

How to cope with the eruption of scientific information?

The Harvard Rebellion

When I began my scientific activity back in the early 1960s, the leading American journal "The Physical Review" was a 250-page monthly with papers on all areas of physics. Fifty years on, "The Physical Review" has six fortnightly editions A, B, C, D, E, and F, each devoted to a different branch of physics and each 600 pages long. Other scientific journals have undergone a similar expansion. The prestigious British "Nature," which used to publish papers from all the sciences, has multiplied into more than a dozen specialized editions. And lately there has been a steady stream of new scientific periodicals emerging, mostly from Asia. Several times a week I receive requests to supply reviews for these new journals, and once every three months or so one of them offers me a place on their editorial board. I am encouraged to submit publications, write review articles, and persuade my colleagues to do likewise. I could also present papers at conferences no one has ever heard of before, especially in China or India. Provided, of course, I am prepared to cover all the costs myself.

At first, flattered as I was to be wooed in this way, I agreed to contribute to some of these new ventures. However, I quickly realized that the principal aim of most of them was to make money – not for me, but for others.

Yet there's more to the issue than just that. No one can deny that we are seeing an eruption of scientific information. The "emerging markets" of China, India, South Korea, and Brazil have started to make their presence felt in the world of science, and the global production of knowledge is growing quickly. In an age when everything is for sale, and even hospitals and cemeteries operate on commercial principles, it should come

as no surprise that people want to profit from it. But in this case it is scientists who are expected to generate the money, even though they are not being paid either for submitting papers, or for reviewing them. All the profit goes to the publishers. And here comes the strongest accusation: that publishers are actually inhibiting the development of science.

Irritated scientists have recently been driven to rebellion, claiming that well-known publishing houses, by charging high fees for access to published papers, are acting as parasites on the world of science. I myself have had the experience of being unable to access the published version of a paper I had previously reviewed for free. Harvard University has appealed to scientists not to publish in prestigious private journals, because it cannot afford to subscribe to all the important ones. And if it is a problem for Harvard, what about smaller and less affluent universities? Eminent British mathematician Tim Gowers is currently waging a public war against the major Dutch publisher Elsevier. "I will neither submit nor review papers for them," he

declares. His complaint is that Elsevier will only sell prestigious journals if they are bought bundled together with little-known periodicals, which lends considerable credence to the accusation of publishers hindering the development of science. I share Gowers' negative opinion of Elsevier: they recently sent me a list of papers that had cited a particular article of mine, but when I tried to view them it turned out that I would have to pay over a thousand euro. According to Robert Darnton, director of Harvard Library: "We faculty do the research, write the papers, referee papers by other researchers, serve on editorial boards, all of it for free... and then we buy back the results of our labor at outrageous prices. The system is absurd."

One really must agree with Gowers and Darnton, especially when the research to which private publishers are blocking access has been publicly funded. On the other hand, a scientist's standing is now largely dependent on the prestige of the journals in which he or she publishes. A young scientist, still working his or her way up, might say, "It is all right for Gowers, who is already famous, to go up against Elsevier, but what about me?" And, indeed, it is true that when we assess applications for European Research Council funding of scientific projects, we always check first how many articles the applicant has published in "Nature" or "Science." Thus a complete change in the evaluation system is called for. And here the Internet seems to offer a good solution: all scientific papers should also be published online, and the main, if not the only, criterion for their assessment should be the number of times they are cited. This criterion is not ideal, because

it takes years to become widely quoted, but everything is moving faster nowadays. Recently, the number of times a paper gets downloaded has become another way to measure its success.

In practice, some of us have been waging a private war for years. We review only for those journals in which we publish our papers – non-profit periodicals to which subscription is inexpensive. We guarantee wide access to our articles by making them available on the Internet. We access the papers of other authors in the same way. Recently, several bills have been submitted to the US Congress, seeking to prohibit reviewed versions of scientific articles from being released on the Internet. I sincerely hope that they will not be passed. And what if they are? Well, then we'll just join the pirates.



Private publishers use scientists as money-making machines, blocking access to research funded with public money

Włodzimierz Zawadzki
Institute of Physics
Polish Academy of Sciences, Warsaw
zawad@ifpan.edu.pl