

Is your journal really necessary?

Science may best prosper if print journals are replaced by online communities.

Declan Butler

"What I like about *Nature* is that it is the sort of journal you read in the toilet." While there is no doubt a quip to be made about other potential uses of *Nature's* pages in such a setting, this comment, by a prominent French geneticist, is flattering. It testifies to reader appreciation of the costly professional input that goes into producing readable journals of high scientific and editorial quality.

Many of the challenges faced by the staff of *Nature* are shared by the editors of the dozen or so fledgling journals reviewed in the following pages. The expressed motivations for creating these journals encapsulate many core functions of journals: to attract top papers, to promote rigorous peer review, to collate material within a discipline — in the words of *Traffic: The International Journal of Intracellular Transport* (see page 299), to create "a central journal to gather together publications that are of most interest to those working on cellular trafficking" — or work scattered across many disciplines, as in the case of *Interfaces and Free Boundaries: Modeling, Analysis and Computation* (see page 297).

Another function, well exemplified in three new gene-therapy journals (see page 292), is to review, to regularly take stock of published work, and trends. All these core functions of a journal share a commitment to impose intellectual rigour and high editorial standards on an exponentially increasing body of knowledge, so as to make that information more accessible and placed in a wider context.

Faced with such needs, the response has usually been to create printed journals to make the new data more manageable. But are there now better ways of meeting the same needs? The answer is an unequivocal 'Yes'. Admittedly, print has a look and feel missing — for the moment — in the electronic world. But the plethora of print journals is doomed to extinction; it makes no economic sense and is increasingly a hindrance to science itself.

Not all print journals will disappear. Journals whose content can command a large readership will continue to exist, and indeed flourish, in print, as their economics are akin to those of the magazine market. But the bulk of journals are consulted no more than 50 times a year in a typical library, and only 15% more than 250 times. Subscribing just to the handful of journals reviewed here will set you back several thousand dollars. The costs of print are difficult to justify for most journals (see *Nature* 397, 195–200; 1999). In a free

market, high-cost/low-circulation journals would be forced to go electronic, or disappear.

The current proliferation of low-circulation journals means that even the richest libraries cannot subscribe to them all. The toll-gates of high subscriptions of thousands of print journals are thus a fundamental and unnecessary barrier to knowledge. But this so-called "serials crisis", although immediately acute, is not the major reason most journals are destined to exist only electronically.

What will drive change is Internet functionality. I do not refer to small improvements, such as better and faster searching, but to an imminent paradigm shift in scientific publishing and data handling. The core functions of a journal are the intelligent commissioning, editing and grouping of material to meet the needs of communities.

But in the future an electronic paper's content will be linked and matched automatically to related material across the entire literature, using increasingly sophisticated algorithms, rejuvenating serendipity and interdisciplinarity. The web is ideal for aiding the core journal function of regrouping work scattered across many disciplines.

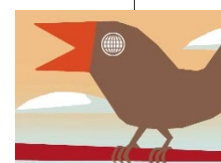
But in this inevitable electronic world, the invisible hand of professional publishers and editors will be as important as it is now, and there will be costs attached. Indeed, as the flood of information grows, more and not less human editorial skill will be needed to make sense of it. At the same time, market demand for access across the entire literature will drive imaginative deals between publishers and libraries to make such access affordable. Transferring these costs from libraries to the users themselves, for example on the basis of metered use, would also allow market forces to turn the distorted scholarly publishing market into a competitive one.

The possibilities of sophisticated matching of personalized editorial selections across large swathes of the literature, and the need to lower barriers to access, should in themselves be sufficient to convince scientists tempted to create low-circulation print journals to consider web-only options. Arguments that electronic-only will hinder access of developing countries to science is nonsense. The reality is

that a library in Kinshasa would be lucky if it could afford to subscribe to a handful of print journals; the web promises developing countries access to scientific information they could previously only have dreamed of.

But the essential function of a journal is to serve a particular community. The next web revolution will be a plethora of next-generation communities linking papers, people and data. So next time you think about launching a print journal, unless you have sufficient readership to survive in a free competitive market, do your colleagues and science a favour by considering instead what your community needs, and launch the answer online. I predict that this change will occur in under five years; if I am wrong, I will eat my journal.

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