

Warning: Open Access May Be Hazardous to the Health of Your Scientific Society

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For most scientists, the open-access controversy has seemed to come out of the blue. All of a sudden, government policies about free online access to research publications are looming, catching scientific societies by surprise. In fact, the issue has been simmering for years. A time line maintained by Peter Suber, an open-access advocate at Earlham College, shows the first open-access journal appearing in 1990. It is telling that Suber's time line actually begins in the 1960s, with the development of the Internet. Open access, which this technology first made possible, has now attained overnight stardom.

What has really energized open-access proponents, however, is the emergence of commercial journals, many of which command higher subscription prices than those published by nonprofit scientific societies. The Association of Research Libraries, whose members have struggled to cover an ever-growing number of journals with ever-declining budgets, formed the Scholarly Publishing and Academic Resources Coalition "to correct market dysfunctions in the scholarly publishing system." Together with the Public Library of Science, which enjoys a \$9 million grant to publish two monthly online journals, this coalition forms the nucleus of open-access advocacy in the United States. In recent weeks, these organizations have been joined by several patient-advocacy groups in a loose coalition called the Alliance for Taxpayer Access.

On the other side of the barricade are the commercial publishers and their trade group, the Association of American Publishers. This large segment of the scientific publishing world is joined by some high-profile patient advocacy

groups, including the American Cancer Society and the American Diabetes Association, in voicing concern about the specifics of a pending open-access policy that the National Institutes of Health (NIH) released for comment on 3 September 2004.

Caught in the middle, trying to avoid becoming civilian casualties, are the nonprofit scientific societies that have banded together in the group Washington DC Principles for Free Access to Science (DC Principles). Fifty-three societies, including the American Institute of Biological Sciences, have signed on to a statement that embraces the concept of free access, but in a way that does not jeopardize the revenues that allow these societies to publish journals. Most are already experimenting with different models, including open-access archives, immediate or free access to selected articles, and pay-per-view systems.

Just what is open access? Those who espouse the idea that information is the foundation of a free society—as does the Open Society Institute, which spearheads the Budapest Open Access Initiative—say that open access is free, unrestricted online access to all scientific literature. Characterizing information as a public good, the hundreds of signatories to this initiative from around the world seek nothing less than immediate online access to the full content of journals and other scientific publications. A true twist of political expediency appeals to taxpayers to claim what they have paid for. Proponents of open access, tired of waiting for scientific societies and commercial publishers to see things their way or to move as fast as they would like, have persuaded the subcommittee on labor, health, and human services of the House

Appropriations Committee—which funds the NIH—to instruct the NIH to require open access to all literature that reports research funded by the agency.

The taxpayer argument is an easy sell, but the logic doesn't stand up to close examination. Would the argument get the taxpayer a free ride on the space shuttle? Farfetched? What about a free ride on federal toll roads, which are heavily subsidized by taxpayer dollars? Moreover, not all research is funded by the government, and foundation-funded research is of no less value to the public than government-funded research. If an article is reporting research only partly financed with taxpayer dollars, which part of the article would you like to read for free?

The unintended consequences of open access also need to be examined. Understanding that free access may reduce or limit the value of scientific information requires a knowledge of scientific publishing that most members of the public lack. For example, even patient-advocacy groups fail to recognize that dollars spent on the PubMed Central repository, which is central to the NIH model, will be drawn from funds that would otherwise go to research. And true accessibility means more than providing a copy of a highly technical paper. Anyone genuinely concerned about helping the public obtain scientific information might consider spending money on translating technical papers into ordinary language and on providing a road map through the fragmented and often contradictory research findings.

Particulars aside, the term *open access* is a misnomer. Access to scientific literature is open to anyone who can go to a research library. It is open to anyone

able and willing to pay, either for a subscription or for the increasingly common pay-per-view access. Publishers point out that virtually everyone has free access to abstracts online, and that most publishers have a policy of providing copies of articles to individuals on request. And, of course, authors may provide reprints. Open-access archives are proliferating, with delay times ranging from two months (*Proceedings of the National Academy of Sciences*) to four years. “Open access” is actually free-and-easy access. The members of DC Principles and many other scientific societies recognize this as a laudable goal, but they reject the one-size-fits-all mandate that the NIH favors.

At the same time, the claim that open access puts nonprofit scientific societies in dire, immediate jeopardy of folding invites scrutiny. Some of these societies are in better financial condition than others, and some have, or will develop, diverse sources of income. But for the many that rely heavily on memberships and journal subscriptions for revenue, the concern that free access to a significant number of articles published in their journals will cause losses in membership and subscriptions is real. Societies with limited financial resources may not be able to sustain even a small decline in journal-generated revenue. Many will not want to concoct activities just to generate replacement revenue, and this may not even be an option for the many volunteer-run societies that struggle to achieve core activities such as journal publication. Tax law imposes another constraint on such activities. Revenue generated from activities that are not substantially related to the organization's tax-exempt purpose is subject to unrelated business income tax, or UBIT. Furthermore, if unrelated business activities use more of a nonprofit's time and effort than do exempt activities, the nonprofit can lose its tax-exempt status.

If a society folds, its journal folds. Other journals may absorb some of the work that would have been published in a given journal, but contraction of the universe of journals inevitably means

Box 1. Further reading on the open-access issue.

Budapest Open Access Initiative:
www.soros.org/openaccess/

National Institutes of Health (NIH), “Notice: Enhanced Public Access to NIH Research Information” (NOT-OD-04-064):
<http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-04-064.html>

Open Access Overview (Peter Suber's mother lode of information about open access):
www.earlham.edu/~peters/fos/overview.htm

Washington DC Principles for Free Access to Science:
www.dcprinciples.org/

that some papers will not be published. This is not a pleasant prospect for investigators or for the public that might have benefited from the results of the research. Self-publication is not an appealing alternative for authors, and scientists worry that increased self-publication will erode the quality assurance afforded by the journal peer-review system. That, in turn, may lead to a lack of credibility for scientific literature as a whole.

The battle has been joined over the NIH proposal, which originally would have required authors to deposit articles reporting NIH-funded research into PubMed Central within six months of the date of publication. These articles would be available to the public immediately and free of charge. Perhaps in response to the uproar that met this proposal, the NIH seems to have backed down a bit. The official proposal that was released for comment on 3 September sounds more benign than the original. Instead of requiring the deposit of papers, the official proposal states that the NIH intends to *request* that grantees provide electronic copies of all final manuscripts on their acceptance for publication if the research was funded in

whole or in part by the NIH. Six months after publication, the NIH will make the full text of the article available, with unrestricted free access, through PubMed Central.

Some critics of the proposal doubt that this “request” really gives the author an option. If the author refuses to provide an electronic copy, will the NIH simply scan the published paper and make it available through PubMed Central? And what are the consequences of refusing to comply with the request? The proposal states that “submission of the electronic versions of final manuscripts will be monitored as part of the annual grant progress review and close-out process.” Perhaps authors who ignore the request will do so at their own peril.

The reaction of the biomedical societies has been immediate. These societies feel crowded by the NIH proposal, which they argue is poorly thought out. They are joined by their colleagues in the larger scientific community—who receive little NIH funding—partly as a show of solidarity but also because these other societies worry that other funding agencies will follow the NIH lead, whether voluntarily or because they are forced by Congress.

Call it open access, or call it free-and-easy access—it must be reckoned with. As NIH director Elias Zerhouni said in a meeting with publishers and scientific societies, “the status quo is not an option.” Neither is a government-mandated, inflexible model that ignores the concerns of small, nonprofit scientific societies. An important issue with serious consequences requires a more thoughtful, nuanced approach that allows everyone—including authors, publishers, and nonprofits—time to adapt to this radical change in scientific publishing.

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