



THE SCHOLARLY PUBLISHING
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Dr. Geoff Hynes
Research Officer
Canadian Institutes of Health Research
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Canada

Dear Dr. Hynes:

I am writing on behalf of SPARC (the Scholarly Publishing and Academic Resources Coalition) to express support for and comment on CIHR's contemplated development of policies on access to products of research funded by CIHR. SPARC is an international alliance of academic and research libraries, including 17 leading universities in Canada and the Canadian Association of Research Libraries. We have been at the forefront of advocacy for public access to research funded by the U.S. National Institutes of Health as well as other U.S. Government agencies, and have supported policy development with the Research Councils UK and European Commission through our affiliate, SPARC Europe.

SPARC supports measures that expand access to all three categories of research outputs specified in CIHR's request for comments. However, our remarks here focus on policies respecting peer-reviewed published results, where SPARC's experience is deepest.

Enhancing the Public's Return on Investment

Widespread dissemination of research results is an essential, inseparable component of a funder's investment in science. It is only through the *use* of findings that funders obtain *value* from their investment. Faster and wider sharing of knowledge fuels the advance of science. Funders' financial investment in dissemination has mainly been imbedded in 1) the institutional overhead costs associated with grants, which in part support library operations, and 2) grant funds used for publishing-related fees. The U.S. NIH, for example, estimates that it spends \$30 million annually on page charges and other subsidies to subscription-based journals.

Until relatively recently, funding agencies could rightly feel satisfied that their investment in research was being adequately leveraged via dissemination of findings exclusively in toll-access journals. It would have been impractical, inefficient, and cost-prohibitive for them to

take on dissemination of the results themselves. Today, however, the Internet brings information to new readers at virtually no marginal cost – making expanded access to research feasible.

A growing body of evidence demonstrates that when scientific research is accessed more freely on the Internet it is cited more often in subsequent research, a common measure of research impact.¹ This suggests that open access, by eliminating access barriers, will expand the application of research to further advances.

Recognition of the necessity of embracing this opportunity is rapidly expanding. As expressed by 25 Nobel Laureates in a letter to the U.S. Congress,

Science is the measure of the human race's progress. As scientists and taxpayers too, we therefore object to barriers that hinder, delay or block the spread of scientific knowledge supported by federal tax dollars – including our own works.²

The industry analysts at Credit Suisse First Boston have described the imperative for change from another pertinent perspective:

[W]e would expect governments (and taxpayers) to examine the fact that they are essentially funding the same purchase three times: governments and taxpayers fund most academic research, pay the salaries of the academics who undertake the peer review process and fund the libraries that buy the output, without receiving a penny in exchange from the publishers for producing and reviewing the content...We do not see this as sustainable in the long term, given pressure on university and government budgets.³

Clearly, public research funders have a responsibility to scientific advancement and to taxpayers who invest in science with the expectation of economic and social returns. The issue, then, is how best to obtain the benefits of expanded research sharing presented by the Internet.

Public Access Strategies

We believe that the processes and business models supporting what we today call “scientific publishing” will evolve in the coming several years. The following core functions of journals will become unbundled and distributed among various actors:

- Registration – establishing the intellectual priority of an idea, concept, or item of research;

¹ A bibliography of literature documenting the connection between open access and research impact is available at <http://opcit.eprints.org/oacitation-biblio.html>.

² Open letter to the U.S. Congress signed by 25 Nobel Laureates, August 26, 2004. (<http://www.fas.org/sgp/news/2004/08/nobel082604.pdf>)

³ Credit Suisse First Boston, *Sector Review: Scientific, Technical and Medical Publishing*. April 6, 2004.

- Certification – certifying the quality of the research and/or the validity of the claimed finding (e.g., peer review);
- Awareness – ensuring the dissemination and accessibility of research, providing a means by which researchers can become aware of new research; and
- Archiving – preserving the intellectual heritage for future use.

SPARC supports a two-prong strategy for providing public access to taxpayer-funded research that we believe will permit this evolutionary and beneficial change to unfold:

1. Deposit of articles in open online archives.
2. Funder subvention of publishing fees charged by open-access journals.

Open archives operated by universities, funding agencies, and others with an interest in maximizing research access already are effectively performing the awareness and archiving functions. The breaking apart of journals is not a condition for this change – open archives coexist with today's journals.

Ultimately, however, it will be useful if broadly accepted funding models emerge to support the certification process. Funder subvention of fees charged of authors by open-access journals offer an economic basis to sustain certification. As funder support for this approach expands, the awareness and archiving functions of journals can be more readily shared – resulting in expanded research availability and reduced need for artificial means of differentiating between content available in open archives and journals (e.g., access embargoes, pre-prints, etc.).

We commend to CIHR the approach to public access adopted by the UK's Wellcome Trust. Their position statement on access to published research indicates that the Trust:

- Expects authors of research papers to maximise the opportunities to make their results available for free and, where possible, to retain their copyright.
- Will provide grantholders with additional funding to cover the costs of page processing charges levied by publishers who support the open access model.
- Requires electronic copies of any research papers that have been accepted for publication in a peer-reviewed journal, and are supported in whole or in part by Wellcome Trust funding, to be deposited into PubMed Central (or UK PubMed Central once established). Note that this requirement applies only to all grants awarded after 1 October 2005, and from 1 October 2006 to all grants regardless of award date.
- Affirms the principle that it is the intrinsic merit of the work, and not the title of the journal in which an author's work is published, that should be considered in making funding decisions and awarding grants.⁴

This approach is well suited to the opportunity and the times.

⁴ *Wellcome Trust position statement in support of open and unrestricted access to published research* (http://www.wellcome.ac.uk/doc_WTD002766.html)

The U.S. National Institutes of Health also permits the application of their grant funds to open-access publishing fees. But NIH has gone a giant step further by developing PubMed Central, a stable and well-supported online digital archive serving the breadth of the life sciences. Perhaps the greatest strength of PubMed Central is its close integration with many other public databases housed at NIH – revealing exciting new perspectives and opening promising new research avenues. This is a sharp contrast to articles that can be accessed only on publishers' proprietary websites. NIH offers scientists, businesses, students, and other potential users powerful new means of mining data resources and bringing forward important new insights, discoveries, therapies, and cures.

While the biomedical community has been well-served by PubMed Central, a distributed infrastructure for sharing and archiving research also is possible and may be more secure over the long term. In the U.S., the proposed Federal Research Public Access Act of 2006, introduced on May 2 in the U.S. Senate, would call for major research funding agencies to preserve and offer public access to their funded research in stable digital repositories *either* maintained by the agencies *or* in other suitable repositories that permit free public access, interoperability, and long-term preservation. This flexible approach will enable individual communities to implement solutions that best respond to their differing cultural and financial circumstances, norms, and requirements.

Both SPARC and the Canadian Association of Research Libraries (CARL) have been active in promoting the development of “institutional repositories” based at higher education institutions and prepared to advance the awareness and archiving of research conducted by their faculty. We strongly encourage you to work with CARL, Canada's research libraries, and the network of institutional repositories they have developed, which we believe may be poised to help CIHR accomplish its objectives.

Key Components of an Open Archiving Policy

As indicated previously, SPARC encourages CIHR to provide for both the deposit of articles in open online archives and subvention of publishing fees charged by open-access journals. Below are key components of the open archiving approach that SPARC recommends:

- In all CIHR grants and contracts, include a non-exclusive reservation of rights to disseminate grantees' research articles (if you do not already do so).
- Require each researcher – funded totally or partially by the agency – to submit an electronic copy of the final manuscript that has been accepted for publication in a peer-reviewed journal. While it would perhaps be preferable to deposit the final publisher-formatted version of the article, as a practical legal matter this may not be possible without explicit publisher consent.
- Ensure that the manuscript is preserved in a stable digital repository maintained by CIHR or in another suitable repository that permits free public access, interoperability, and long-term preservation. Given the scale of the U.S. NIH's public data resources, it

would be important that integrated data mining of CIHR material be possible, perhaps via a data mirroring or other arrangement with NIH.

- Provide for free, online access to each CIHR-funded manuscript as soon as possible, and no later than six months after the article has been published in a peer-reviewed journal.

Conclusion

Public access will advance and strengthen science. It is one dimension of much larger adaptations by science to epochal changes wrought by the Internet and computing technology. These changes will result in a more dynamic and faster moving scientific process that is better suited to address complex challenges.

Unfortunately, the coordination problems associated with bottom-up change in response to these opportunities suggests that action by national governments and funding bodies is needed to help establish new practices and norms.

SPARC joins our colleagues at the Canadian Association of Research Libraries (CARL) in congratulating CIHR for recognizing its role in bringing about needed changes and stands ready to aid your efforts in any way practical.

Sincerely,



Heather Joseph
Executive Director
SPARC

Attachments (2)



Scholarly Publishing & Academic Resources Coalition

About SPARC

SPARC (the Scholarly Publishing and Academic Resources Coalition), launched in 1998 as an initiative of North America's Association of Research Libraries, is an alliance of academic and research libraries working to correct imbalances in the scholarly publishing system. These imbalances have driven the cost of scholarly journals (especially in science, technology, and medicine) to insupportably high levels, and diminished the community's ability to access, share and use information. At the core of SPARC's mission is the belief that these imbalances inhibit the advancement of scholarship and are at odds with fundamental needs of scholars and the academic enterprise.

SPARC is a catalyst for action. Its pragmatic agenda stimulates the emergence of new scholarly communication models that expand dissemination of scholarly research. Action by SPARC in collaboration with other stakeholders builds on the unprecedented opportunities created by the networked digital environment to advance the conduct of scholarship.

Canadian Membership

- Canadian Association of Research Libraries
- Laval University
- McGill University
- McMaster University
- Queen's University
- Université de Montréal
- University of Alberta
- University of British Columbia
- University of Calgary
- University of Guelph
- University of Manitoba
- University of Ottawa
- University of Saskatchewan
- University of Toronto
- University of Waterloo
- University of Western Ontario
- University of Windsor
- York University

SPARC also has more than 200 members in the United States and around the world. (See membership list at <http://www.arl.org/sparc/org/members.html>.) An additional 100 institutions are part of SPARC Europe (<http://www.sparceurope.org/members/>) and a similar initiative is under development in Japan.



Scholarly Publishing & Academic Resources Coalition

“Public Access” and the Sustainability of Peer-reviewed Journals

Some opponents of free public access to taxpayer-funded scientific research have claimed that government public access policies will lead to the demise of journals – undermining peer review’s role in certifying research quality or resulting in worthy research going unpublished.

There is no credible evidence to substantiate this assertion. Indeed, the preponderance of evidence suggests that public access will leverage the public investment in research without undermining longstanding peer-review processes.

SPARC (Scholarly Publishing and Academic Resources Coalition) has no less a stake than publishers in sustaining the screening of scientific research to insure its quality. The same is true of the U.S. National Institutes of Health (NIH), where a public access policy was implemented in 2005.

The reality is that mandatory and timely public access to taxpayer-funded research does not fundamentally threaten the ability of journals to sustain themselves and the research certification process they orchestrate.

Consider the facts:

- **Online archive use is a supplement to journal readership, not a replacement for it.** Most scientists use article repositories such as NIH’s PubMed Central (<http://www.pubmedcentral.nih.gov/>) as a supplement to their journal reading, not as a replacement for it. Just as newspaper articles today are read in print, on their publishers’ websites, and in aggregations such as LexisNexis, potential readers of taxpayer-funded journal articles are well-served by having them accessible in many forms and contexts. Articles in PubMed Central offer their own uniquely valuable context. By being part of NIH’s interlinked search and retrieval system, articles are integrated with comprehensive links to the world’s biomedical journal literature, DNA and protein sequence databases, 3D protein structure and protein domain data, population study datasets, expression data, assemblies of complete genomes, and taxonomic information. This unique environment enhances users’ ability to easily follow a research thread and is part of what makes PubMed Central a uniquely useful and important research tool. It compliments – but does not replace – the convenience of browsing a journal.

- **A variety of factors differentiate journals from open archives – not just access embargoes.** There has been much discussion of using embargoes as a means of protecting journals from potential subscription cancellations that might result from public availability of federal research in open archives. A key problem with embargoes is that, if they are long, the usefulness of the articles that taxpayers wish to share is vastly reduced – particularly in fast-cycling fields such as biomedicine. The goal of public access is not to make articles available *after* their usefulness is virtually exhausted, but rather *as soon as feasible* so that taxpayers benefit from their expanded use and application. Embargoes are just one of a number of ways in which journals are differentiated from open archives. Here are some examples:
 - Most journals publish a great deal more content than just peer-reviewed research articles. They also offer letters, editorials, opinion pieces, review articles, book reviews, news, and conference information. Public access policies do *not* ask authors to deposit any of this in open archives. These value-added features will be found only in journals, not in online archives unless the publisher so chooses. Research libraries, scientists, and others are not apt to cancel subscriptions to journals that successfully deliver these kinds of value-added services.
 - Many articles in journals do *not* report on government-funded research. This gives libraries a reason to maintain their subscriptions to journals – to have access to the articles that will not be available in open archives.
 - Open archives distribute the article version approved by a journal's peer-review process but not necessarily the version polished and revised by the journal's copy editors. This makes the journal the exclusive distributor of the final, official edition – forever, if that is its choice. Open archives will only distribute the copy-edited, published version with the publisher's consent.
- **Well-established online archives have not displaced journals.** In physics, nearly 100% of new articles are freely available from their creation in an open-access archive called arXiv (<http://www.arxiv.org/>), created more than a dozen years ago with U.S. Department of Energy funding. Yet subscription-based physics journals have continued to thrive, demonstrating that open archiving is not a threat to journals. The American Physical Society and Institute of Physics Publishing are unable to identify any subscriptions lost as a result of arXiv in entire its existence.¹
- **Long public-access embargoes are overly protective.** A recent survey of library buying plans sponsored by the Association of Learned and Professional Society Publishers (ALPSP)² clearly demonstrates that a six-month embargo is not a threat to

¹ Key Perspectives. *Open access self-archiving: An author study* (May 2005), p. 3. Available at [http://www.keyperspectives.co.uk/openaccessarchive/reports/Open%20Access%20II%20\(author%20survey%20on%20self%20archiving\)%202005.pdf](http://www.keyperspectives.co.uk/openaccessarchive/reports/Open%20Access%20II%20(author%20survey%20on%20self%20archiving)%202005.pdf).

² Mark Ware. *ALPSP Survey of Librarians on Factors in Journal Cancellation*. Association of Learned and Professional Society Publishers (March 2006). Summary and conclusions available at <http://www.alpsp.org/publications/libraryreport-summary.pdf>.

continuation of institutional journal subscriptions, which are the main revenue source supporting most journals. According to the ALPSP report:

Availability of content via delayed open access was not an important factor in journal cancellations.... From examination of all kinds of embargoed content (whether from delayed OA [open access], self-archiving or aggregations), it is clear that the embargo has to be very short indeed to compete with a subscription: for 82% it had to be 3 months or less...

The report concludes:

1. Repositories are clearly not seen by librarians as a substitute for properly managed journal holdings: they point to concerns over long-term availability, stability, completeness and integrity; the faculty want 'the real journal'; embargoes of even 3 months are a major obstacle; and postprints (let alone preprints) are not seen as an adequate substitute for the journal article.
2. Furthermore, the large majority of librarians do not know whether the content of archives overlaps with their holdings, and most do not plan to introduce systems to measure this.
3. Availability via OA archives was ranked a long way behind the needs of faculty, usage and price in determining cancellations.
4. Three times as many respondents thought there would be no impact on holdings compared with those that thought there would be some impact.

These findings are reinforced by the experience of PubMed Central, where dozens of publishers have for several years been depositing the complete text of their journals – many for immediate availability – with no significant drop-off in subscriptions as a consequence.

- **Publisher policies often acknowledge the need for open archiving.** Many commercial and nonprofit publishers today allow authors to immediately deposit their accepted articles in open archives under terms and conditions substantially similar to those proposed by public-access advocates. Elsevier, an Anglo-Dutch firm that is the world's largest publisher of scholarly journals (more than 1,800), already permits its authors to deposit their articles (the final version of the text, after both peer review and copy editing) in free online archives with no access delay at all. Many other journals are adopting similar policies, especially since Elsevier announced its policy in June 2004. For example, SAGE Publications adopted the same policy in October 2004. If open archiving harmed journal subscriber bases, then the number of subscription-based journals permitting it would not be increasing as it is today.
- **There is little risk of worthy research going un-reviewed and unpublished.** Questions have been raised about how highly specialized journals will fare if public access policies proliferate. The fact is, the current problems of small journal publishers can't be blamed on public access policies. Some niche journals admit they are already operating at a loss. Their predictable demise stems from bigger issues than public access. It's possible some of these journals solely or mainly publish research based on public funding and don't add any value to this besides peer review. If so, the need to adapt to

changing conditions certainly should be obvious to any such journal long before a collapse.

But even *if* a journal were to close its doors, regardless of cause, there is no reason to believe this would result in worthy research going unpublished. Small, specialized niche journals have historically been created through a process called “twigging” – a publishing term for break-away journals that focus on a specialized subset of their parent journal’s coverage. Twigging is a notorious process because it can produce journals so specialized that their entire subscription base is simply the small number of libraries at institutions where the relative handful of researchers in the field do their work. It is reasonable to believe that if a niche journal becomes unsustainable, its content will be re-absorbed by the larger, more sustainable journal – a sort of “reverse-twigging” process.

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