

*With little money in science research, some believe that it is inappropriate for research councils to pay for costly journal subscriptions. **Peter Coles** dissects what he believes to be the “parasitic” nature of journal subscriptions, arguing that open access e-print archives, such as physicist favourite arXiv, could be the future of academic publishing.*

The argument about academic publishing has been bubbling away nicely in the mainstream media (<http://www.guardian.co.uk/commentisfree/2011/aug/29/academic-publishers-murdoch-socialist>) and elsewhere in the blogosphere (<http://occamstypewriter.org/scurry/>); see a recent post (<http://telescoper.wordpress.com/2011/09/02/uninformed-unhinged-and-unfair-the-monbiot-rant-via-the-scholarly-kitchen/>) on my own blog for links to some of the discussion elsewhere.

I'm not going to pretend that there's a consensus amongst all scientists about this, but everything I've read has confirmed my rather hard-line view, which is that in my field, astrophysics, academic journals are both unnecessary and unhealthy. I can certainly accept that in days gone by, perhaps up to around 1990, scientific journals provided the only means of disseminating research to the wider world. With the rise of the internet, that is no longer the case. Year after year we have been told that digital technologies would make scientific publishing cheaper. That has not happened. Journal subscriptions have risen faster than inflation for over a decade. Why is this happening? The answer is that we're being ripped off. What began by providing a useful service has now become simply a parasite and, like most parasites, it is endangering the health of its subject.

The scale of the racket is revealed in an article (http://www.researchresearch.com/index.php?option=com_news&template=rr_2col&view=article&articleId=1102230) I came across in Research Fortnight. Before I give you the figures, let me explain that the UK Higher Education funding councils, such as HEFCE in England and HEFCW in Wales, award funding in a manner determined by the quality of research going on in each department, as judged by various research assessment exercises; this funding is called QR funding. Now listen to this. It is estimated that around 10 per cent of all QR funding in the UK goes into journal subscriptions. There is little enough money in science research these days for us to be paying a tithe of such proportions. This has to stop.

You might ask why such an obviously unsustainable situation carries on. I think there are two answers to this. One is the rise of the machinery of research assessment, which plays into the hands of the publishing industry. For submitted work to count in the Research Assessment Exercise (or its new incarnation, the Research Excellence Framework) it must be published in a refereed journal. Scientists who want to break the mould by publishing their papers some other way will be stamped on by those who hold the purse strings. In my opinion, the whole system is invidious.

The second answer is even more discomfoting. It is that many scientists actually like the current system. Each paper in a “prestigious” journal is another feather in your cap, another source of pride. It doesn't matter if nobody reads any of them, one's published output is a measure of status. For far too many researchers, gathering esteem by publishing in academic journals has become an end in itself. The system corrupts and has become corrupted. You can find similar comments in a piece in last week's Guardian (<http://www.guardian.co.uk/science/2011/sep/05/publish-perish-peer-review-science>).

So what can be done? Well, I think that physics and astronomy can show the way forward. There is already a rudimentary yet highly effective prototype in place, called the arXiv (<http://arxiv.org/>). In many fields, including astronomy, all new papers are put on the arXiv, and these can be downloaded by anyone for free. Particle physics led the way towards the World Wide Web, an invention that has revolutionised so many things. It's no coincidence that physicists are also ahead of the game on academic publishing too.

Of course it takes money to run the arXiv and that money is at the moment paid by contributions from universities that use it extensively. You might then argue that means the arXiv is just another journal, just one where the subscription cost is less obvious.

Perhaps that's true, but then just take a look at the figures. The total running costs of the arXiv

(<http://arxiv.org/help/support/faq>) amount to just \$400,000 per annum. That's not just for astronomy but for a whole range of other branches of physics too, and not only new papers but a back catalogue going back at least 15 years.

There are about 40 UK universities doing physics research. If UK Physics had to sustain the costs of the arXiv on its own the cost would be an average of just \$10,000 per department per annum. Spread the cost around the rest of the world, especially the USA, and the cost would be peanuts. Even \$10,000 is less than most single physics journal subscriptions; indeed it's not even 10 per cent of my department's annual budget for physics journals!

Whenever I've mentioned the arXiv to publishers they've generally dismissed it, arguing that it doesn't have a "sustainable business plan". Maybe not. But it is not the job of scientific researchers to support pointless commercial enterprises. We do the research. We write the papers. We assess their quality. Now we can publish them ourselves. Our research is funded by the taxpayer, so it should not be used to line the pockets of third parties.

I'm not saying the arXiv is perfect but, unlike traditional journals, it is, in my field anyway, indispensable. A little more investment, adding comment facilities or a rating system along the lines of, for example, reddit (<http://www.reddit.com/>), and it would be better than anything we get from academic publishers at a fraction of the cost. Reddit, in case you don't know the site, allows readers to vote articles up or down according to their reaction to it. Restrict voting to registered users only and you have the core of a peer review system that involves an entire community rather than relying on the whim of one or two referees. Citations provide another measure in the longer term. Nowadays astronomical papers attract citations on the arXiv even before they appear in journals, but it still takes time for new research to incorporate older ideas.

Apparently, Research Libraries UK, a network of libraries of the Russell Group universities and national libraries, has already warned journal publishers Wiley and Elsevier that they will not renew subscriptions at current prices. If it were up to me I wouldn't bother with a warning...

Peter Coles is Professor of Theoretical Astrophysics at Cardiff University (http://en.wikipedia.org/wiki/Cardiff_University) where he has worked since 2007. This blog post was originally posted on Peter Coles's own *In The Dark* blog (<http://telescopers.wordpress.com/2011/09/10/science-publishing-what-is-to-be-done/>).

Related posts:

1. University libraries, repositories and Open Access should be seen as crucial tools in improving the impact of academic research (<http://blogs.lse.ac.uk/impactofsocialsciences/2011/04/13/university-libraries-repositories-impact-of-academic-research/>)
2. 'Payback' approach has scope to continue evolving, concludes research impact workshop (<http://blogs.lse.ac.uk/impactofsocialsciences/2011/04/18/report-back-from-the-state-of-the-art-in-assessing-research-impact-workshop-at-brunel/>)
3. Open evaluation of new Enterprise Zones stands to increase understanding of the impact of urban policy at little cost (<http://blogs.lse.ac.uk/impactofsocialsciences/2011/07/06/open-evaluation-future-of-evidence-based-policy-making/>)
4. HEFCE are still missing a trick in not adopting citations analysis. But plans for the REF have at least become more realistic about what the external impacts of academic work are (<http://blogs.lse.ac.uk/impactofsocialsciences/2011/08/04/hef-ce-citations-analysis-ref-realistic-academic-impact/>)