

## Open Access: Whom would you back?

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Open Access ([OA](#)) advocates will tell you that there are [two roads](#) to OA.

[Green OA](#) consists of researchers continuing to publish in traditional subscription journals, and then [self-archiving](#) their final peer-reviewed papers on the Web, either in an [institutional repository](#) or in a central or subject-based repository like [arXiv](#) or [PubMed Central](#). In this way they can ensure that any other researcher in the world is able to access their papers, regardless of whether the other researcher's institution has a subscription to the journals in which the papers are published.

[Gold OA](#), by contrast, consists of researchers publishing in specialist OA journals (e.g. the journals of OA publishers like [BioMed Central](#) or [Public Library of Science](#)) rather than in a subscription journal. Instead of limiting access by imposing a subscription, OA publishers levy on authors (or more usually their funders or institutions) an article processing charge ([APC](#)). This is intended to cover the costs of organising peer review, and any costs incurred in making papers available online.

There are two variations on Gold OA: [Hybrid OA](#), where a *subscription* journal agrees to make single papers freely available on the Web on payment of an APC (while the rest of the papers remain available to subscribers only); and institutional "[membership](#)" OA, where a research institution forward-buys in bulk the right for all of its researchers to publish with a specific OA publisher, thereby avoiding the need to pay an APC every time an article is published.

Whether Green or Gold, OA implies providing *immediate, permanent, toll-free online access to the full-texts of peer-reviewed research journal articles*.

The logic of OA is that the global network allows the scholarly community to dispense with the traditional paywalls characteristic of the print publishing world, thereby maximising the number of researchers able to view published papers. The assumption is that this will enable research to develop more quickly, and more effectively.

### Concurrent or consecutive?

But as the OA movement has developed an interesting question has arisen: should Green and Gold OA be viewed as concurrent or consecutive activities?

This is not an issue of intellectual curiosity alone: it has important strategic implications for the OA movement. It requires, for instance, that the movement decides whether to treat Green and Gold OA as complementary or competitive activities; and if they are competitive, then where the OA movement should focus its main efforts.

Speaking to me in 2007, the de facto leader of the OA movement Peter Suber took a characteristic "big tent" approach: The two forms of OA, he said are complementary, and should be developed in tandem.

In this way, Suber believes, the OA movement will maximise its chances of success, and achieve OA more quickly. As he put it, "OA archiving and OA journals are complementary and need to proceed

simultaneously, much as an organism develops its nervous system and digestive system simultaneously and cannot do one first and the other second."

By contrast, OA advocate and self-styled [archivangelist](#) Stevan Harnad views the two roads as competitive. Moreover, he says, Green OA must prevail before the movement puts any significant effort into Gold OA.

This is important, he argues, not only because Green OA can be achieved much more quickly and easily than Gold OA, but because it will force publishers to downsize, and so squeeze unnecessary costs out of the current system of scholarly communication.

Since the research community has been in the grip of the so-called "[serials crisis](#)" for several decades — with journal subscriptions consistently rising faster than library budgets — costs are an important consideration. This [affordability](#) problem means that each year librarians are forced to cancel more and more journals, depriving their researchers of access to a growing proportion of the refereed literature.

The logic of Harnad's argument is that while both Green and Gold OA can resolve the *access* problem (by freeing the refereed literature), only Green can resolve the *affordability* problem.

We should add that Harnad has also always insisted that the only priority for the OA movement is to resolve the *access* problem, and Green is the fastest way of doing this. The *affordability* problem, he argues, will need to be addressed separately.

Nevertheless, Harnad believes that as more and more researchers self-archive their papers libraries will be able to cancel journals, since the majority of papers published in those journals will eventually be freely available on the Web. This, he says, will force publishers to downsize their businesses and reduce the range of services they offer, which in turn will drive down prices. For many (if not all) publishers it will also mean having to migrate to a Gold model, simply in order to survive.

It would seem fair to conclude, therefore, that Harnad believes Green OA can resolve both the *access* and *affordability* problems. As he [put it](#) in 2007, "As subscription revenues shrink, institutional windfall savings from cancellations grow. If and when journal subscriptions become unsustainable, per-article publishing costs will be low enough, and institutional savings will be high enough to cover them, because publishing will have downsized to just peer-review service provision alone, offloading text-generation onto authors and access-provision and archiving onto the global network of OA Institutional Repositories. Green OA will have leveraged a transition to Gold OA."

This makes sense. In an online world scholarly publishing should surely be cheaper: there are no print costs, and many of the services currently provided by publishers can now be done by the research community itself.

And yet we have seen that in the hands of publishers electronic access does not solve the affordability problem. In practice, as scholarly journals were moved to the Web publishers began to bundle them into all-you-can-eat packages popularly known as the "[Big Deal](#)", and then sold large portfolios of journals rather than single subscriptions.

This meant that those publishers with a large stable of prestigious journals quickly consumed the entire serials budget of libraries, forcing smaller publishers out of the market. Since this reinforced the market power of the big players it allowed them to ramp up their prices further, rather than

reduce them — the inevitable consequences of market forces in an environment where there are few if any mechanisms to control prices.

## What if?

So if Harnad is right to argue that in order to squeeze unnecessary costs out Green should precede Gold what would be the consequences if the OA movement were to prioritise Gold over Green? Might we see the *access* problem resolved without a resolution of the *affordability* problem?

Initially Green OA advocates saw no need to puzzle over such questions. They assumed it was self-evident that researchers would embrace self-archiving in sufficient numbers to make the question moot. After all, if the world's researchers all started self-archiving, universal OA could be achieved practically overnight.

Converting the circa [24,000 peer-reviewed journals](#) to Gold OA, by contrast, would surely take a considerable period of time, not least because traditional subscription publishers were initially highly resistant to OA, which they viewed as a direct threat to their profits.

Moreover, as Harnad frequently argues, if research institutions cannot afford to pay for all the journals they need, why would they divert some of their scarce funds to pay for Gold OA?

And when researchers appeared reluctant to self-archive, Green OA advocates assumed research institutions and funders could easily be persuaded to introduce [self-archiving mandates](#) that required researchers to make their published papers freely available on the Web.

But a number of developments have cast increasing doubt on the ability of Green OA to leverage a transition to Gold OA in the way Harnad describes. Rather, it seems that Gold OA could marginalise, and eventually overtake, Green OA.

The tide began to turn in 2004, when the scholarly publisher [Springer](#) headhunted [Derk Haank](#) from competitor [Elsevier](#). This was a major coup for Springer since Haank is a formidable strategist, and played an important role in helping Elsevier become the world's major publisher of scholarly journals.

Before moving to Springer Haank had to take gardening leave — a period of forced inactivity that gave him an opportunity to give some serious thought to OA, and its implications for traditional journal publishers. This undoubtedly helped: when I had [interviewed](#) him two years earlier it was not at all clear that Haank understood OA, or the forces driving it. "More and more of our customers will have access to the whole [ScienceDirect](#) Database, and they will find it much easier to use ScienceDirect than alternative methods," he predicted, asking: "What more would they want?"

Now given the opportunity to think it through Haank came to an interesting conclusion: Why not, he thought, call the bluff of the OA movement. As he [put it to me](#) in 2004, if they want OA then, "Let them put their money where their mouth is".

In other words, if researchers really feel the need to have their research freely available on the Web then Springer would be happy to oblige. But rather than self-archive their papers (and threatening publishers' profits in the process), researchers should pay for the privilege — by means of an APC option that Haank christened [Open Choice](#).

How much did Springer want researchers to pay for OA: \$3,000 per article. Twice what Public Library of Science was then charging, and nearly six times the price set by BioMed Central when it pioneered OA publishing in 2000.

Thus was born Hybrid OA.

## Inspired

OA advocates immediately dismissed Open Choice as little more than a PR stunt designed to give the impression that Springer was willing to provide OA, while knowing that few if any researchers would pay up.

In hindsight, however, Haank's strategy appears inspired: OA advocates were of course right to point out that Open Choice allowed Springer to appear receptive to OA, with little likelihood that researchers would pick up the gauntlet. On the other hand, by setting the rate at \$3,000 Haank could be confident that if the OA movement did call his bluff, Springer would not need to take a hit on its profits.

Harnad dubbed Hybrid OA a [Trojan Horse](#). This has proved an accurate description. While Springer appeared to have given a victory trophy to the OA movement (a signal that subscription publishers had finally accepted OA), Hybrid OA was set to become, as we shall see, a tool that would enable publishers to infiltrate the movement, and appropriate Gold OA. And today it looks as though it could defang the OA movement at large.

Needless to say, other subscription publishers were soon falling over themselves to introduce their own Hybrid OA schemes, and today all the major scholarly publishers offer an OA option.

Looking back it is hard not to conclude that in introducing Open Choice Haank had indeed accepted the inevitability of OA. And in rushing to replicate Open Choice presumably other subscription publishers had too.

But with Green OA advocates still calling for self-archiving mandates (and some mandates being introduced), it was surely clear to publishers that if they were to ensure the transition to OA took place on their own terms, they would need to build on Hybrid OA quickly.

What was equally clear was clear that Green OA would need to be halted, or at least slowed down. To achieve this, subscription publishers adopted a two-pronged strategy.

First, while most subscription publishers had by now agreed to sanction author self-archiving (for political reasons alone), they invariably insisted on an embargo period, from six to twelve months, sometimes longer.

Second, while publicly professing to be sympathetic to OA, publishers began to lobby aggressively *against* mandates like the key US National Institutes of Health (NIH) [public access policy](#), and for legal interventions like the Fair Copyright in Research Works Act ([FAIR](#)), which currently threatens to overturn the NIH policy.

([Writing](#) in [The Huffington Post](#) on 2nd March, [Lawrence Lessig](#) and [Michael Eisen](#) revealed that a new [report](#) by transparency group [MAPLight.org](#) showed, that sponsors of FAIR — led by Rep. John Conyers — "received twice as much money from the publishing industry as those on the relevant committee who are not sponsors.")

But how to build on Hybrid OA? With mandates like the NIH policy beginning to surface, publishers knew that they would need to speed uptake of Gold OA if they were to take control. The problem was that cynics were right: researchers were not rushing to embrace Hybrid OA, and relatively few were yet opting for Gold OA.

Fortunately OA publisher BioMed Central had paved the way for a solution to this. Once again a former Elsevier employee — [Jan Velterop](#) — played a key role.

Recruited by BioMed Central founder [Vitek Tracz](#) in 2000, Velterop was all too aware that persuading researchers to pay to publish papers in OA journals was a huge and difficult undertaking. So Tracz and Velterop decided to target librarians, with a view to persuading them to use a portion of their journal subscriptions budget to pay for researchers to publish in BioMed Central journals.

And despite Harnad's repeated warning that to do so would be both premature and unnecessary, Velterop had considerable success in recruiting librarians to the cause — with many agreeing to pay an annual flat fee in order to buy the right for researchers in their institution to publish in BioMed Central journals.

Thus was born OA institutional membership.

## Stage Two

Velterop succeeded because he managed to convince librarians that OA offered a solution to the serials crisis (the *affordability* problem). Moreover, many librarians naively concluded that OA publishers were a different species to the traditional subscription publisher, and were more interested in supporting the OA cause than making a profit.

About this, however, they were soon disabused. In 2004, BioMed Central decided it was time to focus on profits, and Velterop announced that the publisher would in future charge institutional membership on a per-article basis rather than a flat fee — a decision that proved somewhat [controversial](#).

Two years later, BioMed Central made another controversial [decision](#), announcing that it was more than doubling its APC, from \$525 to \$1,400.

The following year [Yale University announced](#) that, as a result of skyrocketing costs, it would not be renewing its institutional membership with BioMed Central — which was now costing Yale over \$30,000 a year.

Nevertheless many university libraries continued to sign up to institutional membership schemes, and OA publishers by now viewed them as the model for the future.

In the meantime Haank had persuaded Velterop to [move](#) to Springer, where Velterop began to mastermind stage two of the publisher's strategy for ambushing the OA movement: accelerating take-up of Hybrid OA in order to marginalise Green OA.

The first shot in this new campaign came in February last year, when Springer [announced](#) a two-year institutional licensing agreement with the German [Max Planck Society](#). The deal, [explained](#) Velterop, would provide "immediate open access for all articles by Max Planck researchers that are accepted, after peer review, for publication in Springer journals."

This was a significant step change. First, since Springer is a traditional publisher with more than 2,000 journals (BioMed Central is an OA publisher with under 200 journals) — many of which have a high [impact factor](#), and are extremely prestigious — the institutional membership model had entered mainstream publishing. Second, thanks to Hybrid OA, subscription publishers had appropriated Gold OA for their own ends.

In reality, of course, this development merely made manifest the fact that any difference between an OA publisher and a traditional subscription publisher was a figment of OA advocates' imagination, not a feature of the real world. If further proof of this were needed it came last October, when Springer [announced](#) that it was acquiring BioMed Central.

What the Max Planck agreement also demonstrated was that while the APC model was a very difficult and slow road to OA, institutional membership promised a far easier and faster route. And publishers were only too aware that if they were to protect their businesses they needed not only to appropriate Gold OA but to overtake Green OA.

The good news was that many libraries still appeared willing to go along with the publishers' strategy, particularly now that one of the largest scholarly publishers (Springer) was offering an institutional membership scheme. No doubt they also felt that in having outsourced peer review to publishers the research community had given a hostage to fortune and that there was therefore no alternative to the devil they knew.

Significantly, in January Springer was able to announce that the [University of California Libraries](#) had agreed a similar [licensing deal](#) to the one signed by the Max Planck Society. This will give all UC-affiliated authors the right to publish in Springer journals using Springer's [Open Choice](#) programme.

Since UC is the largest public research university in the United States (with ten campuses and around 16,000 faculty and researchers), this was a major coup, and will surely be viewed by other universities around the world as a model to follow.

But at what price? Unfortunately, the cost of the license was not revealed, so we don't know. However, as Open Choice is one of the most expensive Hybrid OA schemes, it seems highly unlikely that Springer's revenues, or profits, will be dented in any way.

## The true essentials

We should further note that — like other publishers — Springer has never demonstrated how or why it costs \$3,000 to peer review a scholarly paper, and then put it on the Web. After all, not only do researchers give publishers their papers without charge, but they also do the peer review for them (again without charge to the publisher).

If Harnad is correct in saying that peer review is the only significant service publishers need to provide in an OA environment an important unanswered question remains: How much does peer review cost? Or to put it another way: what are the true essentials of online scholarly publishing, and how much do they cost?

Again, we do not know — although it [would appear](#) that they are somewhat lower than the \$3,000 that Springer charges for Open Choice.

The upshot is that publishers now appear to be well positioned to migrate to an OA environment, without any significant impact on their profits, and without having demonstrated that their prices are justified.

In theory, market forces should ensure that the research community pays a fair price. In practice this does not happen: as economists will point out, the scholarly journal market is distinctive for having little or no mechanism for restraining prices.

One reason for this, antitrust economist [Mark McCabe explained](#) to me in 2002, is that there is a disconnect between the buyer and the seller. As he put it, "One distinctive aspect of this market is that end users do not pay for the material they use since the actual purchases are mediated by the libraries. This means that the principals (the professors, the scientists, the researchers of a particular institution) ask their agent (the library) to buy whatever they need, and the agent has no way of enforcing price discipline on the users."

By morphing an author-pays model (in which the principal *does* buy a service directly from the seller), into an institutional membership model in which, once again, a library-agent pays the bill, publishers have replicated the same disconnect in the OA environment — a [point](#) made to [Library Journal](#) in 2004 by the then Cornell librarian [Phil Davis](#). "One of the chief problems with the ... subscription model is that authors are completely desensitised to the cost of publishing," he said, and added: "moving to an institutional membership is no different in that we will keep the author removed from the price."

Meanwhile, Green OA is struggling to make headway. The research community has continued to prove extremely reluctant to embrace self-archiving: only 15% of researchers self-archive spontaneously. And 15 years after Harnad first [called on](#) the research community to start self-archiving, there are still only [67 mandates](#) in existence. To achieve OA by means of the Green Road, estimates Harnad, over 9,000 more mandates would be required.

The danger for the scholarly community is that if Gold OA beats Green OA to the punch there is likely to be little or no pressure on publishers to downsize: They will simply port their current prices to the new OA environment — and continue to impose on the research community prices increases that one British MP [suggested](#) other industries would give their "eye teeth for".

In other words, Hybrid OA will allow publishers to make the transition from a subscription model to an OA model without addressing the increasingly insupportable costs of scholarly communication — even though in an online environment most of the costs go away.

For Harnad the abiding puzzle is why university libraries are happy to go along with this. After all, he [points out](#), the institutional membership model is essentially the Big Deal (And librarians have been [highly critical](#) of the Big Deal).

Of the University of California/Springer agreement, Harnad says: "[conflating](#) completely the *journal affordability* problem and the *research accessibility* problem ... [the UC] ... triumphantly bundles extra payment for [optional Gold OA](#) publishing charges for its own researchers' article output into its 'Big Deal' subscription contract with Springer, thereby throwing still more money at publishers — instead of simply mandating ... that their own researchers make their own (published) journal articles Green OA by self-archiving them."

## Grind to a halt?

It is hard not to conclude that while the research community may win one battle (*access*) it is set to lose another (*affordability*), and in so doing lose the war.

Why? Because even in an OA environment it is assumed that publishers will continue to manage peer review. If publishers can lock in today's prices the research community will still be at the mercy of excessively high prices and constant price inflation.

So while all peer-reviewed research may become freely available on the Internet, the scholarly community will struggle to afford the toll exacted by publishers for organising peer review. What good to the research community is free access if it can't afford to publish its papers in the first place?

In such circumstances OA's victory would be pyrrhic indeed; and Gold OA advocates and librarians will find that they have conspired in allowing publishers to appropriate the movement, and regain control of scholarly communication.

Of course, publishers are only doing what commercial organisations are supposed to do: maximising shareholder profits. But since it is taxpayers' money that is used to pay the bills, and there are no effective price controls in the scholarly publishing market, it is surely not an acceptable state of affairs? More importantly, at some point in the future the scholarly communication system is in danger of grinding to a halt.

Certainly we can expect some disappointment if OA fails to address the affordability problem. As I pointed out [last June](#), "If OA ends up simply shifting the cost of scholarly communication from journal subscriptions to APCs without any reduction in overall expenditure, and inflation continues unabated, many OA advocates will be sorely disappointed."

This suggests that it may be time to push for a more radical revolution than currently envisaged by OA advocates; one focused more broadly than the issue of *access* alone. Perhaps it is time to re-engineer the entire scholarly communication process? If peer review has become a hostage to fortune, for instance, is it not time to try and wrest the task of managing it back from publishers?

On the other hand, maybe Green OA advocates can still persuade research funders and institutions to introduce a sufficient number of self-archiving mandates that publishers will be forced to downsize, and reduce their prices, as they make the transition to OA?

Either way, we appear today to be witnessing a race between Gold OA and Green OA. If Green OA wins the race, the research community can hope to finally free itself of both the *access* and *affordability* burdens that have for so long dogged it, and publishers will be forced to give up some of their profits. The research community will have won the war.

However, if Gold OA wins the research community will have freed itself of the *access* burden, but failed to free itself of the *affordability* burden. Publishers will have won the war.

Whom would you back to win this race?

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