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Academic Authors and the Crisis in Publishing

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A few years ago, our biology department hired a neuroscientist. As soon as he arrived, he stopped by the library to see what we had in the way of journals in his field. Unfortunately, we had none since he was the first neuroscientist on campus and nobody thought to mention it to the librarians. (We have a seat on the curriculum committee, but this new curricular development hadn't shown up in the paperwork of course proposals or program changes. Nor, unsurprisingly, had it revealed itself in a mysteriously increased library budget.) Apart from expecting the library to support undergraduate research and study in his area, he quite reasonably planned to keep up his own research — something not only needed for his own growth as a scholar, but required for tenure and promotion at our liberal arts college. He had been assured that interlibrary loan would supply materials we didn't own locally. When I explained the "5/5" rule, he was appalled. Five? While the rule might not daunt a humanities scholar, used to quarterly journals that publish perhaps twenty articles a year, many science journals publish well over a thousand articles annually. It didn't make sense to him. What's the point of publishing results if they can't be shared?

Herein is the conundrum of scholarly communication. The Constitution gives Congress the power "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries" — a fairly straightforward balance between social and individual interests to be orchestrated by Adam Smith's "invisible hand." We can quibble over what is meant by "a limited time," and we do, but the concept rests on the uncomplicated no-

tion that tipping the balance too far in either direction would be bad both for individual authors and for society at large.

In the case of the academic author, however, things get complicated. Certainly, giving scholars the exclusive right to have their name associated with research findings is a powerful incentive that drives the production of new knowledge. Setting aside the abstract quest for truth, authorship of publications — particularly those appearing in well-respected scholarly journals — is essential for personal advancement. The self-interested scholar publishes in order to get tenure and promotion, win grants, and develop a bankable name in the marketplace of ideas. Yet it is the use of those publications, not their sale, that is the primary currency of exchange. Scholars aren't rewarded through the sale of their texts, but rather through their being read and cited. They give away their legal ownership of those texts to publishers assuming that gift will make their ideas available for circulation. Once published, after all, their work will become a part of the record, a contribution to the common knowledge base on which other scholars can build.

The flaw in the argument, of course, is the assumption that those texts will be readily available. It's an understandable mistake. For several decades after the birth of "big science," and the mass infusion into academia of public funds for basic research, they almost always were. Academics produced knowledge, publishers published it, and libraries ransomed it back. Simple — until the ransom demands grew too high. It wasn't until scholars began to have trouble getting their hands on the literature they and their colleagues produce that their faulty assumption became clear. It had been obscured by the fact that the reward systems for publishers and for academic authors are significantly at odds. And, while it's tempting to simply fault publishers, the academic reward system itself is a significant part of the problem.

The Republic of Science Faces a Deficit

Michael Polanyi described science as a republic in which everyone plays a part in making and remaking knowledge. Though he was speaking of science in particular, it's an apt description of making knowledge in any academic field. Authority is built on a network of trust and tradition, in that no one person or body decides what is true; it is decided by those who know enough to make those judgments. Yet flouting tradition has its place, too. "While the whole machinery of science is engaged in suppressing apparent evidence as unsound, on the ground that it contradicts the currently accepted view about the nature of things, the same scientific authorities pay their highest homage to discoveries which deeply modify the accepted

view about the nature of things" (66). **Thomas Kuhn** offered a somewhat more ram-bunctious picture of how this works in *The Structure of Scientific Revolutions*: the normal course of affairs is overturned when significant anomalies are uncovered that call into question the regulations used by science to assess truth — a crisis that is "tradition-shattering."

In either case, these models view the production of knowledge not as a process of piling up bits of truth incrementally through ongoing discovery, but of a social activity that depends upon a self-governing process of negotiation — a process in which (like the balance described in the Constitution) the self-interest of the scientist is largely consistent with society's need for good science, assuming that the goal is knowledge and that the value accruing to scholars is their name attached to ideas that others can build on.

However, self-interest can influence the ways research is shared, often to the detriment of the public's interest. Some scholars have their name attached to research to which they made little contribution. Others may rush into print with a discovery that needs more testing merely to stake their claim since, if a competitor beats them to it, it is instantly devalued. Authors may finely slice a piece of research into what **Whitney Owen** has called the "Least Publishable Unit" to seem more productive than they really are. Review committees too often ask "how much have you published?" rather than the harder question, "what difference does it make?" Across the disciplines, the marketplace of ideas is beset by inflation. It seems to take a wheelbarrow of publications to buy a loaf of credibility.

Peter Lawrence attributes these shenanigans to an obsession with mindless accountability, lamenting the fact that "rather than assessing the research itself, those who distribute the money and positions now evaluate scientists by performance indicators." Scholars are judged on how much they publish and where — and quickly realize that "building capital in the hard currency of the audit society can be safer and easier than founding a reputation on discoveries" (259). This inflation makes it harder for scholars to keep up. Though the number of publications has grown, the time for any one scholar to scan the literature has not, forcing an inevitable narrowing of focus. The reward system has skewed the way scholars communicate, and that has altered how we create new knowledge.


Beyond the academy, the public has grown less trusting of scholarly expertise. Suspicion of conflicts of interest and a drive for accountability has led the federal government — which invests some \$45 billion annually on basic research — to propose new rules requiring highly regulated peer review practices that some scientists fear run the risk of excluding all quali-

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Reshaping Scholarly... from page 46

In their 2004 strategic plan they declare that *influencing the development of new forms of scholarly communication* is one of five key strategic directions that must be pursued collectively.⁵

Increasingly, we understand that this form of architecture requires its own principles, tools, and action plans. And, increasingly, we glimpse the possibilities of a world in which scholars and institutions of higher learning regain control of the landscape itself.

Ultimately, we hope the landscape is well-matched and flexibly evolves to meet the needs of scholars, their societies, libraries, university presses and other publishers — the creators and keepers of the scholarly record within the academy. For now, we are excited and committed to contributing to that evolution. 

fied reviewers from process, rather like a jury selection process that, to avoid bias, ends up with twelve citizens who haven't read a newspaper in years. A few years ago, a Supreme Court decision (*Daubert v. Merrell Dow Pharmaceuticals*) threw out the old "Frye test" of general acceptance by the scientific community; the Federal Rules of Evidence, rather than the consensus of scientists in the field, now determines what scientific evidence can be used in the courtroom. An amendment attached to a spending bill in 1999 opened federally-funded research to Freedom of Information Act requests, so that critics could get data and do their own analysis if they didn't like the researchers' interpretation. The workings of the republic that **Michael Polanyi** described depended on trust extended to those who are "in the know." That trust has eroded significantly.

Not too long ago, **John Ziman** asked the readers of *Nature* to consider the question "is science losing its objectivity?" He was concerned that scientists were abandoning their traditions of disinterestedness, along with the mechanisms of apprenticeship and peer review that sustained it. "We all have personal interests and institutional values that we are bound to promote in our scientific work, however hard we try to suppress them. The virtue of academic science was that it took a strong line in support of 'disinterestedness' and often managed in practice almost to live up to its ideals." This is threatened, in **Ziman's** view, as "public knowledge" is transformed into "intellectual property" (754).

Striking a Balance

At my liberal arts college, we make every effort to support faculty and student research. When necessary, we will pay copyright fees for interlibrary loan articles. But the copyright fee for one science article for one researcher is often more than the price of a book that could be put on our shelves and shared among many readers. The unfortunate outcome is that we buy the one-time rights to the article and hope that when a patron needs the book we didn't buy, some other library will loan it to us. The implications of this practice are alarming.


As I write this, another university press announces it's closing its doors. Academic libraries are their prime market, and the contraction of book budgets means scholars are losing a valuable outlet for sharing research findings and analysis with the community at large. The books that people looked for on September 12, 2001 to understand what had just happened were found on the backlists of university presses. The next time we go through a similar crisis, the books that help us understand it may not be there. The so-called "serials crisis" is truly a cultural crisis with far-reaching implications and, while it's easy to point the finger at for-profit STM publishers, scholars themselves must share some of the blame.

If knowledge is a republic, we need to redefine what good citizenship means. Academic authors should examine their personal motives for publication and take seriously **John Ziman's**

call for disinterestedness. We need to look beyond whatever field we're tending and think about the health of the entire ecology of knowledge. Because ultimately, when we treat the work that academics are expected to do to fulfill their contract with society as mere intellectual property, rather than as a contribution to a public resource, we run the risk that contract will not be renewed.

A bill recently introduced in Congress by **Martin Sabo**, the "Public Access to Science Act," takes a breathtakingly simple approach to this — it would remove copyright protection from works arising out of federally funded research. Why should the public pay for it twice? This solution, while bold and apparently sensible, is problematic because even those frustrated by the current system don't want their work to be subject to alteration or reuse without attribution — actions that could harm the research record and won't serve the public interest in the long run. We can negotiate better ways to retain sufficient incentives for authors and publishers while honoring the benefits of public knowledge.

All it will take is a little imagination and a better understanding of the intersecting but crucially different perspectives of academic authors, publishers, and the public.

We have a republic — if we can keep it. Can we strike the right balance? That's not just an academic question. 

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Peer Review in the Internet Age: Five (5) Easy Pieces

by **Gerry McKiernan** <GMCKIERN@gwgate.lib.iastate.edu>

"... [In] the digital world, the evaluation process stands ready to be reinvented in a clear, rational way by the relevant research communities themselves."¹

— **Jean-Claude Guédon**

briefly characterizes many of the deficiencies of classic peer review as follows:

- **Subjectivity**

Summary rejections by editor without sending the paper to referees; choice of referees by the editor (choosing for example, a known harsh referee for a paper the editor wishes to see rejected);

- **Bias**

Discrimination against authors because of their nationality, native language, gender or host institution; situations where author and referee are competitors in some sense, or belong to competing schools of thought;

- **Abuse**

Too many articles out of one piece of research, or duplicate publication; intellectual theft: omission or downgrading of junior staff by senior authors; plagiarism (stealing others yet unpublished work that has been sent for review), delaying publication of potentially competing research;

- **Detecting Defects**

Identification of factual errors within submission

- **Fraud Misconduct**

Fabrication of results; falsification of data false claim of authorship for results.⁶

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