

Ira Mellman
Editor of *The Journal of Cell Biology*
ira.mellman@yale.edu



I am neither a publisher nor a professional editor, but a full-time, practising scientist who works with sixty colleagues to produce a high-quality publication, *The Journal of Cell Biology* (*The JCB*). We put considerable time and effort into the project and work in collaboration with the non-profit Rockefeller University Press. We do not aim to make a profit and have no vested interest in publishing *per se*. We feel strongly that, in helping to maintain a pre-eminent public forum for cell biologists worldwide, we are making an important contribution to our field, and science in general.

I have long been an enthusiastic supporter of removing the barriers to the free exchange of scientific information. The [Public Library of Science's](#) boycott initiative has the potential to provoke important changes. I support the demand for free access to scientific literature that is more than six months old and urge all scientists to back it. *The JCB* has decided to make its content free six months after its publication.

Our biggest priority should be to persuade other scientific publishers, including Macmillan, the publisher of the *Nature* journals, to follow suit along with major scientific publishing presses such as Elsevier Science. Publishers have so far seemed ill-inclined to make their content free at any time after publication. These publishers produce some of our most widely read journals and Elsevier Science in particular is actively acquiring an increasingly larger swathe of the publishing landscape.

The PLS group not only wants free content. It unfortunately also wants journals to allow their content to be posted by any web server wishing to post it. We consider this demand to be poorly thought-out, unnecessary, a waste of money and a potentially dangerous threat to scientific exchange forums like *The JCB*.

The nature of scientific information makes its reproduction delicate. It is more than the reproduction of plain text and sequence information. Complications arise in producing the myriad special symbols involved. Greater problems exist in displaying the complex visual images so integral to modern scientific papers, particularly in cell biology. Each journal has its own idiosyncratic translation software, typically formatted to suit the publication of a print version and convert it into a digital, online format. Frequent manual interventions are needed to correct inevitable errors.

Posting this information on a second site is fraught with the same difficulties. Different journals and different publishers all use different parsers to control text. No software package or established standard yet exists that can guarantee the accuracy of each re-posting. Catching errors will be at best difficult.

Maintaining the integrity of the publication process is vital, be it in print or online. It is the solemn responsibility of each journal to ensure that the science it publishes is a faithful, accurate and accessible version of the manuscripts submitted by its authors. It is not a process that should be ceded to unknown individuals or, in the case of PMC, an agency of the U.S. government. Copyright should not be ceded to individual authors who would not be able to undertake the job of protecting their work from the introduction of errors. Without copyright protection, multiple copies of any article could exist on multiple servers, each with its own set of errors and deficiencies such as the loss of corrections, supplementary material and hyperlinks. These problems would be compounded with each new transfer. The Rockefeller University does not retain copyright of material published in *The JCB* to make a profit. Indeed, university staff work hard to prevent for-profit consolidators repackaging the material for resale. We scientists, meanwhile, are totally free to reproduce our work for any scholarly or educational activity.

Many technical problems could be solved by investing considerable sums of money in software development. But is this necessary or advisable? Given that a revolution in scientific publishing is already well underway, even without the advent of PLS, what is the justification for the expenditure of limited U.S. public funds to duplicate efforts that are already successful? The end result would be a database that lacked material from the preceding 6 months ♦ a resource that few scientists would be interested in using.

We believe it would be far more logical to invest in increasing the power of web sites such as PubMed that enable the search for material on all manner of sites without that material needing to be re-displayed. The power of cross-server search engines is increasing rapidly in the commercial sector and full-text searching on PubMed is an area of active research and is likely to be available soon. It is outmoded and incorrect to contend that hosting content on single sites is necessary for complete searching.

Cross-server searches do require co-operation from publishers, such as the implementation of common approaches to indexing, but this is not an onerous requirement and such co-operation has occurred in the past. I hope the contentiousness caused by the confrontational strategy taken by PLS will not delay such collaboration. The PLS supporters may see themselves as revolutionaries who need to be provocative, but inflexible debates characterized by confrontations and pronouncements are not the way we scientists typically make progress.

Government-sponsored initiatives such as PMC could also establish an archive to serve as a back-up for all other independent servers. However, in the current technological environment, such an archive would still be prone to error and we consider the one planned by our own server, HighWire Press, to be a preferable alternative. It is encouraging that PMC may now be thinking along these lines.

The fact that I am editor-in-chief of *The JCB* does not mean I want the status quo maintained. Nothing could be further from the truth. I am concerned, however, that the current approach advocated by those calling for a boycott will result in a degradation of the quality of scientific exchange. I am not referring only to the accuracy of published information. I am concerned, as we all should be, about the gradual erosion of a well-tested system of rigorous peer review, a system that will play an increasingly critical role as the volume of scientific information increases. When properly applied, expert peer review plays an invaluable, if somewhat imperfect role in ensuring the quality of papers that appear in print or online. This is a benefit for authors and readers and particularly non-expert readers attempting to learn about a new field.

The PLS group lumps together all types of publications, whether they are commercial or non-profit, high-quality/high-circulation journals or archival journals or marginal-quality/low-circulation journals. It is perhaps a worthy goal to try and eliminate the journals at the lower end of the spectrum. Such journals are probably poorly peer-reviewed and are not widely read and they exist primarily to increase the profit margins of large-scale publishing houses. Their elimination would save countless millions of dollars for libraries that are essentially extorted into subscribing to entire portfolios of such titles that few people actually read.

The risk is to those journals without large corporate sponsors, government sponsors such as PNAS or professional societies willing to underwrite chronic losses (e.g. *Molecular Biology of the Cell*). Should such journals, like *The JCB* or the *EMBO Journal*, be forced to abandon their own websites, their revenue streams will in time be compromised. This will lead to the disappearance of the high-quality, well-read journals on which we rely to publish and read the best papers in our fields. Even non-profit, non-commercial journals need money to survive. It is a little known fact that, after printing costs, the major expense faced by journals such as *The JCB* is paying for maintenance of an efficient reviewing system. We all look forward to the day when print disappears, knowing our collective costs will drop, but even then, quality and timely reviewing will still require a source of continuous revenue.

If reader traffic is steered away from journal sites, such journals risk having insufficient funds to continue. If this risk were necessary to ensure the free exchange of scientific information, I would be advocating that we take it. The PLS initiative does not, however, make a persuasive case that this risk is necessary. Therefore, taking such a risk at this time would appear to be a less than logical approach to the problem.