notices (SCAN),* a semimonthly current-awareness medium that combines *STAR* and *IAA* citations in more than 180 specific interest profiles.
- *Computer Program Abstracts (CPA),* a quarterly abstract/announcement journal devoted to aerospace computer programs developed by NASA, DoD and ERDA.
- NASA RECON, an on-line interactive system for the retrieval of information in the NASA data base.

Each product was considered separately and the user asked to identify those known to him, those used by him, and at what frequency. He was asked to nominate the best or worst feature of each product or service.

Where a user had access to NASA RECON and used it even infrequently the matter was pursued. How had he learned about RECON; why he used it; were his requirements met; were the response time and display format on the screen satisfactory; what were his specific objections? A windup question on RECON inquired about what sources would be used if RECON were not available.

Then there followed a series of questions on such services as automatic distribution (what does the user get, how timely, from whom, in what form—fiche or hardcopy, are the documents kept or passed on or disposed of); blowback from fiche; availability of fiche readers and reader/printers.

Next, with a change in emphasis, the user was viewed as author: does he write NASA papers or journal articles and to what extent; does he feel that results of NASA's research and development efforts are adequately reported upon in reports and journals; is NASA's reporting effort properly directed (are the right things being reported upon in the right media); are his publications adequately and properly distributed by NASA? As a tag-along, the user was asked about foreign-language material translated and published by NASA.

A most critical portion of each interview was an attempt to have the user value-tag the information he retrieved from our system. Each was asked if the information met his needs; did it cause a change in the course of his work; did it suggest alternative methods that might be tried; did it really save manhours and/or money; did it assist in avoiding duplication; was it fresh enough? These were

punctuated by the key question: "Do you know, generally or specifically, the scope and coverage of the NASA system?"

In the wrap-up cluster of questions the interviewee was given full latitude to comment upon what he did not get but wanted, what had little or limited value to him, what improvements should be made. Each was urged to explain what he liked best about the NASA system and information systems in general, as well as to specify his pet gripes.

Many times the allotted sixty minutes was barely enough, because each interviewee was encouraged to have his say. With almost no exceptions, users welcomed this opportunity to *discuss* the NASA system, to ask questions, and to learn about matters dimly or incorrectly perceived prior to the interview. The crosstalk was invaluable since it gave the interviewer confidence that he understood the responses. Statistical data were not being blindly collected that would be mindlessly plotted and elaborately presented in a multicolored matrix and forgotten.

Findings

If it is possible to reconfirm the self-evident, it was done. An information system is *never* the first place that a hardworking scientist or engineer looks to for information. With luck, the information system may place third. The prime source of information is the peer group, followed in most cases by personal collections or gatekeepers—those ubiquitous and kindly souls that are dedicated to keeping their colleagues up to speed in areas of possible interest.

Having exhausted the first and second choices, users look to the abstract/announcement and current awareness media, their local libraries (which in this survey came off with high marks), the body of journal literature and any medium that gives current information.

There is a love–hate relationship with microfiche and microfilm. It is heavily used, primarily as a scanning device but not without some protest and the attitude that it is-better-than-nothing-but-that-is-all-that-it-is-better-than—but do not take it away from us. The users also asked for better quality fiche, better low-cost readers, and easy access to blow-back copy. Perhaps it was a nonuser of fiche who proclaimed that most advantages to a microfiche system are intellectual and most disadvantages are emotional.

The clearest signal that we received was that managers of information systems should recognize that no matter how hard they try to let users know about the existence of a system and what is available, they are often not heard. Even sophisticated users do not have an easy way to find out about the first-rate resources that are waiting to be tapped. No effort on the part of information system managers is wasted if it improves this communication gap. The "experts" in the communications business are not communicating.

The two obvious examples of communication failure are users' fragmentary knowledge of 1) the scope and coverage of our system and 2) our document-distribution mechanism. With few exceptions, none of those interviewed had a better than modest knowledge of the scope and coverage of the NASA system; all, unfortunately, had no knowledge of what was specifically excluded from the NASA data base (e.g., aerodynamics of surface structures, routine commercial aircraft operation, computer programs and equipment for routine business activities, design and performance of military weapons and warheads). Similarly, users who were also authors had only the dimmest notion of what happens to their technical publications once published by NASA. They were quite vocal that our publication process takes too long; but where their publications went and in what quantities was a mystery. The existence of such ignorance is purely and simply this office's fault. NASA authors should have easy access to the knowledge that their reports, depending on subject content, are printed in a range of from almost 1,000 copies to several thousand, announced in *STAR*, and distributed to organizations throughout the world both in printed and photoreduced form (microfiche).

There was also much good news. Examples are two products (*STAR* and SCAN) and one service (NASA

RECON). The interviewer was told that the *STAR* abstracts are great, the cross indexing is excellent, the annual cumulations are fine, publication frequency is good, and that *STAR* is a "window to the world." With this it was also learned that the category scheme was weak and "stodgy" and there was not enough current information.

As for SCAN, users said it is easy to read, gives good visibility of information, descriptors are excellent, it is a quick way to access pertinent publications, and it is a painless way of getting information. Those interviewed also suggested more topics, size and selectivity should be increased, and possibly abstracts added.

NASA RECON, the hallmark service, was variously described as "the best service," a quick way to scan journals, a means to get something quickly, a way to find out what has been done in a "new" field, the best way to update personal bibliographies. The NASA interviewer was also advised with equal vigor that RECON's response time on many occasions was too slow.

Action Taken

After savoring the kudos and encomia attention was turned to the complaints and constructive suggestions. The NASA staff had to agree that the *STAR* subject categories probably were stodgy (they were almost ten years old) and did not cope adequately with such emerging-in-NASA subjects as energy, remote sensing, environmental pollution, and urban technology. So during 1974, guidance was sought from scientists and engineers in NASA installations and a complete revision of the category scheme was done. A comparison between a December 1974 and January 1975 issue of *STAR* will show how extensive this update was.

The *STAR* subject categories, more accurately, the system subject categories, are also the basis for SCAN topics. With the revision of the subject categories, the staff then began to refine the SCAN topics. Revision and expansion was again guided by what the users said. SCAN should be modernized well before the end of 1975. The staff is still considering adding abstracts.

To speed up RECON response time while fulfilling our commitments to add more terminals (thus automatically increasing usage) new software was developed and new hardware added. Well before the end of 1974, users could note about a 40% decrease in response time. It will be further shortened during 1975 when a larger computer is installed at the NASA Scientific and Technical Information Facility.

In response to user desires for more current information, announcements began to be published concerning government-wide on-going research project information in a separate section of *STAR*. Bibliographies are published (and periodically updated) on energy and earth resources. On-line access to the Defense Documentation Center's data base is now available as well as more than twenty commercially available data bases, which does not necessarily give a user access to more current information but certainly provides him with a broader base of information.

New microfiche production equipment has been installed at the NASA facility. NASA-produced fiche are now consistently high quality. A service has also been introduced for NASA installations providing 48-hour blowback from fiche. This has enhanced the value of fiche as a scanning device and directly responded to that cranky core of people who will not use fiche under any circumstances.

The most difficult chore—and the difficulty lingers—is letting a user know about what is available, what exists to solve his information problem. Some steps have been taken but communication with the user still can be greatly improved. Each scientist and engineer in NASA (about 11,000 people) received a notice that there is a Scientific and Technical Information Office. Each has been offered an opportunity to receive a compilation of succinct, precise descriptions of the products and services available, called *Profiles*. They will be updated as needed and new ones will be issued and distributed when there is a new product or service that should be known.

A motion picture was also produced—a twenty-minute look at the NASA information program. It is called *ACCESS* and is available on loan to any organization that cares to use it for orientation purposes or in conjunction with a conference or meeting. Prints are available to NASA installations.

Articles describing our program are periodically published in NASA in-house organs. Beginning in January 1975, redesigned covers for *STAR* and *IAA* appeared. Hopefully, the new design will attract attention; but it should also suggest that they are complementary journals, and if a user uses either he really should use both.

Summary

In conclusion, more than three-quarters of those interviewed felt that information in the NASA system was relevant and met their needs; almost three-quarters confirmed that the information provided a particular method for solving a problem. Again three-quarters reported that the use of the information saved manhours and money; a slightly higher percentage noted that the information assisted in avoiding duplication; and almost as many agreed that the information was current enough.

As for what was done that was of limited or little value, the responses were inconclusive. Essentially no one liked microfiche. However, except for a few stone-wallers no one suggested that it be done away with. Those few who found only limited value in *STAR* and *IAA* were often avid, vigorous SCAN users. Those who told us that they did not care much for SCAN were enthusiastic *STAR/IAA* readers. A specialized announcement medium, *CPA*, was barely known, much less used, by most scientists and engineers. Separate testimony from people engaged in computation work shows that it is in fact used and needed there. If any of the current products and services are to be discontinued, which ones are not obvious from the interviews.

As a follow-up and to get management opinion, ten NASA field installation directors were asked their assessment of the system. These directors have line responsibility for 93% of NASA employees and all of NASA's major programs.

Following is a sampling of opinions expressed by NASA installation directors:

> "There is no question as to the value of services and products provided under the NASA Scientific and Technical Information program."
> "In summary, therefore, the NASA information program is very effective and should be continued."
> "The Program provides a broad range of information, and it does fulfill the needs of the Center."
> "We have reviewed the current NASA Scientific and Technical Information services and products and feel that the quality of the entire program is outstanding in meeting our requirements."
> "Our general assessment of the scientific and technical information services and products now being provided is that they are fully adequate in support of our ongoing research and development activities."

These interviews with the NASA scientists and engineers are a beginning. The program will continue to be evaluated as long as the resources exist and the effort does not become a nuisance to the users. It is critically important that individual scientists and engineers are provided with easy and productive access to the information they need to get their jobs done.

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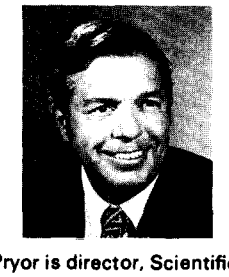

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Remote Sensing Data in Geography and Map Libraries

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■ Imagery from various remote sensing systems is becoming available to the general public. These data require that a cataloging system be developed for information storage and retrieval, which in turn implies a general understanding of the data. The basic concepts of electromagnetic remote sensing are presented together with a brief discussion of the problems of cataloging the data. Considerable organization of remotely sensed data and research into the needs of earth scientists, the primary data users, is required and should be addressed by librarians familiar with handling earth science data.

PRESENTATION of various data concerning the earth's surface is often made through the cartographic or photographic format. In the case of cartography, a set of generalizations is required, for it is impossible to accurately portray all earth features on a single map. Hence, to help alleviate this problem, sets of maps covering the same geographic area and dealing with an assortment of themes (e.g., geology, topography, etc.) are often prepared.

Photographs, on the other hand, are often a better medium for recording the conditions of the earth's surface at a specified time. This method is quick, efficient, accurate, and when considered with respect to data collection and the time required, is often much less expensive than the cartographic method. However, like maps, problems with the interpretation of aerial photos are encountered. These are especially acute because the geometric distortions, scales, and subjects are variable. In other words, the (aerial) photograph interpreter requires more intense training than that needed by the general map user—partially due to the lack of the interfacing cartographer to aid in the interpretation and generalization of the data presented.

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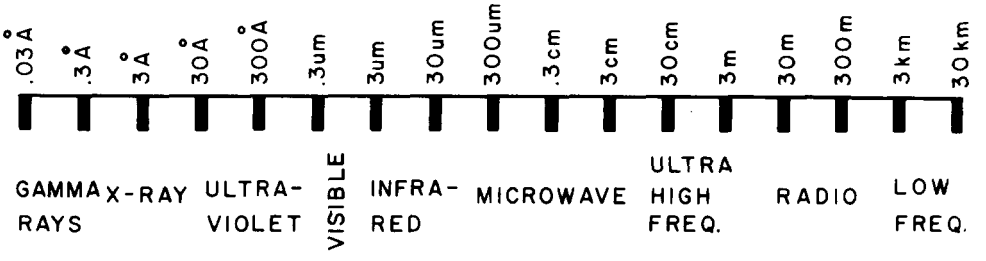
Remote Sensing

A new set of earth science data have become, and will continue to become, more important. These data, collected by a set of instruments termed "remote sensors" are presented in a variety of formats for an assortment of subjects. Like the camera, these sensors record some portion of the electromagnetic spectrum without being in physical contact with the subject (hence the term "remote sen-

Figure 1. The Electromagnetic Spectrum units used are:

cm = .01 meter = centimeter
mm = .001 meter = millimeter
μm = .0001 cm = micrometer
Å = .00000001 cm = Angstrom



sor"). Remote sensors operate in the active and passive modes. Active sensors detect and record the electromagnetic energy which has been transmitted by the sensor and reflected from the earth's surface back to the sensor system. Passive sensors deal with electromagnetic energy which is natural in the environment; however, "natural" in this context does not preclude the activities of man.

Like the thematic maps which divide the earth's surface into a set of discrete entities, or themes, the remote sensors divide the entire electromagnetic (EM) spectrum into sets of discrete wavelengths, each of which is recorded for later use. These sensors will be briefly described.

The EM spectrum (Figure 1) includes a wide range of wavelengths extending from the very short (gamma rays) to the very long (radio waves). Each portion of the spectrum is usable for scientific studies, although only a small portion of those available are now considered as operating sources for earth science information. The different portions of the spectrum are normally referred to by their wavelength, although the term frequency [wave-length = (speed of light/frequency)] is also used, especially in the microwave and radio wave portions of the spectrum. Thus a continuum of wavelength exists in which EM remote sensors may operate.

Within the visible range, generally between 0.3 μm and 0.7 μm, a camera will record all natural radiation (as colors or grey levels) on a film to form a photograph. Normally this energy is reflected sunlight. Because the amount of reflected light will vary with both the object and the wavelength employed, different colors (i.e., wavelengths) are discriminated by either adjusting the wavelengths reflected, by filtering the light which enters the camera lens, or by changing the sensitivity of the film emulsion. Thus, it is possible to develop a

Figure 2. Spectral Response ("Signature") From Ice and Snow Surfaces, Within the Four ERTS-1 Bands

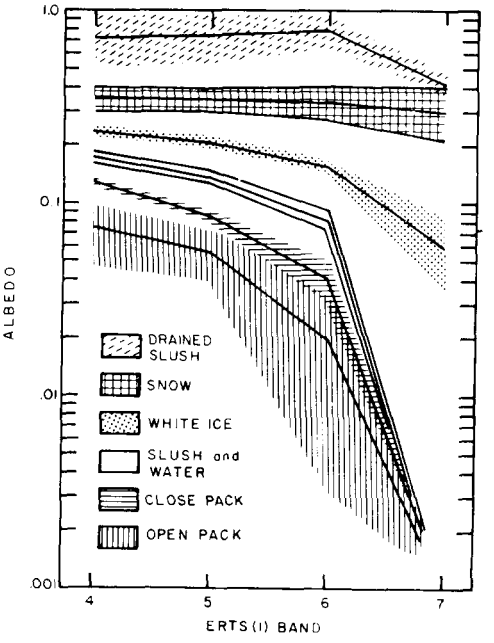
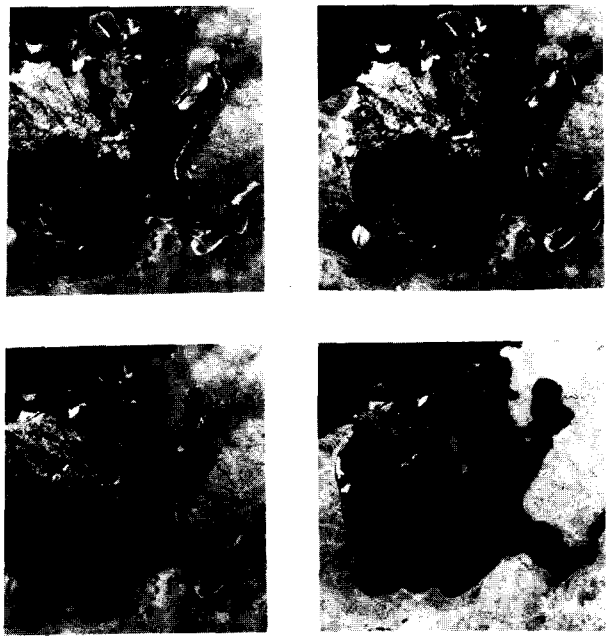


Figure 3. ERTS-1 Imagery of Whitefish Bay, Mich. (Scene 1249-15582) 29 March 1973 (upper left Band 4: upper right Band 5: lower left Band 6: lower right Band 7) (Source: NASA-Goddard Space Flight Center)



unique signature for each particular subject. This is a statement (generally a curve) of the amount of reflected radiation from each subject and within each of the wavelengths or group of wavelengths (i.e., a band) employed. Such signatures add a new dimension to the study of earth resources via remote sensors. It now becomes possible to introduce the computer and a set of recognition algorithms into the system. These may be used to automatically classify the earth scenes by comparing the measured signatures against all of those which have been cataloged. This presupposes that signatures in the proper wavelengths for the range of items of interest in the earth scene are available. Due to the vast amount of data, this comparison is usually done by a computer.

By way of example, consider a set of signatures and imagery which has been collected in connection with the ERTS-1 (Earth Resources Technology Satellite-1) studies. Figure 2 indicates the spectral signatures for six ice types and for four spectral bands. These bands are quite broad, each covering approximately 30% of the visible spectrum with the omission of the shorter wavelengths (violet) and the

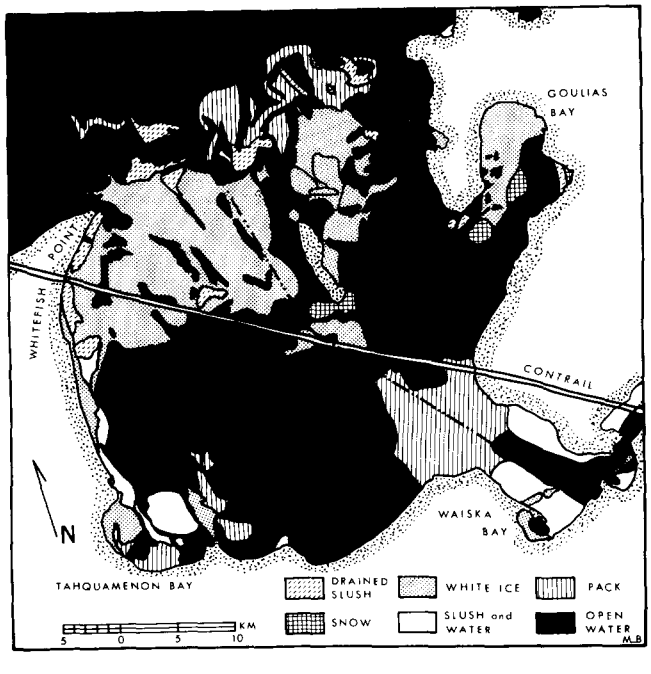


Figure 4. Interpretation of ERTS-1 Imagery of Whitefish Bay, Mich. Shown in Figure 3

inclusion of the longer wavelengths (Band 7, 0.8–1.1 μm; infrared). It is noted that the albedo (i.e., the ratio of the incoming solar radiation to the reflected radiation) varies for both the type of ice and the spectral band. Drained slush has a high but variable albedo in all four bands. Snow has a slightly lower albedo but one which is essentially constant in all four bands. Both of these surfaces should appear quite bright in images representing reflected EM energy for each of the several bands. Three other ice types (slush and water, close pack and open pack) have lower albedos in bands 4, 5, and 6 and essentially no reflectance in Band 7. This is because water is an excellent absorber of the Band 7 (IR) wavelengths and consequently there is no reflected energy to be detected by the sensor. Figure 3 is a set of images collected by the ERTS-1 sensor and, using the albedos given in Figure 2, the interpretation map (Figure 4) was prepared. This example illustrates some of the advantages these multispectral data have for the earth sciences. These advantages also include their broad and repeated coverage, the fidelity of the recordings, and their easy storage and retrieval. Like air photos, they record the reflected sunlight and thus form a "reflectance map" of a portion of the earth's surface. Like the air photo, and the various cartographic products generally available to earth scientists, a considerable amount of training is often required for optimal use of the data. A point of major concern for librarians, who are receiving and will continue to receive inquiries for such data, is that each of the four images contains its own unique data and that all four are needed for simultaneous study, in order to obtain the maximum benefit. Thus, the inclusion of these data, or at least catalogs as research aids to locating the data, is not only logical, but also mandatory for many libraries.

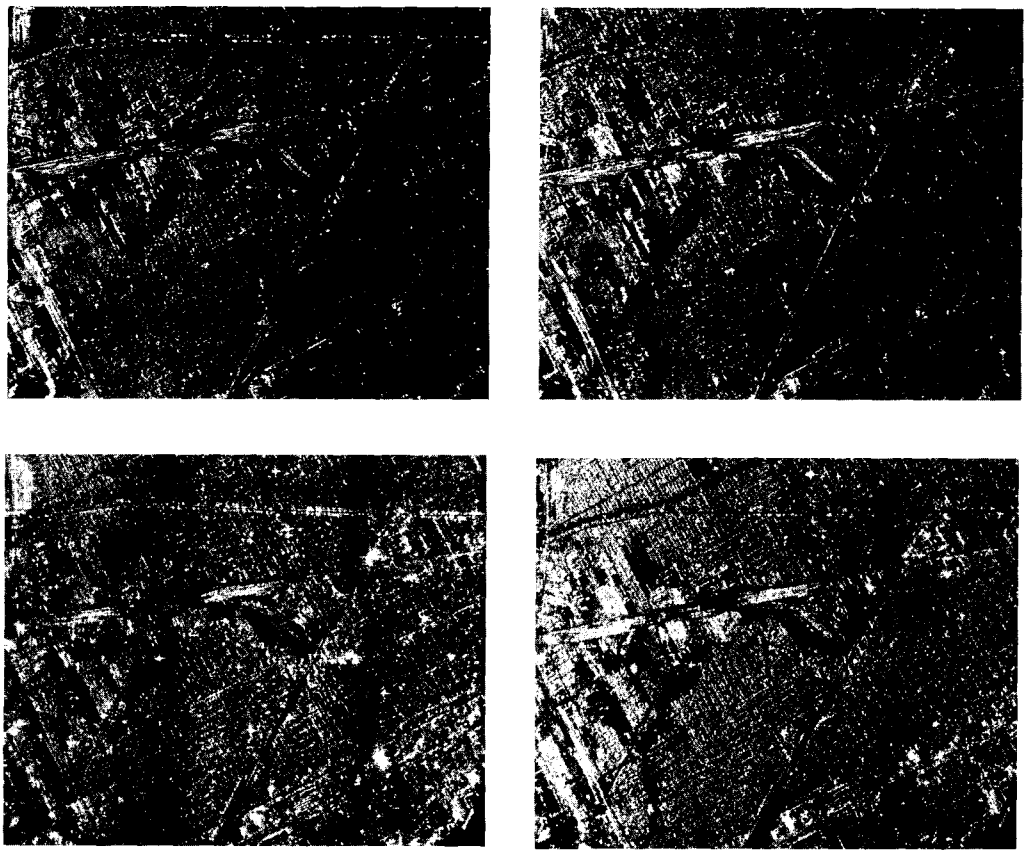
Collection of Remotely Sensed Data

Remotely sensed data may be collected in one of several ways. A set of pictures may be taken simultaneously using a group of cameras with different film/filter combinations. Originally such "multispectral" photography was done in precisely this manner, generally with multi-lens cameras (nine lenses being a popular format). A more sophisticated instrument is the "multispectral scanner." These instruments reflect light via a rotating mirror onto a set of detectors. Each detector is sensitive to a small portion of the entire EM spectrum and, when activated by the reflected light, creates electrical currents which are recorded, usually on magnetic tapes or on film. Such scanners have as many as 24 separate bands; the ERTS-1 satellite, which provided the data for Figure 3, has four such bands. The field of multispectral scanning is relatively new, and it is suspected that as we learn more about the reflective properties of different surfaces and features in the natural environment, this type of information will become increasingly important and in demand by earth scientists.

At slightly longer wavelengths, in the thermal infrared (wavelengths = 8–14 μm), a non-visible portion of the spectrum is sensed. All objects emit some energy and this energy is related not only to the nature of the object itself, but also to its temperature. Thus, it is possible to remotely detect and record the temperature of these objects by measuring the energy emitted. For this the wavelengths between 8 and 14 μm are generally used. Scanners with thermal sensivities of 0.5°C or less are operating and have

Figure 5. Thermal Infrared Image of Mt. Erebus, Antarctica (1969) Source: ERIM

Figure 6. Radar Image of a Portion of Detroit, Mich. (Source: ERIM)



proven useful for measuring thermal structure over cities, volcanoes, thermal pollution plumes in rivers, and other types of temperature variations. In the case of geologic structures, remote collection of temperature data has been possible because different types of rocks heat and cool differentially during the day. If the proper time is chosen for data collection, such temperature differences often give valuable clues for identification of geologic features. Figure 5 is a thermal image of Mt. Erebus, the only active volcano in the Antarctic, in which the caldera is clearly visible. Normally, in such thermal data, the brightest portions of the image represent the warmest areas because these areas are emitting the greatest amount of energy.

Within the longer portion of the EM spectrum, the microwave (generally between 1 mm and 100 cm wavelengths), two systems are available. One is a passive system which measures the naturally emitted microwave radiation. Because the (natural) radiation levels at these wavelengths are very low, the instruments need to be extremely sensitive. Consequently the amount of "noise" or unwanted radiation is also increased. Again, the same data interpretation principles apply, i.e., the signature of the objects must be determined. This is followed by comparing the data of the earth's surface with the known signatures to identify the existing subjects. Radar, the active microwave sensor, also operates in this portion of the spectrum, and with this sensor a new dimension is available. The *a priori* selection of wavelengths to be employed and from which angle they should strike the earth's surface can be made. Thus, to continue the analogy with cartography, additional discriminations

may be made before the (remotely sensed) map is constructed *(1)*.

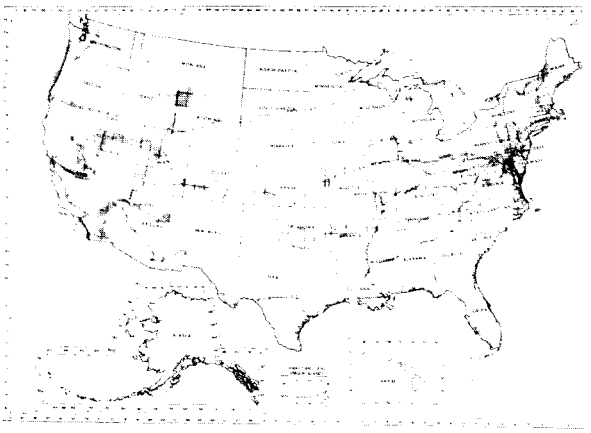
Figure 6 is an example of the radar imagery collected at two separate wavelengths and two polarizations. Interpretation is in a manner similar to that used for the multispectral scanner and multispectral photography data in which the four images in concert provide more information than one single image. These four simultaneous data sets not only increase the usefulness of the data, but also compound the data storage and retrieval problems.

Needs for the Geography and Map Library

As pointed out by Woods *(2)*, it is becoming increasingly difficult for scientists to maintain personal libraries. This is as true with the collection of remotely sensed data as it is for private map collections and for other types of information. Consequently, as remotely sensed data are used more often for research, instructional and decision making purposes, library reference staffs will need to know about the data, their origins, and acquisition. The volume of the available data can probably exceed any other data source known, with the possible exception of newspapers and magazines. Indeed, for a satellite system as ERTS-1 which covers the majority of the earth in 100 mile units each 18 days, the data overload and cost are staggering. Hence, the need for librarians is viewed as threefold: a) to have a basic understanding of the nature and uses of the data; b) to know how and where to find the data; c) to understand the needs of the users and to help them determine which data will be most beneficial for their particular problems.

Many of these remotely sensed data are often readily available from government sources. For example, aerial photography laboratories are maintained by several federal agencies, particularly the Department of Agriculture, Department of Interior, and the National Archives. In addition, the Department of Interior has established a new data center (EROS Data Center, Sioux Falls, S.D. 57198) from which it is possible to obtain remotely sensed data in addition to competent guidance on the acquisition of such data. Many data obtained by aircraft, especially multispectral scanner and radar data, are more difficult to obtain; although again, the EROS Data Center has often proven to be an exceptionally helpful information source. In addition, radar data from many portions of the U.S. are also available from the Goodyear Aerospace Corporation (Dept. 408, Bldg. 13-2S, Litchfield Park, AZ., 85340). A major problem for data collected on a project basis (as opposed to systematic collection by the ERTS-1 satellite) is the lack of proper index maps. However, for the majority of data collected during NASA-Johnson Space Center (Houston, TX) projects, index maps, such as the one in Figure 7, are presently available.

Figure 7. Radar Coverage Index Map For NASA Sponsored Flights Using Westinghouse AN/APQ-97 (XE-1) Radar. 1966–1968 (Source: NASA-Johnson Space Center)



Librarians familiar with map cataloging and retrieving problems will immediately appreciate the needs for such index maps showing the types, times, scales, sensors, reliability, etc., of remotely sensed data. In addition, many of these data take the form of images, and in many respects have the same cataloging criteria as do maps (e.g., geographic location, originating agency, subject or theme, scale, etc.). Thus it appears that

map librarians are the most likely sources for much guidance in the preparation of index maps and other information retrieval systems. Singh and Scherz *(3)* discuss the types of problems encountered when handling the remote sensing data collection at the University of Wisconsin and illustrate their solutions. They were required to develop a new call number system rather than to incorporate a pre-existing scheme because of the nature of the data itself and the uses for which it was intended. Their experience provides valuable guidance for those now entering the field.

Because much of these data are still buried in the abysmal depths of various agencies, not necessarily by design but because there has been only a limited demand for it, it is suggested that the geography and map librarians should work to develop an increased awareness of the data and begin to organize it in a manner which will allow its ready use. Although this may increase work loads, by working with and organizing the data from the beginning and by organizing it in a way that is readily compatible with other catalogs of information concerning the earth's surface, major problems and costly adjustments in the near future will be prevented.

Summary

As the use of remote sensing increases, and the resulting data become a more commonplace information source for earth scientists, there will be increasing demands on libraries to provide the required data. Because remote sensing systems and their resulting data are new, librarians have a rare opportunity to initiate cataloging and retrieval schemes from the beginning. This prevents their being forced either to accept an inadequate system or engage in costly recataloging ventures. In order to adequately begin the needed task, some basic concepts of remote sensing and the data resulting from this technology must be appreciated by the librarians. This brief review of remote sensing, with the appended reading list, is intended to initiate such an effort.

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Vertical–Horizontal Relationships

Their Application for Librarians

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■ Communication is an important daily aspect of a librarian's profession. The horizontal relationship is described and a distinction is drawn between it and the vertical relationship. The horizontal relationship is an important communication concept which when mastered by the librarian accrues many personal satisfactions.

THE NECESSITY for librarians to be aware of the developments in the fields of communication and psychotherapy and their possible application to librarianship has been discussed by Tibbetts *(1)*. She discusses sensitivity training for librarians. Although the idea is intriguing, it would require librarians to have professional training in this technique, and its application is quite restricted. Librarians do need sensitivity, particularly in the process of question-negotiation. The concept of the horizontal or synergistic relationship which had its genesis in individual psychology *(2)* is presented here. Any discerning librarian can master this sensitivity tool. The concept is universally applicable and can be learned by a librarian through careful reading and persistent practice.

In the section which follows on vertical relationships, a good portion of the paper discusses what the horizontal concept is not. The paper concludes with an explanation of what the horizontal relationship is and why it is essential to the librarian. It will be obvious that the librarian with vertical tendencies is insensitive and fails miserably in the question-negotiation process. Conversely, the librarian who practices the horizontal concept leads the patron into open communication where the patron's real need is discovered. The careful reader will discern the concepts which impede and those which aid the question-negotiation.

Vertical Relationships

Vertical relationships are viewed as primarily movement against one's fellows, and are characterized by a lack of spontaneous cooperation—one nurtures his own self-concept at the expense of the feeling of others. The self-concept of the vertically oriented individual fluctuates up and down, relative to his perceived relationships with his fellow man. When he feels superior, higher in status or position, more intelligent, or more attractive than another individual, his self-image is pos-

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itive, and he attempts vigorously (and probably unconsciously) to maintain that position through the use of self-aggrandizing techniques. When the competition is stiff, and his judgment tells him he is "second best," he desperately attempts to undermine his competitors (again, probably unconsciously) and strives to regain the position of superiority.

Sicher describes vertical relationships through the analogy of a forest of pedestals of various heights. Standing on each is a person, busily engaged in chiseling chips off other pedestals and pushing them under his own, in an attempt to raise himself higher. The chipping movement of the pedestal dwellers reveals their goal: to enhance their own prestige at the expense of their fellow chippers *(2)*.

According to Allred, vertically oriented individuals (the term librarians can be inserted without changing the idea) are often associated with one or more of the following characteristics; they often do the right things, not so much for the satisfaction of doing right, but to prove how much better they are than other men. They are highly motivated by the game of one-upmanship—they attempt to top and demean the accomplishments of others. They may distort information, to enable themselves to appear superior and cause imagined competitors to appear in less favorable light. They are programmed to notice mistakes and faults, and have a tendency to criticize others in a negative, destructive manner. The vertically oriented person is easily threatened, and may view other persons as potential enemies. At times, they may appear so threatened by other people that they attempt to put obstacles in their paths to slow them down *(3)*.

While feelings of being small, deficient, worthless, and of little value are common in those who relate vertically, the opposite attitude may also be true. They may feel superior to others and dislike associations with "common" people, and because of their self-perceived superiority, may feel they have a right to dictate and that others are expected to obey.

Hypothetical Example of Vertical Relationships

Mary Jo is nearly frantic because the term paper she is attempting to write on natural childbirth is due in the morning and the library will soon close. She has been in the library for quite a while and her attempts to get help from Jack Brown, the librarian on duty, have been discouraging and almost totally unproductive. In her first contact, she was too embarrassed by her topic to explain to Brown her needs, and because she was sure he was too busy, did not take time to explain her dilemma. Hesitantly, Mary Jo approached the desk and asked: "Where are your books on medicine?" Brown pointed to the stacks in front of him and continued to leaf through a book he was reading. After fifteen minutes of fruitless effort, Mary Jo reluctantly returned to Brown for help.

Mary Jo: I'm having a difficult time finding books for a paper I'm writing for my health class, and . . .
Brown: Health 130?
Mary Jo: Yes.
Brown: You need some journal articles. Try the *Nursing Literature Index.* (Brown points to the index table near the desk)

Because Mary Jo was not familiar with the index, nor with the layout of the library, and not wanting another encounter with Brown, it took her nearly three hours to gather four articles which she thought would help, but now it was time for the library to close and without money to copy the articles, she must take the journals home if she is to extract the information. Mary Jo reluctantly returns to Brown for the third time and presents the journals to him.

Mary Jo: May I check these out?
Brown: (With a condescending look) Everyone knows you can't check out journals.

Through the use of certain characteristic mannerisms and expressions, Brown established a vertical relationship with Mary Jo. By failing to acknowledge

her as she approached the reference desk, and by continuing to read while she asked her question, he made it clear she was not worth his time. By pointing rather than verbally responding or asking for a clarification of her question, he compounded her impression that he was too busy to help her, and left little doubt that *his* reading was more important than her need.

When she approached him a second time, Brown again exhibited his vertical nature when he assumed he knew exactly what Mary Jo needed before she could explain, and again she left the desk feeling "put down" or inferior. In their final encounter, Brown increased the vertical distance between them by informing her of the noncirculation policy for journals, with a statement and facial expression that, in effect, questioned her capabilities.

Bonding

Brown is not only a vertical person, but he is bonding Mary Jo. In bonding, an experience, whether pleasant or painful, is subconsciously associated with the surrounding context of the experience. Brown, besides being an unpleasant person, is a librarian and in a library. If Mary Jo continues to experience the negative feeling she has when communicating with Brown, she will subconsciously associate this with librarians and libraries and the bonding will be complete. It is not likely, therefore, that she will continue willingly to use libraries or consult librarians. In the end, Brown and the profession are the losers. Brown lost a client, and the profession lost a friend.

Horizontal Relationships

The term *horizontal* has been applied to positive, non-threatening, interpersonal relationships. Sicher describes how the substitution of the horizontal for the vertical completely changes human interactions:

> Here the ideas of superior and inferior have no place; there is no one on a rung of a ladder in fear of being pushed off by the ambitious climber below who wants to take his place. Here is room for everybody. Side by side, each with his own start, his own road, his own goal, individuals can walk together, independently and interdependently, contributing their share to life. Roads will cross or run parallel, but here one has freedom of choice: choice of the road, of the goal, of the partner with whom one wants to walk; here also social consciousness leads to acceptance of the responsibility for one's own actions and co-responsibility for the welfare of others *(2)*.

Benedict describes the same social phenomenon using the term *synergy*. Synergy refers to the cooperative action of discrete agencies such that the total effect is greater than the sum of the effects taken independently. Benedict discusses human cultures with low synergy, where the social structure provides for acts that are mutually opposed and counter-active, and of cultures with high synergy, which provide for acts that are mutually reinforcing *(4)*. Maslow carries this concept further and parallels high synergy with love relationship—when somehow two persons have arranged their relationship in such a fashion that one person's advantage is the other person's advantage, rather than one person's advantage being the other person's disadvantage *(4)*.

Allred graphically illustrates the concept of horizontal relationships by describing it as an infinite plane where there is a respectable place for each individual. He is not pushed down and away, or treated as inferior because of his name, sex, occupation, race, nationality, or economic status. Each individual belongs to his own family, social and work groups, without attempting to make his fellowman less a person than he makes himself. His status or position is not dependent on making others feel they do not belong *(3)*.

The following hypothetical situation serves to illustrate the potential effects of horizontal relationships:

As Mary Jo hesitantly approaches the desk, Brown puts down the book he has been reading and smiles at her. He notes a look of concern on her face.

Brown: You seem worried.
Mary Jo: I am. I have a paper due tomorrow,

and I'm just starting it. I sure hope you can help me.

Brown: I'll try. What is your topic?

Mary Jo: The paper is for Health 130, and I want to write on having children.

Brown: I'm sure I can help you better if you can be more specific.

Mary Jo: I had in mind to write on the advantages of natural childbirth.
(Brown then suggests several approaches to the subject.)

Brown: It's only three hours until the library closes. Have you used these reference sources before? If you haven't, I can give you some tips which will make your research go much more quickly.

Mary Jo: Wow, I sure could use some help!

In this example, Brown exhibits only horizontal traits, which elicits a similar response from Mary Jo. They are now on an equal plane. There is no maneuvering by either to gain a psychologically more vertical position to the other. Brown does not feel threatened by Mary Jo. Although he has superior knowledge about the library, he does his best to share his knowledge without making Mary Jo feel inferior. Brown demonstrates a fundamental grasp of the horizontal concept when he uses his posture and smile to make Mary Jo feel at ease. He is alert in his observation and recognizes the timidity in the patron, thus placing himself in a position where he can deal with it. His first statement was one of empathy, and instrumental in establishing the horizontal interaction. His conversation was honest, unintimidating and noncompetitive. Status was no longer his major objective as we saw in the example under vertical relationships. He made a friend for the library and preserved a client.

Conclusion

A recognition of horizontal and vertical interpersonal relationships presents the librarian with an alternative to sensitivity training which is viable and pervasive in its application. The use of horizontal principles accrue to the librarian immediate and long range benefits in his interactions with patron-clients, peers, and administrators.

The literature of psychotherapy is replete with examples of the harm that can be accomplished through the wrong kind of talk and concomitant attitudes. It is, however, just as replete with examples of how the right kind of communication is beneficial. For most librarians it will be necessary to learn new, helpful ways to communicate. When the horizontal relationship is understood, the librarian will realize that it is more than an attitude which he/she needs to learn and practice; it is a form of communication which can lead to satisfaction and fulfillment.

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Hospital Journal Title Usage Study

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■ Seven journal titles of 373 journal titles, or 1.9%, supplied 24% of the articles mailed to individual Oklahoma health professionals by the University of Oklahoma Health Sciences Center Library, and 85% of the articles had a publication date of the last five years. Twenty-six journal titles of 527 journal titles, or 4.98% supplied 24.5% of the articles sent to institutions, and 85% of the articles sent to them had a publication date of the last ten years. Many different titles appeared on the lists of most used titles sent to the two groups.

REGIONAL Library Services, the extension division of the University of Oklahoma Health Sciences Center (OUHSC) Library, conducted a four-month in-depth study of its records to determine from what journal titles it had sent the largest number of articles to its patrons. The period covered in the study was October 1971 through January 1972. The purpose of the analysis was to aid in the development of meaningful journal lists so that it could better advise small hospitals which journals, under most cirucmstances, should have the highest priority for them. Another purpose was to learn how many more titles were needed by an institution that sought to act as a regional library to serve the backup needs of several hospital libraries.

Background

Regional Library Services (RLS) not only receives interlibrary loan requests from Oklahoma hospital libraries, but it serves as an individual library for any Oklahoma health professional located in a community or at an institution that has no adequate biomedical library. Thus, RLS had two main classes of statistics to compare, i.e., those relating to requests from individual health professionals (individual requests), and those relating to requests from health professionals at an institution with biomedical library service (institutional requests).

For the individual health professional, at the time of this study, RLS handled two types of requests. The health professional either asked for a particular article in a specific journal whose title and issue he knew, or he wanted journal information on a subject area. The librarians had the desired articles photocopied and mailed to him. During this particular four month period, approximately 64% of the articles sent were picked by the librarians in answer to subject requests. Only journal articles were considered in this study. Indexes were eliminated. A total of 1,756 articles from 373 journal titles sent to individual health professionals were considered. Of the total, 1,222, or 69%, were mailed to physicians; 534 were sent to other health professionals. Individual requests came from

health professionals in 45 Oklahoma towns.

The requests sent to institutions came as standard interlibrary loan requests. For some of the hospitals in Oklahoma City, this involved sending issues or volumes of journals to those hospitals; for most of the hospital libraries, photocopies of particular articles were sent.

There have been several journal utilization studies in recent years. An earlier report by Regional Library Services *(1)* analyzed the medical journals used by individual Oklahoma physicians. An interesting and informative journal usage survey at the Johns Hopkins University Applied Physics Laboratory determined "1) which journal titles could be discontinued, 2) which could be removed to remote storage, and 3) which journal holdings could be converted to microfilm" *(2)*. In the medical library field, studies of particular note have emanated from Yale University Medical Library *(3–7)*, and from the National Lending Library for Science and Technology of England *(8)*. These, however, have served a different purpose from the Oklahoma studies. As noted in our earlier report, these medical title usage analyses have been based on circulation of journals or on opinions of various authorities, as in the article of Moll *(9)*. The journal usage circulation studies have tabulated what issues or volumes of journals have gone out from a library.

However, the Oklahoma study of journal titles usage by *individual* health professionals records how many periodical articles from different journal titles have actually been mailed. If, for example, five articles were sent from a particular issue of a journal such as the *Journal of the American Medical Association* that journal was counted five times. The Oklahoma study, based on articles sent, attempts to answer these questions. "From what journal titles did Oklahoma health professionals ask for specific articles?" "What journal titles contained the articles librarians sent when a doctor or other health professional said, 'I have a particular problem relating to my work. Find me journal articles that will help me solve it.'" "What publication years represented a major percentage of articles sent?" "How do the journal titles sent to individual health professionals compare with those sent to institutional health professionals?"

As in the earlier Oklahoma study, which covered only physicians' requests, RLS wanted to know from what few journals it most frequently sent photocopies of articles. RLS needed the information on the publication dates of the materials sent so as to advise space-poor small community hospitals how long to keep their journals. In addition, we needed a rough idea of how many journal titles the small non-urban community hospital required in order to fill the majority of the information requests of its health professionals. (In Oklahoma, 50% of the hospitals are 50 beds or under in size, and more than 70% are 100 beds and under.) How many journal titles would it take to fill 50% of their information needs, 70%, 85%? What percentage of the information needs of the professional staff could be filled by a small core of 10 or so journal titles?

The Study

Seven journal titles, or 1.9% of the total 373 journal titles used, were each sent 29 or more times. This represented 421 of the 1,726 articles sent to individuals, or approximately 24% of the articles mailed. These were all well known titles: *New England Journal of Medicine,* 114; *Journal of the American Medical Association,* 71; *Lancet,* 71; *Annals of Internal Medicine,* 50; *British Medical Journal,* 49; *Hospitals,* 38; *American Journal of Nursing,* 28. The present cost of an annual subscription to these seven journals is $167.00.

The top 12 titles (which includes the seven mentioned above and the next five), or 3.2% of the total titles sent to individuals, accounted for 30% of the total articles sent. Forty journals, all sent ten or more times, were responsible for 899 articles or 51% of the total sent. Table 1 lists these 40. Seventy-six titles, sent six or more times, accounted for 66.6% of

Table 1. Articles Sent to Individual Health Professionals

Journal Title	Total (All Years)	No. Sent (1967-71)	No. to Institutions*
New England Journal of Medicine	114	100	18
Journal of the American Medical Association	71	55	40
Lancet	71	63	17
Annals of Internal Medicine	50	42	21
British Medical Journal	49	41	35
Hospitals	38	34	9
American Journal of Nursing	28	24	0
Medical Clinics of North America	23	21	12
American Journal of Obstetrics and Gynecology	21	20	10
Nursing Times	21	21	0
Pediatrics	21	15	0
Gastroenterology	20	16	0
American Journal of Medicine	19	13	0
Medical Journal of Australia	19	17	18
Canadian Medical Association Journal	17	15	9
American Journal of Public Health and and the Nation's Health	16	15	15
Archives of Internal Medicine	16	12	0
Journal of the Oklahoma State Medical Association	16	15	0
New York State Journal of Medicine	16	13	10
Journal of Pediatrics	15	15	0
Nursing Mirror and Midwives Journal	15	15	0
Surgical Clinics of North America	15	14	0
Nursing Clinics of North America	14	14	0
Obstetrics and Gynecology	14	14	0
Practitioner	14	14	0
California Medicine	13	13	9
Registered Nurse (RN)	13	13	0
American Journal of Surgery	12	9	0
Hospital Formulary Management	12	12	0
Hospital Topics	12	12	0
American Heart Journal	11	10	0
Archives of Surgery	11	6	0
Journal of the National Medical Association	11	11	0
Nursing Outlook	11	10	0
Anesthesiology	10	10	0
British Journal of Surgery	10	8	0
Diabetes	10	10	0
Hospital Progress	10	9	0
Medicine	10	6	17
Postgraduate Medicine	10	10	5

*The last column gives the figures for the number sent to institutions, all publication years. This column was listed for purposes of comparison.

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the total, while 95 titles were used to fill 1,266 articles, or 72% of the total sent.

It is of interest to note that 150 titles, 40.2% of the 373, were sent one time only.

A careful study of the publication dates of the information sent revealed that of the total articles sent, 1,494 (85%) had publication dates from 1967 to 1971. (Only two articles had a 1972 publication date, and these were included with those from 1971.) Had these journal titles been retained only one year, 28% of the total could have been filled; two years, 57%; three years, 72%; four years, 80%; five years, 85%. See Table 2 for figures on numbers and percentages by publication year.

However, how do the percentages turn out if only the last five publication years of these journal titles had been kept? To

Table 2. Number of Articles Sent by Year of Publication with Cumulative Percentages

Year	No. to Individuals	Percent	No. to Institutions	Percent
1971	493	28%	365	22.5%
1970	509	57%	335	43.2%
1969	267	72%	186	54.7%
1968	144	80%	115	61.7%
1967	81	85%	122	69.3%
1966	56	88.3%	79	74.2%
1965	44	90.8%	51	77.3%
1964	23	92%	34	79.4%
1963	20	93.2%	32	81.4%
1962	17	94.2%	30	83.3%
1961	20	95.3%	36	85.5%
1960	10	95.9%	22	87.5%
1955–1959	32	97.7%	107	93.5%
1950–1954	22	98.97%	38	95.7%
1945–1949	6	99.3%	34	97.9%
1940–1944	6	99.66%	13	98.7%
1930–1939	2	99.77%	13	99.5%
1920–1929	1	99.8%	3	99.7%
1910–1919	0	99.8%	2	99.8%
1900–1909	3	100.0%	1	99.9%
–1900	0	100.0%	2	100.0%
Totals	1,756	100.0%	1,620	100.0%

go back to the seven most used titles, the last five publication years of these seven titles would have supplied 20.4% of the total sent, while all years of these seven titles supplied 24% of the total sent. Of the 12 most used titles, which supplied 30% of the total sent, 1967–1971 supplied 25.7%. Similarly, the last five publication years of the 40 titles that supplied 51% of the articles would have supplied 44.8% of the total. The last five years of the 95 titles supplying 72% of the total articles sent supplied 1,080 articles or 61.5% of the total.

An analysis of the articles sent to institutional users reveals a similar pattern. Here too a small percentage of the titles supplied the majority of the articles sent. Although 527 journal titles were required to send the 1,620 articles, 241 (45.7%) were sent one time only. (Thirty-three titles, requested one time only, were eliminated from the tabulations because the titles could not be verified.) Twenty-six titles, sent ten or more times, or 4.98% of the journal titles, supplied 24.5% of the articles. Approximately 19% of the titles (100 titles) were used to provide 53% of the articles sent. These were all sent five times or more.

Table 3 lists the 26 journal titles sent ten times or more to institutional users with the total number of articles sent and the number sent for the publication years 1967–1971. The last column then gives the number of times, if any, these same 26 titles were sent to individual health professionals. Table 2 also gives by publication year the total number of articles sent to institutional users with percentages. These can be compared with the individual health professional figures which are included in the same table.

It is interesting to note the differences in the lists of journal titles sent ten or more times to individual health professionals and of those sent ten or more times to institutional users. Of the 26 titles sent ten or more times to institutional users, 15 do not appear in the list of those sent ten or more times to individual users. Similarly, 25 of the 40 titles sent ten or more times to individual health professionals do not appear in the list of those sent ten or more times to institutional users.

Table 3. Articles Sent to Institutional Health Professionals

Journal Title	Total (All Years)	No. 1967-1971	No. to Individuals*
Journal of the American Medical Association	40	25	71
British Medical Journal	35	20	49
Journal of Clinical Investigation	27	16	9
Annals of Internal Medicine	21	10	50
Gut	18	9	6
Medical Journal of Australia	18	18	19
New England Journal of Medicine	18	13	114
Lancet	17	7	71
Medicine	17	8	10
Nature	16	10	3
American Journal of Public Health and the Nation's Health	15	12	16
Journal of Oral Surgery	13	2	2
Journal of Experimental Medicine	13	5	2
American Journal of Orthopsychiatry	12	12	0
Blood	12	7	0
Medical Clinics of North America	12	8	23
American Journal of Clinical Nutrition	10	9	6
American Journal of Obstetrics and Gynecology	10	7	21
Annals of the New York Academy of Sciences	10	4	6
Archives of Dermatology	10	7	8
Clinical Pharmacology and Therapeutics	10	10	2
Diseases of the Nervous System	10	8	1
New York State Journal of Medicine	10	8	16
Federation Proceedings	10	8	3
Proceedings of the Royal Society of Medicine	10	9	8
Surgery, Gynecology and Obstetrics	10	2	9

*The last column gives the figures for the number sent to individuals, all publication years. *This column was listed for purposes of comparison.*

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Included in the institutional list are such well-known titles as *Journal of the American Medical Association, Annals of Internal Medicine, New England Journal of Medicine, Medical Clinics of North America* and a few other titles. Almost all of the hospitals to which RLS sends interlibrary loan items subscribe to these titles. Their appearance on the list for articles of recent date is attributed to their popularity. In the OUHSC library, such well-used journals frequently are checked out or at the bindery when needed.

Conclusions

An analysis of the publication dates of articles sent to institutional users shows that the last five publication years account for 69.3% of the articles sent, whereas for individual users, the last five publication years accounted for 85% of the articles sent. To account for 85% for institutional users, the publication years 1961-1971 must be included. This would seem to indicate that the individual hospitals supply more of the recently published materials of common titles for their own users. It also points out that an institution aspiring to serve the backup information needs of several hospital libraries ought to maintain at least a ten year backfile of journal titles.

What do these figures mean for both institutional and individual users? They clearly point out that a relatively small number of journal titles supplied a majority of the articles sent. The pattern was

the same for both groups, even though the percentages varied. These facts were determined in the earlier journal title usage studies. There definitely is a rapid decay rate of medical information.

The difference in the two lists of most used journals reiterates Raisig's findings of the "inherent danger of using one library's statistical analysis to support analysis in another" (*5*, p. 406).

A further study of the 40 titles sent ten or more times to individual users shows 29 medical journals, 4 hospital, 6 nursing, and 1 public health. Although no one surgery journal predominated, there were 4 separate surgery titles among the first 40 titles with a combined number of articles sent of 48. This seemed to indicate the need for a surgery journal.

In advising a hospital about its library, Regional Library Services does not point to the journal usage study to say, "Subscribe to these journals." No two hospitals are alike, and the journal selection must reflect the needs of the particular hospital's health professionals. The journal title usage study is used to suggest areas of need and to demonstrate what journal titles have satisfied others' information requests. However, it is possible that a particular individual who comes to the RLS several times in one time period may slant the title usage to the particular field of the problem he is interested in at the time. Also, journal articles are no longer selected to be sent as the result of a subject search. We now produce bibliographies, from which the health professionals select the articles desired. Another journal title usage study is planned to see whether the list of most used titles varies when the user makes the selection of all articles desired.

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Accreditation Standards and Architectural Libraries—A Status Report

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■ The development of the accreditation policies which have influenced libraries associated with schools of architecture in the United States is traced. The current self-study project of the National Architectural Accrediting Board and the search for a better means of evaluating architectural libraries is reported.

THOSE WHO HAVE worked in a library associated with a school of architecture probably have come up against a situation in which faculty members who oppose some change in library service or policy have defended their stand with the following statement: "The NAAB (National Architectural Accrediting Board) will not allow us to do it." After hearing this argument for several years, the author began an investigation to find out precisely what the NAAB policies were concerning libraries.

The NAAB: 1945–1974

To fully understand the development of the architectural school library, one must examine the history of the NAAB itself. Over the past thirty years, the NAAB has grown slowly from an evaluation board which permitted a great deal of casualness and variability to an organization which has been charged by the architectural profession with the task of systematically reviewing and improving educational programs in schools.

The National Architectural Accrediting Board was founded in 1940 by an agreement between the American Institute of Architects, the Association of Collegiate Schools of Architecture and the National Council of Architectural Registration Boards. The original purpose of the Board was to publish a list of accredited schools of architecture in the United States and its possessions *(1)*.

A school of architecture was adjudged for accreditation on the basis of the total pattern that it presented. The board recognized and allowed wide variations to appear in the degree of excellence attained in each of the characteristics which it evaluated. In fact, it stated that superiority in some characteristics would be regarded as compensating to some extent for deficiencies in others. In general, the facilities and activities of each school were judged in terms of the announced objective of the school and the purpose that it sought to serve.

The characteristics which the board examined were the individuality of the school; the purpose and clientele, the organization, the faculty, the students, the physical plant, and the budget. The architectural library was included in the physical plant. Specifically, the NAAB policy on libraries, written in 1945 and still used to date, stated:

"The building and equipment of an accredited school should be adequate for the efficient conduct of its educational program and should contribute effectively to the realization of the accepted objective of the school. The library should provide the

facilities for reading and research needed to make the educational program effective, and there should be evidence that such facilities are appropriately used. Attention will be given to the holdings of general and special reference works, and of magazines and periodicals, and to the number and variety of books, slides and photographs. The use of the library by students and faculty, the expenditures for its support, the salaries and qualifications of the library staff, and the administrative practices relating to the library will be considered" (2).

Over the years, existence and enforcement of such a policy relating to architectural libraries has led to the following identifiable detriments: 1) emphasis on quantity of materials rather than on quality of library service; 2) lack of guidelines for the initial establishment of architectural libraries; 3) general casualness on the part of the accrediting team which evaluates the libraries; 4) wide-spread misunderstanding and misinterpretation by school administrators, faculty, librarians, and accrediting team members concerning the requirements for a library in an accredited school of architecture.

One of the most frequent and serious examples of this last liability is the question of whether there must be a separate library facility within the school of architecture. Frequently, faculty and school administrators have interpreted the aforementioned policy to support their demand for a branch library (or a library which is segregated administratively from the main library system) devoted solely to the subject of architecture.

However, the NAAB policy does not specifically require a school of architecture to have its own library. If the main university library or a branch is located nearby, the architectural materials may be housed there. The NAAB only wants the materials to be easily accessible to the students and faculty. Furthermore, the library facility definitely does not have to be devoted only to architecture *(3)*.

Universal clarification of this issue is of utmost importance upon consideration of three economic facts: 1) decentralizing a university library collection is expensive in itself; 2) libraries are facing the realization that less money is available and the price of publications is increasing at a phenomenal rate; and 3) there is a new emphasis on environmental design in architectural education which means that students and faculty need materials which fall outside the traditional library classification of architecture. Since such material is primarily concerned with other disciplines and cannot be transfered out of the main library (or other branch libraries), costly duplication is the only means of including it in a separate architectural library.

The NAAB Self-Study

Since the creation of the NAAB, the growing complexity of architectural education has caused both the board and those in the architectural profession to realize the inadequacies of the original NAAB policies. Consequently, the board has initiated a self-study the goal of which is to restructure the organization and its procedures. There are three objectives of this restructuring, all of which could be applied directly to the revision of the policy relating to the library: 1) to establish *performance criteria* by which education programs can be evaluated; 2) to establish *evaluation criteria* by which the accreditation process can be conducted; 3) to establish and maintain a *resource data base* useful as a comparative guide among programs *(4)*.

Helen Steele, former executive director of the NAAB, has written that during the self-study, the board hopefully will establish clearer criteria and reporting requirements for libraries. "To date the Board has been charged with evaluating schools in line with their individual objectives. For this reason the evaluation of resources, including libraries, has never been subject to rigid criteria. The Board now wishes to arrive at formulas offering a degree of comparability. *(5)*.

More specifically, statistical information has been the main basis for evaluating libraries. Quantitative information still is a necessity in order to ascertain whether the library has adequate material and staff to provide

effectual services. However, the NAAB wants a means by which it can evaluate the quality and relevance of the library's participation in supporting the school's programs.

Action by Librarians

On May 19, 1974, sixty-five librarians met at the Headquarters of the American Institute of Architects in Washington, D.C., to participate in the first formal workshop for architecture librarians. In the afternoon session, they discussed at length accreditation standards in relation to school libraries. The product of the meeting was overwhelming agreement to notify the National Architectural Accrediting Board of the recognition by librarians of the need for the following: 1) revision of the 1945 policy relating to libraries; 2) formation of guidelines for establishing architectural libraries; 3) creation of clear evaluation criteria for use by accrediting teams.

Finally, the librarians submitted to the board a list of specific suggestions concerning the evaluation of library service. The most noteworthy one was: "We urge that a professional librarian, who has had experience working in an architectural school library, should be included on the accrediting team or at least should be utilized by the NAAB as a consultant to both new schools and those which are identified as having library problems" *(6)*.

Summary

The development of architectural libraries has been hampered by accreditation standards which were written and enforced by individuals who lack understanding of library management and technology.

Architecture librarians are beginning to group together to express their concern and to offer their expertise and knowledge to the National Architectural Accrediting Board. Together, the board and the librarians should strive to formulate and enforce clearly defined standards that will guide the development of architectural libraries toward the ultimate goal of serving as an intrinsic part of architectural education.

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Handling Photograph Collections by Coordinate Indexing

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■ It appears that librarians in small colleges are increasingly assuming the job of archivist. A part of this archival or special collections work must necessarily be the handling of photograph collections. These can accumulate in many ways, but certainly yearbook, newspaper, special events, and PR staffs, not to mention amateur and professional photographers on the campus, produce their share. The use of a coordinate indexing system to handle these voluminous photographs is the subject of this article.

COORDINATE INDEXING, according to P.L. Broadhurst, is a procedure which "involves setting up a separate card file to index the collection of references . . . filed . . . according to a serial number assigned to each reference as it is added—technically the accession number" *(4)*. By substituting 'photograph(s)' for 'reference(s)' in this last sentence, a coordinate indexing system is defined which can handle an unlimited number of individual photographs. Since the literature *(1–3)* indicates that this area of archival interest is now often delegated to small college librarians, a look at coordinate indexing should be most helpful.

The accession number and subject heading(s) are assigned to each photograph on a prepared label which is fastened to the reverse side of the mounted photograph (Figure 1). An index card, 5 in. × 8 in. in size, is then assigned the identical subject heading(s) (Figure 2). The accession number is transferred from the label on the photograph to the index card so that the last digit of the accession number falls in the similar numbered column of the index card (Figure 2).

Figure 1. Label for Reverse of Photographs

Accession No. 190
Persons, places, things, dates:
FOOTBALL
1924

Donor: Professor George K. Smith
Location: In Des Peres yearbook 1924, p. 162

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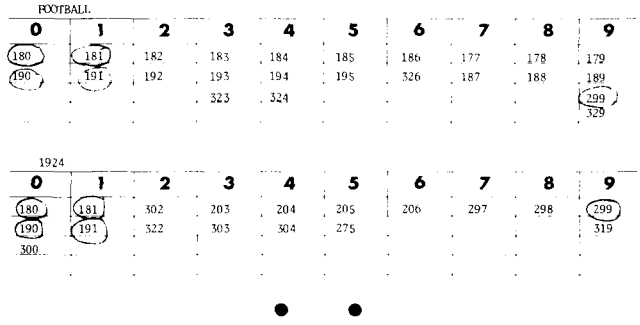
The subject headings assigned to the label on the reverse of the photograph can be one or many, depending on the person(s), place(s), thing(s), or date(s), the archivist wishes to identify in the photograph. Often the location of the photograph previously used in a yearbook, catalog, or college newspaper, can be noted on the label and the many names in a group picture eliminated from the label. The archivist should work from an authority file of names of persons and buildings, but can develop the subject headings for things and dates as he or she handles the individual photographs. Uniformity and consistency in the use of subject headings is very important.

Figure 2. Index Card



Retrieval

The retrieval of photographs for use upon request becomes simple. A search of the index cards which are filed alphabetically for all entries reveals the accession numbers for all pictures on a single subject. Removal of the photos from the accession-number order in the files is easy.

If a request for a photograph involving two or more subjects is made, a comparison of the two index cards bearing the appropriate subject headings for coincidences of number is made. A coincidence of number indicates photographs which deal with both subjects (Figure 2). Cross matching can answer such questions as, "Do you have a football team picture for the year 1924?" or "Can you locate a picture of Professor John R. Smith photographed with the president of the college in 1960?"

Some favorable aspects of the coordinate indexing system for photographs come to light as one works with the system. It is so simple to operate that one constantly asks oneself, "Why didn't I think of that?" It is adaptable to any number of photos regardless of the number of persons, places, things, or dates on the photograph. Pictures filed by accession number are easily retrieved; and finally, additional subject headings can be assigned to labels at any time as long as the archivist makes a new index card and assigns the proper accession number to it.

The coordinate indexing system used here to handle photographs is adaptable to many other types of archival and personal materials. It can be used for bibliographic references, for handling artifacts in collection, for recording sheet music, and even for controlling cookbook recipies. Only the ingenuity of the archivist or librarian working in archives or special collections can develop the system to its full potential.

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Commentary on Bibliotherapy

IN Erica Horne's article, "A Look at Bibliotherapy," she states in her opening sentence: "One does not hear much about bibliotherapy these days, at least not in library schools or in the literature" *(1)*.

As a researcher in the field of bibliotherapy and as Research Assistant to Father Louis A. Rongione, O.S.A. Professor of Bibliotherapy, Villanova University, I would like to inform the reader of the wealth of literature available pertaining to Bibliotherapy and of a viable library science program at the university level in bibliotherapy.

Overall, the literature in the field is abundant. This is clearly verified by the following three works: Corinne W. Briggs' *Bibliotherapy* (An annotated bibliography which offers over one hundred thirty citations of published works and thirty-one unpublished materials.) *(2)*; *We Call It Bibliotherapy: An Annotated Bibliography on Bibliotherapy and the Adult Hospitalized Patient, 1960–1966.* (Four hundred three sources are listed according to the following subdivisions Bibliographies and Reviews; General Articles; Research and Case Studies; Theses and Papers; Group Reading Projects; Bibliotherapy with Medical and Surgical Patients; Bibliotherapy with Neuropsychiatric Patients; Bibliotherapy with Long-Term or Aging Patients; Bibliotherapy with Special Patients, the Blind, etc.; The Patient's Viewpoint; and Recommended Books for Use in Bibliotherapy.) *(3)*; and *Curriculum Bulletin*, xix:234, "Bibliotherapy: An Annotated Bibliography" (Over four hundred publications are listed and annotated in the following areas: Bibliographies and Reviews; Bibliotherapy: General Literature; Bibliotherapy: Research; Bibliotherapy: Children and Youth; Bibliotherapy in General Medical Practice; Bibliotherapy with the Mentally Ill; Bibliotherapy with Special Cases; Bibliotherapy in the Correctional Institution; and Selected Books for Use in Bibliotherapy.) *(4)*.

An ongoing search for sources in bibliotherapy yields over a thousand citations directly and indirectly applicable to the field of bibliotherapy. Categorized according to yearly intervals, a breakdown for published works are as follows:

Date	Number of Sources
Before 1920	20
1920–1930	78
1931–1940	137
1941–1950	190
1951–1960	225
1961–1970	234
1971–1975	175

While it is acknowledged that locating sources is a time consuming project in itself, it is clear that an infinite variety of sources are available. For example, a Selected Bibliography since 1960 lists approximately 40 noteworthy articles and is cited as reading background for students at Villanova University. A copy of the Selected Bibliography is available from the author.

Villanova University offers in its library science program an active and popular course in bibliotherapy. The course description of "bibliotherapy," in the *Villanova University Bulletin: Graduate Studies*, reads: "Selection, evaluation, and acquisition of books and nonbook materials as therapeutic adjuvants in medicine and psychiatry and guidance in the solution of personal problems through directed reading" *(5)*.

Since the inception of this course, in the fall of 1970, bibliotherapy, as examined by the graduate library science students at Villanova University, and as facilitated and conducted by Father Rongione, has grown significantly beyond the above description. The growth in content, quality and quantity, has resulted from: the updating of the course each semester to reflect research in the field; the needs and preferances of the students taking the course; the exigencies of time, opportunity, and other circumstances; and a greater emphasis on a multi-media approach to course materials rather than a traditional lecturing technique.

To date, bibliotherapy, as a course, is briefly defined by the following outline:

1) Preface; 2) Introduction; 3) Definitions; 4) Objectives, Scope, and Range of Biblio-

therapy; 5) Bibliotherapy as an Interesting and Challenging Activity for Librarians; 6) Limitations of Bibliotherapy; 7) Problems; 8) General Applications and Uses; 9) Projects Undertaken; 10) Book Utilization in a Therapeutic Setting; 11) Music; the Healer; 12) Poetry Therapy; 13) Adverse Effects; 14) Bibliotherapy or Bibliocounseling as a Guidance Technique; 15) Trends; 16) Conclusions.

Perhaps the two most evident elements of the course are the flexibility of approach to the student and to the topic by its mentor, and the call to growth: intellectual, spiritual, and emotional, for all concerned by the course requirements.

The requirements of Library Science 8261 are as demanding as the student decides or deems possible. His growth in a literature search exposes him not only to the department professional library holdings, but also to the intricate workings and holdings of Falvey Memorial Library: the Reserve Room, AV Section, Stacks, Periodicals, Reference, and Interlibrary Loan Services.

Term projects are also a requirement. Topics are not pre-assigned but are left to the discretion of the student to focus on his interest whether practically or philosophically orientated. Direction and source materials for the projects undertaken, directly stem from Father Rongione's own background or are guided through his research assistant. The formal sharing of the project results with the other members of the class provides a varied learning experience in content coverage and teacher-technique for other members of the class while yielding a practical teaching experience for the teacher-student.

A selective book list including full bibliographical data with age and/or grade level indicated, summary, critical analysis, and applicability, usability of the book in a therapeutic project is a further requirement. The list is a practical application of concepts which is orientated to a general, therapeutic setting. The student is provided with a list of fifty-two areas and over seven hundred books to choose from, but he is not limited to this list and is encouraged to explore other areas and sources.

With the availability of over one thousand publications in the field of bibliotherapy or related to it, and with a course being given in bibliotherapy on the graduate level at Villanova University, it is obvious that there is a great interest in the field.

I submit while there is evidence of wide interest and activity in bibliotherapy, the field is clouded by insufficient and erroneous knowledge, by a lack of curriculum and certification for the bibliotherapist, by a lack of scientific and scholarly data on why and what people read, by a need for strict guidelines for selection and utilization of materials, and by a deficiency of bibliotherapeutic projects in the 1970s.

In addition, if bibliotherapy is to be both a science and an art and not just an interesting idea to bounce around in our professional publications, the support, consideration, and combined efforts of librarians and other professionals affected are needed.

Research, based on the findings in the field, evaluating bibliotherapy as a therapeutic tool will probably grow from theoretically based programs such as that offered at Villanova University. Practical projects delving into the pros and cons of bibliotherapy appear to be our greatest need for exploration in the future.

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3. Dolan, Rosemary / *We Call It Bibliotherapy: An Annotated Bibliography on Bibliotherapy and the Adult Hospitalized Patient.* Washington, D.C., Medical and General Reference Library, Department of Medicine and Surgery, Veterans' Administration, Feb 1967. (Earlier publications of this bibliography: *Bibliotherapy* 1952, 1955 and *Bibliotherapy in Hospitals* 1957, 1961 are not now out-of-print.)
4. Farrow, Vern L. / Bibliotherapy: An Annotated Bibliography. *Curriculum Bulletin* xix:234 (May 1963). Eugene, Oreg., School of Education, University of Oregon.
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Patricia V. Kusterbeck
Villanova University
Falvey Memorial Library
Villanova, Pa. 19003

Salary Discrimination Program Packet Available

The Special Committee on the Pilot Education Project (Salary Discrimination) announces the availability of program materials on salary discrimination for use of Chapters and Divisions. Program packets contain instructions for use and the following:

1. Bibliography—"Women, Libraries and Affirmative Action"
2. Consciousness-Raising Quiz with Answer Key
3. Case studies for group discussion or role-playing
4. Hand-outs on the Salary Survey
5. Sample Chapter program from the Texas Chapter Meeting, Sep 27-28, 1974,
6. Four tapes of program sessions from the Texas Chapter Meeting, Sep 27-28, 1974, Houston, Texas
   a. Tape I—Consciousness-Raising Session
   b. Tape II—Salary Discrimination: Dealing with Management
   c. Tape III—Salary Discrimination: Equal Pay
   d. Tape IV—Salary Discrimination: Legal Alternatives

The materials are designed to present program ideas for Chapters and Divisions. Various formats for programs are discussed and sources for speakers are listed. The tapes may best be used to obtain ideas for topics and speakers. The tapes are not intended to be played in lieu of a live program since group discussion with questions and answers is essential to a successful program on salary discrimination.

Packets may be obtained from Professor Laura N. Gasaway, Law Library, University of Oklahoma, 630 Parrington Oval, Norman, Oklahoma 73069. Because the supply of tapes is very limited, their circulation must be scheduled on a first-come-first-served basis, and they must be returned within two weeks of receipt. Therefore, please request tapes well in advance of anticipated use. There is no charge for the packet. Although the tapes must be returned, other materials in the packet may be retained by the Chapters and Divisions.

Only through education of our membership will women achieve salary parity in special libraries. Please plan to devote a Chapter program to the topic "Salary Discrimination in Special Libraries."

Bob Ballard
Agatha Bystram
Angela Giral
Ruth McCullough
Lolly Gasaway, Chair

MEMBERS IN THE NEWS

Jean R. Anderson, formerly library manager, Cities Service Research and Development Company, Cranbury, N.J. . . . appointed librarian, University of South Florida, Fort Myers.

Martha Baker . . . appointed instructor, library science and research librarian, Purdue University Libraries and Audio-Visual Center, West Lafayette, Ind.

Alan Baldridge, formerly librarian Hopkins Marine Station, Stanford University, Pacific Grove, Calif. . . . named librarian, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, Miami, Fla.

Isabel R. Balke, staff member, Air Force Systems Command Library, Andrews AFB, Washington, D.C. . . . retired.

Eugene Bockman, director, Municipal Reference Library and Research Center . . . received an award for service from the Fund for the City of New York for outstanding service.

Doris Bolef, formerly assistant librarian for technical services, Washington University School of Medicine, St. Louis, Mo. . . . appointed assistant dean for learning resources, East Tennessee State University College of Medicine, Johnson City.

Lester M. Breslauer, formerly chief librarian, Buffalo Museum of Science . . . named chief librarian, Bell Aerospace Company, a division of Textron, Buffalo, N.Y.

Stanley E. Brewer, formerly history-political science librarian, University of Houston . . . named librarian, Central Reference Library, Gulf Oil Company-U.S., Houston, Texas.

Helen A. Browne . . . named assistant treasurer in the Library Division, Operating Services Department, Bankers Trust Company, New York.

Ching-chih Chen, assistant professor, School of Library Science, Simmons College, Boston . . . named associate professor.

Carmen E. Clark, chief, Readers Services Branch, U.S. Army War College, Carlisle Barracks, Pa. . . . retired.

Clementine Coblyn . . . named circulation librarian, Massachusetts Institute of Technology, Cambridge, Mass.

Virginia Daiker, retired specialist, American Architecture, Prints and Photographs Division, Library of Congress . . . chosen for recognition in the International Women's Year Calendar.

Ronald E. Day . . . named acquisitions librarian, Tarlton Law Library, University of Texas at Austin, Austin, Texas.

Thomas J. Deery . . . appointed manager, Technical Information, Corporate Research Department, Air Products and Chemicals, Inc., Allentown, Pa.

Mary B. DePuy, head library services, Burroughs Wellcome Company, Research Triangle Park, N.C. . . . retired.

Paul E. DuMont, formerly systems librarian, San Antonio College, San Antonio, Texas . . . appointed chief, Materials Processing, Dallas Public Library, Dallas, Texas.

Shirley Echelman, librarian, Research Library, Chemical Bank, New York . . . promoted to assistant vice-president.

Frances Flynn, formerly head, Management Sciences/Public Affairs Library, Arthur D. Little, Inc. . . . named chief librarian, Schering Library of Health Care, Harvard University Center for Community Health and Medical Care.

Morton H. Friedman, automated systems coordinator, Division for the Blind and Physically Handicapped . . . received a Presidential Management Award for his work at the Environmental Protection Agency in Cincinnati, Ohio.

Richard Funkhouser . . . appointed science librarian, Purdue University Libraries and Audio-Visual Center, West Lafayette, Ind.

Angela Giral, formerly librarian, Urban and Environmental Studies Library, School of Architecture and Urban Planning, Princeton University . . . named librarian, Graduate School of Design, Harvard University.

Robert L. Hadlock, formerly head, Acquisitions Department, Massachusetts Institute of Technology Libraries . . . appointed coordinator, Technical Services, Health Sciences Library, University of Maryland, Baltimore.

Shirley Harper, formerly with the University of Chicago Industrial Relations Center . . . now with the Martin P. Catherwood Library of the New York State School of Industrial and Labor Relations, Cornell University, Ithaca, N.Y.

Robert M. Hayes, acting dean, University of California at Los Angeles Graduate School of Library and Information Science . . . appointed dean.

Janet S. Heiner, head, Continental Illinois National Bank and Trust Company, Chicago . . . elected an operations officer.

Richard S. Huleatt, formerly technical information manager, Stone & Webster Engineering Corporation, Boston . . . a private consultant for special library and information services in business and industry, Framingham, Mass.

Clara Stanton Jones, director, Detroit Public Library and vice-president/president-elect ALA . . . received the 1975 University of Michigan Alumnae Athena Award.

Jean M. Kasperko, formerly librarian, University of Pittsburgh Computer Science Department . . . named information specialist, Information Center, Calgon Corporation, Pittsburgh.

Caryn Katz . . . named librarian, Special Libraries Association, New York.

Elizabeth Krakauer, retired archivist, Goddard College, Plainfield, Vt. . . . accepted in the Peace Corps as Professor of Archive Management, University of Bogota, Bogota, Columbia.

Charles A. LeGuern, formerly head, Business, Science, and Technology Department, Bayonne Public Library . . . now acquisitions librarian, Passaic County Community College, N.J.

Robert T. Lentz, director, Scott Memorial Library and professor, Medical Bibliography and Library Science, Thomas Jefferson University, Philadelphia . . . was honored at a ceremony during which his portrait was presented to the university on the occasion of his retirement.

Priscilla Linsley, librarian, Carl Campbell Brigham Library, Educational Testing Service, N.J. . . . on leave to coordinate library services to nine correctional institutions in New Jersey.

BROWNE

GIRAL

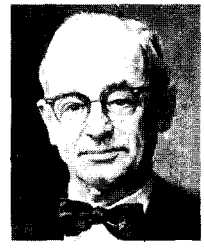
LONGHENRY

Navy Photo

LUCKETT

JONES

MICHEL



LENTZ

LEUZINGER

MUNGER

SMITH

ZEALBERG

Nancy J. Leuzinger, former librarian, Michael Baker, Jr., Inc. . . . named assistant librarian, Dravo Corporation, Pittsburgh, Pa.

Ruth A. Longhenry, retired director, Army War College Library, Carlisle Barracks, Pa. . . . director, Cocoa Beach Public Library, Cocoa Beach, Fla.

Jay K. Lucker, formerly associate university librarian, Princeton University . . . appointed director of libraries, Massachusetts Institute of Technology, Cambridge, Mass.

George R. Luckett, librarian and professor of library science, Naval Postgraduate School, Monterey, Calif. . . . retired.

Lyn Maret, formerly on the staff, Queen's College Library, Charlotte, N.C. . . . appointed to reference staff, Air University Library, Maxwell Air Force Base, Alabama.

Katherine M. Markee, personnel librarian, Purdue University Libraries, West Lafayette, Ind. . . . appointed MEDLINE analyst and instructor in library science.

James M. Matarazzo, associate professor of library science, Simmons College, Boston . . . promoted to assistant dean, School of Library Science.

Victor J. Michel, manager, Technical Information Center, Rockwell International, Anaheim, Calif. . . . elected president, Board of Trustees, Placentia, Calif., Library District.

Edward P. Miller, interim dean, School of Library and Informational Science, University of Missouri-Columbia . . . appointed dean.

Elizabeth Moore, manager, Corporate Library, Burroughs World Headquarters . . . coordinated the first international conference of Burroughs librarians and information officers.

Molete Morelock, head of Interinstitutional Library Services, Purdue University . . . retired, received the 5th John H. Moriarty Award "for distinguished librarianship and service to the Indiana Chapter Special Libraries Association."

Ellis Mount, librarian, Engineering Library, Columbia University, New York . . . now Science Bibliographer, Columbia.

Lynn S. Mullins, librarian, American Geographical Society, New York . . . received the Geography and Map Division's 1975 Honors Award for outstanding achievement in Geography and Map Librarianship.

Terry Munger, director, Information Center, J. Walter Thompson Company, New York . . . elected a vice-president.

Henry Murphy, librarian, Mann Library and assistant director, Cornell University Libraries system . . . named assistant director for statutory college libraries.

Charles Olsen . . . appointed librarian, Joint Bank-Fund Library, World Bank and International Monetary Fund, Washington, D.C.

Edwina Pancake, acting director, Science/Technology Information Center, University of Virginia Library, Charlottesville . . . named director.

Michael D. Peterson, formerly at the University of Maryland . . . now interlibrary loan librarian, University of Virginia, Charlottesville, Va.

Gertrude Pinkney, formerly chief, Municipal Reference Library, Detroit Public Library . . . now with the Wayne County Federated Library System, honored by the Detroit City Council.

Jeannette Privat . . . promoted to assistant vice-president, Seattle First National Bank.

Joanne Portsch . . . appointed librarian, Raytheon Company's Equipment Development Laboratories, Wayland and Sudbury, Mass.

Earl Pruce, chief librarian, *The Baltimore News American* . . . retired.

Loyd Rathbun, library officer, M.I.T. Lincoln Laboratory, Lexington, Mass. . . . retired.

Pamela W. Reeves, formerly associate librarian for administration, Metropolitan Campus, Cuyahoga Community College, Cleveland, Ohio . . . appointed associate director, Center of Educational Resources, Eastern Michigan University, Ypsilanti, Mich.

Walter W. Ristow, chief, Geography and Map Division, Library of Congress . . . received honorary membership in the American Congress on Surveying and Mapping.

Marylyn Roberts, formerly librarian, Intelcom Rad Tech, San Diego . . . university librarian, National University, San Diego, Calif.

Martha Rush, formerly chief legislative librarian, Kentucky Legislative Research Commission, Frankfort, Ky. . . . appointed assistant law librarian and instructor of legal bibliography, University of Louisville Law School, Louisville, Ky.

Margaret Siegmund, librarian, Bankers Trust, New York . . . retired.

Mayra P. Scarborough, librarian Hoffmann-La Roche, Inc., Nutley, N.J. . . . awarded the George Washington Certificate for Americanism Activities by the Freedoms Foundation at Valley Forge.

Renata V. Shaw, bibliographic specialist, Prints and Photographs Division, Library of Congress . . . received a Meritorious Service Award for her suggestion "to make use of the knowledge of the Library's learned readers by actively encouraging them to help our recommending and acquisition process."

Elizabeth Smith, head Reference Center, Campbell-Ewald Company, Detroit, Mich. . . . elected vice-president.

Cecily J. Surace . . . named head librarian, Rand Corporation, Santa Monica, Calif.

Mary Thomsen, supervisor, Research Library, Putnam Management Company, Inc., Boston, Mass. . . . named assistant vice-president.

Ildiko D. Trombitas . . . named head, Library Services, Burroughs Wellcome Company, Research Triangle Park, N.C.

Lucille Whalen . . . elected a director on the Board of the American Association of Library Schools.

Mary Jack Wintle, assistant chief, Materials Development, Division for the Blind and Physically Handicapped, Library of Congress . . . appointed assistant chief, Division for the Blind and Physically Handicapped.

Edith Woodward, legislative librarian, Ohio Legislative Service Commission, Columbus . . . received a three column recognition in the *Columbus Dispatch* for her project of attempting to list all the State of Ohio's commissions, councils, boards, authorities, and task forces.

Catherine L. Zealberg, chief, Selection and Acquisitions Branch, Army War College, Carlisle Barracks, Pa. . . . named director.

Chapters, Divisions and Student Groups

Alabama—The Annual Seminar was held in Apr on library networks. Charles Stevens, executive director of SOLINET, and Mildred Mason, Information Dynamics, spoke.

The Chapter's Annual Meeting was held Apr 25 in conjunction with the Annual Meeting of the Alabama Library Association.

Boston—The seventh edition of the *Directory of Special Libraries in Boston and Vicinity* is available from Susan Rabinowitz of the Boston Chapter, c/o Proceedings in Print, 99 Massachusetts Ave., Suite 3, Arlington, Mass.

Colorado—Following a sold-out dinner, Dr. Allen Breck, head of Denver University's history department, spoke about "Colorado in Print: 200 Years."

Dayton—The annual business meeting was held May 9 in the Imperial House. The speaker for the evening was Hugo Alpers, General Bookbinding Company. His topic was "Stealthily Stalking the Rare BB" (bound book).

Florida—The Chapter sponsored a "Travelling Workshop" on evaluation/justification of a special library last summer. It was conducted by Sarah M. Thomas of the Library Systems Branch, U.S. Environmental Protection Agency, Washington, D.C. The workshop was given in two places across the state from one another.

Geography and Map Division—At the annual business meeting of the Division, the members voted to establish an annual award of $50.00 for the best paper to appear in its *Bulletin*. It will be entitled the Bill M. Woods Award. Recipients will be selected by the Honors Committee of the Division.

Kentucky—The Chapter met in March at the *Courier-Journal* and *Louisville Times* Library. Following the business meeting two speakers addressed the audience. The first was John Long, director of the *Courier-Journal* and *Louisville Times* Information Service, who explained the services provided. The second speaker was Tom Hogan, vice-president of Data Courier, Inc., who spoke about the publications of the company.

Long Island—A dinner meeting May 7 was addressed by Barry Richman who was science editor of the *American Heritage Dictionary*.

Michigan—In May the annual business meeting was held in Ann Arbor.

Jun 18 was the day for the "SLA Annual Conference Round-up."

Military Librarians—Hugh Sauter, administrator, Defense Documentation Center, talked about "What's New in Technical Information" at a meeting May 1.

Minnesota—A joint meeting was held with ASIS on May 21. The special guests for the lucheon were the Members who had retired during the current association year.

Montreal—The Annual Meeting was held May 14. It was preceded by a workshop management games session conducted by Margot Walker. The post-dinner speaker was Margaret Gillett, head of the woman's program at McGill University.

New York—The business meeting May 21 included a demonstration by Robert Donati of the Lockheed Information Systems. He was assisted by Vivian Sessions of CUNY, Graduate School.

New York, Geography and Map Group—On Mar 10 the group visited the Hammond Map Store for a guided tour and discussion.

A map librarianship workshop was held May 19.

An all-day meeting at the American Geographical Society was planned.

New York, Museum Arts & Humanities Group—A business meeting was held Apr 10 at the library of the Museum of Modern Art. A mid-May walking tour of SOHO was planned.

New York, Newspaper and News Group—At an Apr 10 meeting Jim Humphrey of H. W. Wilson spoke about indexing and computers.

New York, Social Science Group—A meeting was held at the U.S. Mission to the UN. The speaker was Ambassador Barbara White, U.S. Representative to the UN for Special Political Affairs.

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Nominations for 1976 SLA Awards

Nominations for 1976 SLA awards are due by Jan 5, 1976. Individuals, as well as Chapters and Divisions, may submit nominations. All nominations must be completely documented within the definitions of the purposes of the three awards. Forms and instructions for nominations have been distributed to all Chapters and Divisions. Additional forms are available from the Association's New York offices.

The SLA Professional Award. The highest recognition granted by this Association is awarded after consideration of all significant contributions made to librarianship and information science. The definition of the SLA Professional Award is:

> "The SLA Professional Award is given to an individual or group, who may or may not hold membership in the Association, in recognition of a specific major achievement in, or a specific contribution to, the field of librarianship or information science, which advances the stated objectives of the Special Libraries Association. The timing of the Award shall follow as soon as practicable the recognized fruition of the contribution."

The SLA Hall of Fame. In documenting nominations, the following criteria for eligibility to the SLA Hall of Fame should be remembered:

> "SLA Hall of Fame election is granted to a member or a former member of the Association following the close of an active professional career for an extended and sustained period of *distinguished service to the Association in all spheres of its activities (Chapter, Division, and Association levels).* However, prolonged distinguished service within a Chapter or Division, which has contributed to the Association as a whole, may receive special consideration."

The basic purpose of the SLA Hall of Fame is to recognize those individuals who have made outstanding contributions to the growth and development of Special Libraries Association—as a whole—over a period of years.

The SLA Special Citation. The definition of the SLA Special Citation is as follows:

> "The SLA Special Citation is an occasional recognition of a member or group of members or of an individual or group close to the Association in acknowledgment of outstanding service to or exceptional support and encouragement of special librarianship.

Mail completed forms to:

Gilles Frappier, Chairman
Awards Committee
Library of Parliament
Parliament Buildings
Wellington St.
Ottawa, Ont., Canada K1A OA9

An International Non-Event

An international library non-event happened in Oslo during the week of 10–15 Aug 1975. The happening was supposed to be the 41st General Council Meeting of IFLA, but the Council did *not* meet even though the primary topic was new statutes for IFLA. For this reason program sessions were to be a minimum; and there were very few substantive sessions of professional interest.

The number of registrants had been restricted to about 500 by the IFLA Executive Board because the principal topic of the session was to be the re-organization of IFLA and the discussion of revised draft statutes (i.e., Bylaws). Both items are many years overdue. If the wasted week in Oslo is indicative, it will be many more years before any progress is achieved. The entire matter now must be churned over again in Aug 1976 in Lausanne where the number of registrants is to be again restricted to 500—and where there will apparently be no substantive program sessions for a second year in a row.

During recent years 7 or 8 drafts of new statutes have been prepared. About 6 months ago, an attorney specializing in international law had been engaged. In Oslo the IFLA Executive Board showed no leadership and apparently little understanding of the many shortcomings and new problems introduced in the draft statutes as presented. The attorney had apparently not heard that the attorney's position should be to provide advice to his clients rather than to act the role of Solomon-the-law-giver. Terminology was changed in numerous places apparently just for the hell of it. In this way changed terminological shufflings completely overshadowed the changes in substance and confused the participants.

National Voting Commissions?

A new "category of member" was introduced in this draft with the title, *National Voting Commission,* which is to bring about an operation based on "one nation, one vote." Yet at the same time the major dues assessments are still to fall on the library associations! The member-associations from North America are opposed to the introduction of "one nation, one vote" and the inevitable politicization of IFLA activities.

A basic peculiarity—not discussed at any time—is a proposed change in name from International Federation of *Library Associations* to International Federation of *Libraries* (but to retain the acronym, IFLA!) This is indeed a further peculiarity with the major dues income derived from library associations rather than from institutions. More than one participant noted that if the proper acronym were used for the new proposed name (IFL) the French acronym would be FIB. This may well have some yet unseen significance!

But the principal criticisms must be borne by the IFLA Executive Board whose members demonstrated a total lack of appreciation for the need for orderly discussions in such important matters. There was a chaotic, illogical sequence of meetings which did not provide any orderly sequence of discussions progressing from smaller groups through larger groups and on to the Council itself. As reported above, the Council itself did not meet even though the existing statutes define the Council as the governing body of IFLA and the voting representatives of each member-association as the members of Council. One had the feeling of Alice stepping through the looking glass after falling down the rabbit hole.

The IFLA Board needs basic lessons in how to plan, explain, and execute major decisions that require action by its members. In spite of some criticisms of the Annual Business Meetings of SLA, ALA, and other North American associations, our meetings are models of proper protocol and orderly parliamentary procedures.

At a meeting of Specialized Libraries representatives, there was a 5-to-1 opposition to the concept of "one nation, one vote" with the observation that special libraries in different countries have more in common than could be demonstrated by national votes. Similarly the Specialized Libraries representatives were opposed by a ratio of 5-to-1 to the continuance of geographical representation on the Executive Board (actually now geo-political representation). They also opposed geographical representation on the newly proposed Professional Board by a ratio of 27-to-1. The special librarians were the only group that clearly demonstrated their under-

standing of international library cooperation with such margins against either continuing geographical or political influences or the introduction of further new influences.

IFLA Dues Assessments

The six U.S. member-associations presented a statement regarding the assessment of IFLA dues. The U.S. associations urged the IFLA Executive Board to replace the present national assessments based on a percentage of the nation's contributions to Unesco with a scale of dues dependent on the number of members in each association (with a fixed figure for all institutional members). Under the existing method of assessment related to national contributions to Unesco, the U.S. members contribute approximately 22% of the IFLA dues income. West Germany has the next highest national assessment by IFLA after that of the U.S.

Two Sub-Sections of the Special Libraries Section and several IFLA Committees were the only sponsors of sessions with substantive papers. The two Sub-Sections were the Astronomical & Observatory Libraries and the Geography & Map Libraries.

Meetings were at a suburban campus of the University of Oslo with housing at three downtown hotels and two "summer hotels" further out in the suburbs than the campus itself. A "summer hotel" is apparently a Norwegian invention by which student dormitories are used as hotels during the summer—but the dormitories are not adjacent to the campus. Critics of SLA Conference sites could have had a well-justified field day.

Trolls at Work

Rumors had circulated that the chaos and anarchy at the discussions of the proposed IFLA statutes were caused by the influence of trolls who had re-appeared from the ancient folklore of Norway. I will dispute such rumors because all modern-day reincarnations of trolls seem to have been hired as cooks, maids and waiters at the new Hotel Scandinavia, a Western International Hotel. Although in fairness the fine service of three waiters must be noted as distinct from other service staff. But each room in the Hotel Scandinavia did feature the word, "SLÅ" in large letters. I thought that was a nice gesture until I found Slå in every telephone booth in town: the Norwegian word for "Dial." Could this be the work of unemployed trolls?

FRANK E. MCKENNA

Washington Letter

September 8, 1975

Privacy Commission to Study Data Banks & Information Systems

Congress plans to provide start-up funding this fall for the new Privacy Protection Study Commission which was authorized by the Privacy Act of 1974 (PL 93-579) to study data banks and information systems and ascertain what procedures are being used to safeguard the privacy of individuals.

Among other things, the commission is to consider whether the privacy requirements now applicable to federal agencies should be extended to state and local government and private organizations. Do mailing lists violate individual privacy and should individual names be removed from such lists upon the request of the individual? The commission is authorized not only to conduct inspections and hold hearings but also to subpoena witnesses and documents as necessary.

President Ford appointed three members of the commission, William O. Bailey, executive vice president of Aetna Life & Casualty, Hartford Conn.; David F. Linowes, partner Laventhol & Horwath, New York City; and Willis H. Ware, member, corporate research staff, Rand Corp., Santa Monica, Calif. The House and Senate leadership each designated two members. U.S. Representatives Barry M. Goldwater, Jr. (R-Calif.) and Edward I. Koch (D-N.Y.) were appointed by the House; the Senate designated Robert Tennessen, Minnesota State Senator, and William B. Dickinson, retired executive editor, *Philadelphia Bulletin.*

Limited start-up funding ($150,000) is expected to be approved as part of the FY 1976 State, Commerce and Judiciary Appropriations Act (HR 8121), with additional funding to be provided later in a supplemental money bill. The Commission has two years in which to complete its study.

Law Book Industry Guides Promulgated

Guides to the Law Book Industry were promulgated Aug 8, 1975, by the Federal Trade

Commission (FTC) "to afford guidance as to the legal requirements applicable to the practices of this industry in the interest of protecting the public. . . ."

The FTC released draft guides in February 1973, and provided interested persons at that time a chance to present their views on the draft. "After full consideration of all comments received," FTC announced in the *Federal Register* promulgation of the *Guides* in final form, which become effective "as to all materials, including promotional materials, publications, research materials and the like, distributed eight months after promulgation. . . ."

Among other things, the *Guides* state that a publisher who sells an industry product which is expected to be replaced or substantially revised within one year should notify the purchaser prior to consummating the sale of this expectation. Other or prior titles and last copyright date must be clearly disclosed if the industry product or substantially the same industry product is or was published separately, under identical or different titles (e.g., it must be made clear that "Smith on Mortgages" is substantially the same book as "Volume 9 of the Symposium on . . .," or is composed of material also found in "Volume 9 . . ." or words to that effect.")

Inquiries and requests for copies of the *Guides* should be directed to the Bureau of Consumer Protection, Federal Trade Commission, Washington, D.C. 20580. They can also be found in the Aug 8, 1975, *Federal Register* [40(no.154):33436–33439].

Federal Register Price Increases

A higher yearly subscription cost for the daily *Federal Register*, and an alternative subscription plan for the *Weekly Compilation of Presidential Documents*, both took effect Sep 19, 1975. These and other amendments to the regulations of the Administrative Committee of the Federal Register are announced in the Aug 20 *Federal Register* [40(no.162): 36295].

The subscription cost of the *Federal Register* is now $50 per year, rather than the former $45. No change has been made in the monthly subscription rate which remains $5, and individual copies of current or recent issues, too, continue to be available at the same price, $.75 per copy, payable in advance, from the Superintendent of Documents, Government Printing Office.

The *Weekly Compilation of Presidential Documents* has doubled in price, from its previous $15 per year to $30, for first-class mailing. If you are willing to wait for "nonpriority mail" delivery, you can continue to pay $15 for an annual subscription.

Sara Case
Washington, D.C.

STAFF DEVELOPMENT

Communications within an organization are enhanced by an employee handbook and by good listeners.

Cowan, Paula / Establishing a Communication Chain: The Development and Distribution of an Employee Handbook. *Personnel Journal* 54(no.6):342–344,349(Jun 1975).

This article describes the procedures used to produce an employee handbook. A discussion of objectives as well as content and format of the handbook are included.

Okun, Sherman K. / How to Be a Better Listener. *Nations Business* 63(no.8):59–62(Aug 1975).

When to listen, what to listen for, how to respond positively, and non-verbal communications are the main topics.

. . . management . . .

Stonich, Paul J. / Formal Planning Pitfalls and How to Avoid Them: Part 1 & 2. *Management Review* 64(no.6):4–11(Jun 1975) and 64(no.7):29–35(Jul 1975).

Formal planning systems fail for three reasons: 1) they lack "a focused approach to planning," 2) they do "not concentrate on actions or decisions that managers can take today to influence tomorrow's performance," and 3) they are "not integrated with the organization's other management systems." Steps to be taken to avoid these pitfalls are outlined.

Twedt, Dik / Management Handbooks for Continuing Education. *Harvard Business Review* 53 (no.40): 36–38,40,44,46,161 (Jul 1975).

An annotated bibliography of 33 current management reference works includes publisher and price.

Mintzberg, Henry / The Manager's Job: Folklore and Fact. *Harvard Business Review* 53(no.4):49–61(Jul–Aug 1975).

Mintzberg discusses four myths (organizing, coordinating, planning, controlling) about the manager's job. Additionally, he discusses in detail ten roles that comprise the manager's job: figurehead, leader, liaison, monitor, disseminator, spokesman, entrepreneur, disturbance handler, resource allocator, negotiator. There is also a useful list of self-study questions for managers. This is one of the best articles that we have read on this subject.

Lewis, John W., III / Management Team Development: Will it Work for You? *Personnel* 52(no.4):11–25(Jul–Aug 1975).

According to Lewis, the concept of management team development has been used successfully in some companies but has created havoc in others, depending upon the leadership style of the executive in charge. This article discusses three managerial patterns or styles and the conditions under which each is likely to work best.

. . . are your performance appraisals what you want them to be? . . .

Ferrara, A. J. / Performance Appraisal: Steer Clear of Booby Traps. *Supervisory Management* 20(no.7):2–9(Jul 1975).

Twelve pitfalls of performance appraisal and how to avoid them are discussed. Some helpful information for the novice at performance appraisal and some common sense suggestions are presented.

Hopkins, William M. / Performance Appraisal: Try Action Analysis. *Supervisory Management* 20(no.7):10–13(Jul 1975).

Action analysis is a method of evaluating an employee's performance in a reasonably objective and quantitative manner. The method for using this technique is described as are its uses, one of which is comparative performance evaluations of individuals or groups of employees.

. . . flexible working hours, "out placement," and employment enrichment . . .

Elbing, Alvar O., Gadon, Herman and Gordon, John R. M. / Flexible Working Hours: The Missing Link. *California Management Review* 17(no.3):50–57(Spring 1975).

The reasons for the success of flexible working hour systems are discussed. The authors briefly explain the basics of flexible working hour systems and cite numerous references for additional information.

Meyers, Deborah and Lee Abrahamson / Firing with Finesse: A Rationale for Outplacement. *Personnel Journal* 54(no.8):432–434,473(Aug 1975).

In an attempt to assist good employees who must be terminated for lack of work, some companies have established "outplacement" programs to support the employee's job search. The authors discuss variables that must be considered in determining the kind of assistance that will be provided and action strategies for the outplacement program.

Werther, William B., Jr. / Beyond Job Enrichment to Employment Enrichment. *Personnel Journal* 54(no.8):438–442(Aug 1975).

While job enrichment is designed to give more autonomy, responsibility and authority to workers, employment enrichment attempts to enhance the interface between the employee and the organization as a whole. Werther discusses methods for enriching the associations between the worker and the major regulations that control his organizational existence, such as individual benefit packages, working hours, employment status, etc. The author urges more flexibility in determining these regulations.

Neal Kaske
Univ. of California, Berkeley

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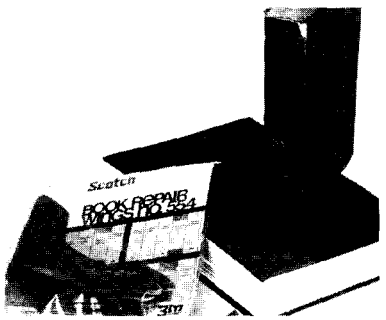

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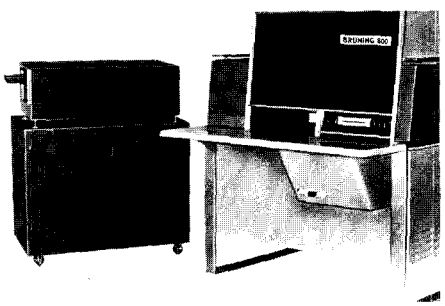

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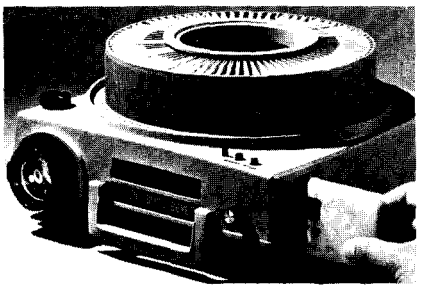

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REVIEWS

State Government Reference Publications: An Annotated Bibliography. by David W. Parish. Littleton, Colo., Libraries Unlimited, Inc., 1974. 237p. index. $11.50. LC74-81322. ISBN 0-87287-100-2.

Within the past several years, bibliographies on state publications have undergone a major conceptual expansion. In general they no longer merely list either checklists or bluebooks but seek to identify those state publications and commercial equivalents having reference value. These include manuals, handbooks, directories, bibliographies, and checklists. The objective is to obtain better bibliographic control over historical and current developments and activities of state government. Each bibliography has fundamental weaknesses and has been selective.

Parish provides 808 entries and additional references in the abstracts. Entries include governmental and non-governmental publications but exclude "college and university catalogs, slip laws, ephemeral materials, and items such as blanks and forms." Arranged alphabetically by state and main entry, non-governmental publications are given at the end of each state's listing. Complete bibliographic information is provided except for occasional omissions or errors as to price and frequency of issuance. Appendixes contain a selected bibliography of general reference sources and selected readings, a list of subjects followed by the typical agency responsible for that activity and the type of publications likely to be issued by that agency, and a directory of agencies whose publications appear in the main bibliography.

The bibliography contains numerous errors, provides obsolete and incomplete information in certain instances, and has omissions. Parish lists retrospective checklists and bibliographies but with no regularity. Such coverage would clarify the relationship of current checklists with their predecessors and would illustrate how completely various states have achieved bibliographic control of their publications. There is not always an indication of which sources comprise the bluebook (Oklahoma, for example). As for the appendix, the agency directory ignores the fact that in certain states (Pennsylvania, for example) many publications can be obtained from other than the issuing agency. The listing of suggested readings contains only occasional abstracts and does not show the relationship between similar types of publications, those on classification schemes and those comprising bibliographies. The *Checklist of Official Delaware Publications*, listed as quarterly since 1969, was issued only in 1968 and 1969. *Minnesota State Documents Received* was published irregularly between 1969 and 1970 and is now in a "state of limbo." The Nebraska checklist is bi-monthly not monthly; the Colorado checklist has been monthly since 1971; *Library Occurrent* (Indiana) began listing documents in 1925; and the Utah checklist has been issued infrequently not regularly. The *Colorado Yearbook*, which was last issued for 1962/64, is out-of-stock and there are no plans for a revision. Typographical mistakes include a partially illegible abstract for one Maryland publication and an incorrect title for *Official Topeka State Offices Directory* (Kansas). The *Statistical Abstract of Virginia* (1966) was issued in two volumes, one in 1967 and the other in 1970.

With revisions, Parish could produce a standard reference publication, which should be periodically updated. Any revision should seek a comprehensive listing of those reference sources which list state publications and should explain how comprehensive the listings are. In sum, it should further bibliographic awareness of state publications.

Peter Hernon
Bloomington, Ind.

Library Power; A New Philosophy of Librarianship, by James Thompson. Hamden, Conn., Linnet Books, 1974. 111 p. $6.50.

This book should be required reading for every head of a university library. Thompson challenges everything that libraries are doing. Although he is British and the head librarian at the University of Reading in England, he speaks quite well for all of us and draws heavily on the American experience for most of his examples. He cites Shera, it seems, more than anyone else.

The major thesis of this book is that librarians must become more professional and leave the clerical details to the clerks. Being a professional librarian to Thompson means selecting the collection and serving the library's public.

Because Mr. Thompson writes so well and defines his purposes so clearly, I feel that I should use his words to define his book. He says in his book:

The major premise of the present work is that libraries are a source of power, this power deriving principally from the fact that libraries are the storehouses of knowledge . . . They conserve and transmit our culture. . . . They are instruments of social and political change. . . .

. . . any philosophy of librarianship must be firmly based on a full appreciation of this power of libraries, but . . . the library profession . . . does not have such an appreciation, and expends the greater part of its energies on techniques and clerical routines. As a consequence, there is a reluctance to place the direction of major library institutions in the hands of members of the library profession.

The solution must lie in the creation of an elite corps of librarians, who are well-educated and committed. . . .

Only when the library profession becomes worthy of the libraries entrusted to its care will it be able to interpret successfully the role of the library in society, education and culture. Only then will the profession come to exert its rightful influence on issues relevant to libraries.

Perhaps the most challenging position taken by Thompson is that he sees librarians as "keepers of

supply depots concerned with inventory and control, rather than as the leaders of humanistic institutions." As a result of this attitude, librarians have been ignored at least once for the head of the Library of Congress and once for the head of the British Library. Is it that libraries are too important to entrust to librarians? Why haven't we produced the leadership necessary to direct these institutions? Thompson thinks we have lost sight of "library power."

You have to read this book to decide for yourself whether librarians have indeed lost their way as "keepers of supply depots" and are more interested in clerical routines than in what our stores can do for society. What we as librarians are able to do with our talents may be the true answer to the questions Thompson raises.

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Library Planning and Decision-Making Systems, by Morris Hamburg, et al. Cambridge, Mass., MIT Press, 1974. ISBN 0-262-08065-6.

This book is an outgrowth of a research project conducted at the Wharton School of the University of Pennsylvania and supported by a grant from the U.S. Office of Education. Much of the work described here has already appeared in the form of technical reports, journal articles and doctoral dissertations. The present volume is a convenient consolidation of this earlier literature.

The volume is concerned with library management and in particular with the measurement and evaluation of library performance. The authors point out that, before library services can be evaluated, the objectives of the library need to be defined. Unfortunately most statements of objectives, published by individuals or organizations, relate to the long-range effects of the library in a particular community it is to serve. These long-range behavioral effects are usually too vague and imprecise to be used as the basis of evaluation. Instead of attempting to evaluate library service against these long-range objectives we should step back somewhat and evaluate a library against its shorter-range, more concrete objectives. The investigators point out, quite rightly, that all libraries have the same basic short-term objective: to fulfill an *interface* role. Every library exists to interface between a particular user community and the universe of bibliographic resources.

In its role as an interface, the library exists to make bibliographic resources maximally available to library users or, as Hamburg and his colleagues put it, to maximize exposure of users to bibliographic materials. The effectiveness of a library service can be evaluated in terms of the extent to which it maximizes exposure of users to materials. Its cost-effectiveness can be judged in terms of the extent to which it is able to achieve maximum exposure for each dollar expended. That is, cost-effectiveness is judged in terms of optimum allocation of resources. All this is, of course, sensible, if not particularly original.

As Drucker *(1)* has pointed out rather well, a "public service institution" may have long-term objectives that are relatively intangible but this is no excuse for inefficient management of these institutions or for lack of willingness to evaluate their performance. Drucker goes on to indicate that, while these institutions may have long-term objectives that are intangible, they also have various shorter term goals that are both tangible and measurable:

"Saving souls," as the definition of the objectives of a church is, indeed, "intangible." At least the bookkeeping is not of this world. But church attendance is measurable. And so is "getting the young people back into the church."

"The development of the whole personality" as the objective of the school is, indeed, "intangible." But "teaching a child to read by the time he has finished third grade" is by no means intangible, it can be measured easily and with considerable precision.

"Abolishing racial discrimination" is equally unamenable to clear operational definition, let alone measurement. But to increase the number of black apprentices in the building trades is a quantifiable goal, the attainment of which can be measured.

Achievement is never possible except against specific, limited, clearly defined targets, in business as well as in a service institution. Only if targets are defined can resources be allocated to their attainment, priorities and deadlines be set, and somebody be held accountable for results. But the starting point for effective work is a definition of the purpose and mission of the institution—which is almost always "intangible," but nevertheless need not be vacuous."

A library is a public service institution and the whole approach of evaluating this institution in terms of its short-range goals seems an extremely reasonable one. Evaluation of library service should be regarded as a form of management tool. The tool is applied to determine how effectively and how efficiently the library is serving the needs of its users, to identify limitations and failures of service, and to suggest ways in which the service might be improved. Moreover, it seems reasonable to assume that improvements in immediate levels of service will also lead to improvements in the extent to which the library is able to reach its longer term, largely unmeasurable objectives. Unfortunately, Hamburg adopts a rather narrow approach to the evaluation problem, concentrating on the measurement of exposure in terms of the extent to which this exposure occurs. He seems little concerned with quality of exposure, with identification of service failures, or indeed with ways in which quality of service might be improved. We will return to this again later.

After presenting their overall viewpoints on performance measures for libraries the authors go on, in Chapter 2, to discuss problems involved in

1. Drucker, P. F. / Managing the Public Service Institution. *The Public Interest* 33:43–60 (Fall 1973).

measuring exposure. They advocate a measure, *exposure time*, which takes into account the length of time users spend with library materials. Although they present arguments to support their preference for this measure over simple exposure counts (e.g., number of items borrowed) or item-use days, this reviewer finds them unconvincing. Chapter 2 concludes with an application of the exposure measure in which the level of exposure achieved by the Free Library of Philadelphia in 1969–1970 is related to the costs of providing this exposure. In Chapter 3 they outline a Planning-Programming-Budgeting System (PPBS) approach to library managerial decision making; in Chapter 5 they describe the characteristics and structure of a management information system for libraries; and Chapter 6 is devoted to "higher-level" decision making, mostly in the area of library cooperation and networking.

Chapter 4 is an attempt to review the work of other investigators in the broad areas of measurement, evaluation and modeling of library services. This chapter attempts to cover such a wide range (centralization versus decentralization, physical location of libraries, selection and maintenance of materials, technical processes, catalog use, reference services, interlibrary lending, and even data processing and library legislation are among the topics discussed) that it is extremely diffuse. It presents a useful overview of some of the literature in this field but it is by no means complete. The only catalog use study mentioned, for example, is the one conducted by Lipetz at Yale. There have been several others of at least equal importance.

I feel much the same way about this book that I felt when reading the earlier technical reports from this project. It promises much more than it really delivers. The first two chapters, relating to performance measures for library service, I found quite stimulating. These chapters suggest that the writers may later present interesting new measures and methodologies that can be used to assess the effectiveness or the cost-effectiveness of library services. But much of the remainder of the book is, I feel, rather pedestrian, uninspired and not particularly original. The investigators seem only to be interested in volume of use of library services and the relationship between volume of use and library costs. They seem very little concerned with the identification of library failures (e.g., catalog failures, document delivery failures, failures to answer reference inquiries completely and accurately) and with the diagnostic analysis of why a library fails to satisfy a certain proportion of the demands placed upon it. In other words, this book deals with the macroevaluation of library services but not with their microevaluation, with the management of libraries at the macrolevel but not at the microlevel. Macroevaluation will tell us, in quantitative terms, *how well* the library performs but it will not tell us *how* it performs. In order to improve the services of a particular library we need to make use of a diagnostic microevaluation, in which service failures are identified, the reasons for these failures analyzed, and corrective action taken to reduce the rate of failure in the future. But the diagnostic level of evaluation is largely ignored in this book.

While, overall, I find this book disappointing, it does provide in part some thought-provoking reading. At least, in its original report form the work of Hamburg and his colleagues caused me to give more serious thought to the problems of evaluation as applied to library services in general. It should be of most interest to library managers but it is oriented toward the management of large academic and public libraries rather than special libraries.

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Dynamic Information and Library Processing, by Gerard Salton. Englewood Cliffs, N.J., Prentice Hall, Inc., ©1975. xiv, 523 p. $19.95. ISBN 0-13-221325-7 LC 74-31452

It is generally recognized that the realization of Vannevar Bush's "Memex," J. C. R. Licklider's "libraries of the future" and other futuristic visions of libraries and information systems depend primarily on advances in our understanding of language and information processing rather than on advances in hardware. This book not only presents an excellent survey of current information processing theory and practices, but advocates a new approach to the organization and operation of libraries as an alternative to the traditional methods which libraries seem to be locked into.

Gerard Salton is well known for his research and writing on automatic information/document processing in connection with the SMART system at Cornell University. His views on how libraries should approach automation are presented mainly in the first and last chapters of this book. The concept of a dynamic library is introduced in the first chapter and sets the scene for the rest of the book. The author maintains that while the housekeeping functions can profit from cooperative efforts, the information processing operations should be conducted on a local basis because of variation in user population from one library to another. In Salton's view, libraries should develop information systems which will actively interact with users and, through a feedback process, automatically organize the library's document and/or information access system to reflect actual usage.

The "dynamic library" is based on three main principles:

"(a) A 'total' library system in which on basic input serves to initiate a chain of successive processing steps, the basic inputs undergoing successive modifications as a result of the various steps in the processing chain;

(b) The widest possible use of cooperative and shared operations, including collaborative or centralized acquisitions policies, shared cataloging, and standardized library housekeeping operations;

(c) An adaptive environment in which the user population influences the main intellectual processes such as the indexing vocabulary and practices, the storage organization, the search and retrieval operations, and finally the collection control necessitated by document growth and retirement."

The special library, with its relatively homogeneous and articulate user population, would seem to be the most suitable candidate for this approach.

The bulk of the material presented (chapters 2-9) is not dependent on any particular view of how libraries should automate but is basic to any approach to automatic information/document processing.

The book's ten chapters are divided into three parts: Part I covers the state of the art of library automation—acquisitions, cataloging, circulation, indexing and abstracting, storage and retrieval. Part II (chapters 5 & 6) deals with library system analysis and testing (restricted to information processing aspects) with bibliometric theory providing the base. Part III (dynamic information processing) covers the more experimental topics of storage organization, automatic document and query classification, and automatic language processing. Chapter 10 serves to bring together the major concepts in terms of the dynamic library introduced at the beginning of the book. This final chapter reflects more strongly the author's association with the SMART system (more than half of the references are to publications of the Cornell group). The dynamic processing discussed is based on automatic generation and modification of clustered files.

The text is aimed at the advanced student and the researcher. The beginning student would find Part I readable though perhaps too terse and lacking in concrete examples. Parts II and III are more advanced and more theoretical with liberal use of mathematical notation (nothing beyond elementary calculus). In these more advanced sections the beginner could read the introductory parts with profit.

To cover in 500 pages the topics included in the book, the writing is necessarily terse, and at times approaches the style of a review article. Ample reference to the primary literature, up to 1974, is provided so the reader can expand on the text where more detail is wanted.

The text is well supplemented with illustrations and tables, is well printed and relatively free of misprints and errors (reference number 48 on page 73 is inverted; the prescriptions for term vector transformation in figure 3-5(c), page 90, correspond neither to the transformed vector nor to the caption accompanying the figure; "context" is misspelled "contest" on page 420).

This is a comprehensive, authoritative, well balanced survey of information processing practices and theory which should stimulate wider application and testing of the approaches to the dynamic library.

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Undelivered Volumes?

The American agents for The Voltaire Foundation have suffered a financial failure. Many North American libraries, as a result, have not received copies of works published as of 1 July 1975. These are the *Complete Works of Voltaire,* volumes 2,7,53–55,59,81–82,85, 125; the *Correspondance complète de Jean Jacques Rousseau,* volumes 1–22; and the *Studies on Voltaire and the 18th Century,* volumes 30–37, 41–139. (The above volumes only are currently in print.).

All university staff concerned with 18th century studies are urged to ask their librarians to confirm in writing to the Foundation if their libraries are subscribed to the above important sets. If so, it would be most desirable to find out if the volumes listed have been received, and to contact The Voltaire Foundation, Thorpe-Mandeville House, Banbury, Oxfordshire, England, stating which is the last volume they hold of each series. Should your library not possess some or all volumes of these sets, please request your librarian to subscribe to them as soon as possible. In case of any problems, kindly notify Professor Giles Barber at the Foundation.

PUBS

(75-111) **Every Librarian a Manager.** Proceedings of a Conference sponsored by the Indiana Chapter, Special Libraries Association and Purdue University Libraries and Audio-Visual Center. West Lafayette, Ind., Purdue University, 1974. 85p. $7.00.

Proceedings of a conference and workshop on managerial style and management responsibilities. Available from Miriam Drake, Conference Coordinator, Library Offices, 363 Stewart Center, Purdue University, West Lafayette, Ind. 47907.

(75-112) **American Statistical Index, First Annual Supplement.** A Comprehensive Guide and Index to the Statistical Publications of the U.S. Government. Washington, D.C., Congressional Information Service, c1975. 2v. LC 73-82599. ISSN 0091-1658. ISBN 0-912380-23-3 (set), 0-912380-24-1 (Index volume), 0-912380-25-X (Abstract volume).

Updates the ASI 1974 Annual and Retrospective Edition. These Index and Abstract volumes are the cumulation of the 1974 Monthly Supplements, and cover publications issued between Jan 1 and Dec 31, 1974. Kept up-to-date by the 1975 Monthly Supplements.

(75-113) **Union List of Abstracting and Indexing Services in Special Libraries in Israel.** Tel-Aviv, Israel, National Council for Research and Development, National Center of Scientific and Technological Information, c1974. 80p. $18.00.

Guide to the location of these services in Israeli libraries.

(75-114) **Male/Female Language, with a Comprehensive Bibliography.** Key, Mary Ritchie. Metuchen, N.J., Scarecrow Press, 1975. 200p. $7.00. LC 74-19105. ISBN 0-8108-0748-3

A sociolinguistic study, including numerous examples of male/female linguistic behavior.

(75-115) **Foreign Newspaper and Gazette Report.** No. 1 (1975). 12p. Washington, D.C., Library of Congress.

Report of the foreign gazette microfilming program of the Library of Congress and the New York Public Library. Published 2-3 times a year. Free to libraries and institutions. Contact: Library of Congress, Central Services Division, Washington, D.C. 20540.

(75-116) **Win, Place, or Show: College and University Business Library Statistics, 1973-1974.** Georgi, Charlotte. Los Angeles, Calif., UCLA Graduate School of Management, 1975. 16p. $3.50.

Responses of 27 business libraries to questionnaires covering such information as staff, budgets, holdings, and circulation. Available from GSM Publications, Graduate School of Management, University of California, Los Angeles, Calif. 90024.

(75-117) **Canadian MARC Communication Format: Serials.** Ottawa, Ont., Can., Canadian MARC Office, Research and Planning Branch, National Library of Canada, 1974. 92p. $5.00.

Format and specifications for machine-readable cataloging information for serial records in the Canadian MARC Distribution Service. In French and English. Available from Information Canada, Ottawa, Ont. K1A 0S9, Canada. Catalogue no. SN 3-36/1974.

(75-118) **The Organization of Intermediate Records Storage.** Mabbs, A. W. Paris, Unesco, 1974. 74p. $3.30. ISBN 92-3-101152-9

Manual of the methods and techniques used in records management systems.

(75-119) **Chinese and Japanese Scientific and Technical Serial Publications in the Collections of the Research Library of the Air Force Cambridge Research Laboratories.** Ng, Norman H. Hanscomb AFB, Mass., Air Force Cambridge Research Laboratories, 1974 (Scientific Report no. 1). 197p. AFCRL-TR-74-0579.

Bibliography in two parts: Chinese and Japanese. Includes statement of holdings for each title.

(75-120) **Guide to Polish Libraries and Archives.** Lewanski, Richard C., comp. Boulder, Colo., East European Quarterly, 1974. 209p. $11.00. LC 73-91484. ISBN 0-231-03896-8

Information about each institution includes its address, director's name, history, holdings, collections, and readers' services. Resources on Polish history, civilization, and society are emphasized. Available from Columbia University Press, 562 W. 113 St., New York, N.Y. 10025.

(75-121) **The International Exchange of Publications.** Schiltman, Maria J., ed. Munich, Verlag Dokumentation, 1973. 135p. ISBN 3-7940-4311-1

Proceedings of the IFLA 1972 European conference.

(75-122) **The Information-Poor in America.** Childers, Thomas. Metuchen, N.J., Scarecrow Press, 1975. 182p. $6.00. LC 74-19482. ISBN 0-8108-0775-0

Report of a search conducted to uncover and synthesize existing data relating to the information use and needs of the disadvantaged. Includes a bibliography.

(75-123) **Museum Cataloging in the Computer Age.** Chenhall, Robert G., Nashville, Tenn., American Association for State and Local History, 1975. 261p. $13.00 (Members of AASLH); $17.50 (Non-Members). LC 74-16439. ISBN 0-910050-12-0

An introduction to museum cataloging and the use of computers.

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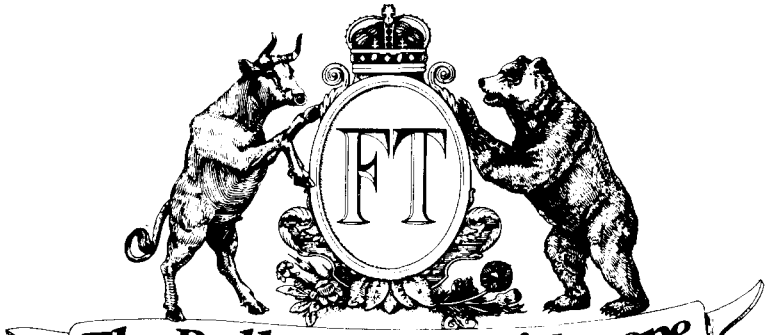

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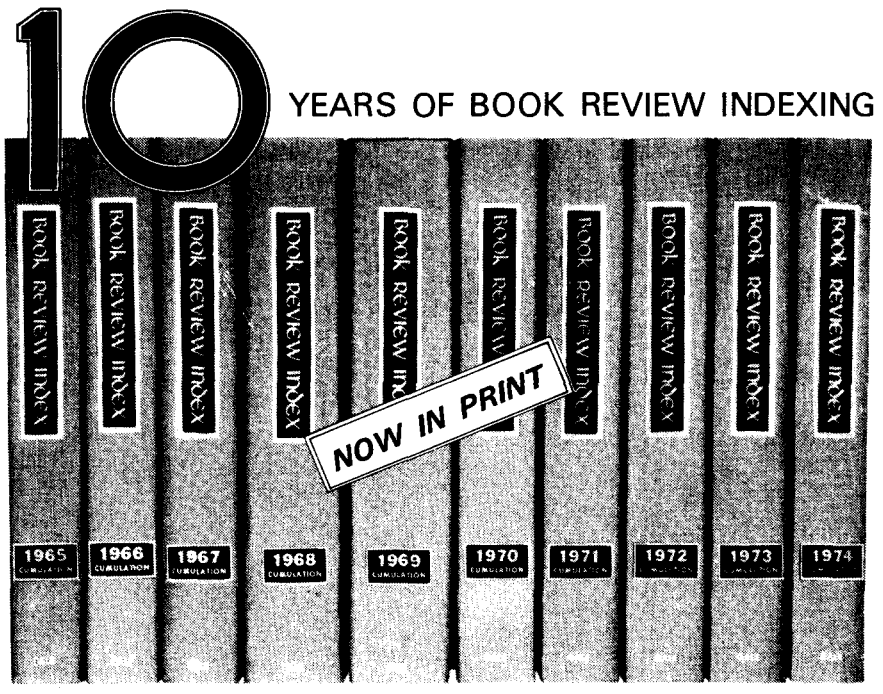

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