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Scientific publishing

The price of information

Academics are starting to boycott a big publisher of journals

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SOMETIMES it takes but a single pebble to start an avalanche. On January 21st Timothy Gowers, a mathematician at Cambridge University, wrote a blog post outlining the reasons for his longstanding boycott of research journals published by Elsevier. This firm, which is based in the Netherlands, owns more than 2,000 journals, including such top-ranking titles as *Cell* and the *Lancet*. However Dr Gowers, who won the Fields medal, mathematics's equivalent of a Nobel prize, in 1998, is not happy with it, and he hoped his post might embolden others to do something similar.

It did. More than 2,700 researchers from around the world have so far signed an online pledge set up by Tyler Neylon, a fellow-mathematician who was inspired by Dr Gowers's post, promising not to submit their work to Elsevier's journals, or to referee or edit papers appearing in them. That number seems, to borrow a mathematical term, to be growing exponentially. If it really takes off, established academic publishers might find they have a revolution on their hands.

A bundle of trouble

Dr Gowers's immediate gripes are threefold. First, that Elsevier charges too much for its products. Second, that its practice of "bundling" journals forces libraries which wish to subscribe to a particular publication to buy it as part of a set that includes several others they may not want. And third, that it supports legislation such as the Research Works Act, a bill now before America's Congress that would forbid the government requiring that free access be given to taxpayer-funded research.

Elsevier insists it is being misrepresented. The firm is certainly in rude financial health. In 2010 it made a £724m (\$1.16 billion) profit on revenues of £2 billion, a margin of 36%. But it charges average industry prices for its products, according to Nick Fowler, its director of global academic relations, and its price rises have been lower than those imposed by other publishers over the past few years. Elsevier's enviable margins, Dr Fowler says, are simply a consequence of the firm's efficient operation.

Dr Neylon's petition, though, is symptomatic of a wider conflict between academics and their publishers—a conflict that is being thrown into sharp relief by the rise of online publishing. Academics, who live in a culture which values the free and easy movement of information (and who edit and referee papers for nothing) have long been uncomfortable bedfellows with commercial publishing companies, which want to maximise profits by charging for access to that information, and who control many (although not all) of the most prestigious scientific journals.

This situation has been simmering for years. In 2006, for example, the entire editorial board of *Topology*, a mathematics journal published by Elsevier, resigned, citing similar worries about high prices choking off access. And the board of *K-theory*, a maths journal owned by Springer, a German publishing firm, quit in 2007.

To many, it is surprising things have taken so long to boil over. Academics were the internet's earliest adopters, with all the possibilities

for cutting publishers out of the loop which that offers. And there have indeed been attempts to create alternatives to commercial publishing. Cornell University's arXiv website (pronounced "archive", the X standing in for the Greek letter "chi") was set up in 1991. Researchers can upload maths and physics papers that have not (yet) been published in journals. Thousands are added every day. The Public Library of Science (PLOS) was founded in 2000. It publishes seven free journals which cover biology and medicine.

But despite the enthusiasm for such operations, there are reasons for the continued dominance of traditional publishers. ArXiv's papers, though subject to merciless post-publication commentary, are not formally peer-reviewed before they are posted. Their quality is thus rather uneven. PLoS relies partly on donations, but also charges publication fees of up to \$2,900 per paper. These must be paid by the authors, a significant expense for cash-strapped university departments. And there is also a lingering prejudice against electronic-only publishing. Web-based alternatives often seem less respectable than their dead-tree counterparts.

That matters, because university departments (and individual researchers within them) are rated both by the number of papers they publish and the reputation of the journals those papers appear in. Youngsters, who might be expected to embrace new ways of doing things, must therefore publish in existing, reputable journals if they want recognition and promotion. And the definition of "reputable" changes slowly, since journals with the best reputation get the pick of new papers.

Commercial publishers have begun to experiment with open-access ideas, such as charging authors for publication rather than readers for reading. But if the boycott continues to grow, things could become more urgent. After all, publishers need academics more than academics need publishers. And incumbents often look invulnerable until they suddenly fall. Beware, then, the Academic spring.