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LIGHTNING IN A BOTTLE: LIBRARIES, TECHNOLOGY AND THE CHANGING SYSTEM OF SCHOLARLY COMMUNICATIONS

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As a librarian for many years who is also an attorney and who now works primarily on copyright and publication issues, I am usually asked to talk about very specific issues around academic use of copyrighted materials. Today, however, I get to step back and look at the big picture. I have been asked to forecast the future a little bit and suggest how the rapid changes taking place in scholarly communications might affect the place of academic libraries and their roles on campus.

There are two perennial problems with all attempts to forecast the future. First, one will almost always be wrong; the future is endlessly elusive and seems to steadfastly refuse to follow predicted paths. Second, and probably because of their poor success rate, predictions sometimes tend toward being mere bromides and clichés. I hope to avoid this second danger and offer a few suggestions that will surprise readers. As for the first risk, all I can do is preface my remarks with an overarching conditional. Consider each proposal that follows, if you will, to begin with the phrase "What if ..."

To guess where we might be going, it is useful to look at where we have been. The concern in academic libraries over "scholarly communications" really started over the "journal pricing crisis." The rapid increase in journal prices and the subsequent need to cut subscriptions and reduce monograph budgets has been going on for over 20 years and shows no sign of abating. It is perfectly legitimate to ask how long a crisis can last, but we need to recognize this reality as a permanent part of our consideration of scholarly communications.²

Other forces have also shaped our perception of scholarly communications. Copyright law has become more intrusive throughout higher education, and more contested. There is no aspect of scholarly communications that does not involve issues of copyright and intellectual property licensing. It is certainly true that the dramatic shift to automatic copyright protection in 1992 was ironically timed, given the immediate explosion of digital technologies that facilitate sharing. Nevertheless, it is not really that the law has changed so much, although the Digital Millennium Copyright Act certainly has cast a dark shadow over some activities we have long believed to be legal. The real agent of change, of course, has been the rapid advances in digital technology.

These advances have created great uncertainty in regard to copyright and user's rights because the law has not kept pace with the digital revolution and, indeed, could hardly be expected to do so. At best, Congress has tried to patch the copyright law with small solutions for perceived digital problems, and many of those patches have done more harm than good. The traditional copyright exceptions, divided up as they are to correspond to the individual exclusive rights granted by law, are often unworkable in a digital world where every use always and also involves making a copy. This is part of the reason for the lawsuit that is going forward over electronic reserves, brought against Georgia State University by three academic publishers. When university presses sue university libraries for copyright infringement, we have reached a difficult juncture indeed.

² I use as a broad working definition of scholarly communications "the complex system of educational, economic and legal relationships that supports higher education."

But digital technology has had a much greater impact on scholarly communications than the pressures it creates vis-à-vis copyright. The real revolution has been in possibilities that have opened up for rapid and unmediated dissemination of scholarship.

Because of digital technology and the Internet, there has been an explosion of new channels for communicating both the results of scholarship and the processes that underlie it. Many of these channels, like e-mail, blogs and Twitter, are much less formal than the older methods of scholarly communication. They encourage "trial balloons" and informal critiques prior to (and sometimes in place of) traditional peer-review and publication. In some disciplines, blogs have become a major vehicle for scholarly dialogue. In law, Balkinization³ and the Volokh Conspiracy⁴ are just two well-known examples that represent hundreds of highly influential conversations. The blog "Savage Minds" is beginning, as I write, to have a similarly significant impact in anthropology.⁵

Open access opportunities and, increasingly, mandates, are also changing the landscape. Disciplinary archives like ArXiv⁶, PubMed Central⁷ and SSRN (the Social Science Research Network)⁸ are speeding up the rate at which formal publications can be disseminated. There is also a proliferation of smaller open access efforts, ranging from many, many institutional repositories to an uncountable number of academics who use personal or departmental websites to share their writings, sometimes in defiance of publication agreements they have signed. This digital sharing has led to a realization on the part of many scholars that the current time lag between the completion of a scholarly article and its formal publication is no longer acceptable. Especially for time-sensitive scientific research, formal publication, whether in print or online, functions primarily to create a permanent record (and a line on the author's CV), while the actual dialogue that advances research to the next stage has already taken place through quicker and more informal channels.

In a world where changes are coming so quickly, managing the scholarly communications process is indeed like trying to capture lightning in a bottle. Libraries are understandably uncertain about what their role is in this quicksilver environment. I want to suggest a number of places where academic libraries might become involved more deeply in the *process* of research and the creation of scholarly work rather than seeing themselves, as they have in the past, primarily as a collector of the outputs of research in order to offer inputs to the next scholar.

Indeed, the importance of those traditional inputs and outputs, the printed artifacts that libraries traditionally collect (and their electronic avatars), is beginning to wane. Commercially mediated scholarship has a smaller role in academia than at any time in the past 300 years. Working scholars increasingly see publication only as a hoop to jump through in order to get tenure, not as the life-blood of their work. That life-blood now flows through fiber-optic cable; it tends to be open, informal and self-generated. For libraries to continue to have a role in this new environment, it is indeed the process of scholarship to which they must attend. I will suggest four areas where library roles must change, by moving closer to the research process, if we are not to risk irrelevance – collections & budgets, services, the expertise we offer and advocacy.

³ <http://balkin.blogspot.com/>

⁴ <http://volokh.com/>

⁵ <http://savageminds.org/>

⁶ <http://arxiv.org/>

⁷ <http://www.ncbi.nlm.nih.gov/pmc/>

⁸ <http://www.ssrn.com/>

I. Collections and budgets

The major change we face in regard to collections and budgets is the move toward being "hyperlocal." This means shifting our collection focus away from prospective collection and commercial products. As the importance of commercially-distributed artifacts of past research diminishes, libraries need to focus more on locally produced digital content – hence "hyperlocal."

I recently heard of a conversation between a librarian and a working researcher who reportedly told the librarian that he did not care if the library ever purchased access to another online database of journal articles. For this researcher, the only reason he continued to publish in commercial journals was to gain another line in his CV. His real research happened through informal digital channels of communication, and what he really wanted from his library was assistance in curating, sharing and preserving the data on which his research is based.⁹

II. Library services

This comment points us toward the central issue, which is how the library can provide services that focus on the research process. One place where libraries can make a positive impact is precisely this issue of data preservation and data access. Many researchers are under various kinds of mandates, from both funders and their own universities, to preserve research data and to make that data available so that the replicability of results can be defended. These researchers urgently need much of the expertise that has been developed in libraries around technology infrastructure and metadata. Libraries should begin offering consultation services around research data to help describe and preserve that data even in those cases where the library itself does not have infrastructure in place to store the material.

III. Expertise

Content expertise is also a library resource that can be refocused on hyperlocal resources. As more digital resources are created locally and moved directly to open access on the Internet, for example, a new system for evaluating the quality of those resources will have to evolve. For many years, universities have "outsourced" assessment of faculty to publishers, and have accepted the name of a press or a journal as a surrogate for a real evaluation of quality. Such assessment will have to return to campus as the focus shifts toward hyperlocal resources, and librarians with subject expertise are well placed to manage these new processes.

Other expertise, like technological prowess and project management skills, translates to local born-digital assets more directly. The development of these resources will make the creation of metadata, which is really just a species of what librarians for years have called bibliographic description, a sought-after skill on campuses.

A word about legal expertise is in order at this point. I have already observed that every aspect of the changing scholarly communications landscape involves legal issues. While it is unlikely that every academic library would be able, or willing, to hire its own lawyer, we cannot ignore the need to develop legal expertise or build close relationships with campus Offices of Counsel. Librarians have long been seen as copyright experts on campuses, whether for good reason or

⁹ This story was told by Sayeed Choudhury from Johns Hopkins University during a presentation at Duke University on August 20, 2009.

not, and it is increasingly important to embrace that perception as much as possible. Academics, after all, are like most other people in being fond of librarians and not so willing to spend time talking with lawyers. Libraries should be a place where professors can find reliable information about copyright.¹⁰

One type of legal expertise that already exists on the staffs of most academic librarians is experience in intellectual property licensing. In the digital environment, licensing is overtaking copyright as the principle way in which access and use is being governed. Licenses already have a growing role in controlling even the most basic educational activities, such as assigning student reading, as more and more pedagogy becomes digital. Licenses also can both restrict access, as the licenses that govern commercial databases are designed to do, and facilitate it, as the Creative Commons licensing schema does so effectively.¹¹ Advice about licensing is another commodity whose value will grow over the next few years. And this expertise is already found in libraries, where acquisitions librarians have negotiated complex licenses for database and journal access for quite a few years. These skills will translate nicely to helping faculty understand and negotiate the terms under which they access the works of others and make their own work available.

IV. Advocacy

Finally, a skill that will need to be more sharply developed at many campus libraries is advocacy. Again, this is not wholly new for librarians; they have fought for adequate funding and to protect user rights for many years. Now new challenges, both on campus and from without, face the academic library. The need to argue persuasively for better copyright legislation, usually through national library associations, is only part of this responsibility. Advocacy for open access is a need that arises both for local faculties and on a national level, where funding agencies need to be pushed to require public access for taxpayer-funded research. Finally, librarians need to work together to move commercial vendors toward licensing terms that are realistic for the current environment and that will facilitate scholarship rather than inhibit it.

When trying to plan in unpredictable times (and here I return to those bromides I warned you about), it is important first to listen carefully to the needs of those we serve. We should try to respond to local concerns and perceive local needs that can shape the transformation of our library services. And we should not be afraid to fail. Pilot projects that test big ideas on small budgets are a great place to start, so that what fails can be abandoned while what works can be expanded. Educator John Holt offers a definition of intelligence that speaks very strongly to the situation in which academic librarians find themselves today when he writes that ~~Intelligence~~ intelligence is not a measure of how much we know how to do, but of how we behave when we don't know what to do."¹²

¹⁰ This is not to say that libraries should dispense legal advice. But it is very important that librarians be able to help academics find accurate and up-to-date information about copyright law. This line has been successfully navigated for years by Law Librarians, but the need is becoming much broader. Librarians will also need to rely more heavily on relationships with campus lawyers and work with those lawyers to adjust the exact parameters within which librarians should function.

¹¹ <http://creativecommons.org/>.

¹² John Holt, *Teach Your Own: the John Holt Book of Homeschooling* (Cambridge, MA: De Capo Press, 2003), 232.

In a compelling video that was apparently shown to executives of the SONY Corporation at a recent meeting,¹³ two remarkable statements are presented. First, the point is made that because the jobs that have to be done in our economy are shifting so rapidly, we (universities) are currently preparing students for jobs that do not yet exist, using technologies that haven't been invented to solve problems we don't even know are problems yet. And, even more relevant for higher education, the video goes on to remind us that, for four-year students studying technical subjects, half of what they learn in their first years will be outdated by their third year. In a situation as unstable and uncertain as this, there really is no choice but to shift our focus from products to processes; this is the direction that higher education must move, and libraries need to be on board lest they get left behind.

¹³ The video is available on YouTube (as of January 15, 2010) at <http://www.youtube.com/watch?v=cL9Wu2kWwSY>