"Document delivery" is the terminology commonly used to describe the procurement of publications which are needed to fill the information requests of an information center's users. Computerized databases have made it relatively easy to identify and verify needed documents. Consequently, online searching has created a greater demand for efficient document retrieval; that is, information acquisition methods that are low in cost, have a fast turn around time and provide exactly what was requested.

Small libraries have unique problems with information retrieval. Sometimes the librarian must work without all the basic, but costly, reference tools and access to OCLC, RLIN, or the National Union Catalog is often unavailable. Determining locations where the document is owned is a common problem.

This paper discusses traditional and modern techniques of document ordering, focusing on the acquisition of technical reports, obscure journal articles, patents, government documents, and foreign publications.

"Document delivery" is the terminology commonly used to describe the procurement of materials which are needed to fill the information needs of a library's users. It is a four part process - identification or verification of a needed citation, locating where it is available, transmitting the request and confirming its availability. Ideally, efficient document retrieval methods provide the needed material as quickly and inexpensively as possible.

Libraries today, regardless of their size or financial support, cannot be self-sufficient in their collections. At the same time that
tight budgets have decreased libraries' resources, the electronic age has enabled the researcher to gather more bibliographic information on his subject of interest than ever before (Bayer & Jahoda, 1981). Online bibliographic information retrieval has increased the number of document/information requests because more relevant citations are located than would be possible using only printed indexes (Saboe, 1982).

VERIFICATION AND LOCATION

Small research libraries have unique problems with some aspects of the document/information retrieval procedure. Many small information centers provide online search services to their patrons, making it easy to identify the needed literature. Identification and verification of a citation are easy when online searching is available, somewhat more difficult when it is not or where the library's collection of printed indexes is limited. Citations for monographs are generally more straightforward than those for serials, where expanding the abbreviated journal title to its full name is essential. The most useful publications I have found for this purpose include:


PERIODICAL TITLE ABBREVIATIONS: BY ABBREVIATION (Volume 1)

PIE: PUBLICATIONS INDEXED FOR ENGINEERING.


Determining the location where the material is owned is the most difficult part of the document delivery process for the small library. It must often be accomplished without access to computer networks such as OCLC (Online Computer Library Center, Inc.) or RLIN (Research Libraries Information Network, formerly BALLOTS) or basic printed tools such as the National Union Catalog or CASSI (Chemical Abstracts Service Source Index). Knowledge of the holdings of other libraries is essential to the success of interlibrary loan service. To determine the closest possible location I begin with the Florida Union List of Serials (microfiche), Florida COMCAT (microfiche - books by title) and the computer printout of the holdings of the Rosenstiel School of Marine & Atmospheric Sciences, University of Miami. Failing to locate the publication within the state I use the Union List of Serials (H.W. Wilson, 1965, 5 volumes); New Serial Titles 1971-1975 (Library of Congress, 1976, 2 volumes); New Serial Titles 1976-1980 (Library of Congress, 1981, 2 volumes). Serials lists from individual libraries are invaluable, particularly the microfiche listing from the University of California, San Diego, which includes the holdings of Scripps Institution of Oceanography, and the hard copy of serials held by the Marine Biological Laboratory and Woods Hole Oceanographic Institution. Individual listings are extremely useful for libraries whose budgets preclude the purchase of the multi-volumed
Union Lists, which have a combined cost of over $800.

TRANSMITTING THE REQUEST

I use four basic methods for placing document orders - interlibrary loans, online ordering from a database-specific supplier, online ordering from an information broker, and contacting the author directly.

Interlibrary Loan

The standard method of requesting an item from another library has been to submit a typed A.L.A. form via U.S. mail. This method, though widely used, has many drawbacks - the main one being satisfaction time; that is, the time between the placement of the request by the library patron and the time that he has the document in hand. The inability to confirm availability is another major problem. It can often take weeks for a borrowing library to receive a rejected request form. Instant confirmation of an interlibrary loan request can best be obtained by telephone, though I prefer to reserve this method for emergencies. In order to locate addresses, telephone numbers, collection descriptions and contact persons, the following are essential reference tools in the small marine research library:


AMERICAN LIBRARY DIRECTORY. 2 volumes.
The bulk of my loan requests are filled by libraries in the state university system of Florida, Scripps Institution of Oceanography (UCSD), and Marine Biological Laboratory/Woods Hole Oceanographic Institution. However, I have also had excellent service from the following, who have extensive holdings in science and technology:

Library
ACADEMY OF NATURAL SCIENCES
19th at the Parkway
Philadelphia, PA 19103

Library
NATIONAL MUSEUM OF NATURAL HISTORY
SMITHSONIAN INSTITUTION
Washington, D.C. 20560

Information Exchange Center
PRICE GILBERT MEMORIAL LIBRARY
GEORGIA INSTITUTE OF TECHNOLOGY
Atlanta, GA 30332

Interlibrary Loan Department
Room 28
UNIVERSITY OF ILLINOIS - URBANA/CHAMPAIGN
1408 West Gregory Drive
Urbana, IL 61801

The OCLC ILL Subsystem

Unavailable to many small independent information centers due to cost, the OCLC interlibrary loan subsystem appears to be the most efficient way to transmit requests and provide fast service to your patrons. The strengths of OCLC include the size and comprehensiveness of its database, its elementary procedures for searching and its large
membership. Access is provided to over ten million bibliographic records and 151 million holdings locations (Boucher, 1984). The information in these records can be used for searching, verifying, and creating interlibrary loan requests. The subsystem forwards the ILL request to each potential lender until it is filled. The status of your request can be checked on by consulting the subsystem's electronic message file. When evaluating the cost of the OCLC ILL subsystem, one must consider all the costs involved in traditional methods of interlibrary loan - the cost of the printed forms, postage, the expense of repeating the procedure and the extremely slow service. It appears that the subsystem is more useful for requesting monographs than for serials. In 1982, 86% of the one million plus requests handled by the OCLC subsystem were monographs (Information Systems Consultants, Inc., 1983).

Online Ordering

Online ordering is a viable alternative to interlibrary loan. The information specialist can not only search for relevant citations online, but can also place orders with a variety of suppliers without ever leaving the terminal. The benefit of ordering documents online must be determined by each library. I have found that the cost per item is generally higher than when ordered through interlibrary loan. However, sometimes online ordering is the only way to procure a document or a fast turnaround time is more important than cost.

I am personally familiar with DIALOG DIALORDER which allows orders to be placed for any citation found in the DIALOG databases or for free text ordering within 200 char-
acters using the .ORDERITEM command. DIAL-ORDER now has 69 document suppliers (as of June 1984) which are of three types – database specific, collection specific and full service information brokers. Database specific and collection specific suppliers most useful in the marine science library include:

CASDDS (Chemical Abstract Service Document Delivery Service)
2540 Olentangy River Road
P.O. Box 3012
Columbus, OH 43210
(614) 421-3600, x20331

Supplies most documents cited in CA Search (Dialog files 308, 309, 310, 311, 320) within the last ten years.
Photocopy or loan: $10.00 1-50 pages
$20.00 50+ pages
Turnaround time: 5 days (Colbert, 8(2), 1984)

NTIS (National Technical Information Service)
U.S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161
(703) 487-4660

Supplies only items listed in the NTIS database (Dialog file 6). NTIS is the primary source for domestic and foreign scientific and technical reports. The cost varies dependent on the publications selected. Documents are shipped within 2-10 days, but are shipped Third or Fourth Class, USPS. Turnaround time is generally poor for this reason. A surcharge of $10.00 per item is charged for First Class delivery.

THE GENUINE ARTICLE (OATS)
Supplies articles from the SCISEARCH database (Dialog files 34, 94, 87, 186).
Cost for articles from 1980-present, 10 pages or less:
$7.50 (U.S.A., Canada, Mexico)
$8.50 (All other locations, includes Air Mail Delivery)
$2.00 each additional ten pages
Turnaround time: 4-9 days (Colbert, 8(2), 1984; Popovich, 1981)

BLLD (British Library Lending Division)
Boston Spa, Wetherby
West Yorkshire
LS23 7BQ
United Kingdom

Supplies database as well as non-database materials including books, serials, dissertations, conference proceedings and government publications.
Cost:
$4.50 per unit (a unit covers up to ten pages)
Booklets of 20 coupons - $90.00
Deposit accounts recommended
Turnaround time: Document is generally sent air mail within 48 hours.

My experience with full service information brokers has been almost exclusively with Information on Demand (IOD) Berkeley, California (INFO on DIALORDER). On occasion, I have tried other brokers out of curiosity but Information on Demand has always provided excellent service particularly when you con-
sider that most of the documents that I order from IOD are those that I have been unable to locate using conventional methods.

INFO (Information on Demand, Inc.)
2112 Berkeley Way
P.O. Box 9550
Berkeley, California 94709
(415) 644-4500
(800) 227-0750

Supplies journal articles, theses, government documents, conference papers, annual reports, patents, etc. They maintain staff at more than 15 academic, public and special libraries.

Cost: $14.00 per item, up to 20 pages (includes copyright royalties and First Class postage)
Rush service - $6.00

Turnaround time: 6 days plus (It has varied widely for me depending on the request. About one in ten is never filled although I have always been sent status reports concerning the methods used in locating the items).

Using an information broker limits the time I have to devote to finding a source. IOD is more likely to know which source has the greatest probability of successfully filling my request. Information brokers are sometimes unable to fill orders; generally because the citation is bad, the media format requested is unavailable or distribution of the document is limited.

Payment Methods

The method of payment can make a great deal of difference in overall turnaround time, though interlibrary loans are less affected
by this than online orders. Most libraries will provide a bill with the completed inter-library loan request or shortly afterward, although some require prepayment (e.g., New York City Public Library, Library of Congress). The most advisable methods for handling payment of online orders are deposit accounts and coupon booklets. This way the order can go out immediately. To deal with those vendors that I use infrequently, where I don't have a deposit account or coupons, I send a cash purchase order (CPO). This provides a purchase order with an attached blank check that can be filled out by the vendor. At this time my CPO's allow for the purchase of any item up to $75.00.

Contacting the Author

Many librarians give up on a request after several rejections from other libraries, because "librarians tend to be 'other-library' oriented" (Colbert, 3(3), 1979). Often I have to locate papers where the citation is inaccurate or can't be verified, papers that were presented at a conference but never published, or papers that are still in press. I have found that dealing directly with the author is an excellent way to procure such documents. In addition, you may often get several related publications by the same person, simply because you are dealing directly with an author's ego. To locate an author I use the following, which provide complete information concerning author affiliation:

Online databases (Lockheed DIALOG)

AMERICAN MEN AND WOMEN OF SCIENCE
BIOSIS PREVIEWS
CA SEARCH

48
SCISEARCH

Printed directories


PROCUREMENT OF SPECIFIC TYPES OF DOCUMENTS

Associations' Publications

Publications of societies and associations are often needed in the marine research library. Many are cited in common online databases and printed indexes and often can be located in Union Lists. However, many are quite old or are simply obscure publications. Very helpful in identifying documents published by associations are:


If I'm unable to verify the publication, I use the ENCYCLOPEDIA OF ASSOCIATIONS
(18th edition. Detroit, Michigan, Gale Research, c1983) to ascertain the address of the organization, whereupon I contact them directly. The abovementioned title is also accessible online.

ACRONYMS, INITIALISMS AND ABBREVIATIONS
(8th edition. Detroit, Michigan, c1982) can be very helpful in identifying the full name of the organization or association.

Standards and Patents

'Marine science library' may be a misnomer for many of our facilities, particularly those with active engineering departments. Our ocean engineering division often needs both national and foreign standards and patents.

United States and British Standards are available from the major domestic source for standards:

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1430 Broadway
New York, New York 10018
(212) 354-3300

Prepayment is required and turnaround time is at least one month, generally longer. Prices vary.

British standards can also be obtained from the following U.S. libraries:

LOS ANGELES PUBLIC LIBRARY
Science and Technology
650 West Fifth Street
Los Angeles, CA 90071
(213) 626-7461

CARNEGIE LIBRARY OF PITTSBURGH
Scientific and Technology Department
4400 Forbes Avenue
Pittsburgh, PA 15213
(412) 622-3138

Orders for Canadian standards should be sent to:

CANADIAN STANDARDS
178 Rexdale Blvd.
Rexdale, Ontario M9W 1R3
Canada
(416) 744-4045

Prepayment is required.

U.S. patent information is easy to obtain online via the CLAIMSTM/U.S. PATENTS databases. Copies of U.S. patents are available from a wide variety of sources. Due to very slow satisfaction time, the vendor I would least recommend is:

U.S. PATENT AND TRADEMARK OFFICE
Commissioner of Patents
Washington, D.C. 20231

This is the least expensive patent vendor that I have used, but the minimal savings don't justify the slow turnaround time. Cost is $.50 per patent. Order procedures can be simplified by purchasing coupon books.

Two companies providing fast turnaround time at a low price are:

PATENTS UNLIMITED
P.O. Box 2592
Arlington, Virginia 22202
(703) 521-8418

RAPID PATENT
2221 Jefferson Davis Highway
Arlington, VA 22202
(800) 336-5010
Orders for Canadian patents can be sent to:

COMMISSIONER OF PATENTS
Ottawa-Hull L1A 0E1
Canada

Provides copies of patents numbered 1 through 445,930.

MICROMEDIA LIMITED
165 Hotel de Ville
Hull, Quebec J8X 3X2
Canada

Provides copies of patents numbered 445,931 to date.

Dissertations and Theses

With few exceptions, University Microfilms International (UMI) Ann Arbor, Michigan, can furnish domestic dissertations. Some universities will loan or photocopy dissertations regardless of their availability from UMI. UMI offers very few foreign dissertations. Without access to the National Union Catalog or OCLC, I have found that the best source of domestic or foreign dissertations not available from UMI is the educational institution which granted the degree. An excellent reference tool detailing rules of availability is:

GUIDE TO THE AVAILABILITY OF THESSES. Compiled by D.H. Borchardt and J.D. Thawley. Munchen; New York, K.G. Saur, c1981. Publication #17, IFLA (International Federation of Library Associations and Institutions)

This book gives information concerning the name and address of the university, the name of the library, restrictions on borrowing and photocopying, availability on interlibrary loan, and other libraries
which usually receive copies.

Theses and dissertations from the United Kingdom are best ordered from the British Library Lending Division (BLLD). Loan requests sent directly to a university in the U.K. are generally returned with a recommendation to direct the request to the BLLD which provides loans, photocopies and microforms, depending on the restrictions on the document.

Canadian theses can be obtained in microfiche form from:

CANADIAN THESIS ON MICROFICHE
CANADIAN THESIS DIVISION
NATIONAL LIBRARY OF CANADA
395 Wellington Street
Ottawa, Canada K1A 0N4

Orders must be prepaid. Delivery time is 2-4 weeks (Colbert, 4(2), 1980)

Foreign Publications

Most articles in foreign serial titles are available from domestic sources via interlibrary loan or online ordering from commercial document suppliers. However, some journal articles and report literature must be ordered from foreign sources. Ordering the document from the original publisher is always my first choice. If this fails I attempt to secure a loan or photocopy from a major overseas library. I have had very good responses to my requests from most countries, moderate success with France and India, and no response whatsoever from Yugoslavia.

Papers from journals published in Australia and publications of the Commonwealth Scientific and Industrial Research Organization (CSIRO) can be requested from:
UNIVERSITY OF SYDNEY
FISHER LIBRARY
Interlibrary Loans Section
Sydney, 2006
Australia

Only photocopies are available, no loans.

Numerous documents on the marine environment are published in Canada. Two good sources for this literature are:

ENVIRONMENT CANADA
Publications Sections
Ottawa, Ontario K1A 1C8
Canada

CANADIAN INSTITUTE FOR SCIENTIFIC AND TECHNICAL INFORMATION (CISTI)
National Research Council
Bldg. M55, Montreal Road
Ottawa, Ontario K1A 0S2
Canada

Indian technical reports, conference proceedings and serials are generally available for purchase. If not, loans and photocopies can be ordered from:

NATIONAL SCIENCE LIBRARY (INSDOC)
Scientist
JNU Campus Club Building
New Mehaulii Road
New Delhi 57
India

Russian titles are frequently requested domestically. One library with an extensive collection of scientific Soviet periodicals is:

BATTLE MEMORIAL INSTITUTE
COLUMBUS LABORATORIES
Foreign Science Library
505 King Avenue

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Another excellent source for Russian literature, as well as documents from the United Kingdom, is the British Lending Library Division (BLLD). The British document delivery system is quite possibly the finest in the world because they have concentrated on creating a single supply source. Materials are collected for the purpose of filling interlibrary loan requests. The BLLD has a collection of four and a half million serials and books, which includes 55,000 serial titles (Information Systems Consultants, Inc., 1983).

EMERGING TECHNOLOGIES IN DOCUMENT DELIVERY

New technologies have had an enormous impact on traditional library services and these rapid changes will probably continue. Information specialists have readily adopted the use of online searching and commercial document suppliers. Full text databases are a relatively new development but more and more publishers are showing an interest in them. Competition in this area should bring down prices.

Electronic mail will be used more and more in the future for the transmission of document requests and even now provides a viable alternative to the OCLC interlibrary loan subsystem.

The technology of telefacsimile is improving each year and may become a prime method of document delivery in the years to come. A telefacsimile is sometimes called a telex copier because it transmits entire documents from a sending machine to a receiving machine via telephone lines or private transmission lines. Many companies are in the facsimile equip-
ment business, such as Xerox, Exxon Office Systems, Burroughs, Panafax, 3M, Rapicom and others. The bulk of the total market is handled by Xerox and Exxon (McQueen and Boss, 1983). The most recent development in this area is "subminute telefacsimile"; this name refers to the machine's ability to transmit a complete page of text in less than one minute. The major limitations of telefacsimile are still image quality, the reliability of the equipment and the cost. At the present time, a large volume of requests and a need for immediacy in document delivery are required to justify the high cost of telefacsimile.

At this point, librarians and their patrons are not accustomed to rapid document delivery methods. However, these methods progress each year and as this service improves, researchers will no longer have to work around the limitations of the system.

BIBLIOGRAPHY


