

Small ironies abound at the intersection of copyright law and digital technology when it comes to scholarly publishing. Consider how the digital network that makes it all too easy for millions of people to illegally swap copyrighted music files is, at some level, the same technology that is used by journal publishers to further exploit and enforce their ownership of scholarly literature and by researchers to make their work available through open e-print archives with the permission of journals that otherwise hold and protect the copyright for this work. The same technology is used by the U.S. government to build PubMed, an open access index to the life sciences, which then serves as a pay-per-view marketing device for corporate journal publishers, increasing the value of their copyright over publicly financed research.<sup>1</sup> This public-private overlap in technology, financing, and ownership is raising new possibilities for the digital future of journal literature. Or as the American Association for the Advancement of Science pointedly notes, given how the information age “challenges the traditional balance between public and private rights,” scientists would do well to seek publishing arrangements that “actively foster the public interest in promoting access to and broad use of scientific information” (Frankel 2002).

1. With PubMed, Harold Varmus, as director of the National Institutes of Health, during the late 1990s, had originally proposed “a system that would make results from the world’s life sciences research community freely available on the Internet” (1999). The corporate journal publishers balked at giving away their principal assets, portraying his suggestion as a government threat to free enterprise that would cripple the journal-publishing industry.

The defining legal feature of this digital future is copyright law. In the United States, recent amendments and extensions of the Copyright Act have become a point of concern for a number of legal scholars who see in these changes a worrisome erosion of public rights. These scholars have taken to portraying the current state of copyright as “the enclosure of the intangible commons of the mind,” in James Boyle’s (2003, 37) elegant analogy with the historic enclosure and loss of shared grazing lands or commons.

In response to this contemporary enclosure, Lawrence Lessig and James Boyle have helped to form the Creative Commons. Founded in 2001, the Creative Commons (2005) seeks to establish a new kind of “reasonable copyright” by providing creators with a new set of copyright licenses that fine-tune an author’s right to grant free use for noncommercial purposes or to developing nations, while protecting an author’s right to be identified with the work and to keep the work intact. In 2005, Creative Commons plans to launch a Science Commons that will offer licenses that permit authors to retain preprint, postprint, republication, and related rights (including those affecting technology transfer and data sharing). The Creative Commons licenses provide authors with a way of formalizing their legal right to offer, in effect, open access to their work, and in this chapter I review how copyright law is, ultimately, an ally of this greater openness, particularly in the case of research and scholarship.

The changes to copyright law that are intended to bring intellectual-property rights into the digital era have tended to further delimit the public domain, reducing creative possibilities and ultimately restricting freedom of speech, according to the legal shepherds of the commons, Boyle, Lawrence Lessig, and Yochai Benkler.<sup>2</sup> These three have challenged the recent copyright extensions before the Supreme Court and

2. James Boyle: “The expansion of intellectual property rights has been remarkable—from business method patents, to the Digital Millennium Copyright Act, to trademark antidilution rulings, to the European Database Protection Directive. The old limits to intellectual property rights—the antierosion walls around the public domain—are also under attack” (2003, 38). On the creative loss, see Lessig 2002, and on the threat to the freedom of speech, see Benkler 1999.

are part of organizations that would reassert the rights of the public domain and provide alternative formulations of intellectual-property rights.<sup>3</sup> Justice Louis Brandeis expressed what is at stake for them in a dissenting opinion he delivered in a 1918 Supreme Court case involving the press: “The general rule of law is, that the noblest of human productions—knowledge, truths ascertained, conceptions, and ideas—become, after voluntary communication to others, free as the air to common use.”<sup>4</sup>

No one in this revolt against enclosing the commons of the mind is opposed to the basic principle of copyright, which protects and balances the rights of author and public. The issue is whether changes to the Copyright Act pay sufficient regard to the public interests that the act is intended also to protect. For my part, this interest in balancing the interests of both author and public is what makes copyright a strong and natural ally of open access for research and scholarship. Given the rise of an open access alternative in scholarly publishing, I think that researchers and scholars need to pause, when faced with a form for transferring the copyright for their work to a journal publisher, rather than simply reach for a pen and sign away “all rights to the above-named work of whatsoever kind and nature” (as I have done countless times). Authors now have a new range of options for protecting their rights, not just out of concern for public interests, but out of unmitigated self-interest and vanity, as well.

This tug between public and private interests in university research is not, of course, unique to this digital era. In a 1942 essay on science and democratic social structure, sociologist Robert Merton bravely pointed out how “‘communism,’ in the non-technical and extended sense of common ownership of goods,” was integral to the scientific ethos, along with universalism, disinterestedness, and organized skepticism (1968, 610). With the great increase in federal funding for research after the

3. Examples of such organizations are the Creative Commons <<http://www.creativecommons.org>>, the Center for the Public Domain <<http://publicdomain.org>>, and Public Knowledge <<http://www.publicknowledge.org>>.

4. The case is cited by Benkler (1999, 354): *International News Serv. v. Associated Press*, 248 U.S. 215, 250 (1918) (Brandeis, J., dissenting).

Second World War, for example, universities were soon being called to account for their tendency to “turn the results of publicly funded research over to some private corporation on an exclusive, monopoly basis,” as Horace Gray, at the University of Illinois, put it in response to a Senate committee on the question in 1945, while suggesting that corporate patents on university research amounted “to public taxation for private privilege” (quoted in McSherry 2001, 148). By the end of the 1950s, economist Richard R. Nelson was arguing for the effectiveness of having knowledge “administered as a common pool, with free access to all who can use the knowledge” (1959, 306). Merton was to later remind us that “only by publishing their work can scientists make their *contribution* (as the telling word has it) and only when it thus becomes part of the public domain of science can they truly lay claim to it as theirs” (1979, emphasis in original).<sup>5</sup> Publishing research in a print journal or book was, until not so very long ago, the only way to enter scholarship into the public domain. Today, a two-tiered “public domain of science” has emerged—the one based on fee-restricted access and the other offering open access—with a very small minority of articles existing in both realms, thanks to authors posting their published work in e-print archives. This divide radically affects “the status of scientific knowledge as common property,” to use another of Merton’s expressions from this earlier period (1968, 611).

More recently, legal scholar Melville B. Nimmer (1970) has argued that public interests should be allowed, in special circumstances, to override copyright claims or should at least be used to restrict such claims to the immediate and actual economic damage done by the free flow of the information in question. Benkler (1999) takes a similar line when he argues that in a democracy, freedom of speech should trump copyright restrictions that prevent the public use of certain materials.

The courts have recognized limits in the application of copyright to research. In 1981, the U.S. Fifth Circuit Court ruled, in *Miller v. University Studios*, against the right to copyright research results: “The valuable distinction in copyright law between fact and expression cannot be

5. Merton also held that “an idea is not really yours until you give it away” (quoted in Mahoney 1973, 7).

maintained if research is held to be copyrightable. . . . [T]o hold that research is copyrightable is no more or no less than to hold that the facts discovered as a result of research are entitled to copyright protection” (McSherry 2001, 204).<sup>6</sup> What journals own, then, if not the research, in the sense of the facts discovered or truths uncovered, is the exact expression of the results in an article. This is why copyright does not necessarily bear on charges of plagiarism, which can be about using, without attribution, the facts and truths that someone has discovered (and cannot copyright), as well as someone else’s words. Plagiarism represents more than issues of proprietorship, as it is concerned with a cultural ethos of respect for how the use of others’ work should be credited.<sup>7</sup>

To better understand the role that copyright plays in the journal-publishing programs of the major corporate journal publishers, I contacted five professors who had served as the editor for a journal published by one of the leading corporate journal publishers, Elsevier, Springer, Kluwer, and Wiley. Each of the editors had at some point in the not-too-distant past resigned his or her editorial post with the corporate-published journal in order to work in the nonprofit sector of academic publishing. While my five editors hardly represent an unbiased source of insight into the relationship between editor and publisher, they did set out in clear terms not only what publishers do and do not do as part of the publishing process, but how copyright is being used to distort the relationship among author, editor, and publisher.

In describing why they took on editorial roles for these commercial publishers, the editors spoke of *honor* (“it is hard to refuse a board

6. The content of databases is another area of dispute over intellectual-property rights that is extremely relevant to the research enterprise that the U.S. courts have held is not covered by copyright unless the database meets the originality claim (*Feist v. Rural Telephone*, 499 U.S. 340, 1991).

7. Publishers use copyright in cases of plagiarism when elements of the wording are the same, but non-copyright-infringement tempests over plagiarism also arise when a study fails to sufficiently credit an earlier work that may cover the same ground, use similar methods, or produce similar, if not identical, results; see, for example, Monastersky 2003. Martin Blume (2003), editor-in-chief of the American Physical Society, reports using the concept of copyright violation to prod editors into publishing retractions for plagiarized work they have published.

position with a prestigious journal,” as one put it) and *ignorance* (another credited the Association of Research Libraries with eventually educating him, long after he had taken on the editorial role, on the consequences of increasing corporate control of journal publishing). Editors did receive perks from the publishers, although there was certainly no standard editor reward package. One editor received no more than a free subscription to the journal, while another editor spoke of receiving “a nontrivial amount of \$9,500” in 1991, which was, to his initial surprise, then paid to him annually. The editorial services provided by the publishers also varied. Where one publisher provided proofreading services for the journal and offered to support copyediting costs, the editor actually opted to do both the proofreading and copyediting himself, as he felt his scientific background enabled him to do a better job. Another publisher provided neither copyediting nor proofreading. In one case, the publisher of the journal would, in its former editor’s opinion, “typically introduce typos rather than remove them,” with the result that some authors insisted on submitting their copy camera-ready in LaTeX rather than risk having it typeset. Still, when it came to leaving these well-respected publishers to start an alternative journal in their field, one editor noted “the huge cost of breaking away.” The cost includes having to rebuild subscription lists and having the new journal slowly earn its way into the ISI Web of Science citation index as a ranked journal.

Then there had been the matter of copyright for these editors. The terms of the copyright held by a journal’s publisher are set out in a contract, typically with the editor. These contracts make it apparent how important it is for the publisher to secure copyright control over the journal and its contents. For example, in providing one editor with \$16,000 per year for office expenses—as any payment directly to the editor or the reviewers, the publisher explained to the editor, would taint the process—the publisher made it clear that this was “in consideration for” his services, as well as for the transfer of copyright for all materials in the journal. The transfer of copyright from author and editor to the publisher is not to be misconstrued, these contracts make it clear, as a gift or otherwise considered potentially non-binding or contestable. One publisher’s contract went beyond that to transform the journal’s con-

tents, and the editor's efforts, into "work-made-for-hire," or as the publisher's legal department worded the contract:

The Journal and all material contained therein and the work product of the Editor and the Editor's staff produced hereunder shall constitute a "work-made-for-hire" under the U.S. Copyright Act and all rights comprised therein shall automatically, upon creation, vest in and thereafter be solely owned by the Publisher. To the extent, if any, that the Journal and/or any Contribution or other material contained therein do not qualify as a "work-made-for-hire" or copyright or other proprietary rights thereto might otherwise vest in the Editor, the Editor hereby grants, assigns and transfers all such rights exclusively and in perpetuity to the Publisher, in all languages and formats, in all media of expression now known or later developed, throughout the world.

Even apart from the "in perpetuity" phrase, which mistakenly suggests that copyright has no temporal limits and that the work in question will not eventually enter the public domain, this "work-made-for-hire" clause is a particularly troubling turn of legalese overkill. The first thing this contract does is reverse what would otherwise seem to be the case, namely, that the academic community hires the publishers, in effect, to provide a service necessary for the circulation of knowledge. Instead, this contract positions the editor, and by implication the author, as working for the publisher. The contract situates the publisher as an employer, having received work-made-for-hire by virtue of seeing the manuscript through to publication, and thus gives the publisher the right to sell, or rather rent (as the publisher retains ownership), the work back to the researcher's actual employer, through the serials budget of the university library.

Now, the very fact that a researcher, whether as author or editor, is able to enter into such a contract as a free agent speaks to the public trust invested in academic work, often celebrated by faculty members under the banner of *academic freedom*. The contract voids this element by positioning the author as working for the publisher. A business's employees are typically considered to be engaged in just such "work-for-hire" (think of Microsoft programmers), which ensures that an employer owns the copyright for "a work prepared by an employee within the scope of his or her employment," according to U.S. copyright law. Under that same law, academics have long been entrusted with the

copyright for their research articles. This is known in copyright law as the “teacher’s exception” or “academic exception,” and it has continued to withstand challenges in the courts.<sup>8</sup> This exception recognizes that a scholar’s research is self-directed, owing more to free inquiry in the pursuit of a public good than to the direct financial well-being of the institution employing the researcher. On the other hand, universities now have a recognized claim on patents resulting from faculty work and on distance education course content (in which they invest substantial amounts developing).<sup>9</sup>

Although the courts have upheld an author’s right to control his or her scholarship in the name of academic freedom, faculty members have remained rather indifferent to this right. Or rather, they are all too happy, as a rule, to turn that ownership over to publishers, “in all media of expression now known or later developed, throughout the world,” as the publisher’s contract quoted earlier puts it. The use of new technologies is only adding to the significance of the ownership transfer, with digital rights management, content repurposing, pay-per-view transactions, and licensing agreements increasing research literature’s commercial value. Still, regardless of how a publisher may word its contracts, copyright protection cannot be conveyed to the publisher “in perpetuity,” as even the Copyright Term Extension Act of 1998 limits corporate

8. 17 U.S.C. Section 101. Also, see Frankel 2002 (14) on the “teacher exception,” upheld most recently in *Hays v. Sony Corp. of America*, 847 F.2d 412 (7th Cir. 1988); *Dolmage v. Erskine* [2003] OJ No. 161 (Ontario Superior Court of Justice—Small Claims Court) for a recent Canadian ruling; and more generally, McSherry 2001 (101–143). On a freedom-of-speech interpretation of university assertion of research copyright ownership as placing an undue chill on faculty freedom to explore, discuss, and share ideas, see Meyer 1998 (13–14).

9. American universities were given the right to own patents resulting from federally sponsored research (as long as federal government access is not restricted) by the Bayh-Dole Act of 1980. Patents cover human creations that are novel, useful, and nonobvious, compared to copyright, which protects the exact expression of an idea (McSherry 2001, 170). In 2001, U.S. universities earned \$857 million in patent royalties and filed for 9,454 U.S. patents (Blumenstyk 2003). This “second academic revolution,” as it has been called, is worth comparing to the capitalization of knowledge in scholarly publishing (Etzkowitz, Webster, and Healy 1998).



owners in the United States to a ninety-five-year hold on copyrighted material before it enters the public domain.<sup>10</sup>

Whereas authors routinely transfer copyright ownership to journal publishers, whether corporate or nonprofit, this is not the case, interestingly enough, for books, judging by those sitting on my desk. The authors hold the copyright for some of the books sitting here, whereas the publishers hold it for others. What this suggests is that journal publishers do not necessarily need to hold the copyright of materials they publish, much as they might protest otherwise. The publisher needs only *first-publication rights* from an author to protect the journal's position in the marketplace of ideas by being the first outlet in which the article appears.<sup>11</sup> Copyright and publication rights are not different terms for the same principle. The author's retention of copyright asserts an ownership that includes, in many jurisdictions if not yet the United States, a moral claim over the work, intended to protect its integrity, which in the case of research includes its status both as the author's personal work and as a public good.

The current journal economy seems to be about something more than protecting the author's right to benefit from this creative and intellectual act of publishing original work. As things now stand, copyright is too often used to protect the publisher's right to charge what it will for its journals, placing what can be a prohibitive price on entry into what is otherwise thought of as the public realm or as common property, to use Merton's term. Copyright is being used by some publishers to ensure that the transfer from print to digital publishing does nothing to diminish the profitability of scholarly publishing and, if possible, increases it.

10. When this copyright extension was unsuccessfully challenged recently in the Supreme Court in *Eldred v. Ashcroft* (537 U.S. 01-168, 2003), an editorial in the *New York Times* bemoaned that the "public domain has been a grand experiment, one that should not be allowed to die. The ability to draw freely on the entire creative output of humanity is one of the reasons we live in a time of such fruitful creative ferment" ("Coming of Copyright Perpetuity" 2003).

11. I owe this point to Henry Hardy's (2002) letter to the *Times Literary Supplement*. With the open access e-journal *First Monday*, for example, the author retains copyright, while granting the journal a publication right or license which "allows *First Monday* to publish a manuscript in a given issue," as its Web site puts it.

Thus, the greater access to the research literature afforded by the Internet, when compared to what it took to send around print journals, is being exploited by some to generate new revenue streams through such systems as pay per view that allow readers to purchase access to an article on the spot, instead of having to subscribe to the journal or order an offprint in order to read it.

Publishers have granted two substantial exceptions to their increased marketing and control of materials for which they hold the copyright. One important copyright concession many publishers have made is to offer universities in developing countries open access to their journals (Smart 2003). The other concession, owing much to Harnad's efforts, is found in publisher policies enabling authors to self-archive the work they submit to the publisher's journals in open access e-print archives (available in more than a few university libraries), which makes the work freely available to the world. Among 100 publishers polled in one ongoing survey, authors were permitted to self-archive in 92 percent of the close to 9,000 journals those publishers represent, with 79 percent of the journals allowing postprints or final versions to be posted and 13 percent restricting self-archiving to preprints (EPrints.org 2005; see also Gadd, Oppenheim, and Proberts 2003). In one sense, the self-archiving concession follows on the tradition of publishers sending neat bundles of offprints to authors, who then sent them off with a warm note to colleagues, students, and family or in response to preprinted postcards that arrived from abroad. The difference is that in archiving a work, the author opens and extends access to it on a more democratic and global basis (although by no means making it universally available, in light of the digital divide).

Still, a final contradiction in this transfer of ownership from author to publisher remains to be considered, one that makes it clear how copyright law, at least in spirit, stands as an ally of the open access journal and archive. The relevant clause in the U.S. Constitution (Article II, Section 8, Clause 8) grants Congress the power "to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." This exclusive right to their work is intended, of course, to enable authors and inventors to profit sufficiently that they have an

incentive to continue this creative contribution to society. Yet copyright is also intended to protect the public's interest by allowing the work to enter the public domain, as copyright is only secured "for limited Times."<sup>12</sup>

The key to copyright is the right of authors to *profit* from their work. Yet journal publishers have not made their editors or authors financial partners in the publishing economy they have created (whereas the same publishers pay royalties to the authors of the books they publish). Authors turn their work over to publishers in exchange for having the work reviewed and published. Though they may not have come to recognize it yet, those authors who choose to publish their work in journals that do not offer some form of open access, and do so without also submitting the article to an e-print archive, may be working against their own best interests. I mean *best interests* in three senses: a professional sense (as they wish to contribute to a greater public good), a vanity sense (in the search for recognition), and a financial sense (given the recognition-based academic incentive system in which they work). In failing to take advantage of the journal or archive routes to open access, not only are these authors reducing public access to knowledge, they are undermining the level of career-enhancing recognition that they might otherwise receive for their work.

There's no question that to appear consistently in the leading journals does a career a world of good, whether they be open access journals or not. But when it comes to adding up the number of times one is cited, at the end of the day, self-archiving one's work in a repository or choosing an open access journal in the first place may make a critical difference, or so an increasing number of studies are suggesting, as I noted in chapter 2 by drawing attention to Hitchcock's (2005) regularly updated Web site bibliography devoted to such work.

Even choosing to publish in a journal with what I am calling *delayed open access* can make a difference for an author. *Teachers College*

12. The first U.S. copyright statute in 1790 limited copyright protection to a period of fourteen years, and the period has been repeatedly extended, to the point where the average copyright is now in effect for ninety-five years for corporate holders of copyright such as publishers, a length of time that some argue serves only to diminish creative and inventive cultural possibilities (Lessig 2004).

*Record*, a journal from Teachers College, Columbia University, has been publishing for more than a century, and it now offers delayed open access to its online content, which it provides through its own Web site, while continuing to publish with Blackwell. Whereas Blackwell handles its print and electronic subscription editions, the *Teachers College Record* Web site provides open access to articles six months after their initial publication. Gary Natriello, executive editor of *Teachers College Record*, reports that in 2001, one popular article which the journal tracked was downloaded 100 times from Blackwell's subscription service in its first six months and then, after it was placed on the journal's open access Web site, it was downloaded 4,000 times from that site over the next few months. But that shouldn't be surprising, given that *Teachers College Record*'s free notification service for its open access site goes by e-mail to 65,000 people. As for how often the journal's articles are being cited, *Teachers College Record*'s impact factor doubled between 1998 and 2002, according to the ISI Web of Science. Also speaking to the increased presence of the journal, Natriello reports that submissions to *Teachers College Record* have gone up, since launching the open access site, from 75 submissions a year in 1995 to 600 submissions in 2002, leading to a greater frequency of publication for the journal.<sup>13</sup>

These very preliminary indications—including my earlier reference to the open access *Education Policy Analysis Archives* being visited 2,500 times a day and having over 50,000 hits on its best articles—point to open access papers' being cited and consulted more often than toll-access work. And to have one's work read and cited more often than before, or more often than a colleague's non-open-access papers, is certainly in the best interests of one's career and financial standing. Open access journals and e-print archives also hold the promise of increasing the exposure and circulation of knowledge. In this way, open access is consistent with the

13. *Teachers College Record* gradually increased its frequency of publication from quarterly to monthly between 2000 and 2004, and it has increased subscription costs accordingly, without hurting the number of libraries that subscribe to the print edition (around 1,500); an additional 2,300 libraries receive the digital edition alone through bundling deals with the publisher, Blackwell. On the other hand, personal subscriptions are down to 300 (personal communication, Gary J. Natriello, July 31–August 1, 2003).

copyright principle of protecting the interests of the author, while honoring the rights of the public. Of course, were everyone to publish in open access journals or place his or her work in open access archives, any career and remunerative advantages to doing so would disappear. (Would that the case for open access might be diminished in this manner.)

If open access takes care of the author's interests, what, then, of the other party to copyright law, the public? Open access could be said to increase freedom of speech, in contrast to many uses of copyright law today, which undermine it, according to legal scholar Yochai Benkler (1999).<sup>14</sup> Although the Supreme Court has repeatedly upheld the principle that "the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public," as Justice Hugo Black put it in a 1945 decision, this diversity is being curtailed by corporate concentration in media ownership, or in Benkler's words, "A world dominated by Disney, News Corp., and Time Warner appears to be the expected and rational response to excessive enclosure of the public domain" (377, 359).<sup>15</sup>

The danger is not simply with an economy that favors corporate concentration—in academic publishing no less than with other media—it is in how this concentration reduces the opportunities for (and increases the costs of) initiating new alternative sources of information. In the name of preserving freedom of speech, Benkler proposes that we restore an information commons that supports more open communication: "To secure this freedom, however, we must build a core common infrastructure that will allow commercial and noncommercial, professional and amateur, commodified and noncommodified, mainstream and fringe to interact in an environment that allows all to flourish and is biased in

14. Although appeals to freedom of speech have traditionally been used as a check on government powers, Benkler points out, the issue is now one of corporate concentration in the media creating an "information flow . . . [that] will tend to prevent effective political challenge to the prevailing order," as fewer and fewer companies control "the resources necessary to effective communication" (1999, 380–381).

15. Some years later, U.S. courts took a similar stand in striking down the Communications Decency Act of 1996 on the First Amendment grounds that the Web represents a "vast democratic flora . . . [where] any person with a phone line can become a town crier" (Romano 2002).

favor of none” (2001, 3).<sup>16</sup> Benkler’s vision of an information commons is not all that removed from the “core common infrastructure” that underwrites open access e-print archives and journals, with their shared indexing systems and open source code, designed to improve the scholarly and scientific contribution to this larger commons. That is to say, public access to research provides its own support for freedom of speech. Not only does it enable greater participation in scholarly communication, but it facilitates the informed deliberation on which democracies depend (which I treat in more detail in chapter 8).

The copyright interests of researchers are to have their work reproduced, read, and accurately cited among as wide a readership as possible. The economic interests of faculty are not hurt, for example, as are those of publishers, by the distribution of free copies of their published work. Just the opposite. A 1999 study by Alma P. Swan and Sheridan N. Brown of “what authors want” within the academic community speaks of authors’ overriding interest in finding the widest possible audience through the journals in which they publish, while also keeping an eye on their prestige and inclusion in the major indexes, which are also related to the size of readership.<sup>17</sup>

In a further survey conducted just a few years later, Swan and Brown (2004) were able to poll a sample of 314 authors evenly divided between those who had published in open access journals and those who had not. They found that those who had chosen open access on occasion

16. Benkler proposes both a publicly financed fiber network, drawing on the model of the National Highway Act, and a national software foundation devoted to open source software. It is well worth noting in that regard that open source systems are currently being supported by the National Libraries, National Science Foundation, Association of Research Libraries, Mellon Foundation, Free Software Foundation, and others.

17. One premise of PASA is that “the Internet makes it possible for this [scientific] information to be promptly available not only to every scientist and physician who could use it to further the public good, but to every person with access to the Internet at home, in school, or in a library” (Weitzman 2003). In a 1998 report, the American Academy of Arts and Sciences proposed that authors retain the copyright for federally funded research: “Federal agencies that fund research should recommend (or even require) as a condition of funding that the copyrights of articles or other works describing research that has been supported by those agencies remain with the author” (Bachrach et al. 1998).

expressed “a belief in the principle of free access to research information,” while also thinking open access journals offered a higher readership and a greater number of citations; on the other hand, those who did not publish in open access journals felt that such journals offered reduced readerships and citation.<sup>18</sup> The goals for both sets of authors are the same; the understanding of the best means of achieving them just differs. A similar form of ignorance lag is at work with self-archiving, as the majority of faculty slowly learn about the publishing issues surrounding self-archiving and catch on to what open access really has to offer.

Up to this point, few authors have been taking advantage of publishers’ self-archiving policies, and many e-print archives have little in them. Despite the high number of journals explicitly permitting authors to make their work open access in this way, rough estimates are that no more than 15–20 percent of the journal literature is archived annually (Hitchcock 2005). Swan reports that among those in her faculty survey who had yet to self-archive a paper, close to 80 percent were “not aware of the possibility of providing open access to their work by self-archiving” (2005). The whole thing has led Harnad (2004a) to call on universities to mandate self-archiving by their faculty.<sup>19</sup> The publishers are no longer the roadblock to open access, in Harnad’s book, given the number that permit self-archiving. The problem is the authors. They remain blind to the greater research impact they could achieve by uploading a paper to an archive, which takes all of about six minutes (according to e-print archive Web logs, Harnad reports, at the University of Southampton). As Harnad impatiently puts it, “10 years of evidence have since suggested that although it might not take till the heat death of the universe, that voluntary road of rational self-interest is proving

18. A counterpoint comes from Robert P. Parks, who contends that “although authors desire greater readership, that is not the major goal and in fact may be counterproductive because more readers demand more time from authors to explain their writing” (2001). This was certainly the case with Isaac Newton, as I discuss in chapter 13.

19. Up to this point, a half-dozen or so departments and universities have mandated self-archiving policies for their faculty, according to the Registry of Departments and Institutions Who Have Adopted an OA Self-Archiving Policy maintained by the EPrints.org Web site at <http://www.eprints.org/signup/fulllist.php>.

far too slow. So it was wise of the UK and US [committees considering the issue] to recommend mandating [self-archiving] instead, just as publishing itself is already mandated ('publish or perish')" (2004a).

When there was but one economic model for publishing research in a form that could be sent far and wide, there was little argument against readers' and libraries' bearing reasonable publishing costs that were obviously associated with delivering to them a print edition of the journal. Nor was there any reason, in the era of print, for researchers to be concerned about turning over the ownership of their work to publishers. Yet over the last couple of decades, the journal economy has reached certain limits in the dissemination of research, even as the world of scholarly activity has continued to expand on a global scale. Corporate journal publishers have chosen to concentrate their marketing efforts (and profits) on well-endowed research libraries that have no choice but to continue to subscribe to the journals that the publishers hold and continue to acquire. Although some publishers are making admirable concessions for self-archiving and others are providing open access to older material, there is still a long way to go in establishing a balance of rights and interests between author and public. As long as the greater part of the publishing industry falls short in promoting the best interests of the authors and the public, it fails to honor the spirit of copyright law.