

## ■ Things to come in biomedical publishing

### Why we do not have today what is inevitable in scientific publication tomorrow?

I sat next a knowledgeable proponent of open access publishing at a dinner in Rome. With the public relations campaign to discredit open access launched by the American Association of Publishers in mind, I asked if he was worried about traditional publishers. "Not in the least", He replied, "How do you think the current generation of students who are computer literate and used to free access to information on the Internet are going to react when they are asked to pay for access to research results later in their careers?" If it is only a matter of time, why haven't traditional publishers seen the writing on the wall and taken far-reaching steps rather than lukewarm strategies like offering authors options to pay for open access? A fascinating article by Michael Nielsen answers this question (<http://michaelnielsen.org/blog/?p=629>).

Kongo Gumi was the oldest company in the world. It went into liquidation in 2006 after one and a half thousand years in the construction business in Japan. This is the first example Nielsen uses under the heading 'How Industries Fail' in his article which asks if scientific publishing is about to be disrupted. Nielsen explains that there are two common explanations for the disruption of industries: the people in charge are stupid or they are malevolent. The malevolence is driven by a desire to preserve the status quo which the leaders of industry find personally comfortable.

The article is about the scientific publishing industry but it sets out by asking why online news is killing the newspapers. One obvious reason is that the operating and distribution costs are lower per word than those of newspapers. Another is that newspaper advertising revenue is declining (by 30% in the US in the last 3 years), and the decline is accelerating. Nielsen describes how it is hard for established organisations to change to a new model: some of the forces preventing change are strongest in the best run organisations which resist innovators from within. Only someone outside the newspaper industry could have launched Google News. There is also a classic immune response expressed by established organisations' conviction that they deliver better quality. We have frequently heard this argument put forward by traditional scientific journals: peer review and editorial quality. However, the argument that 'we're better than blogs' is short-sighted: "When new technologies are being developed, the organisations that win are those that aggressively take risks, put visionary technologists in key decision-making positions...and in most cases make a lot of mistakes". Organisations learn and grow from these mistakes.

Nielsen predicts that in 10 to 20 years' time programmers rather than production and distribution experts will be at the forefront of information dissemination. Instead of production companies specialising in editorial, copyediting, sales and marketing, scientific publishers will be technology companies, by which he means they will be technology-driven

like Google or Apple. Google is becoming the world's largest media company. You would think that blogging, texting and Tweeting, which are catching on rapidly in the scientific community, combined with social media tools making it easy to build an audience for content, would terrify scientific publishers.

Comments posted in response to the article highlight the system of promotion and funding in science as a major barrier to widespread disruption of traditional publication of scientific works. Tony Wasserman wrote that established journals and conferences are highly regarded by senior faculty who perhaps can't be bothered to learn new technologies but who make the tenure decisions for junior faculty. Junior faculty must publish their research in these peer-reviewed journals and conferences, or risk their promotion. George McKee pointed out funding for research as another barrier saying that as long as the fogeys of the 'old boy network' depend on that same network of journals and paper-only conference proceedings, those sources will never die. So it seems that only when senior faculty and members of funding committees are replaced by the new generation of media-capable researchers will those media get a fair chance in playing a significant role in scientific progress. McKee saw some hope of earlier progress with blog search engines such as Technorati which is able to identify hotspots in new scientific media and drive attention to the really good sources. He was sure its ability to spider the entire visible web would at least avoid future mishaps such the tragic fate of Gregor Mendel's work, which languished in obscurity for 40 years.

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### The future format of the scientific article?

Elsevier have published a prototype for the online 'article of the future' [1]. The format is hierarchical rather than linear, bulleted highlights are included as well as a graphical abstract to encourage browsing. More interactive links are included and it is also envisaged that some papers will have embedded podcasts of interviews between the author and editor. However, the new article format is not substantially different from current online papers and one person reported on the *Nature* network forum not being satisfied with the solution for having a figure and text describing it if they are on consecutive pages before you at the same time [2].

#### References:

1. <http://www.bio-itworld.com/news/07/20/09/Elsevier-Cell-Article-of-the-Future.html>
2. <http://network.nature.com/groups/goodpaper/forum/topics/5099>