

Complying with Copyright in Scientific Libraries. The National Bureau of Standards Experience[†]

PATRICIA W. BERGER

Library and Information Services Division, National Bureau of Standards, Washington, DC 20234

Received October 5, 1981

Applying a "worst case" analysis of interlibrary borrowing in the NBS library for the years 1976-1979 demonstrates that the dangers of interlibrary lending to the interests of authors and publishers is slight compared to the clerical burden imposed on libraries by Sections 107 and 108 of the Copyright Law of 1976. Further, there is evidence of publisher, author, and library user disaffection with the law as well as instances of abuse by publishers of charges for photocopies of materials under copyright.

In June of 1980, I testified at a public hearing convened in Washington DC by the Register of Copyrights on the effects of Section 108 of the Copyright Law on the information services of the National Bureau of Standards Library. I told the hearing examiners that if NBS's experience with the law was representative of other libraries, then the deleterious impact of photocopying on scientific authors and their publishers is more imagined than real. Our data from 1976 through 1979 indicate that "The danger to the interests of authors and publishers is slight compared to the burden imposed on librarians carrying out the congressional will".¹ I based my statements on an analysis of our interlibrary borrowing and photocopying activities for the years 1976, 1977, 1978, and 1979 which indicated the following:

Over a 4-year period, from 1976 to 1979, less than 9% of our interlibrary loan requests, which numbered 9844, exceeded the CONTU guidelines in any 1 year. Because the number of requests in excess of the guidelines was so small, only 1-2% of the titles we borrowed in any 1 year were affected.² More importantly, of the 68 titles which did exceed CONTU guidelines during this 4-year period, only 12 exceeded them for more than 1 year and none exceeded them for more than 2 years. Therefore, entering subscriptions for any or all of them would have been counterproductive for the government and would have implied a sustained volume of need and use which did not, in fact, materialize.²

Not much has changed since Elsie Cerutti and Jane Tucker completed their analysis. The volume of photocopying for which we pay is still minuscule. And the revenues it creates for U.S. and foreign publishers fall well below anybody's definition of the poverty level.

For example, in 1978, we ordered photocopies totaling \$7.50 for five articles, four from two U.S. publishers and one from a foreign publisher. That year, two additional American publishers declined to charge us anything. In 1979, we ordered copies of six articles which came to \$13.75, five from three U.S. publishers and one from a foreign publisher. That year, three U.S. publishers declined to charge us for nine additional articles. In 1980, our photocopying costs for domestic materials increased by 1135%—from \$11.50 to \$142—for nine articles from two American publishers. We also paid \$15.40 for 10 articles from 3 foreign publishers, but 2 additional U.S. publishers and 2 foreign publishers would not charge us for copying 7 other articles. What these data indicate is that over the last 3 years we have been asked to pay for only 61% of

what we copied, because 50% of the American publishers and 44% of all the publishers who could have charged us under Section 108 declined to do so. I am not complaining about this state of affairs, but I am persuaded that many publishers, like many librarians, find Section 108 less than useful, since the former chose to charge us for only 25 of the 41 articles we reported. I question the value of Section 108—unless one values a nuisance—because it mandates bookkeeping which costs far more than the revenue it generates. In such circumstances, Section 108 is about as effective as killing gnats with a sledgehammer. Certainly it fails to provide the "practical success . . . in balancing the various interests"³ which the Congress had intended it to provide.

I would like to explain the reason for the quantum increase in our copying costs from 1979 to 1980. In 1980, a U.S. publisher who will not register recent years of his journals with the Copyright Clearance Center charged us \$100 for a single photocopy of a nine-page article—an article written by a university professor which discussed, among other topics, an NBS symposium held at the Bureau in 1969. Because the cost of that copy was so far out of line, I called the author to inquire how much of our \$100 fee he had received. The answer was none. Nor could he recall whether or not he had transferred his copyright to the publisher. I registered a complaint about this incident with the Copyright Office, because if fair and unfair photocopying of materials is to be monitored, then it seems appropriate to monitor fair and unfair copying fees as well. In my letter I stated that "were royalties of this size to become routine, you may be sure there will be, to quote the Register of Copyrights' earlier question to librarians, a remarkable and 'significant effect on users' and librarians' access to information'. Today, dollars for *any* purpose are dear in tax supported libraries, be they federal, public, or academic. The managers of such libraries *must* be able to demonstrate that the services and resources they provide are necessary and are provided and at the lowest possible cost. I do not believe that American taxpayers who pay our bills and are also our library users will consider yet another subsidy to yet another industry as either necessary or cost beneficial to them or to their libraries".⁴ In addition, I wrote the publisher to ask for a schedule of his 1981-1982 journal photocopying royalty charges and to inquire why only selected years of his titles are available from the Copyright Clearance Center. To date, I have not received an answer.

Turning to the matter of inhouse photocopying, until July 1981, we maintained three Xerox machines in the NBS Library—two for the use of the Bureau's staff and one coin-operated machine for the public's use. However, on July 31, the leasor of the coin-operated machine informed us that the copier was generating insufficient income because of its low

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

**1977-81 Volumes and Journals
Retrieved From Photocopy Room**

Year	Volumes/Journal Issues
*1977	24,153
1978	18,481
1979	20,749
1980	23,453
1981 (Jan.-June)	10,647

$\bar{M} = 21,663$

*Statistics for 7.3 Months (14,693), Projected for Full Year

Figure 1.

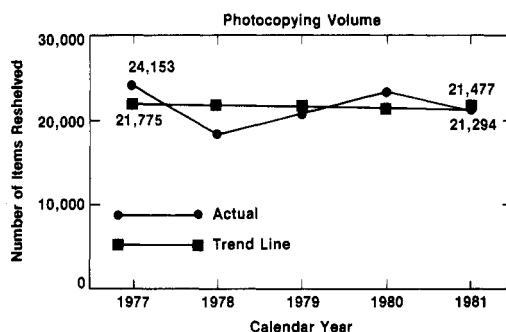


Figure 2.

volume of use. Therefore, they terminated their contract with us and removed their machine. Since this is the second company to remove a copy machine because they could not make money, we expect trouble persuading yet a third vendor to try where two have failed previously. "Public" use of the NBS Library includes staff from 91 R&D firms who visit the library once or twice a week, plus scientists, engineers, and students from government agencies, schools, universities, and colleges in the Metropolitan Washington area.

The Bureau's scientific and engineering staff numbers approximately 1500. The figures in Figure 1 represent all the books and journals we reshelved from the library's photocopying room (which is restricted to NBS staff use) from 1977 through 1981. Note that between 1977 and 1980, inhouse photocopying of books and journals by the staff decreased by 3%; it is projected to decrease by another 8% during 1981. If we run a regression analysis on this data (Figure 2), we find that, over time, NBS photocopying may well continue to decrease by ~2% a year. A photocopying volume of ~14 items per scientist per year scarcely qualifies as wholesale photocopying, especially when roughly 15% of the materials photocopied are either not now or never were under U.S. copyright.

Do not think that we are content to be just bean counters or that we spend all our time compiling and massaging statistics—such is not the case. Our primary concern is facilitating the transfer of scientific and technical information from authors to users. We share this concern with the Bureau's scientists and engineers. Indeed, the copyright issue in general and the effects of Section 108 on the interchange of scientific information and data in particular prompted us to send a letter recently to the editor of *Physics Today*, regarding the copyright-photocopying views expressed by the Director of the American Institute of Physics in the "Guest Comment" column of the November 1980 issue of the journal.⁵ We felt that the opinions represented in that column were "not in the best interest of physicists" but instead "best represented the interests of publishers". That letter was signed by two physicists, one physical chemist, and three library managers from the Universities of Oklahoma and Rochester and the National Bureau of Standards, respectively.⁶ It was forwarded to the Editor of *Physics Today* on March 31, 1981. It was published in the October 1981 issue of *Physics Today*. Let me share with you our major concerns. First, we stipulated

that for physicists the most important consequence of the Copyright Act is its effect on the transfer of scientific information from author to user. Secondly, we hold that the CONTU guidelines relating to Section 108 (g), which say it is legitimate to copy up to five articles in 1 calendar year from a journal's issues published within the last 5 years, result in disproportionate record keeping and disproportionate associated costs for libraries. We noted that Section 108 (g) may delay the time it takes researchers to obtain vital information. We said that the records of NBS and academic libraries demonstrate that, for a given periodical, the annual limit of five copies for a single title is seldom reached, and when it is, it is rarely reached again the following year. Third, we stated that "academic and government research libraries are not, nor have they ever been, engaged in large-scale, systematic, multiple reproduction of journals and books". We made the following observations concerning the usefulness of the Copyright law to scientists, librarians, and publishers:

(1) Physicists, indeed most authors, want their work as widely disseminated as possible.

(2) The existing guidelines have created uncertainties and much inconvenience for users and for their libraries. Keeping the records necessary to assure compliance has resulted in considerable cost to scientific research libraries at government and nonprofit institutions. These costs far exceed the potential revenues to the publishers.

(3) Charging high rates for photocopying is detrimental to the promotion of science and the useful arts. It is even contrary to the spirit of the clause in the U.S. Constitution (Article 1, Section 8), which alone justifies the Copyright Act.

(4) Information has become a commodity exploited by many publishers, primarily for their own benefit (for example, by their insistence that an author transfer copyright to them, frequently without any provisions for royalty payments). The "rule of five" primarily benefits the publishers.

(5) If academic and scholarly research libraries were exempted from the provisions of the "rule of five", they could fulfill more adequately the needs of their users.

Finally, we said we believe that librarians as well as users recognize that some library services cannot be free. We found no evidence for the AIP Director's assertion that a schism exists between publishers and librarians. On the contrary, we feel that librarians have done their best to ensure compliance with the Copyright Act of 1976 and that it is not the publishers, but rather the users and the authors, who have been inconvenienced by some of the provisions of that law.

Since 1976, I have been privileged to be the Chief of the National Bureau of Standards library. I say "privileged" because the NBS Library is recognized as being an exceptionally fine scientific library, with one of the nation's best "working" collections in the physical sciences and metrology. For over 50 years my predecessors worked, as I continue to work, to acquire and maintain an appropriate balance of information resources and services to support the standard-setting research of both the Bureau and the country. Books and journals—especially journals—are our life's blood. The Bureau's scientists and engineers, NBS's Executive Board, and the library staff all agree that a well stocked, ably staffed library is absolutely essential to the health and competence of the Bureau's research programs. In 1978, this requirement for continuous support and substantial funding for the library was underscored by the NBS Associate Director for Programs, Budget and Finance:

"The library is well recognized as a vital resource in carrying out the technical programs of NBS. It received the highest overall ratings and the highest usefulness ratings of any administrative program in the program

Inflation vs. NBS Library Costs

	1971	1975	1979	1981
Chem Abst	\$1950	\$2900	\$4200	\$5500
Math Rev	320	560	1050	1280
Nuci Phys	576	1368	2133	3258
Math Sci & Eng	43	259	472	592
	\$2889	\$5087	\$7855	\$10,630

268%

Figure 3.

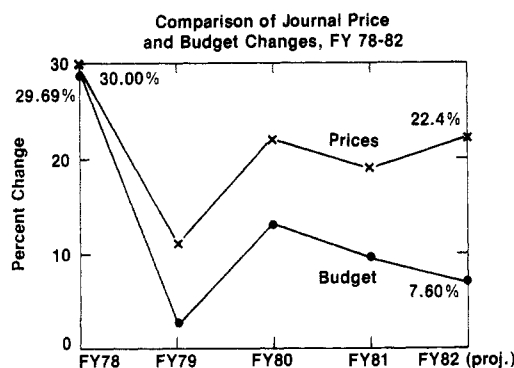


Figure 4.

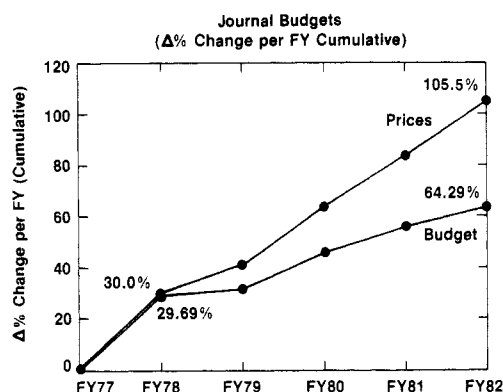


Figure 5.

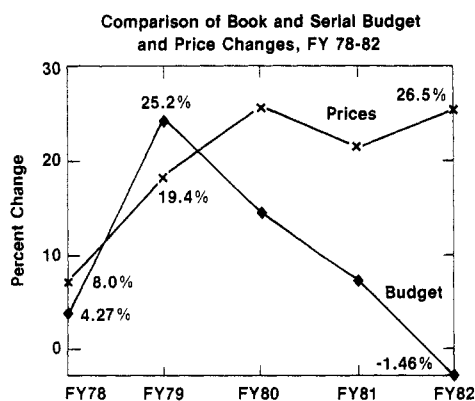


Figure 6.

reviews. Reduction to minimum would be justifiable only under extremely adverse budgetary circumstances...the need for additional funding for books and journals stems from...(an) inflation rate for books (of) 8%; for journals subscriptions (of) 20-30%".

That year, 1978-1979, my budget was increased by 23%

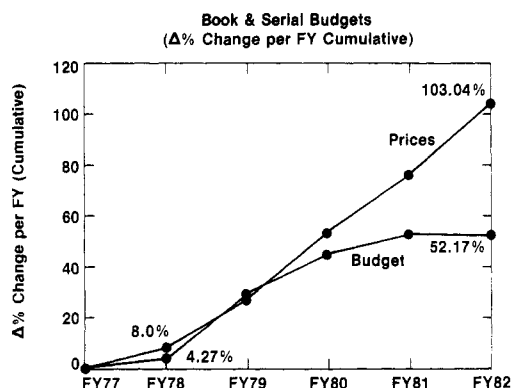


Figure 7.

NBS Library
FY81 Journal Subscriptions

Total No. Subscriptions	=	1,240
Total No. Publishers	=	491
Total Spent	=	\$295,200
No. Publishers Analyzed	=	39
% Non-U.S. Publ.	=	44%
Total Spent W/39 Publ. Analyzed	=	\$174,164
% of Grand Total	=	59%

Figure 8.

NBS Library
FY81 Journal Subscriptions
Foreign Publishers

Publishers Supplying 5 or More Titles	No. Publs.	No. Titles	FY80 Costs	
Commercial	14	252	\$ 88,368	\bar{X} \$351
Associations	2	20	10,198	\bar{X} 510
Universities	1	24	2,457	\bar{X} 102
Totals	17*	296	\$101,023	\bar{X} \$341

*All 17 Publishers Registered with Copyright Clearance Center

Figure 9.

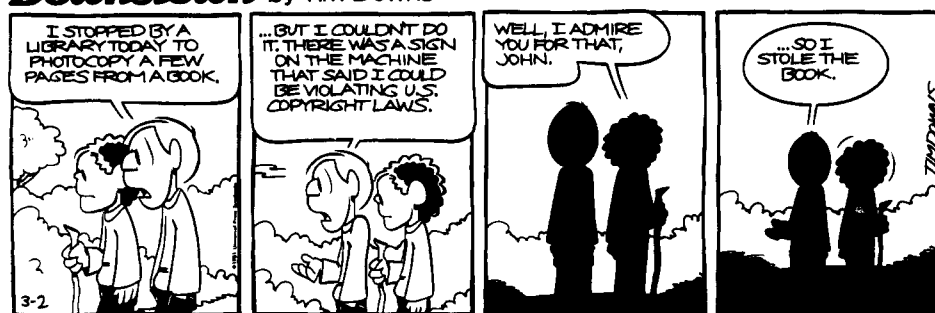
NBS Library
FY81 Journal Subscriptions
U.S. Publishers

Publishers Supplying 5 or More Titles	No. Publs.	No. Titles	FY80 Costs	
Commercial	11	179	\$41,086	\bar{X} \$230
Associations	10	159	31,714	\bar{X} 200
Universities	1	6	341	\bar{X} 57
Totals	22	344	\$73,141	\bar{X} \$213

Figure 10.

by NBS management. In March 1981, Dr. John Yates, Chairman of the NBS Director's Research Advisory Committee, had this to say about the current state of the library:

"The NBS library is one of the most important central services to the NBS staff. . . it is an excellent facility with a very wide range of journals, books, and information services. The well-trained staff are always very helpful ...this important NBS institution should be strongly supported by the Administration even in times of fi-

Downtown by Tim Downs

Copyright, 1981, Universal Press Syndicate. All rights reserved.

Figure 11.

nancial cutbacks, since it is really at the heart of almost all research activity at NBS".

I have described our funding history and political support, because despite sustained efforts on the part of both NBS management and the scientific staff to undergird our programs and grant our increasingly voracious dollar requests, we can no longer afford the level of permanent inhouse resources we have enjoyed in the past. Indeed, if the present upward spiral of the costs of books and journals continues to outstrip the government's ability to pay, the Bureau's library could become a third-rate information facility within the next 2-3 years. To the extent that our condition represents impending circumstances in other scientific libraries, it may be indicative of imminent, profound effects on the revenues of publishers of scientific materials. If this happens, the causes of these effects ought not to be misstated or misunderstood. The NBS library will not stop buying books and journals because we are photocopying instead. We will stop buying them because we can no longer afford to do so, and a repetition of the past price hike practices of publishers to offset their inevitable fall in revenues will not solve the problem; such action will further exacerbate it.

During fiscal year 1982 (Figure 3), I may need to cut \$94 000 out of the NBS library's proposed journal budget of \$415 000 and \$39 000 out of the book budget as well. Note, for example, that the 1981 cost of *Chemical Abstracts* exceeded what the government paid for it, plus four additional essential references, just 6 short years ago. The cumulative percentage increases for these five titles over the last decade amount to 268%.

If we examine what has happened concerning journal prices and my ability to meet those prices over the years (Figure 4), we find that while there has always been a discrepancy between the two curves, it was marginally tolerable until last year. In 1981, my journal budget totaled \$325 000—a 10% increase over 1980; unfortunately, the average price increase for journals that year was 19%. So even though my journal budgets increased 57% between 1978 and 1981, these increases were offset by publishers' price hikes of 83% during that same period. As a result, the divergence between publishers' prices and my available dollars accelerated significantly and sharply during the latter part of 1980 and throughout 1981.

The pattern is even grimmer if we examine the trend over time (Figure 5). Between fiscal years 1977 and 1982, the money allocated for journals increased 64%. During that same period, however, scientific and technical journal prices increased 106%! In 1982, I will be unable to accommodate this persistent discrepancy. Therefore, if more money is not made available, I will need to cut back on journal subscriptions by at least \$94 000. I say "at least", because in June of 1981, after I had completed the analysis just described, the American Institute of Physics announced 1982 increases of 60% for its primary journal subscriptions and an average of 25% for its translation journals. For this and similar unaccommodated

factors, our total cuts in journal money could exceed \$125 000 in fiscal year 1982.

If we examine the book and serial figures (Figure 6), the picture is no rosier. In 1982, my budgetary capability to accommodate publishers' prices will stand at 1.5% less than what it was in 1981. In short, during fiscal year 1982, the discrepancy between my ability to pay and publishers' prices will exceed 50% (Figure 7). I may stop buying books and serials altogether and divert that money to shore up the journals program and to provide a few dollars for library growth in new areas of research mandated by the Congress and the Administration.

What I have just described is a scenario which, if repeated in other scientific libraries, could cause abrupt realignment and change. The subsequent fallout on publishers' revenues will not be trivial. If it is indicative of what is going on elsewhere, then publishers and librarians alike had better recognize the interdependence of their two communities; each of us must learn to accommodate economic and technological changes within our common community without resorting to pejoratives or other retaliatory behavior against the victim of change. Whining about publishers' prices, library networks, or photocopying is an exercise in futility. The present state of things is not the result of collusion or efforts to defraud. It is the result of rampant, frequently unpredictable technological and economic change. Because the present state of things causes no little discomfort to librarians and publishers alike, we must deal with that discomfort more rationally and more constructively than we have in the past. Libraries and publishers are the bridge institutions upon which the United States must depend as it adjusts to the requirements of the emerging information age. If these relatively stable institutions cannot adjust to change without creating new chaos, which can? I do not believe that either institution will be functioning or even existing 30 years from now. But I do believe that we are necessary today, to provide the continuity, the corporate memory, and a measure of stability to society's information transfer processes during the present restless decade of unremitting technological upheaval and change.

To begin with, if we are to function effectively, we need to assess how well the Copyright Act supports adaptation to evolving information systems. Donald King describes the law as "legislation...designed for the past information environment rather than for the future, in which new technology may potentially change the entire picture. The Copyright Law seems to be addressed more to duplication and reproduction of the media carrying information (i.e., books and journals) than to the information itself. This emphasis will become blurred as electronic processes and databases begin to dominate the information transfer system".⁷ It seems to me he is expressing a lack of linkage between this law and the realities of what is occurring in our information institutions and to their transfer systems.

There is one additional component that needs to be recog-