

The Public Library and the Public Good

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With the best intentions, a group of American scientists (mainly in biological and medical fields) proposes to make all scientific research "available free of charge to anyone." They have formed the Public Library of Science (PLOS) and plan to build their library by starting new journals, all of which will be open-access. They will support their journals by charging authors, not subscribers, for each paper that is published. Something like \$1,500 per paper—maybe more, maybe less. Their model, they say, "treats the costs of publication as the final integral step of the funding of a research project."

The senior editors of the PLOS state their goal as the "dissemination of scientific information to as broad an audience as possible as quickly as possible." They've promoted their goal with advertisements that show ordinary people who desperately desire to discover new medical treatments for their children (which all seems a bit disingenuous.) They were behind recently proposed federal legislation (Martin Sabo, D-Minnesota) that would forbid copyright on any published research receiving substantial federal support. They are passionate about their cause and single-minded in their goals.

Why then, with passionate arguments and good intentions, have they failed to persuade the scientific community to adopt author-supported journals? Inertia? Maybe. But part of the reason surely is that most scientists recognize (perhaps subconsciously) that the PLOS is based on a rather parochial view of research.

Because the PLOS editors are primarily American scientists in biology and medicine, it's not surprising that they write: "Publishing a research paper is the culmination of intensive labor and a great deal of capital support. ... What we ask is simply that this step [publication] be considered the final step of a research project."¹

Those editors would likely be shocked to discover that much research takes place *without* "a great deal of capital support." In fact, less than one-half of active research mathematicians are supported by federal grants in the United States (and some estimates are considerably lower). Mathematics is not alone: In virtually every field, there are many scientists doing outstanding research who are not part of large, federally funded projects. Who pays the \$1,500 for these people?

The editors of the PLOS also seem unaware that much published research comes from *outside* the United States. For the American Mathematical Society's primary research journals, about 52% of the articles published in the last twenty years did not have a U.S. author—more than half. Who pays the \$1,500 for these authors? Yes, it's true that many such authors come from countries that have funding agencies themselves, but many others are from developing countries. During those same twenty years, of the 1.5 million journal articles listed in *Mathematical Reviews*, 68,000 had authors from the former Soviet Union,

¹ Written in response to an essay by Michael Held in the *Journal of Cell Biology*, found at <http://www.jcb.org/cgi/reprint/jcb.200307018v1.pdf> (accessed 9/03).

26,000 from India, 26,000 from Poland, nearly 4,000 from Egypt, and over 600 from Nigeria. Who pays the \$1,500 for these scientists?

The PLoS editors suggest that authors who are unable to pay won't have to. But this assumes that few authors are unable—a false premise in many disciplines. Isn't this the system used to deliver medical care in the U.S. today—charge those who can pay for those who cannot? Surely we don't want to emulate such a system for research.

The editors may suggest that universities can pay the \$1,500. But think carefully what this means. University officials will have to apportion funds for this purpose to various departments. How will they decide? How will departments decide which faculty and which areas of research are supported? What happens for faculty in small colleges (yes, they do research too!)? Publishing papers only from those who can pay is a dramatic change in culture, and the change may not be the intended one. After all, paying to publish papers is not much different from paying to publish books—and vanity presses are not considered especially respectable.

The American biologists and medical scientists who promote author-supported journals are parochial in another way. Congress has provided the National Institutes of Health with spectacular increases in funding in recent years. Certain areas of biological and medical research have expanded at a phenomenal rate and, being human, these researchers extrapolate present experience into the future. They should beware, however: Creating a system of scholarly publication that relies solely on the largess of the government is a risky business—even for a favored area of research like medical science.

Each publication model—subscription-based or author-supported— has tradeoffs, but they are not symmetric tradeoffs. When a scientist doesn't have a subscription, he or she can nonetheless get information about the article (the abstract and perhaps a list of references); sending for a copy of the article can be as easy as sending e-mail. When a scientist doesn't have the funds to publish an article, the article does not appear—does not become a part of the permanent literature. That's more than an inconvenience.

Scholarly journals do not merely make research available to today's public; they are meant to make it available to tomorrow's as well. Those who promote open-access, author-supported journals do not think much about the future, or about scientists in liberal arts colleges, or about other parts of the world. They have good intentions ... but even good intentions can have bad consequences.

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