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Paul Royster

University of Nebraska-Lincoln, proyster@unl.edu

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February 21, 2005

The Future of Scholarly Communications*

My topic today is “the future of scholarly communications,” and I am glad that those are the terms in which it was put in the materials I received. I have another presentation to make next week on “current challenges in the humanities,” and I have previously made several on “the crisis in scholarly publishing,” so I am happy today to be focusing on the future, rather than on the challenges or the crisis. I think it is a brighter picture — although it is much harder to describe.

The challenges are much more familiar. We see them — we encounter them — every day. And by rising to meet them, and finding the means and the solutions, laboriously, day by day, over time, we bring about the future. Still, it seems that frequently it is different from the future we had thought we would see, back when we took occasion to think about it, a year or five years or ten years before.

I have seen the future arrive several different times and in a number of different settings. It arrives in the form of new technologies. Initial progress is slow, and accompanied by a certain amount of frustration. But new conveniences emerge, and they eventually change the most basic levels and details of how things get done. Continuity is key. You have to have a good strong sense of what you are trying to get done. If you don't, the

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technology threatens to take over. You cannot direct it towards your own purposes and goals if it is not always clear to you what those are.

Once, more than ten years ago, I managed the conversion of the production department at Yale University Press to completely electronic production processes. This was a department that had for eighty years been sending physical, palpable, material, hard, camera-copy and mechanicals to the printers. Most of the staff had themselves been doing it that way for 15 to 35 years. The terror at the thought of consigning such exact and exquisite work to a disk, diskette, or Zip disk can barely be imagined. Not to see an actual camera original, and ultimately instead to have a second party email a PDF file to a third party, sent shivers up and down spines from one end of the hall to the other. It certainly did mine.

I knew intellectually and theoretically that it would work. And I could see around in the community that other folks were doing it, and it was really a very short gap from what we were doing already. But I was pushing people to do it — because Linotrons, and imagesetters and wax machines and paste-up were going the way of the buggy-whip, and I would also say the high-button shoe, but those may come back into fashion some day, while the buggy-whips and the Linotron imagesetters are consigned to the museums or the dust-heap of history. The high-end Linotron imagesetter was a great advance on the technology that preceded it, which was hot metal type. It produced text much faster, cheaper, and easier. It was more controllable, and persons concerned with preserving the strengths of the hot metal tradition in typography were able to adapt those traditions to the new equipment. A certain select group of master-craftsmen typesetters came to a relative dead end. But the overall quality level of typesetting improved, and designers and craftsmen and craftswomen ultimately gained more access to the means of production. A Linotron imagesetter cost several hundred thousand dollars and required a mainframe computer to run its “front end”

plus hundreds of thousands of dollars in proprietary software and maintenance or service. It was, in short, an investment that relatively few could make; and it was itself only made possible by the advancing development in computers during the 1950s and 1960s and 1970s. Electronic type — “cold type” as it was called — had revolutionized how we thought about producing that one camera-ready original. It had affected typography and typesetting, but not printing.

But now (in the 1990s) the printers were all going digital, or at least electronic. The technology had become widely available at a fraction of the cost. Desktop computers were powerful enough to run several types of software that duplicated almost everything the older mainframes did. The technology was slightly slower — but we’re talking minutes, not days — and not quite as sophisticated. In the hands of experts, it could do wonderful and beautiful things. It also fell into the hands of many who weren’t experts, and for many it did serviceable and efficient and workman-like work, and for some, it allowed free rein to the wildest of impulses. Typesetting was no longer in the hands of the experts only. I used to say that everybody with a Commodore 64 and up was pitching himself to me as “a complete pre-press service operation.” Desktop production has certainly changed publishing — and sometimes for the better. Once again, craftspeople and people who care have been given yet more access to the means of production. An Apple Macintosh and the necessary software can be had for under \$3,000. And you don’t even need a printer or an imagesetter anymore — because of what I was getting to when I started telling this story. You can just put it on a disk or an FTP site or, if you’re feeling lucky, in an email — and that’s that.

I watched as all the “repro” and the things that went with it — all the rubyliths, and the chromalins, and the wax machine, and the art board, and Pantone papers — sat unused until they were (most of them) disposed of in a space reorganization — undertaken to make room for more computers. There was an occasional sigh and bits of nostalgia. We still ran the wax

machine every day because it gave the office a sort of homey, scented feeling. It was aroma-therapy to know it was there and turned on if you needed it (because it took about an hour to warm up the wax). But the important thing to me was that the quality of the work did not change. These were people with a very strong sense of their mission and role in life — or at the office. In fact, what I remember most about this transition was how quickly it became old news and even ceased to be noticed. Actually, there were lots of advantages. You could wait until the last minute, for example, to do a design and then produce a good-looking sample in just a couple of hours.

But most of all, it wasn’t about the technology, it was about what we were using the technology to do — make high-quality, well-designed books, which was what the tradition was all about, and that was the thing we wanted most to conserve. Whether we sent some bulky, awkward, oversize printer’s mechanical or a 3.5” diskette mattered not at all compared to how the thing looked when it came back printed.

I often closed my morale speeches during this time with the observation that we lived and worked at a time when we were privileged to know how to do things both ways — the old way and the new way. The new way has turned out sometimes easier, faster, cheaper, more accessible. The old ways we associate with the people we originally learned from, and what they taught us was not just how to apply the tools that were widely in use in their time, but the principles for using whatever tools are available and an understanding of the objects for which we are working.

I have seen the future arrive over and over again, usually in my lifetime in some form of computer technology — I’ve watched it sweep through accounting, typesetting, text archiving, graphic design, office management, inventory management, customer service — you name it.

Currently, I’d say the areas where the future will change fastest are related to electronic publishing and especially the exponential growth of usage and available materials via the

internet or world wide web. It is a good time to be Google. It is not necessarily a good time to be a traditional ink-and-paper publisher; and yet, there may never have been a better time to become a non-traditional publisher. Certainly, never before have the means of production been as readily, easily, and cheaply accessible.

Please don't misunderstand me — there will always be a place for books; in my heart if nowhere else, although I can't give a figure on how many linear feet of space that is.

But the future of scholarly communications will change more as a result of remote access to information and materials made available online than from any other factor.

For a number of years I advised publishers to go slow in attempts to develop and try electronic publishing. That was pretty easy advice to give, because publishers generally don't have a lot of resources to invest in developing new kinds of products and especially in inventing new distribution arrangements. At the time, I think it was also good advice because of the lack of widely accepted standards for coding, hardware, etc. An electronic book had to be released in five different formats, dividing the fledgling market into miniscule segments. Let the bigger houses with more money to spend blaze the trail and make the mistakes that we all can learn from. The past five years have seen a consolidation of delivery systems and the emergence of some solid audience segments. It is still a rough stretch for publishers because their ink-and-paper-book business has an entirely different business model. There are now very few technical obstacles to delivering content electronically. There do remain, however, significant obstacles of other kinds — including the problem of realizing and collecting revenue, and the issues of copyright and protection. But so long as it's not in copyright and you're willing to give it away for free, there's very little problem.

I'm going to go out on a limb here and make two predictions:

1) In the future, everything will be digital and online.

2) Fortunately, it will not be only digital or online.

To back up prediction # 1, let me advance the following as not so much proofs as "signs and tokens":

- Electronic publishing is the most rapidly growing segment of publishing. Less than 2% of the industry not so long ago, in 2002 it was 7%, and is by now approaching 10%.
- The largest segment of electronic publishing is Journals publishing, and scholarly and scientific journals make up the largest segment of journals publishing. In fact, it is the economic success of these that is being blamed (by some) for the decline in the library market for scholarly monographs. This has been called the "serials crisis," and it has certainly had a chilling effect on both libraries and traditional monograph publishers. But the rapidly increase in prices charged by commercial publishers for electronic subscriptions are not sustainable and cannot continue, but the lure of such a "bonanza" will draw more content into circulation. Programs such as The Create Change Initiative of the ACRL, the ARL, and SPARC will also have a beneficial effect.
- There is already a sustainable general-public market for electronic books. Ebooks.com has 30,000 titles. Ebrary.com 20,000, Questia 50,000 titles and 400,000 articles. Or Books-on-line.com claims 28,000 links to downloadable free books.
- Significant outside resources are being devoted to development of efficient models of electronic publishing. There are a large number of pilot

programs with foundation, federal, or institutional support — such as EPIC — the Electronic Publishing Initiative at Columbia University, the History E-Book Project of the American Council of Learned Societies (and the Mellon Foundation), and gutenbergs.org, an initiative of the AHA and Columbia University Press.

- There is increasing cooperation in the development of consortiums and combinations of publishers, libraries, and organizations — such as BiblioVault at the University of Chicago and Project Muse at Johns Hopkins.
- Materials are being made available online at an exponentially increasing rate. NetLibrary has 2500 titles online. Digitization projects, such as Making of America, which has 8,500 books and 50,000 journal articles from the nineteenth century. Databases, such as Electronic Enlightenment, which offers access to 45,000 letters by 3,800 authors.
- Google is embarked on offering full-text searching of every book in print plus the collections of major libraries. Full content is not available, but the “hit” page and a link to acquiring the materials will be provided.
- Scholarly presses are developing and disseminating increasingly more works online; University of California Press has 1,400 titles; National Academies Press 2,100. BiblioVault has funding to put 5,000 titles online.
- Teaching is increasingly reliant on electronic materials and transmission. The growth in this area is only just beginning. In many ways, higher education has been less served than K–12. Let me say, I hope that Blackboard is not the last word. It is

an important and useful instructional tool, but there is opportunity for improvement, standardization, and wider availability in this field. I think it will inevitably come over the next half-dozen years.

- Scholarly and creative work increasingly uses or develops electronic sources and products. The potential of the technology seems to promise things that are truly revolutionary, such as: integrated text and images without expensive production costs; mega-data (no limits on size); and meta-data (enhanced structure and information about); searchability far beyond traditional indexing; and data or text portability and paste-ability. It also promises hypertext and hyperlinked documents that alter the reading experience in ways print cannot imitate; content that interacts with the user; and delivery systems that bypass the traditional limitations of distribution (immediate, worldwide, and 24/7).

I recently told the board members of the Henry David Thoreau Edition at Northern Illinois University Libraries, that if you don’t envision some enhanced online component as part of your project’s future, then you run the risk of becoming just another set of books on a shelf.

Now, what about the university presses, who have been called “the most careful, impartial, and efficient system of brokering, networking, evaluating, editing, publishing, and distributing serious scholarship”? They are fighting for their very lives, many of them. Collectively, they account for about 10,000 of the 160,000 new books published annually in the United States. Their growth is limited by their business model — they must generate enough (or near-enough) revenue from sales to support operational overhead. A for-profit publisher needs \$200,000 in sales to support each employee. The average scholarly monograph brings in less than \$20,000; and an average UP can publish only two to four books per employee.

Journals publishing has been the salvation of some university presses, and those like Chicago, or Duke, or Toronto, or Johns Hopkins have done well despite the decline of the monograph.

But with the new and available technology, and the expertise to use it, and a mission or purpose for it, there are many opportunities for other types of institutions or organizations to get involved in publishing. Libraries have long been occasional publishers. They have often partnered with scholarly presses because there were areas where publishers had expertise that libraries didn't; but in the world of online and electronic publishing most libraries know more about the technical production than most presses, and the proper distribution model (one that includes both delivery and payment) is something that still eludes most traditional publishers.

Prediction # 2 was: In the future, everything, fortunately, will not be only digital or online.

I mentioned earlier the revolution in printing, and one of its many offshoots is the ability to produce materials for publication in hitherto unthinkable modest quantities — even single copies. Digital printing on-demand creates a 'virtual' inventory that doesn't require a major investment or even a place to store books. For around \$250, a book can be put into print and sold for less than \$50; and for less than \$20 a year, it can be kept 'in print' indefinitely. In my future, that I envision, no book will ever go out of print (except when its content becomes worthless).

This means that e-journals, dissertations, occasional proceedings, and other materials originating electronically can also be presented in a physically archivable and preservable form. New books can be created with the same inexpensive desktop systems that almost all publishers are now using.

What is still required is the cooperation of scholars as referees and editors and the expertise of coders, designers, organizers, and coordinators of the materials.

Eventually, I think, electronic forms of scholarship will become acceptable bases for tenure decisions. But it will be important that some provost who twenty years into the future asks "Why did we grant this person tenure?" will not be faced with "Error message 401 -- URL not found."

So what about the future of scholarly communication? How will we handle the transition to more and more electronic involvement? How will it change what we seek to do?

The answer has to be that it won't change the core of the institutional mission as long as we keep a clear sight of what that mission has always been and continues to be.

But it is imperative that we have a clear sight of our goals and principles:

- the broadest access to research & scholarly writings
- more control by scholars and the academy
- fair, reasonable, and competitive prices
- quality assurance through peer review
- the fair use of copyright materials
- the extension of public domain information
- the preservation of information for long-term future use
- the right to privacy in use of information

Each time we are faced with the daily challenges, we meet as best we can in light of how they move us toward our goals and reflect our basic principles.

The future may bring:

- More seamless integration of library resources with teaching software and instructional materials.
- Improvements to electronic teaching resources: better software, more content.

- Greater facility and familiarity — electronic literacy, if you will — by users, teachers, researchers, and students.
- Greater visibility of materials to search engines; larger universes searched.
- Better informed professoriat, in terms of copyrights and intellectual property. And thus better terms for access and use.
- Greater sophistication or better judgment by users regarding the authority or accuracy of online information. There will emerge sites or classes of sites whose information is reliable.

But it won't happen by accident or without effort and struggle — as Frederick Douglass said, "If there is no struggle there can be no progress." He, of course, was talking about civil rights, not scholarly communications. But I think the sentiment still applies — we must "keep our eyes on the prize" or risk being lost in the electronic maze.

The future is bright, it is open, it is loaded with new opportunities. What are we using the new technology to do? Hopefully, it is to fulfill an accepted and traditional purpose — the dissemination and preservation of knowledge or scholarship, for research and for teaching, and providing access to information for the UNL community and the world beyond.

The emerging tools for information management are far more powerful than those of the past. We need to approach them with an understanding of the objects we are working for and to recognize the continuity of traditional measures of quality and success.

The card catalogue may eventually go into the historical museum next to the buggy whip and the Linotron machine; the informed librarian, the productive scholar, and the inquiring student will never go out of fashion.

Thank you.