

Access all areas

Scientific publishing is having to change rapidly to respond to growing pressure for free access to published research.

IN a letter penned in 1676, Isaac Newton famously wrote, "If I have seen further it is by standing on the shoulders of Giants." Although it is debatable whether Newton was being modest or making a barbed comment towards his correspondent (a competitor of short stature) the phrase epitomises views of how science progresses – with the speedy and open publishing of discoveries so that others may make use of them to push back the frontiers of human understanding.

For centuries, printed journals destined for university libraries have been the focus of this publishing activity. The winds of change, though, are sweeping through these quiet and dusty corridors. Because of the Internet, cost and distance are no longer barriers to providing the results of research to more than just a restricted and privileged few. This is leading people to ask why those results are not, in fact, freely available to all.

An impressive industry has built itself around the dissemination of academic research – particularly scientific work. There are over 2,000

publishers in what is called STM (scientific, technological and medical) publishing alone. Together, they publish 1.2m articles a year in about 16,000 periodical journals. It is a huge success. Not everyone, though, is entirely satisfied. Academics, universities and governments are worried that publishers have grown a little too fat and happy.

SERIAL KILLERS

The problem is one of monopoly. Of course, publishing itself is an industry with few barriers to entry. That is not the issue. But certain journals are able to capture a lion's share of the important papers because researchers want their papers published in the most prestigious ones. Some titles have acquired exceptional cachet over the years. Such is their prestige that a researcher can win tenure, promotion or a research grant on the basis of a single article in the right publication.

That means the publishers of those journals have the pick of the best papers, reinforcing their reputations in a positive feedback loop. They also claim copyright over what they publish, reinforcing their monopoly. So if

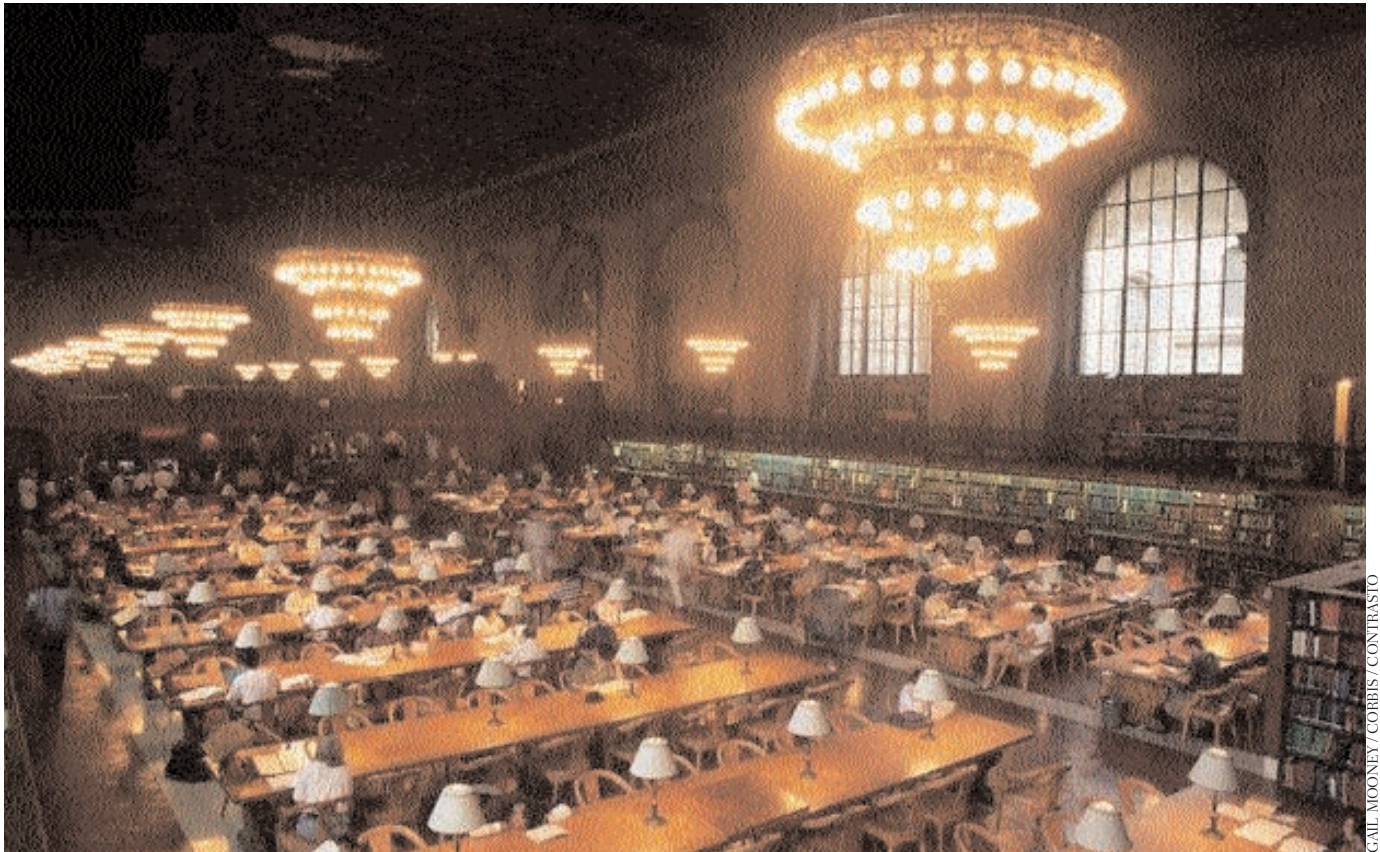
you want to read an important paper (or an unimportant one for that matter) you have no legal choice but to pay the publisher for it.

The upshot is that university libraries must purchase the leading titles, almost whatever their price, and often at the expense of carrying less-exalted works. Owning a prestigious journal has thus become a lucrative business, which many people believe is being abused.

Cornell University, for example, recently reviewed its policies on journal acquisition. In the course of that review it noted that between 1986 and 2001 the library budget at its main campus in Ithaca, New York, increased by 149%. The number of periodicals purchased, however, grew by only 5%.

Governments, whose funds ultimately pay for a lot of the journals on the shelves of university libraries, are noticing too. A report published in July by Britain's House of Commons Science and Technology Committee found that the average price of an academic journal in Britain rose by 58% between 1998 and 2003, while the retail price index rose by 11% in that period, and scientific output

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rose by 20%. The report added that profits in the industry were exceptional, singling out Reed Elsevier, a British publisher whose Dutch subsidiary, Elsevier, is the market leader in STM publishing, for having profits “as much as 34% at the operating level”.

Indeed, Elsevier has attracted criticism from a number of quarters. Cornell’s reviewers, for example, observed that in the previous decade Elsevier’s annual price increases on its titles had often been over 10% – and occasionally over 20%.

Arie Jongejan, CEO of Elsevier’s science and technology division, defends his firm’s profits, pointing out that after tax and depreciation,

last year’s profit margins were 17%, not as high as some claim. But that is still a hefty whack. He justifies such margins on the grounds that the firm’s journals are publishing more papers each year and also because high profitability is necessary in order to ensure the sustainability of those journals.

FREE FOR ALL?

But the dominance of Elsevier and its kin is under attack. The House of Commons Science and Technology Committee did more than just lament the rising price of journals. It told the British government that the country’s universities should be required to ensure that all their

research papers are available free online, and that government-funded research grants ought to include free access to the findings as a condition of the awards. The government will respond next month*.

American politicians, too, are getting cross. Earlier this month the House of Representatives’ Committee on Appropriations approved a provision in a bill that backs open access to material published by the National Institutes of Health (NIH). The committee expressed concern at the lack of public access to research findings, and at the rising price of journals. These, it commented, were “contrary to the best interests of the US taxpayers who paid for this research”.

* The Government’s response will be available on the Science and Technology Committee page at www.parliament.uk. It was still awaited at the time this issue of *Cancer World* went to press

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If the Senate approves the recommendation, it will become law and the NIH will be required to deposit research funded by the agency into an online government archive called PubMed Central within six months of publication in any journal. If this happens, it will be significant, since NIH-funded work amounts to 50,000 papers a year.

Even mainland Europe is getting in on the act. In October 2003, the leading research associations of Germany, France and Switzerland signed what has become known as the 'Berlin Declaration' – another call for free access to research findings. One of the groups behind the declaration, Germany's Max Planck Society, is now changing its employment contracts to require staff to return the copyright of their work to the society. At the moment it gets assigned to the publishers. Although the society's researchers will still be able to publish in journals, their work must eventually be put into an online repository.

In response to the Berlin Declaration, the European Commission has begun a study of the scientific-publishing market – looking at price,

access to published papers, and copyright. Because 41% of scientific papers originate in Europe (compared with 31% in America), the results of this study could have a big effect on the publishing industry.

One way of addressing the concerns of politicians and university libraries is the promotion of journals in which the author pays to be published. Many new online journals are attempting to do this, using electronic publication to cut their costs. The results are then made available free to readers.

BioMed Central, based in Britain, is one such publisher. The company, which was established in 1999, has not yet broken even. But Deborah Cockerill, the firm's assistant publisher, says it is likely to do so soon, as it is growing fast. The number of articles it publishes has doubled every year. In America, a not-for-profit organisation called the Public Library of Science is employing a similar business model.

Another possibility is to generalise the House of Representatives' proposal for American medical research and allow the traditional journals a limited period of monopoly – say six

months – after which they have to make all taxpayer-funded content available free online.

Understandably, the traditional publishers are not too happy about these ideas, although some of them are moving pre-emptively towards the free-after-six-months model of the future. Barbara Meredith, vice-president of professional and scholarly publishing at the Association of American Publishers, a trade group, has said that a demand for open access to research findings could undermine the sustainability of the publishing industry, and has promised to lobby vigorously against this happening.

At the moment, the entire open access literature is tiny – less than 1% of what is published according to the Public Library of Science. But if governments were to insist that the results of research they fund must be published in an open-access way, that would change completely. The days of huge profits would then be numbered. Prestige has its uses – and the open-access journals will, no doubt, establish a pecking-order among themselves fairly quickly. But for prestige at any price, time is probably up.

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