# In Defense of Caution[1]

By John H. Ewing

In an editorial not long ago in the Proceedings of the National Academy of Sciences, Richard J. Roberts, who won the 1993 Nobel Prize in medicine, issued a call to journals in the life sciences to make their contents available for posting online at no charge after a suitable delay--one month, or perhaps six months, after publication. Specifically, he urged them to deposit the articles they publish in PubMed Central, an online service run by the National Institutes of Health; he is a member of the PubMed Central Advisory Board.

Parallel to PubMed Central, online services exist in other scientific disciplines, including physics, mathematics, and computer science, and scholars in those fields have made similar suggestions. Most recently, the Open Access Initiative, with funding from philanthropist George Soros, suggested doing away with the delay altogether, calling on scholarly publishers to post all articles online without charge, using unspecified alternative models for funding.

In his editorial, Roberts asked why any journal would not do something so obviously good for science. In most areas of science, journals are far more important than books; they serve as the primary way to communicate rapidly advancing research. While he gently encouraged large commercial publishers to join the effort, he condemned scientific societies that have been "seduced by the cash that their journals produce" and urged them "to take a hard look at their priorities and ask whether they support science or Mammon." He ended with a plea to "young scientists to think hard and carefully about this issue."

I am from a scientific society, and I *have* thought hard and carefully about the future of scholarly publishing. I worry that Dr. Roberts and the others who issue similar calls have not--or at least, that they have not thought about all aspects of publishing. They equate with avarice a publisher's desire to make a small profit, to ensure that the journals are self-sustaining. They are contemptuous of publishers who fear losing revenue by making their journals' contents free soon after publication. And they generally scoff at the experience of publishers who have produced journals for many years, instead urging reliance on projects that have operated online for only a few years or months.

Experienced publishers understand one important truth: Scholarly communication costs money, and both technology and finances will determine its future. Dr. Roberts and the others with similar projects seem to believe that understanding the finances of publication is unimportant (or trivial). It's not.

Thus, while I admire the goal of free access to scientific literature, I worry that the clarion call for open access to journals may ultimately lead to exactly the opposite effect. How could making articles freely available go wrong? Here is one possibility.

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[1] This article is a revised version of "*No Free Lunches: We Should Resist the Push to Rush Research Online*," published in the Chronicle of Higher Education, October 12, 2001, p. B14.

In rough terms, three groups are involved in disseminating the results of scientific research today. First are the large commercial publishers, which increasingly are consolidated into a small number of giants, each controlling vast numbers of journals delivered online and in print. Next are the many independent publishers--including scientific societies and universities--that produce journals, often only one or two. Finally, there are the proponents of free access who run various projects around the world, like PubMed Central, to provide access to the literature--either new or recently published papers--without subscription fees of any kind.

Notice that I do not say the free-access advocates want to provide access at no charge. Most of them recognize that putting literature online requires money, but they believe that financial support should come from someone other than subscribers--the government, a university, volunteers, etc. They propose their new model as an alternative to journals, often citing high subscription prices as the reason for their views. Some openly advocate the demise of journals; others believe in coexistence (at least for a time) but want to compete nonetheless.

What is likely to happen over time if free access projects expand? Some subscribers will stop paying--if not now, eventually.

Here are the business realities of scholarly publishing. Many independent publishers operate on a shoestring. They pride themselves on their low prices and often make little or no money. When subscriptions suddenly drop, they have no reserves and few options. The commercial publishers, on the other hand, have deep pockets. They charge high prices, which gives them more than large profits--it also gives them large reserves. That means that they have the ability to weather sudden losses in subscriptions. If we have free access for a period of time, those realities mean that the number of independent publishers would decline, and thus commercial publishers--facing less competition--would grow stronger.

With fewer independents, only two main players would be left to compete--the commercial publishers and the free-access projects. Which would survive? I don't know; there is simply not enough information to make a prediction. But I do know that the free-access projects are not based on any sound business model (in spite of the claims of the Open Access initiative). Government funding? Surely we cannot rely on the whims of changing government priorities to support long-term scholarly publishing. (People in the life sciences have been lulled into a false sense of security in recent years by increasing largess; they should take a look at government funding over many decades.) Universities? Scientific societies? Philanthropists? Perhaps. But any business that has only expenses and no visible revenue is not one that many people would invest in for long.

Surprisingly, people forget that one competes on quality as well as price, and that is perhaps the crucial point in predicting the outcome. Today, most free-access models offer little more than document delivery--that is, a convenient way to deliver something equivalent to a printed copy of the paper to the reader. The free-access systems have few frills-- no external links to references, limited searching capability, few sophisticated navigation tools. Frills are expensive, especially with large volumes of material.

Those frills, however, are precisely what the commercial publishers emphasize. They add links and the capability of navigating and searching through large collections of material; they promise to add even more frills in the future. And the commercial publishers have the deep pockets to pay for the enhancements, justifying their prices by those same frills.

Do people care about frills? Not much, not yet. But users are complacent about external links to references because so little of the literature is online at present. It's hard to be enthusiastic about a web of material that consists of only a few strands. In a few years, most of the recent literature will be offered over the internet, and external links will become not only useful but essential. And those navigation tools, sophisticated searches, and useful enhancements will become normal expectations rather than cute surprises. The past 20 years of computer innovation makes it plain that users will expect more and more from online literature.

Commercial publishers have the resources to compete as we move to the next generation of scholarly communication. What about the free-access projects? No one knows. They may have the right idea for moving into the future, and they may find a way to sustain themselves and to compete as well. But they may serve only to clear the way for a few monopolistic commercial publishers to gain control over most of the scientific literature.

Those are not predictions, they are observations about possible outcomes. They are meant to show that the certitude expressed by Dr. Roberts is unwarranted, and that his condemnation of scientific societies that do not endorse his free-access project is unfounded. He believes that those organizations are not serving the interests of their members. But that is exactly what they are doing--serving the interests of members, both present and future.

In many cases, those same scientific societies have developed new online delivery tools, wrestled with archiving, learned how to prepare for future format changes, and experimented with new business models that provide sustained financial support. In short, the societies have accumulated experience, which makes them cautious: They understand the fragility of scholarly publishing and they understand the costs.

Should we, therefore, support only the status quo? Surely not. But our actions need to be guided by three principles: to promote pluralism, avoid dogmatism, and cultivate discourse. Many good new ideas exist for expanding scholarly communication, but prematurely tossing away the good old ideas is foolhardy. We need to encourage experimentation and protect journals at the same time. No one knows the future, and those most certain about their predictions often have the least experience--at least with large-scale publication.

Two thousand years ago, Augustus offered some good advice: *Festina lente* (make haste slowly). No one doubts that in the coming years, technology will change the basic mechanisms by which we communicate as scholars. We ought to heed Augustus' advice as we revise those mechanisms.

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