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Editorial: Changing Perspectives

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I n April, I began work as the University Librarian at Carnegie Mellon University in Pittsburgh, Pennsylvania. While my duties as the editor of the *Journal of Academic Librarianship (JAL)* remain the same, this new environment is already changing my perspective on librarianship and its future. My sensibilities are being modified in these areas: size, scope, and focus; digital library approaches; instructional responsibilities; and partnerships. Readers and contributors to *JAL* are aware that most of the decisions about content are made by the *Journal*'s referees. But, at the margin, Peter Hernon and I push in certain directions. This editorial suggests where some subtle changes in those emphases may begin to occur.

SIZE, SCOPE, AND FOCUS

For some unknown reason, I am attracted to and recruited by institutions that have about a million volumes fewer than they should (Texas A&M University, Oregon State University, Penn State University, and now Carnegie Mellon University). Thinking about how to solve shortfalls in basic resources has been my everyday business. It has made me passionate about library cooperation, devoted to effective access, and focused on the digital library. Like these other institutions, Carnegie Mellon has a technical school background as the Carnegie Institute of Technology that later merged with the Mellon Institute. Unlike the others, Carnegie Mellon is small (7,500 students), private, research-based, and strategically focused. The library of fewer than one million volumes does not qualify for membership in the Association of Research Libraries.

In my first two months here, I have visited almost every academic department on campus to introduce myself and to talk about key library issues, such as digital initiatives, serials prices, consortial relations, and improving access. Faculty have been almost universally supportive of digital progress, enthusiastic about improved access, and distressed about the dysfunction of the scientific and scholarly communications system. Because Carnegie Mellon excels in the arts as well as in science and engineering, faculty are also involved with slides, videos, photographs, recordings and other non-print media. Increasingly faculty want to use non-print media for teaching and research. *JAL* submissions reflect these current faculty concerns: enhancing library cooperation, raising teaching faculty's awareness of their role as scholarly communicators, and exploring issues surrounding the access to and use of non-print media.

DIGITAL LIBRARY APPROACHES

The Future

One of Carnegie Mellon's main attractions is its preeminent Computer Science department, which is often ranked first in national surveys. Advances in computer science have the greatest relevance to the future of libraries. New insights, as discussed at "Inventing the Future: AI [Artificial Intelligence] and CS [Computer Science] in the 21st Century: A Symposium in Honor of Raj Reddy's 60th Birthday," should be part of every library's strategic planning. This event was not just a paean to Reddy's vision and leadership but also a testimonial to the value of research and publication in addressing societal concerns. For instance, visionaries believe that:

- Moore's law, which indicates that memory will double and size will halve every two years, will be valid for more than the next 100 years.[1]

- Increasing storage and computing power mean that many big problems can now be undertaken. Nobel Laureate Herbert Simon advises that we are only limited by our own human imaginations.[2]

- Ease of use must be a prime subject of improvements.[3]

Thus, librarians must continue to search for adequate funds for two- to three-year equipment cycle replacement, to explore machine alternatives for tasks such as basic reference assistance, and to work to develop more intuitive interfaces for information access.

The Universal Information Resource

Carnegie Mellon Dean of Computer Science Raj Reddy envisions a Utopian solution to the persistent librarian and societal concern about information *haves* and *have nots*. He believes

that all information resources, including books, videos, television news, and even objects of art, should be made available to all electronically. The computer memory will be sufficient: a billion books, more than have ever been published, will fit in a petabyte of memory, costing only about $20 million. Films, art work, and so forth will require additional petabytes. Under the directorship of Michael Ian Shamos, this work has made a modest beginning,[4] and the University Libraries are now publicizing the site through the Libraries' homepage and cooperating in its development.

While librarians and computer scientists have different cultural perspectives, the magnitude of such a task dwarfs differences. For instance, librarians would use a shovel approach to select the books to be added to this growing collection, while Reddy and Shamos would bulldoze everything that came their way into it. In 100 years, the result will be the same. Both cultures see the existing copyright laws as a severe impedient to the free flow of scientific and scholarly information. Shamos would argue for a model, like that in the music industry, where information users pay a small, fixed price for use of materials still in copyright. While librarians fear the effects of charging on the free flow of information, alternatives continue to be limited. All of us want to avoid duplication in the building of the Universal Information Resource, in the same way that we did in microfilming efforts. Research and thoughtful reasoning on the ramifications of lifting storage constraints represents a new area of interest.

INSTRUCTIONAL RESPONSIBILITIES

Remote use of online catalogs and databases is increasing rapidly at most colleges and universities. At Carnegie Mellon, already 75 percent of catalog use is remote. Remote access to information necessitates new instructional efforts. Libraries are creating Web sites to help students to distinguish between relevant and irrelevant information. Many librarians are now doing research and submitting fine articles on this topic to *JAL*. The idea of creating intelligent reference assistants has also been the subject of visionary articles. Students, and the rest of the information-seeking population, face overwhelming masses of information and require sophisticated assistance to select among them. Directing attention to the best pieces of information has always been a prime H librarian responsibility, but the old techniques (selection into a local collection and ancillary reviews) must now be augmented by agents to assist remote research. Librarians have the experience and creativity to invent intelligent reference assistants with anytime/anywhere capabilities, and need only research and tenacity to realize the vision.

PARTNERSHIPS

Some of the partnerships needed to achieve the future seem obvious. Librarians must continue to work together to overcome the physical constraints of the paper environment through consortia, interlibrary loan, and onsite access. Partnerships with teaching faculty in all disciplines are essential because each discipline must solve its own scientific and scholarly communications problems. However, scholarly communications problems are now more social and political than they are technical. Librarians, who work across all the disciplines, will be able to identify successful techniques and strategies and transfer them from discipline to discipline. The enduring relationships that librarians have with computer scientists must continue to be strengthened. Our cultures are different, but our visions for the future are often the same. The vision of the Universal Information Resource is a long-term goal, and paper will continue to be the dominant form of scientific and scholarly communications for another 25 years or more. But, as the community of information users demands greater convenience and ease of use, librarians must focus on using new technologies to develop more proactive assistance. As a conduit for extending the results of these partnerships to all readers, *JAL* will also be a partner for the future.

CONCLUSION

In other editorials in *JAL* and in *College & Research Libraries*, I have extolled the virtues of research and sharing knowledge as the keys to future success. At Carnegie Mellon, the power of research to improve daily life worldwide is palpable, and the digital future of libraries seems more immediate and more transforming than ever before. *JAL*'s commitment to research and discussion is paramount. The editors invite contributors and readers to assess the future, to make reasoned models for understanding its impact on core library businesses, and to share insights with the rest of the library community. Librarians have stunning imaginations that can realize a Utopian library future for academics and the world.—GSt.C

NOTES AND REFERENCES

1. Ed Fredkin, "The Long Range Future of Computation: Possibilities and Limitations," in *Inventing the Future: AI and CS in the 21st Century: A Symposium in Honor of Raj Reddy's 60th Birthday*. Session 1: "AI Grand Challenges" (Pittsburgh, PA: Carnegie Mellon University, June 4, 1998).
2. Herbert Simon, "Robotics' Growing Role in Cognitive Science," in *Inventing the Future: AI and CS in the 21st Century*, Session 1, June 4, 1998.
3. Michael Dertouzos, "What Will Be...for Techies," in *Inventing the Future: AI and CS in the 21st Century*, Dinner Presentation, June 4, 1998.
4. See http://www.ul.cs.cmu.edu.