

The Ethics of the Library Crisis and the First Amendment

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Analysis of the circumstances surrounding *Gordon & Breach vs. American Institute of Physics*.

The First Amendment won't protect cries of "fire" in a crowded theater, causing panic when there is no fire. Directing fire trucks *away* from a fire engenders crimes of greater magnitude. By analogy, the acute crisis of impoverishment in academic research libraries is a "fire" raging out of control. Claims that boycotting commercial publishers will bring libraries back to health constitute a "misdirection."

Such a misdirection was part of a promotional scheme that brought on the civil litigation known as *Gordon & Breach vs. American Institute of Physics*. Judge Leonard B. Sand, who tried the case without a jury, provided a lesson in how elusive the issues can be to an outsider.¹ For some of us it helped bring into focus the Achilles Heel of the government-university partnership forged by Vannevar Bush.² What was excluded by the court may be more important in the light of what was revealed, admitted as evidence, that otherwise would have remained private. For instance, the commercial interests of association publishers appear to benefit from an arcane policy of "don't ask, don't tell" regarding the accreditation of university libraries by science agencies and societies. Policies of exploitation, rather than resolution of the library crisis, prevail. Half-empty, stale library collections may not seem to have much in common with a raging fire. Yet their deterioration has produced dangerous pitfalls for the few who expect gold standards of excellence from the best universities. It is no less innocuous (to all but the few whose fortunes are actually affected) than a false report affecting the share price of a public company. Because the misdirection of remedies for the library crisis thwarts some of \$12 billion federal spending on academic research that depends on excellent libraries, it may be the darker of the two misdeeds.

Tinderbox conditions leading to the library crisis developed after World War II with increased government sponsorship of academic research. Intellec-

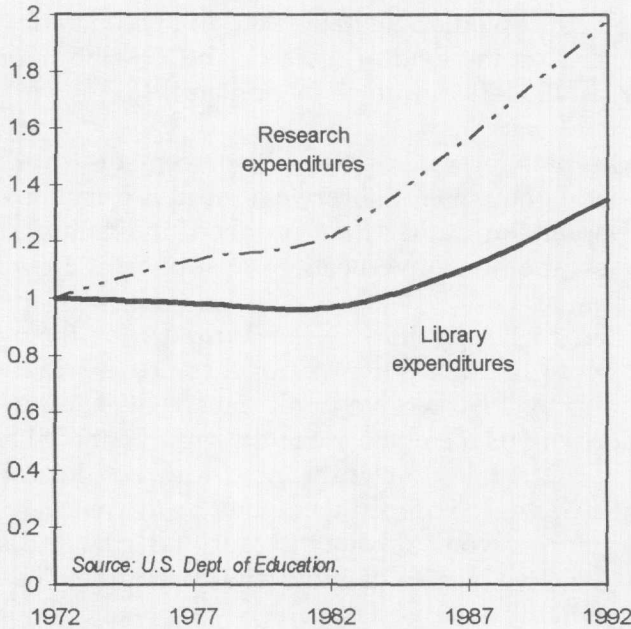
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tual curiosity was soon replaced by government contracts,³ the priority of knowledge was subordinated,⁴ the academic ethos was torn by academic parochialism and high-handed administrators.⁵ The shock of *Sputnik* in 1957 provided a respite from the danger zone. Awakened by the Soviets into realizing how far behind Western science had fallen, both major parties supported libraries in their 1960 platforms. The Higher Education Act (HEA) of 1965 added about ten percent to total spending on college library materials. Following the announcement of LBJ's decision not to seek a second term in 1968, political support for research plummeted, taking libraries down with it. Richard Nixon embargoed HEA payments. By the 1980s, the library crisis was in full glow, ready to burst into flames after HEA Title II-A money (for college library materials) stopped completely. Neil Armstrong's moon landing in 1969 dissolved the cloud left by *Sputnik*. The fall of the Soviet Union in 1991 ended all political concern about the competitiveness of science and the quality of library collections. Title II-A was deleted on the recommendations of the Association of Research Libraries (ARL) and the American Library Association. Looking back at the forty-five years following the end of World War II, one sees that the major universities quietly choked the growth of their libraries. They were unopposed by any science agency or learned society. Their collections increased only four times in size, half the growth rate for equivalent periods back to colonial times.

The crisis springs from the growth of research publications, which increased in number eight times in every forty-five-year period before and after the war. The widening gap between "published" and "purchased" meant canceled subscriptions, uncollected books, emasculated library standards, and sharp increases in libraries' rates of performance failure.⁶ Statistics show that research has grown faster than library expenditures for fifty years, rapidly since 1970.⁷ During the latter period, research spending increased 80 percent (in constant dollars) while library spending increased a mere 40 percent (Figure 1). Nearly two-thirds of basic research articles are authored outside the United States,⁸ making currency exchange fluctuations important. Between 1960 and 1995, the Dutch guilder more than doubled and the deutsche mark tripled in value, pushing the prices of foreign publications sharply upward.⁹ The American Library Association called attention to the impact of dollar devaluation on costs of maintaining subscriptions to foreign journals.¹⁰ It was ignored. In the most recent reports, for instance, the purchases of seventeen members of ARL were cut¹¹ in spite of a sharp devaluation in the dollar that pushed renewal rates higher than ever. Such economic imbalances can predictably leave libraries far behind the published output and the needs of researchers.

University administrators encourage income from sponsored research, which brings roughly fifty cents of overhead income for every dollar of direct cost. They are in a position to cut libraries (and instruction) spending to increase their own share of the pie. The Stanford scandal involved over a dozen universities misposting overhead claims to non-research costs while their libraries were forced to cancel science journals. They refunded millions of dollars to the

FIGURE 1
 Spending on University Libraries Failed to Match Spending
 on Research 1972-1993
 (Constant Dollars)



government in the early 1990s while their libraries continued annual rounds of cancellations. University administration now consumes 40 percent more of the university dollar than it did in 1945.¹²

Library spending is poorly covered by federal research overhead payments. The definition of universities' overhead to be reimbursed was originally agreed as "full accountable costs."¹³ The first director of the National Science Foundation (NSF), Alan Waterman, believed that the fundamental policy question centered on how the universities should remain independent of the federal government. NSF historian J. Merton England called the use of universities for research by the federal government "a troubled partnership."¹⁴ He recounts the concerns of Paul Klopsteg, one of Waterman's lieutenants, who

complained to [Vannevar] Bush that an American Council on Education [ACE] committee's preliminary report on sponsored research policy showed university presidents acting like moneygrubbers rather than intellectual custodians. Klopsteg thought the president's concern to get full payment for government-sponsored research—one of a university's normal functions—as well as for applied research and "procured development services" was "degrading to the scholarly and intellectual activity of the fac-

ulty member" and potentially destructive of university independence. Bush responded that "if the federal government wishes to subsidize the universities of the country"—an idea abhorrent to Klopsteg—"it should do so directly and not by some strange method of bookkeeping. I fear the latter," he wrote, "for it would inevitably lead to bureaucratic control of our university policies, in the field of research and possibly more generally." (Various sources, 1953–1956, quoted by England)¹⁵

Strange bookkeeping prevailed. Over 60 percent of academic research is generated by federal grants.¹⁶ Yet library overhead is calculated on the basis of the university population, rather than on need, utilization, or financial relevance. So only two points of overhead go to support the library—not necessarily the collection.¹⁷

Universities don't tell why they reduce support for their collections. No reason is given why Columbia's library, for instance, merited 6 percent of its dollar in 1968¹⁸ but by 1990 received only 3 percent.¹⁹ Annual statistics that indicate the majority of its members are in the same boat are kept unpublished by ARL, a policy that I take to signify mortification.²⁰ Research universities simply assert their claims to independence and, by inference, to mediocrity.

Government agencies won't ask about library funding and quality, in spite of their duty to qualify their contractors and assess their performance. In a letter to me, Diane Ravitch advised that the Department of Education takes the position that a more rigorous regulation of the library portion of indirect costs, such as requiring accountability similar to facilities reimbursements:

could unnecessarily interfere with decisionmaking by college and university communities as to how best to meet their academic needs and priorities . . . could also be viewed as an inappropriate intrusion by the Federal Government into the unique and varied operations of these communities.²¹

Alan Waterman used to proclaim that, "NSF exercises no control but only leadership."²² Acting NSF director Frederick M. Bernthal confirmed that the absence of control continues in the 1990s.²³ What has the leadership of the NSF given us? It has not assured us of the capacity of science research contractors to prepare effective proposals. "Peer" reviewers suffer the same poor resources. No science agency makes any assessment of university libraries, the primary information resource used for the proposal and review of government research. No agency assesses the quality of research after it is published or the cost-effectiveness of its grants.

Citing an alleged "policy vacuum," the Congressional Research Service reviewed eleven reports written for Congress or the administration 1950–1975. It observed a consensus that, "information itself is a national resource, much like energy, to be used for the public good, private gain, and in some cases interna-

tional barter." However it noted that improvements in dissemination were more often offset by inaction, reorganizations, and cuts in support: a "feudal posture which impeded the realization of national goals."²⁴ A staff report by the Congressional Office of Technology Assessment produced similar observations 14 years later.²⁵

This history of invidious funding and bureaucratic supremacy was excluded from the 1989 review of the library crisis by the Association of Research Libraries.²⁶ Instead, it pursued a theme developed by University of Wisconsin-Madison physics professor Henry Barschall. Writing in *Physics Today*, Barschall blamed publishers' prices for the crisis. He proposed withholding patronage from journals with a high price "per-kilocharacter." Librarians could cancel them. Scientists could submit their papers elsewhere, preferably to the subsidized journals of the American Institute of Physics.²⁷ His argument was expanded by ARL, which offered a recommendation based on Barschall's advisory. ARL, which represents roughly half the spending on science journals by academic libraries in North America, added "excessive publishing by scientists"—another canard—to the litany of blame for bad libraries. Climbing on a bandwagon already loaded with militant librarians, a *Science* editorial further amplified Barschall's theme. It added the surprising allegation that in earlier days most scientific publishing was conducted by the scientific societies.²⁸

Commercial publishers of niche journals suffered a hailstorm of criticism and cancellations while association publishers congratulated themselves. The focus of cancellations bore down on imprints like Pergamon, which, in a notable example, was singled out by Princeton for massive cancellations.²⁹ In 1991, the Association of American Universities (AAU) started discussions with ARL resulting in its "research libraries project." The target of the task forces' reports was the copyrights that protect the investments of authors and publishers from piracy and plagiarism. Our inference is that AAU administrators engaged ARL libraries to find new ways to crank down their libraries' cost even further.³⁰

The evidence that justified Barschall's accusations was that the ratios of highest and lowest prices divided by printed kilocharacters ranges by a factor of 80. This "finding" was neither news nor evidence of profiteering. The range was smaller than the factor of 90 found nearly twenty years earlier by a fellow APS editor in a sample of 350 journals in the AT&T research libraries.³¹ Dated 1968, the earlier sample represents a period when the library crisis had been held at bay for nearly half a decade. It reasonably suggests only that science has developed a variety of formats appropriate to a wide range of needs.

The real victims of the library crisis were unrepresented in court, even by their own organizations who appeared as defendants. In the economics of the journals system, the cost of authors' and readers' resources add up to nearly eight times the expenditure on of libraries' subscriptions.³² In my opinion, American Physical Society (APS) and American Institute of Physics (AIP) betrayed the interests of researchers and their sponsors—ultimately the taxpayer.

They broke faith with their chartered missions "to promote the advancement and diffusion of the knowledge of physics." Prolonging the library crisis resulted in unproductive research, wasted resources, and agonizing stresses on the entire academic community.³³ I would not doubt that it contributed significantly to the poor morale of scientists who complain of frustration of preparing viable proposals.³⁴ It also hampered the dissemination of research across the full academic spectrum. Because of the priority of science journals, libraries have failed to buy many books. University presses have been forced to reduce print runs, to narrow their coverage, and to invest in nonacademic books.³⁵ Trade publishers of intellectually challenging books have curtailed their programs, reorganized, shut down, and been sold. Names like Pantheon, Elsevier Science's book division, CRC Press, Routledge, American University Press, Addison-Wesley Longman, and Basic Books come to mind along with the tenor of the annual meeting of university presses. In mid-1997 AIP sold its AIP Press.

Evidence of the causes and consequences of the library crisis were kept out of the federal proceeding. In 1994, before the discovery period and trial, Sand preemptively ruled that Barschall's articles were protected by the First Amendment except where they were reprinted or quoted for commercial purposes.³⁶ The civil suit was based on the "false and misleading advertising" test of the Lanham Act. Judge Sand read Barschall's articles but ignored his repeated use of the word "crisis" to describe conditions that might suspend First Amendment protections. The trial offered no challenge to the failure of AIP and its governors to present accurate and complete information that will benefit, at minimum, their constituency.

Similarly, the "don't ask, don't tell" policies of the federal government prevent a reasonable challenge to the universities. Thanks only to the determination of a nemesis who pursued Barschall and his publishers through the courts of Europe and the United States, is it clear that Barschall's solution deserves a place alongside chlorophyll, astrology and phrenology. A 1991 French ruling understood that the articles, "in scientific guise, have as their goal the denigration of competing journals."³⁷ The recent U.S. verdict, which denied an injunction to the plaintiffs, noted that AIP et al., now acknowledge that Barschall did not demonstrate abstract product superiority. He showed only that some journals charge more per kilocharacter than others.³⁸

Cut-throat marketing is something new among learned publishers. It is particularly troubling when it is the choice of the very people who could most effectively terminate the library crisis by contributing to policy reform. AIP, APS, ARL, and AAAS enjoy a unique trust because they are organized for the benefit of society, not for commercial purposes. Evidence introduced in court can leave no doubt that increased profitability and dominance of physics publishing was the aim of AIP and APS. Their interest in the library crisis appears to fail basic tests of sincerity. Didn't AIP ratchet library prices up an extra notch to offset lost page charge revenue after reducing page charges to attract more papers?³⁹ Didn't Barschall hide his official responsibility for running

AIP's business? He offered a solution that helped only its commercial interests.⁴⁰ AIP opened a policy office in 1987, even as Barschall counted kilocharacters. APS's policy office has been around for years. What for if not to deal with important issues such as this? Reforms aimed at excellence in science and education would be more cost effective, with greater immediate benefits, than any supercollider.

Notes

1. For the court's view of the proceeding see: *OPA Amsterdam BV, Harwood Academic Publishers GmbH, and Gordon & Breach Science Publishers, SA, vs. American Institute of Physics*. SDNY. 93 Civ. 6656 Opinion (August 26, 1997). Also available at <http://chronicle.com/che-data/focus.dr/data.dir/0829.97/gandb.htm>
2. Vannevar Bush outlined the architecture for postwar science policy in: *Science—The Endless Frontier. A Report to the President on a Program for Postwar Scientific Research*. One of its fundamental tenets has been deliberately obscured. It was that universities, "... are charged with the responsibility of conserving the knowledge accumulated by the past, imparting that knowledge to students, and contributing new knowledge of all kinds." Bush also emphasized, "If the colleges, universities, and research institutes are to meet the rapidly increasing demands of industry and Government for new scientific knowledge, their basic research should be strengthened by use of public funds" (Washington, D.C.: National Science Foundation. 1945. Reprint 1990. NSF 90-8.) 19, 20.
3. Dwight D. Eisenhower. Farewell Address (January 17, 1961).
4. Robert A. Nisbet, *Degradation of the Academic Dogma* (New York: Basic Books. 1971. Reprinted New Brunswick, N.J.: Transaction, 1997).
5. Edward Shils describes strains on the academic ethos in *Minerva* 13 (1975), 1-37.
6. Albert Henderson described the bottleneck in research communications using collection statistics of thirty-six major university libraries. Declining coverage of research is held to be the cause of a doubling in their average failure to provide items from their collections over the last eighteen years, in *Publishing Research Quarterly* 10,4 (Winter 1994-95), 5-21. In 1989, Association for College and Research Libraries revised its Standards for university libraries to eliminate language asserting that weak collections can hamper research and printed them in *College and Research Library News* (1989), 679; See the prior revision in *College and Research Library News* (April 1979), 158-167. Recently researchers have raised their voices to oppose further cuts. For example, Franklin Hoke covered scientists petitioning for a reform of federal library funding in *The Scientist* 8,4 (February 21, 1994), 1,5. In 1996, the library committee of the Scripps Institution of Oceanography notified the chancellor of the University of California at San Diego that further cuts will cause serious damage to the core collection, an act that will have broad consequences. At the University of Maryland-College Park, a group of professors sought an administration commitment to restore the library collection to a peer rating position as good as the football team, covered by *Faculty Voice* 11,4 (February 1997).
7. U.S. Dept. of Education. *Digest of Education Statistics 1995* (Washington, D.C., 1995. NCES 95-029) Tables 333, 334, 335, 338. Bernard M. Fry and Herbert S. White called attention of the National Enquiry into Scholarly Communication to academic libraries' budgets that increased more slowly than university budgets 1973-76 in *Impact of Economic Pressures on American Libraries* (Washington, D.C.: National Science Foundation, 1978).
8. National Science Board. *Science & Engineering Indicators 1996* (Washington, D.C.: National Science Foundation. NSB 96-21), 206.
9. *Federal Reserve Bulletin* (1960-1995).
10. American Library Association. Resources and Technical Services Division. Impact of Dollar Devaluation. "... to focus national attention on ... the threat that devaluation poses to the nation's ability to educate its youth, conduct its research, and inform its citizenry" (June 29, 1987). Reprinted by Association of Research Libraries in *Report of the ARL Serials Prices Project* (Washington, D.C., 1989), appendix 4.
11. Compare reports in Association of Research Libraries' *ARL Statistics 1994-95 and 1995-96*. (Washington, D.C., Association, 1996-97) Alabama, Alberta, Brigham Young, Brown, California-Berkeley, California-Santa Barbara, Florida State, Guelph, Hawaii, Houston, Howard, Manitoba, MIT, Oklahoma State, SUNY-Albany, Washington, Wisconsin spent less money for library materials.
12. Reported in U.S. Department of Education, Table 333. Richard Talbot points out that libraries now compete for dollars with the programs they are supposed to support. *Bowker Annual* (New York: R.R. Bowker Company, 1984), 74-75. They also compete with administrators. Walt Crawford and Michael Gorman coin the label "Enemies of the Library" to describe groups that undermine libraries' financial

- allocations to finance their own agendas. *Future Libraries* (Chicago: American Library Association, 1995), 104–113.
13. J. Merton England, *A Patron for Pure Science. The National Science Foundation's Formative Years, 1945–57* (Washington, D.C.: National Science Foundation, 1982), 321–322.
 14. *Ibid*, 313
 15. *Ibid*.
 16. National Science Board, 167.
 17. U.S. Executive Office of the President. Office of Management and Budget. *Cost Principles for Educational Institutions*. The indirect cost rate is expressed as the ratio of indirect over direct costs, times 100 (Circular A-21. Rev. July 15, 1993). Added information was obtained from the Dept. of the Navy, Dept. of Health and Human Services, Department of Energy, Office of Management and Budget, and General Accounting Office.
 18. Jacques Barzun, *The American University* (Chicago: University of Chicago Press, 1968, 2d ed. 1993), 174.
 19. Total library expenditures as a percentage of total educational and general expenditures, 1979 and 1990, are provided for twenty-four universities offered as typical, showing the average fall from 3.95 percent in 1979 to 3.2 percent in 1990, an average decline of 19 percent, reported by Andrew W. Mellon Foundation in *University Libraries and Scholarly Communication* (Washington, D.C.: Association of Research Libraries, 1993), 4–6, 33.
 20. Advisory Panel for Scientific Publications. "The cost effectiveness of science journals," *Publishing Research Quarterly* 8,3 (Fall 1992), 72–91; More detail is in "The Cost Effectiveness of Science Journals." Supplement to the report published in *Publishing Research Quarterly*, Fall 1992 (Bridgeport, CT: Henderson, 1992), 67–69.
 21. Diane Ravitch. Letter signed as assistant secretary and counselor to the secretary, U.S. Department of Education (Dec. 30, 1992).
 22. England, 197.
 23. Frederick M. Bernthal. Letter signed as acting director of National Science Foundation (May 3, 1993).
 24. U.S. Congress. Senate. Special Subcommittee on the National Science Foundation of the Committee on Labor and Public Welfare. 1975. *Federal Management of Scientific and Technical Information (STINFO) Activities: The Role of the National Science Foundation* (Washington, D.C.: Government Printing Office, July 1975).
 25. U. S. Congress. Office of Technology Assessment. *Federal Scientific and Technical Information [STI] in an Electronic Age: Opportunities and Challenges*. "First, although STI is the major product of the Federal R&D (research and development) process that support many national goals and is an important national asset, it is seriously neglected and underutilized. Second, the Federal Government does not have an overall strategy for the management and dissemination of STI" (Staff paper, 1989).
 26. Association of Research Libraries, in its *Report of the ARL Serials Prices Project*, describes the crisis in terms of canceled subscriptions and prices rather than the ability of libraries to pay. Even the largest libraries can no longer afford to maintain comprehensive research collections. The urgency of the crisis is dramatized by the ARL's use of unbudgeted funds. Is it possible that a crisis so urgent could have escaped the notice of books on research policy and higher education—unless there were some sort of cabalistic intrigue? For instance, in *The Research University in a Time of Discontent*, Jonathan R. Cole, et al., editors, only the essay by Donald Kennedy mentions the sorry state of libraries, then only a half-sentence (Johns Hopkins University Press, 1994), 85–114; In *Technology, R&D, and the Economy*. Bruce L. R. Smith, and C. E. Barfield, editors, only Harvey Brooks acknowledges the serious gap in policy concerning library research (Washington, D.C.: Brookings Institute, 1996):15–48; Recent government policy documents like *Renewing the Promise: Research-Intensive Universities and the Nation*, prepared by the President's Committee of Advisors on Science and Technology, which was cochaired by Yale professor D. Allan Bromley and Princeton University president Harold T. Shapiro, *entirely omit* mention of libraries (Washington: National Science Foundation, 1992). William G. Bowen was president of Princeton University from 1972 to 1988, where he earlier served as provost and professor of economics. He later expressed surprise at finding that the share of total university expenditures going to their libraries had declined during that period. Now, as president of the Andrew W. Mellon Foundation, he explains that libraries can "pay their way" by embracing new technology, based on the premise that technology will save money by making better use of existing resources, in *Logos* 7,3 (1996), 237–241.
 27. H.H. Barschall, *Physics Today* 41,7 (July 1988), 56–59; H.H. Barschall and J.R. Arrington, *Bulletin of the American Physical Society* 33 (July 1988), 1437–1447.
 28. P. H. Abelson aimed to paint commercial publishers as carpetbaggers, scavengers and parasites in *Science* 244, (1989), 1125. This is an undeserved insult. They are more often pioneers who respond to emergent needs. They often are the first to risk capital that serves the mission of associations such as AIP and APS and have earned favorable recognition for their deeds as well as for their profits. David A. Kronick points out that Henry Oldenburg and other secretaries of the Royal Society earned profits from its *Philosophical Transactions* (1665+) during its first seventy-five years. *Journal des Sçavans* (1665–1702) was published by individuals licensed by the Crown in *Publishing Research Quarterly* 11,2 (Summer 1995), 62–79. *Physical Review* was launched by Macmillan years before the birth of the American

- Physical Society, described on its centenary in *Physics Today* (October 1993). Earl Coleman recalls how he developed the cover-to-cover translation journal, boldly negotiating permission from the Soviets during the Cold War in *Publishing Research Quarterly* 10,4 (1994/95), 22–29. During the 1970s, libraries attacked the two-tier pricing of association publishers, calling members' discounts discriminatory. Having exhausted this approach unsuccessfully, they rehabilitated association publishers and adopted the price-per-kilocharacter complaint championed by Barschall. It is one of several paradoxes of the treatment of prices within the library crisis that I describe in *CBE Views* 18,2 (1995), 31–35.
29. Princeton's announcement is reprinted in *Newsletter on Serials Prices Issues* NS14 (December 3, 1991). This electronic publication started February 27, 1989, shortly before the release of the ARL report (see note 25). Its first issue cited Barschall's *Physics Today* article among other comments on the library crisis. It provides a medium of exchange for librarians, publishers, agencies, and others interested in the claim that publishers' prices were to blame for the library crisis and related topics.
 30. Barschall's article is cited and he is listed as a task force member in *Report of the AAU Task Forces on Acquisition and Distribution of Foreign Language and Area Studies Materials, A National Strategy for Managing Scientific and Technological Information, Intellectual Property Rights in an Electronic Environment* (Washington, D.C.: Association of Research Libraries, May 1994).
 31. Price analysis by Conyers Herring is included in the National Academy of Sciences Committee on Scientific and Technical Communications *Report of the Task Group on the Economics of Primary Publication* (Washington, D.C.: National Academy, 1970), Appendix. A more recent analysis of the range of prices-per-kilocharacter by Carol Tenopir and Donald W. King suggests that higher ratios are reasonable and appropriate for niche journals with a highly focused readership and unrelated to "value," in *Journal of Scholarly Publishing* 28 (1997), 164–165.
 32. Donald W. King, et al., in *Scientific Journals in the United States. Their Production, Use, and Economics*. estimate relative costs of authors, publishers, libraries, and users of the journal system, based on studies conducted in the 1970s (Stroudsburg, PA: Hutchinson Ross Publishing Company, 1981), 221. ARL statistics indicate 116 percent increase in interlibrary borrowing over the last decade to compensate for inadequate collections. Serials purchased decreased 7 percent and monographs purchased decreased 21 percent (see note 11). No figures are available to indicate the use of other substitutions including travel, commercial and informal document delivery. A shift to greater reliance on secondary sources such as review articles is suggested by a comment 20 years ago by William D. Garvey, that reviews appear to be undercited because scientists prefer to cite primary sources, in *Communication: The Essence of Science* (Oxford: Pergamon, 1979), 113. Today it is well established that review articles are more frequently cited than primary reports, noted, for instance, by E. Garfield (*Current Contents*. June 20, 1994).
 33. In contrast to the apparent policy of restricting library resources and research, more library research and resources have been most often recommended as the solution to improve the productivity of science: Royal Society [of London]. Scientific Information Conference. *Recommendations*. Section 9: More review articles, digests, monographs, summaries, bibliographies, updates and evaluations of research were deemed necessary for scientists to keep up with the growth of research. Section 10 called for additional library facilities (London: Royal Society, 1948). Samuel A. Goudsmit recommends automatic retrieval with critical review articles and critical data compilations. He notes that getting good reviews is a problem in *Physics Today* 19,9 (September, 1966), 52–55. The first recommendation of the 1963 report on the transfer of information by the President's Science Advisory Committee demanded, "The technical committee must recognize that handling of technical information is a worthy and integral part of science. We shall cope with the information explosion, in the long run, only if some scientists and engineers are prepared to commit themselves deeply to the job of sifting, reviewing, and synthesizing information; i.e., to handling information with sophistication and meaning, not merely mechanically. Such scientists must create new science, not just shuffle documents: their activities of reviewing, writing books, criticizing, and synthesizing are as much a part of science as is traditional research. We urge the technical community to accord such individuals the esteem that matches the importance of their jobs and to reward them well for their efforts." *Science, Government, and Information*, p. 2. Conyers Herring found roughly half of articles in a review of a narrow topic reported erroneous or trivial research. He suggested that preparation would be improved by more review articles, in *Physics Today* 21,9 (September, 1968), 27–33. In a later survey of articles published in the core journals of six disciplines, S.D. Gottfredson, et al. were unable to find experts who had read 112 of 428 articles studied. Of the 316 evaluated, only about 35 were seen as making a real contribution in *Communication: The Essence of Science*, by William D. Garvey (Oxford: Pergamon Press, 1979), 231–255. Other findings supporting this recommendation include National Academy of Sciences. Committee on Scientific and Technical Communications. *Scientific and Technical Communication. A Pressing National Problem and Recommendations for Its Solution* (Washington, D.C.: National Academy of Sciences, 1969). Edward J. Huth, *Bulletin of the New York Academy of Medicine*, 65(1989), 647–661. Walter O. Spitzer, et al., *Scientific Monograph of the Quebec Task Force on Whiplash-associated Disorders: Redefining "Whiplash" and its Management*. Only sixty-two studies out of 294 were accepted as relevant and scientifically meritorious, in a supplement to *Spine* 20, 8S (April 15, 1995), 1S–73S.

34. Leon M. Lederman. *Science: The End of the Frontier?* provides details of a survey of scientists' complaints (Supplement to *Science*, January 1991).
35. The National Enquiry into Scholarly Communication was organized by directors of university presses. It reported on the early stages of the library crisis in *Scholarly Communication* (Baltimore: Johns Hopkins University Press, 1979). The effort was inconsequential because it disregarded university budgets and their discouraging effect on publishers' investment (see note 7). Donald W. King, et al., estimated that the average number of copies of scientific and technical books sold dropped from 2,394 to 789 between 1960 and 1974 indicating a very bad economic outlook for book publishing. The number of scholarly science and technology book titles published in the United States increased from 3,379 to 14,442; the number of scientists and engineers rose from 1.2 million to 2 million. While the total number of libraries increased, growth of library expenditures (in current dollars) for science and technology appeared to be slowing. *Statistical Indicators of Scientific and Technical Communication 1960-1980*. Vol 1 (Washington, D.C.: National Science Foundation, 1976), Appendix. In *Scholarly Publishing*, Lisa Freeman notes that the typical peer-reviewed social science monograph sold at least 1,500 copies in 1980; now closer to 400 or 500 (Cambridge, MA: MIT Press, 1996), 148. E.H. Berman describes the anger of learned authors regarding university presses' demands for subsidies, unaffordable book prices, tenure committees' interest in publications, and shrinking markets in *Scholarly Publishing* 16,4 (1985), 307-312. See also Sanford G. Thatcher, *Chronicle of Higher Education* 41 (March 3, 1995), B1-2. Robert F. Kidd, *Contemporary Psychology* 40, 5 (May 1995), 490-491; and *Publishers Weekly* coverage of the annual meetings of the American Association of University Presses (e.g., 224,22 (June 2, 1997), 42-44).
36. *OPA Amsterdam BV, Harwood Academic Publishers GmbH, and Gordon & Breach Science Publishers, SA, vs. American Institute of Physics*. In an earlier case involving anticompetitive advisories, *American Society of Mechanical Engineers v. Hydrolevel Corp.*, the U.S. Supreme Court held the association liable for the acts of its volunteer members and noted the apparent authority enjoyed by such associations: "when it cloaks its . . . officials with the authority of its reputation, it permits those agents to affect the destinies of businesses and thus gives them the power . . . to frustrate competition in the marketplace" (456U.S.556. 1982).
37. *Gordon & Breach Science Publishers vs. American Physical Society and American Institute of Physics*, 1991. Tribunal de Grande Instance, Paris, France.
38. *OPA Amsterdam BV, Harwood Academic Publishers GmbH, and Gordon & Breach Science Publishers, SA, vs. American Institute of Physics*, 26. The defendants escaped an adverse ruling on commercial use by the skin of their teeth. Guided by astute legal advice, they had destroyed thousands of promotional reprints and a letter dated September 1988, before they were mailed, thereby eliminating the major commercial use that would have deserved enjoining. The court skipped over references in other mailings and slide presentations of the glaringly biased and arithmetically faulty "Table 2," which claimed to rank publishers according to their average price per kilocharacter. The court also failed to absorb that the plaintiff's arguments about cost differences aimed to discredit Barschall's rationale for excluding AIP's translation journals—but not foreign or commercial titles—from his ranking. This trick brought AIP up from a mid-range 5 cents per kilocharacter to 1.9 cents and a rank of fifth rather than eleventh. The familiar Periodicals Prices Index follows a pattern of separating translation journals, but it also excludes foreign journals entirely (*Library Journal*, April 15, recent years). In his article, "Calculators and Crystal Balls: Predicting Journal Subscription Prices," Ronald E. Akie explains that general pricing variables include country of publication, general inflation impact, and specific publishing factors such as page increase, paper increase, postage increase and market shifts that affect circulation *Publishing Research Quarterly* 12, 2 (1996), 9-17. The court also failed to recognize that Table 2 misrepresented impact factor data presented in the *Bulletin of the APS*, displaying an average that was not available for the plaintiff's eleven journals. Data for ten other publishers were similarly handled.
39. American Institute of Physics, *Physics Today* (July 1986), 51-58. Also noted by Barschall, *op. cit.*
40. Barschall was a member of AIP's Board of Governors, which is responsible for managing its business, in 1986, 1987, and early 1988. Although his name appears with the listing of BG members in the front of each copy of *Physics Today* during this period, he failed to disclose it with his article and an earlier survey *Physics Today* 39, 12 (December 1986), 34-36.