

Good science, bad font: Solving the problems of getting published

David Lynch's complaint about scientific journals and the challenges of getting one's work published (*PHYSICS TODAY*, March 2006, page 14) struck a responsive chord. Lynch describes well the hoops one has to jump through to prepare a paper to the exact specifications of a journal. Such problems have discouraged me—and, I am sure, many others—from publishing worthwhile research results.

The difficulties of getting published are compounded when one is working in a contentious area with policy implications—climate change, for example. An author can face endless hassles with referees, and with editors who often openly display their prejudices in editorials.

However, I have found several workable alternatives, at least for authors who no longer must publish in the journals to gain academic promotion.

- Publishing on the arXiv server or elsewhere on the Web. This is akin to sending out preprints or internal reports. They don't carry the prestige of established journals and may not be as widely read. But increasingly, it seems, established journals have published papers that are wrong and even fraudulent, despite the peer-review system.

- Presenting a paper at a professional conference or meeting. After approval by the session organizers—a kind of peer review—the abstract is published and can be cited as a reference. Compared to preparing a paper for journal publication, the effort is minimal. The discussion and feedback are immediate and can be quite stimulating.

- Publishing with a coauthor, preferably one who still has access to slave labor, also known as graduate students.

- Writing a book, perhaps the most satisfying way to publish new ideas.

And people read them, too—especially people who disagree. I once had a researcher publish a critique of my analysis in a refereed journal, and much to my satisfaction, I later proved him wrong.

► Finally, of course, there is a letter to the editor. I don't know about others, but I always read the letters first.

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The recent letter in which David Lynch indicts the publishers of scientific journals for foisting typesetting duties upon authors raises some interesting points. Publishing and printing technology has changed rather dramatically during the last few decades of the 20th century. This ongoing Lorentzian transformation, the result of increasingly affordable and efficient computer hardware and software, has forever altered the publishing landscape and blurred the lines between the various tasks. Anyone with a computer can now perform many tasks and is expected to do so. This mindset raises several questions beyond that raised by Lynch.

Has technology enhanced the quality of available information or merely increased the volume of it? Many an article cites the nearly Moore's law increase in the length and number of scientific articles published every year. Gone are the days when researchers can propose a revolutionary new paradigm such as plate tectonics in a mere three pages.¹ And Albert Einstein's landmark paper on special relativity occupies a mere 31 pages.² So why does a multi-author consortium require 100 pages to describe an obscure velocity distribution function in an equally obscure nuclear reaction not known to occur in nature?

Does electronic publishing save money? Every piece of new technology brings with it a new set of issues to contend with, transitional difficulties, and acclimation periods for new users. Even if journals do away with hard copy, there remain the considerable expenses of managing databases, uploading files, providing proper technical support, and controlling access. The individuals

responsible for these duties get paid through page charges and subscription fees. And someone's got to pay for the electricity to keep the servers up and running. The Web is not free!

So where does the publisher fit into this scheme? Lynch proposes that publishers be flexible and accept papers in various formats. But there is no ideal format, platform, or software. We still use Donald Knuth's TeX program, now 30 years old, to handle much of the math typesetting for journals. Most graphics image files are of no use to a publisher; they cannot be edited. Yes, PDF (portable document format) files would be better, but even the simple task of rebreaking a poorly typeset equation proves elusive. This leaves us with the source files, which need to be carefully managed and reformatted.

As one who has edited more than 100 books and thousands of journal articles, I have yet to see a manuscript that did not require a certain amount of editorial intervention—sometimes major intervention—to bring it up to the scholarly standards of any reputable publisher. Journals can publish several hundred articles a year. Keeping track of these articles, along with the various referee reports and revisions, is a significant data management role of the publisher.

In the course of my duties as editor I have done rewriting, reformatting, typesetting, page layout, book design, and other non-editing tasks, many of which have been facilitated by technology. Unfortunately, we cannot bring back the good old days when we each had only one role to fill. Whether one is an author, an editor, a publisher, or a printer, the evolutionary forces at work require us to become increasingly proficient at multitasking. Benjamin Franklin, the grandmaster of multitasking, would feel right at home.

References

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2. A. Einstein, *Ann. Phys. (Leipzig)* **17**, 891 (1905).

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