

nized when considering copyright, journal subscriptions, and journal photocopying matters and that is the extent of foreign interests in all three processes (Figure 8). The NBS experience indicates that almost half of the journal publishers who collect subscription and photocopying dollars from U.S. scientific libraries are foreign publishers. For example, in fiscal year 1980, 44% of the publishers who were paid to supply NBS with 51% of its 1981 subscriptions were foreign firms; 640 titles represent 59% of the total dollars we spent for subscriptions in fiscal 1981 (Figure 9). Of these titles, 46% were published by foreign organizations and cost us an average of \$341 per subscription. Of the 640 titles, 54% were supplied by U.S. firms, for which we paid an average of \$213 for each subscription—38% less on the average than we paid for foreign titles (Figure 10). Obviously the NBS library's ability to control both its journal subscription and its journal photocopying costs is linked to international economic factors as directly and intimately as it is to domestic factors. Should the Copyright Law be revised during the 1980's, this substantial linkage between U.S. scientific libraries and foreign publishers should be recognized at the outset, as should its corollary, that changes in copyright or any other U.S. statute cannot and will not "successfully insure the interests" of all affected parties concerned about information transfer problems.

Whatever happens next (Figure 11), it is in the self-interest of publishers and librarians alike to avoid the ultimate corruption of copyright recently laid bare by Tim Downs in his comic strip, "Downtown".⁸

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Educators/Copyright: The Academic Librarians' Viewpoint[†]

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Educators and researchers require efficient, timely access to information and scholarly materials. The 1976 Copyright Act has had relatively little impact on access because the major portion of university library photocopying is within fair use guidelines. Since the law was implemented, some inconvenience and confusion for users have occurred with no offsetting benefits for authors or publishers. Journal cancellations by academic libraries are occurring due to soaring prices and increasing numbers and not due to photocopying. To be effective, solutions to the financial problems of publishers must be sought through avenues other than copyright legislation. The flow of information from authors to users is of vital importance to our technologically dependent society and must not be impeded.

The efficient exchange of information between scientific researchers and educators is important to science, education, and overall public welfare. For this reason, in the Copyright Act of 1976 Congress attempted to balance the rights of authors to benefit from their writing and thus stimulate creativity and the needs of the readers to have ready access to information.

This is a difficult balance to achieve, and it is important that the scale does not tip far in either direction. The work must be produced; it must be accessible; neither can be sacrificed.

In the months prior to the implementation of the new copyright law, there was a great deal of discussion, a flurry of papers, talks, workshops, and much turmoil in the minds

of librarians and publishers. The majority of the academic and scientific community remained aloof from this activity. At the University of Rochester in November 1977, the Library offered a series of four, 1-h informational sessions to inform faculty of the coming changes in copyright law. Even though the importance of attending these sessions was stressed, very few faculty attended. Our erudite panel performed for an audience of three or four for most sessions. The group most affected seemed to be not really interested! Publishers and librarians who are actually only the middle people in the exchange of information devoted countless hours to the topic, but actual producers and consumers scarcely turned their thoughts to the subject and went about their writing and reading unconcerned. Perhaps they were the wisest for the day came and went with relatively few ripples on the sea of information. Surveys of the impact of the 1976 Copyright Act

[†] Presented before the Divisions of Chemical Education and Chemical Information, Symposium on "The Copyright Law", 182nd National Meeting of the American Chemical Society, New York, Aug 27, 1981.

1975-1976 JOURNAL TITLES	*=SUBSCRIBED; +=MISSING ISSUE # REQUESTS/ # REQUESTORS
+ HUMAN DEVELOPMENT	7 / 2
INT. J. CHRONOBIOLOGY	8 / 1
J. GENERAL AND APP. MICROBIOLOGY	8 / 2
SCANDINAVIAN AUDIOLOGY	6 / 1
1976-1977	
DREXEL LIBRARY QUARTERLY	7 / 3
* ECONOMIST	7 / 1
INSTITUTIONS/VOL. FEEDING	27 / 1
JOURNAL OF ANTIBIOTICS	7 / 2
MOLECULAR BIOLOGY REPORTS	10 / 3
QUICK FROZEN FOODS	13 / 1
* RADIATION EFFECTS	16 / 1
1977-1978	
HOSPITAL FINANCIAL MANAGEMENT	9 / 3
J. ELECTROANALYTICAL CHEMISTRY AND INTERFACIAL ELECTRO CHEMISTRY	6 / 3
1978-1979	
AMBIO	5 / 1
AM. ASS. FOR THE EDUCATION OF THE SEVERELY/PROFOUNDLY HNDCAESPH REV.	5 / 1
HEALTH EDUCATION	5 / 1
J. ENVIR. PATHOLOGY & TOXICOLOGY	5 / 1
J. INDUSTRIAL TEACHER EDUCATION	5 / 2
MENTAL RETARDATION BULLETIN	5 / 1
SCHOOL SHOP	5 / 1
+ VILLAGE VOICE	5 / 2
1979-1980	
* ADDICTIVE BEHAVIORS	5 / 1
+ BIOGRAPHY	5 / 1
CREATIVE COMPUTING	5 / 2
DENSHI TSUSHIN GAKKAI	5 / 2
ELECTRONIC ENGINEERING	5 / 1
JOURNAL OF DIVORCE	5 / 2
J. OF EDUCATION FOR SOCIAL WORK	5 / 2
* J. OF ELECTRONIC MATERIALS	5 / 2
J. MARRIAGE AND FAMILY COUNSELING	5 / 1
SOVIET TECHNICAL PHYS. LETTERS	5 / 3
SPACE WORLD	5 / 1
STUDIA BIOPHYSICA	5 / 2

Figure 1. Interlibrary loan requests.

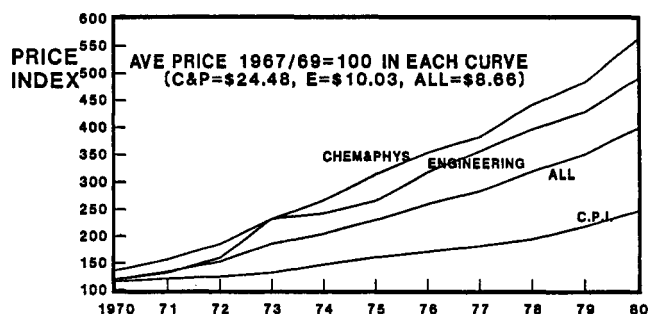


Figure 2. Price of U.S. periodicals and CPI (1970-1980).

seem to show little real change. Implementation at the University of Rochester has inconvenienced a few people, annoyed a few people, and produced no income for anyone. Primary aspects of the law and areas expected to be impacted were (1) reserve reading, (2) interlibrary loan, (3) photocopying, and (4) library networks.

The first of these areas and probably the most troublesome one is the reserve reading function. This is a time-honored procedure at colleges and universities where books, primarily, are placed and safeguarded on special shelves to insure their short term access to groups of students. Science professors desiring very current reading materials for their students frequently placed journal articles in the reserve collection. It is impractical and cumbersome to place the entire volume of a journal there, as it requires excess space and limits easy access to other articles included in the volume, so photocopies were used as a substitute. If classes were large, multiple copies were used. This procedure and its relation to the 1976 Copyright Act has probably created more confusion than any other library function. Sections 107 and 108 of Public Law 94-553 have been minutely examined and variously interpreted in this context. For example, in a survey by Meredith Butler 27 institutions were questioned: 15 felt the educational guidelines were applicable, 10 rejected them, and 2 were

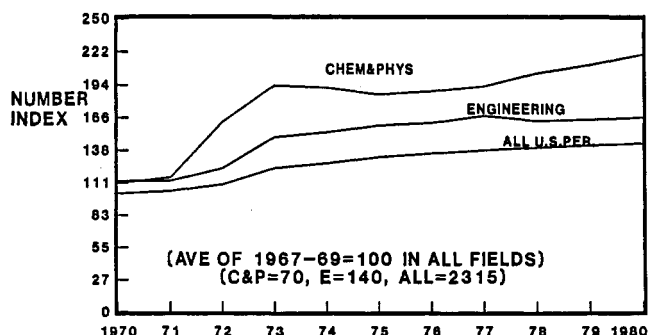


Figure 3. Number of U.S. periodicals (1970-1980).

undecided.¹ In this atmosphere of conflicting opinions by both the library and the legal profession, academic libraries established their own policies. At the University of Rochester, we stressed the need to obtain permission from copyright holders.

We accept one copy of an article to be placed on reserve for one term; anything more must have the written permission of the copyright holder. This has meant faculty must decide well ahead of the teaching of a course what will be required as reserve reading. This certainly had the support of librarians who had always longed (usually in vain) for reserve reading lists at least a few hours before student requests began; but it can be, alas, an annoyance for faculty. Assuming the lists are available, then letters for permission to copy and place on reserve must be written, typed, mailed, and the answer awaited. Over 50% of the time, blanket permission was granted, requiring a permanent place in the files for this letter. In other cases another letter was required—to the author, to name specific articles, etc.; sometimes no answer was returned. In summary, at the reserve desk the copyright law as implemented meant in the best case there was considerable clerical effort expended where before none had been required, and in the worst case 200 or 300 students attempted to use one copy of an article causing much frustration and annoyance to the students and inflicting grievous public relations problems on the staff at the circulation desk. To the best of my knowledge, no one has benefited from the procedure.

The second area is interlibrary loan. Here library policy was based on the CONTU guidelines, which meant the library could request up to five articles from a given periodical during 1 year for issues during the past five years.

Again, this policy has caused minor inconvenience. Relatively few periodicals are requested more than five times in 1 year. When this occurs, it is usually one person making such a request, i.e., an issue of a journal was devoted to one topic all of great interest and the person wants all or most of them; an article is written in a series, Part I in September, Part II in October, etc.—the person wants the entire series. This problem occurs infrequently and can be resolved by ordering entire issues or making royalty payments. It occurs so infrequently as to be trivial in terms of income. In the last 5 years—before and after the implementation of the 1976 Copyright Act—34 titles were requested more than five times (Figure 1), an average of 7 per year, by 1 to 3 individuals. Not one of these titles was requested in more than one of the years. Three were titles subscribed to by the library but missing at the time needed, and four were added to the collection the next year. Again, in summary, people were inconvenienced, a very negligible amount of revenue was produced, and considerable clerical effort was required.

Photocopying—single copy and one article per issue, one chapter of a book but never a substantial portion of the whole—here we managed to annoy more people but again apparently produced no income for anyone. In 1978 there were

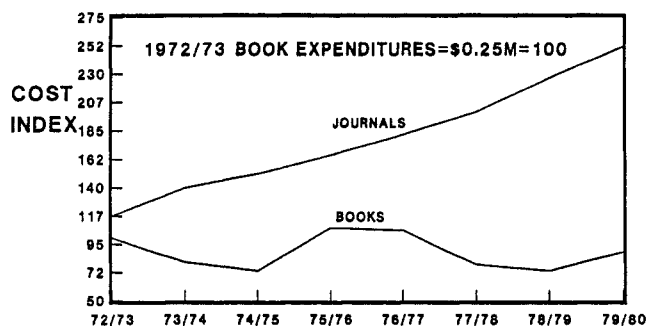


Figure 4. 1972-1980 cost comparison at the University of Rochester for journals and books.

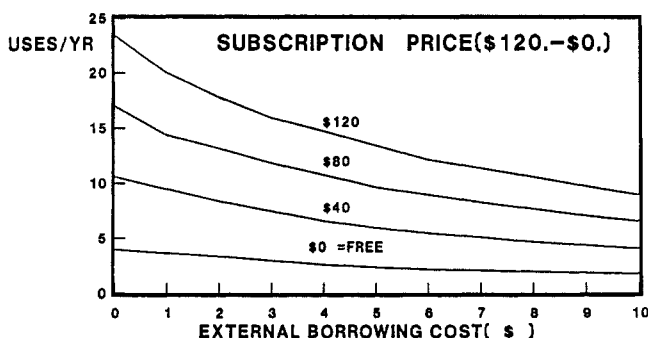


Figure 5. Crossover points for library decision to subscribe or borrow.

requests from 40 people who wanted more than one article from a journal issue, 18 who wanted more than one chapter from a book, and 29 wishing multiple copies—these were over our policy defining “fair use”, and although from 1978-1980 we were members of the Copyright Clearance Center, Inc., and suggested its use, no one elected to pay the royalty fee and copy in excess of this minimum. In the years following 1978 such requests dropped substantially as knowledge of the limits spread throughout the university community. We did not renew our membership in CCC after 1980, as it seemed pointless.

Finally, the copyright law has had no effect at all upon our networking and resource-sharing arrangements. Requests were in the fair use category, with only the exceptions noted previously, certainly not in quantities sufficient to make an impact.

All in all the new copyright legislation has changed practice very little, because little photocopying was being done in excess of fair use guidelines. Some inconvenience has been experienced; little or no benefit has been seen. If efforts to restrict photocopying further should succeed after the 5-year review of the law that is required and coming in 1983, it would simply increase frustration and inconvenience. Please take an interest to be sure that this does not happen, as *you* may be the one inconvenienced—let your professional associations know that convenient access to information has high priority with you, and the financial stability of journals cannot be secured in this manner. For in truth it cannot. We should all be concerned about the health of journals.

Journal publishing and library purchasing of journals are in difficulty and solutions need to be found. For example, the price of many scientific journals long ago exceeded the ability of the individual to pay and is now exceeding the ability of libraries also. As Figure 2 illustrates, the price increase of chemistry and physics journals has been many times that of the overall consumer price index.² For example, word was received last week that 1982 subscription to *Science Citation Index* with cumulative 5-year volumes will be \$8500. We receive two copies at the University—that would be \$17 000 for this publication—a very useful tool but incredibly expensive. The number of journals also continues to grow, meaning new subscriptions are required (Figure 3).³

This has meant library budgets have been overwhelmed. Money to provide book collections has been severely impacted (Figure 4). Librarians continue to press university administrations for more funds, but the amounts needed continue to soar. It is unrealistic to expect endless expenditure of funds and libraries are certainly beginning to look critically at their subscription lists. Not because of photocopying but because of budget restrictions. Indeed, many libraries have little-used subscriptions. Bradford distributions show that a small number of titles account for a large percentage of use.⁴ Other studies have substantiated this, i.e., Eugene Garfield's studies at ISI,⁵⁻⁷ Herman Fussler's "Patterns in the Use of Books in Large Research Libraries",⁸ and Allan Kent's Pittsburgh Studies.⁹ While many of these tend to be controversial, they have been receiving growing attention from the library community.

Libraries want to provide materials needed by their users and will try to do so. Interlibrary loan is expensive, time-consuming, and inefficient for materials needed even moderately frequently (Figure 5).¹⁰ However, materials seldom if ever used are beginning to be examined and may well be cancelled—not due to copyright law violations or resource sharing but due to budget stringencies. Academic librarians are not pleased with this—who knows what next year's research will be and what journals will be needed. But the realities of the situation must be faced—funds are simply not available. This may well affect the viability of small, highly specialized journals. Scientists and educators as writers and readers should consider the implications of these facts and seek appropriate solutions.

Librarians and scientific authors and readers have as their primary interest the areas of their own professional interest; the attention they give to peripheral matters such as copyright and the future of journals is necessarily limited. Publishers have a direct commercial interest. It is very probable therefore that this group will naturally devote more time and money to influence change in the law. As educators and librarians it is our mutual responsibility to provide a balanced perspective toward these important questions. New restrictions on photocopying should be avoided unless substantial evidence clearly demonstrates a need for such restrictions. In fact a clarification of the applicability of fair use factors to address the special concerns of college and university patrons would be justified.

Let me summarize with points excerpted from testimony by Robert Wedgeworth, American Libraries Association Executive Director.

Most photocopying done by or in libraries falls within the limits of fair use and Section 108 of the law.

There is no evidence of a causal link between reductions in library periodical subscriptions and photocopying practices.

Reliance on networking to substitute for a subscription to a periodical is not only illegal but it is also inefficient and expensive.

Availability of photocopies for the occasional user interested in an unusual field makes possible the kind of access to information vital to our society.

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The Chemical Abstracts Service Document Delivery Service[†]

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The Chemical Abstracts Service Document Delivery Service received nearly 25 000 document copy requests from over 1300 organizations and individuals during the first 10 months of its operation. By combining photocopying with interlibrary lending, almost 80% of these requests were filled. User acceptance of this new service as indicated by its growth has justified its establishment.

On Sept 2, 1980, the Chemical Abstracts Service, acting with ACS Board of Directors and ACS legal counsel approval, established the CAS Document Delivery Service (CAS DDS). Planning for the CAS DDS began in early 1980 when the ACS Board created a special task force to study how the Chemical Abstracts Service could provide a document delivery service that would not be dependent upon exemptions to photocopying that had been incorporated into *United States Code Title 17—Copyrights, Section 107. Limitations on exclusive rights: Fair Use and Section 108. Limitations on exclusive rights: Reproduction by libraries and archives.*

In designing CAS DDS, specific design criteria were determined to be mandatory. The service was to be user friendly. Customers were to be provided a range of options for ordering, specifying delivery, and making payments. The service was not to infringe upon the rights of any copyright owners. It was to be as responsive as possible, providing customers with a high degree of assurance that their orders would be promptly processed and filled, if at all possible. The service was to be competitively priced and was to operate on a cost-recovery basis. A team of CAS staff members representing the Bibliographic Operations, Business Administration, and Marketing Divisions, following the design criteria, developed the new service. Customers would be able to order documents via mail, telephone, TWX or Telex, or electronically via the System Development Corporation's Electronic Mail Drop, Dialog Information Retrieval Service's Dialorder, OCLC's Interlibrary Loan Subsystem, CAS ONLINE, or the European Space Agency's PrimorDial. Delivery of filled orders would be by surface mail in North America and by air mail elsewhere. However, customers could specify delivery by United Parcel Service, Federal Express, or other air courier. Customers would be able to maintain deposit accounts for payments or could pay by credit card, check, outstanding prepaid CAS coupons, or be invoiced.

In order to have a service that was not dependent upon exemptions to the copyright law, and one that would recognize the rights of copyright owners, the CAS DDS was to combine photocopying with interlibrary lending. If a required document was copyrighted and CAS had neither royalty-free permission

to copy nor a mechanism for paying copying fees, the request would be filled by lending the customer CAS's copy of the original. Requests for documents in the public domain, registered with the Copyright Clearance Center, Inc., or covered by agreements CAS has with copyright owners would be filled with photocopies.

The team reviewed other document delivery services' practices of providing different classes of service based on processing time, such as RUSH and REGULAR. They decided against having classes of services and instead set as a goal full CAS DDS processing within 24 h after receipt of the request. They helped to establish new rules governing the circulation and disposition of CAS library receipts in order to assure the rapid availability of requested documents.

Pricing policies of other document delivery services were obtained and analyzed. CAS DDS cost studies were made, and a pricing structure was established that would assure price competitiveness as well as full cost recovery.

Because of the need to be able to collect copy fee information, to identify publishers with which CAS might need to negotiate right-to-copy agreements, and to monitor the system's performance, a computer-based management information system, the Document Service Management System (DSMS) was designed and installed. DSMS consists of a data base containing records for each document request received. Each record consists of data relevant to the request (i.e., what was requested, when, and by whom), fulfillment information, copyright status, and characteristics of the requested document, such as type of publication, age, number of pages, and country of publication.

During the first 10 months of operation over 1300 customers used CAS DDS. Collectively they ordered 24 492 documents. Table I shows the disposition of these requests. Of the 19 520 filled requests, 11 594 (59.4%) were filled with photocopies, and 7925 (40.6%) with loans of CAS's originals. When the decision was made to lend originals, it was recognized that some losses were bound to occur. To minimize the impact of this, about 85% of the originals loaned are pages cut from issues of journals or conference proceedings, and in only about 15% of the cases of lending is an entire issue or a nonserial volume loaned. As of the end of June 1981, 23 sets of cut pages and 23 whole issues had been lost, less than 0.6% of the total items loaned.

[†] Presented at the ACS Copyright Symposium, 182nd National Meeting of the American Chemical Society, New York, Aug 27, 1981.