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Peace, Love, and PLoS

The Press Conference

On June 26 I had the pleasure of attending a press conference at the National Press Club. Public Library of Science (PLOS) co-founder Michael Eisen held the press conference to announce that Rep. Martin Sabo (D-MN) was ready to introduce the "Public Access to Science Act." This legislation would "exclude from copyright protection works resulting from scientific research substantially funded by the Federal Government." It sounds simple enough, but believe me, it isn't.

As PLoS's clever use of Robert Indiana's 1973 Love Stamp for their own logo in some of their promotional material implies, they are continuing to cultivate their carefully crafted image of a grass roots movement. I went to the PLoS press conference because I wanted to learn first-hand about the latest efforts by Eisen et al to make science truly free.

PLoS cofounder Eisen stood before us, armed with a publicist and an advertising agency, not to mention a \$9 million grant from the Gordon and Betty Moore Foundation. He started with the same refrain we have heard for four years: that we must make science free, because the present system (1) denies the public access to scientific information, and (2) inhibits the exchange of science to scientists. The examples given for why science ought to be freely available on the web were the non-scientist breast cancer sufferer searching for information about her disease and treatment options and the incredibly fast dissemination of information about the SARS epidemic.

The press conference also included Bill Hillsman of Northwood Creative Advertising unveiling a 30-second TV commercial intended to make the public

familiar with the PLoS name and sympathetic to the idea that science should be free. This spot features a not-so-ordinary-looking man who walks out his front door, briefcase in hand, and rather than getting into a car or walking to the bus stop just lifts off into the sky without any visible source of propulsion. The voiceover says, "In the year 2003, the Public Library of Science made it possible for people all over the world to have access to the latest scientific discoveries. Shortly thereafter, things began to change."

My favorite thing about this commercial is that the first thing you see is a newspaper landing on the man's doorstep. Taking the PLoS backers' arguments at face value, if even the people in the poorest part of Africa are so wired that they need free online access to the scientific literature, why is this man receiving a newspaper? Furthermore, why does this "ordinary" citizen think it's okay to pay for a newspaper but not a peer-reviewed scientific article about his grandmother's diabetes?

The last speaker at the press conference was Michael Erlandson, who is the chief of staff for Congressman Sabo. Erlandson described the bill Sabo was about to introduce that would make it impossible to copyright any articles based upon scientific research "substantially funded" by federal agencies. In other words, such research would all go immediately into the public domain, meaning that no one, not the publisher, not the authors nor researchers, would hold the rights to that work. It could be used (or changed, amended, sold, or simply lifted without attribution) by authors—scrupulous or otherwise. Indeed, it could be taken and resold by other publishers, without the permission

or knowledge of the author.

The argument underlying this bold proposal is that, as US taxpayers, we have already paid for the science that is federally funded (such as research supported by grants from the NIH). Therefore, why should any of us, scientist and patient alike, have to pay again to read the results of that research? That sounds good, but some of my tax dollars also go to wheat and other farm subsidies, and I don't see anyone handing me free loaves of Wonder Bread.™

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The Public

Results of scientific research have never been more accessible to the layperson than they are right now. Online journals are searchable on the Internet, and the full text of APS journals is searchable through *Google*. All APS content is already free online after 12 months. Moreover, those researching medical conditions can still obtain abstracts from more recent APS journal articles, show them to their doctors, and then write to the APS for more information. In such cases, I direct the person to the journal editor. Those who wish can also buy a single article for \$8. In our society, consumers are used to paying for things they want or need: they buy their bread, their gourmet coffee, and their newspapers. When they support public television or radio, they even pay for the federally subsidized news they could be getting for free. The point is that people can get to the information they want, very often for free. But even the very newest research is available for a reasonable price, as would be any other magazine, newspaper, or book they might want to read.

The Scientists

The other argument is that subscription-based journals inhibit exchange of science to scientists. However, the reality is that scientific journal articles have never been more accessible. Online journals allow unprecedented access to abstracts and full text articles. Libraries, aggregators, and "portals" such as the HighWire Library of the Sciences and Medicine—of which the APS journals are a part—allow access so seamless that researchers often can't tell who paid for the content (5). This has been so successful that many of them are convinced that the content is free. I am proud to work for a society that is as generous, flexible, and innovative about disseminating science as APS has been throughout its history. APS has been one of the first to (1) put journals online; (2) make access to online articles free 12 months after publication; (3) move to web-based peer review; (4) publish articles online ahead of print; (5) send free print jour-



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nals to undeveloped countries and join online consortia supporting developing countries; and (6) give authors a choice of paying a fee to allow their article to be published with open access (1). We are still holding out against complicated licensing agreements to libraries, or multi-site licenses that would help us recover the revenue lost when entire universities gain access to content as a result of one online subscription. The APS has long understood what the PLoS backers are pointing out, namely, that institutions are paying for science coming and going. That is why our particular subscription-based model distributes costs among authors (through author fees), readers (through individual subscriptions or pay-per-view charges), and institutions (through library subscriptions).

It is precisely because of our experience with author fees and our authors' dislike for them, that we are not sure whether the open access models will work. In fact, when PLoS first announced its new journals and new model, it was criticized by some authors and open access proponents who objected to the steep \$1,500 fee for publishing an article. To borrow some 1960s idioms, the "free-love freaks" found themselves in the position of the "pigs." Douglas Carnall, a general practitioner who runs a web site to publish his own work, wrote in the online Rapid Responses to an article on the PLoS model in the *BMJ*, "Wow! £936 to have your article published! That's expensive... That Harold Varmus must be on a good salary! Or perhaps it is being priced to fail?" (2) Gunther Eysenbach, Editor and Publisher of the *Journal of Medical Internet Research*, wrote, "I wonder why—if you have \$9 million—you still

need to charge the authors three times more than we charge for a *JMIR* article, although we do not have any funding for the journal (except \$500 mini-grants for fee waivers for needy authors from the Soros Foundation)." (4)

APS is offering an open-access option for authors publishing in *Physiological Genomics*. I will be interested to see how authors will respond to the choice to pay a fee to allow open access to their articles. No doubt we will all learn something. I certainly wish the PLoS Publishers the best of luck with their two new journals, both of which will be published with an author-fee based, open access model (without the choice).

The PLoS example of information sharing during the SARS epidemic shows that traditional publishing—now faster and more accessible than ever—does not hinder access to important information during a crisis. Through a combination of published articles in journals like the *New England Journal of Medicine*, *The Lancet*, and *Science*, along with unpublished data and news on the WHO and CDC web sites, researchers and doctors were able to share as quickly as possible information on this fast-moving and deadly disease.

For some PLoS backers, however, there is another access issue, namely, whether authors can use others' published data. But is there really a problem as things now stand? It is the very nature of the activity of science that researchers will take others' works and replicate them (or try to), expand on them, try them another way. Is there anything about the way we publish now that hinders this activity? Even if an author wants to borrow something published, he or she need only ask permission to use a table or figure, and the request will be granted. APS never has charged for or denied this kind of permission request. We also support and, in fact, instruct our authors to deposit genomic and other data into the DDBJ, EMBL, and GenBank, and most recently, the GEO data bank for micro array data. When I reminded Eisen

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privately that all journals allow data to be used with correct attribution and even parts of articles such as figures and tables as long as permission is requested, he claimed to be too busy to ask for permission. At least now, he only has to ask permission from publishers. As Michael Held, Executive Director of The Rockefeller University Press, has previously pointed out, if authors were to retain copyright—a less radical approach used by some journals, including the new PLoS journals—“granting copyright back to authors...could prevent any form of free access because permission to post material would have to be obtained from each individual author”—a truly onerous task (7). While putting a percentage of science in the public domain would eliminate that burden regarding at least those federally funded articles, one must think through the consequences before assuming that this is what all scientists really want. At what price freedom?

Copyright

The proposed legislation that would exclude all federally funded research from copyright protection speaks to the desire of some scientists to use data freely—to reuse and even redistribute data without getting permission. But why was copyright developed in the first place? In its first instance, in 16th century England, it was developed to protect the rights of printers, but it very quickly evolved to protect the rights of authors, and was written into the US Constitution as such. In fact, it is tied to the patent clause, and was intended to “promote the progress of science and useful arts,” by allowing authors potential commercial benefit from their work.

Note that PLoS is not suggesting that patent law be weakened in this proposed bill. Apparently they believe that it's okay for scientists to benefit financially from work that is patentable, but not okay for publishers to be compensated for the work they perform in order to disseminate research on the scientists' behalf. Nevertheless, even the PLoS folks have stepped away from the original

notion that the arrival of the web makes it unnecessary for journals to exist because scientists can post their work and make it freely available to all or that all research should be put into a national data base. Even they have had to admit that there is some value in the recognition that publications offer prestige, a niche, a community that renders research more accessible and more meaningful by putting it in context. As a result, PLoS backers are starting two journals of their own. The Evolution of PLoS

At the press conference, Eisen reviewed the history of the PLoS movement and made some interesting statements. He said that PLoS supporters first tried to change publishing from within, by asking publishers to view the cost of publishing as a cost of research. However, the publishers rejected the notion. Next, PLoS backers sought to generate leverage by asking scientists to sign a letter pledging to boycott journals that do not permit open access. Over 30,000 scientists signed the PLoS boycott letter, but Eisen asserted that the effort failed because publishers still wouldn't change their ways. Finally, PLoS received the \$9 million grant, making it possible to start two journals using their open access model.

This benign, inclusive description of how their approach to a new-and-improved publishing model evolved is not quite the way I remember the events of the last four years. First, I remember a proposal from then NIH Director Harold Varmus that all research should reside in one database at the National Library of Medicine (NLM) (“E-Biomed”) and be freely accessible to all. As the dialogue that it invited got under way and the proposal evolved into a repository of journal articles as well as its own peer-review system, I remember being told that if publishers couldn't afford to give vetted, copy edited, typeset files to the NLM, with no compensation, then we simply didn't know how to produce our journals efficiently. If this meant that an important source of income to scientific societies would be lost, societies would simply have to find other sources of income.

Publishers found themselves defending their expenses when no real analysis of cost had been done by the E-Biomed proponents (6).

When the PLoS boycott deadline came and went, PLoS claimed that the boycott failed because the publishers wouldn't change. But could it be that it failed because so many of the scientists who signed it didn't follow through on what they said they would do? PLoS cofounder Pat Brown's article in *Cell*, published in August 2001, is but one good example (8). When I queried some of the signatories about this discrepancy between pledge and action, they said essentially that they didn't really mean it, but that they just wanted to make a point. PLoS's spin on these events is comparable to saying that a labor strike in which most of the union members crossed the picket line failed because the bosses did not meet the workers' demands.

Now PLoS has decided to start two journals. Having started some myself, I won't underestimate the importance of the passion their editors have for the project. That alone will give them a great start. Of course the \$9 million grant doesn't hurt, either.

The Publishing Model

The financial aspect of the open access publishing model, in which the author pays a fee to be published, and the “user” (a.k.a. reader or erstwhile subscriber) pays nothing, may end up being one that works, if not in this precise form then in some variation that we have not yet considered. APS publications, which already use a publishing model that relies on diverse revenue sources, are not particularly threatened by this prospect. We never relied solely on the wealth of libraries to support us, nor have we relied heavily on advertising. It remains to be seen, however, how scientists will react to an open-access model that asks them to foot the whole bill. More important, perhaps, is the question of how their funding agencies will react. I have heard it said that scientists will have to pressure funding agencies to support publication costs, but the competition in some fields is so intense that many scientists are focused solely on getting a score high enough to be

funded. Even the *Guide to Business Planning for Launching a New Open Access Journal* published by the Open Society Institute states that “researchers engaged in especially large-scale or long-term projects might consider attempting to ... negotiate a government grant that extends ... to also encompass dissemination.” (3) How many scientists are in this position? There is a troubling elitism running through this freedom movement.

Other elements of the open-access model still seem a little fuzzy, too. What about authors who are not federally funded? Or not funded at all? How about international authors? Fifty percent of APS journal submissions and 39% of APS journal articles published are from authors outside the US. If those authors cannot afford to pay the fee, should US taxpayers be asked to subsidize what the APS will have to charge funded authors to cover the publication of research done outside the US?

Michael Eisen said to me after that press conference, “I bet we’re a lot closer on this issue than you’re willing to admit.” Knowing all that APS has done and continues to do to disseminate science as broadly as possible, my response is, “Maybe.” Maybe publishing will evolve to something that

everyone (authors, researchers, libraries, the public) can be even happier with than they are now. I’m not against improvement—my staff and I devote considerable time and attention trying to improve our publications program. Why, then, has PLoS chosen to create expensive TV commercials to be aired during *The Letterman Show* and *The Simpsons*? Why the legislation? PLoS has an untested model. It might work, but at the same time it has the potential to do significant harm to other models that have proven their value. There doesn’t seem to be a lot of peace and love in this full-bore, expensive and high-powered assault on publishers in the guise of a grass-roots movement. Never mind that the PLoS backers say they’re not attacking other journal publishers; actions speak louder than words. In the meantime, I’m going to keep doing my job, working on these wonderful APS journals. Peace, man. ❖

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