



## Editorial: Innovations for a Scholarly Communications System

**A**cademic librarians practice in an increasingly turbulent information environment. Writing in the *NACUBO Journal*, Brian Hawkins recently laid out an alarming scenario for the future of academic libraries as collectors of the world's cumulative published knowledge. While most academic librarians had thought of information as doubling at an alarming rate of every 10 years, Hawkins asserts that the body of information now doubles every two to three years. His data indicate that while information production is increasing exponentially, library budgets have not and will not be able to keep up with the rising costs. His analysis shows that the aggregate of all academic libraries now collects about six percent of total available knowledge and that within 20 years that figure will drop to one half of one percent.<sup>1</sup> The implications of that drop for librarian's roles as selectors will be the focus of a future editorial.

This editorial addresses innovative alternatives for the scholarly communications system as a whole. Librarians are discussed as producers of their discipline literature. The *Journal of Academic Librarianship* serves as an example of how these alternatives might evolve in the literature of library and information science.

### NEW ALTERNATIVES FOR SCHOLARLY COMMUNICATIONS

In March the California Institute of Technology under the leadership of Steven E. Koonin, Vice President and Provost; Richard C. Flagan, Professor, Chemical Engineering; and Anne M. Buck, University Librarian, hosted a "Conference on Scholarly Communication." Provosts, faculty, scholar society leaders, information technologists, and librarians met there to discuss the magnitude of the information explosion, the electronic alternatives, and the possible solutions. Conferees agreed on these three ideas for further discussion in the scholarly community:<sup>2</sup>

- Certification of the value of scholarly work should be decoupled from paper publication. Some work should be

sent to scholarly societies, refereed, and then mounted on the Web instead of being printed.

- Submission fees might be developed as an alternative to increasing journal prices. Such fees might be paid by granting agencies or institutions.
- University libraries should take responsibility for archiving electronic publications. Each publication must have multiple archives to avoid the outcome of the Alexandria Library fire.

Since March, I have been discussing these ideas at academic gatherings with a variety of constituents in several different universities. One or two faculty have scoffed at them, assuring me that the scholarly communications system works optimally, needs no reform, and even if it needed reform, could not be reformed. This response underlines the third-party payer nature of the current arrangement in which the discipline scholars produce and consume scholarly information while the library pays, in the same way that individuals consume health care while insurance companies pay. Faculty, who do not pay for the journals, are not easily motivated to economize. Other faculty, administrators, computer experts, and librarians believe these ideas should be pursued.

### APPLICATIONS TO THE DISCIPLINE OF LIBRARIANSHIP

Most academic librarians design their serials cuts to reduce the cost of journals equally across all disciplines. A recent regular feature article in *American Libraries* outlined the current differences in serials prices by discipline. At the low end are General-interest periodicals at an average price of \$40.72, Library and Information Science journals at \$78.00, and Literature and Language at \$46.72. Predictably, the high part of the spectrum is held by Chemistry and Physics at \$957.36 and Medicine at \$461.60. This regular *American Libraries'* article reports figures for 1977 to 1997.

In 1977, General-interest journals were \$16.19, Library and Information Science journals cost \$16.97, Literature and Language \$11.82 while Chemistry and Physics journals were

\$93.76 and Medicine journals were \$51.31. Percentage increases at the low end were 152% for General-interest journals and 360% for Library and Information Science journals and at the high end 921% for Chemistry and Physics.<sup>3</sup> The number of Library and Information Science journals doubled from 879 in 1977 to 1,924 in 1996 while Chemistry and Physics grew from 1,374 to 2,612.<sup>4</sup> Between 1980 and 1995, the Consumer Price Index increased 85%.

The *Journal of Academic Librarianship* (JAL) was a part of the expansion outlined above. Founded in 1975, JAL sold for \$14.00 to individuals and \$25.00 to institutions. JAL, at present, receives about 100 manuscripts a year, publishing only about 30-35% of submissions. Studies of the relative merit of journals in academic librarianship rank it near the top.<sup>5</sup> In the last two decades, the field of librarianship was expanding enough to support a high-quality entrant into the marketplace. However, with the decrease in the number of library schools, the unemployment among library school graduates, and the general downsizing of many academic institutions and their libraries, a doubling of the library literature every two to three years seems an unlikely scenario. Yet, a doubling of the information science component seems highly likely.

#### CERTIFICATION WITH ELECTRONIC PUBLICATION

Costs and the number of library and information science journals did rise and thought should be given to alternatives for this field and for others. Caltech conference attendees thought that refereeing was the most important element of the scholarly communications system. The first solution, providing a discipline imprimatur for articles that were then mounted on the Web, provides for the full value of refereeing and the subsequent content editing to occur. This solution would allow for economical expansion in any field and for much quicker dissemination, which authors are eager for. Some finer points of copy editing might be lost. While this process is valuable, 90% of the value added through the editorial process accrues to the content editing side with only 10% for the copy editing.

This certified electronic publishing solution will require significant technological safeguards so that authors can be assured that their text will be safe from hackers. Electronic publication also requires a systematic plan for archiving discussed below. For these reasons, the JAL editors are not currently planning an electronic alternative.

#### GRANT AND DEPARTMENTAL FUNDING

While this second idea makes good sense for the high cost of the sciences, it would be difficult to implement in librarianship. Martin Blume, Editor-in-Chief for The American Physical Society (APS), indicated that average submission fees of around \$250 a print page or around \$2,000 to \$2,500 an article would cover the costs of APS publications.<sup>6</sup> Because most articles are produced with grant funding, the submission fee could be covered from grants. A second source for such funds would be the employing departments. Physics departments, rather than the libraries, would support the scholarly journals. The university would continue to have the cost, but the third-party payer feature would disappear. Physics departments would clearly prefer submission to APS for around \$2,500 to submission to the commercial competitors at around four times the cost. Disciplines would want to have a means to subsidize worthy authors who had no institutional support for their work.

#### ACADEMIC LIBRARIES AS ELECTRONIC ARCHIVES

The academic community, as represented at the Caltech Conference on Scholarly Communication, believes that only academic libraries can be trusted to provide a suitable archive for an electronic scholarly communications alternative. Commercial publishers have already demonstrated their indifference to archival issues. Even scholarly societies which view the production and publication of discipline knowledge as a preeminent responsibility do not seem well equipped to handle electronic archiving. The reputation of libraries as repositories of the knowledge of the ages and librarians as the keepers of that record is high among academic colleagues. They believe that we can, should, and will meet the challenges to provide continuing access to electronic scholarly information.

This responsibility is nontrivial. The rapid change of computer platforms and software packages may require annual refreshing of electronic archives. Storage, retrieval, and dozens of other issues must be addressed and readdressed as the technologies change. That Götterdämmerung fire that destroyed accumulated knowledge of the ancient world in Alexandria still burns in the minds of scholars who will want a wildly redundant approach to electronic archives. Electronic versions of journals will need to be archived in several academic libraries around the world in order to reduce the risks of catastrophe. Both scholarly societies and commercial publishers, should enter into partnerships with appropriate academic libraries to establish archiving relationships.

#### CONCLUSIONS

While librarians as the creators of their discipline literature are less economically motivated to change than some other more rapidly expanding and expensive disciplines, nevertheless librarians should provide leadership both in their discipline and in the academic community for scholarly communications system reform. These ideas, which will be discussed in committees of the Association of American Universities (AAU) and the National Association of State Universities and Land-Grant Colleges (NASULGC), offer an opportunity for academic librarians to demonstrate their understanding of the issues in the system and of possible alternatives to the status quo. Academic librarians' commitment to provide information for the scholarly community in such a turbulent environment requires us to conceptualize, plan, and implement a more innovative future.—Gst.C.

#### NOTES AND REFERENCES

1. Brian L. Hawkins, "The Unsustainability of Traditional Libraries," *Executive Strategies* (A joint publication of the National Association of College and University Business Officers and the Stanford Forum for Higher Education Futures) 2 (3) (1996):15 pps.
2. Conclusions reached during panel discussions, work groups, and the general wrap-up sessions by participants at the Conference on Scholarly Communication co-sponsored by Caltech and the Engineering Information Foundation, held at the California Institute of Technology, Pasadena, California, March 25-27, 1997.
3. Adrian W. Alexander & Brenda Dingley, "U.S. Periodical Price Index for 1997," *American Libraries* 28 (5)(May 1997):71-79.
4. *Ulrich's International Periodicals Directory*, 17th and 35th eds.(New York: Bowker, 1977-1978 and 1997). Cindy Faries, Diane Zabel, Kim Fisher, and Lynne Stuart calculated these approximate figures.
5. David F. Kohl & Charles H. Davis, "Ratings of Journals by ARL Library Directors and Deans of Library and Information Science Schools," *College & Research Libraries* 46 (January 1985):40-47;

Mary T. Kim, "Ranking of Journals in Library and Information Science: A Comparison of Perceptual and Citation-based Measures," *College & Research Libraries* 52 (January 1991):24-37.

6. Martin Blume, conversation during the Conference on Scholarly Communication co-sponsored by Caltech and the Engineering Information Foundation, held at the California Institute of Technology, Pasadena, California, March 25-27, 1997.