

Björn Brembs on the state of Open Access: Where are we, what still needs to be done?

One of a series exploring the current state of Open Access (OA), the Q&A below is with [Björn Brembs](#), Professor of [Neurogenetics](#) at the [University of Regensburg](#) in Germany. Brembs, who self-characterises himself as a “disgruntled user of a dysfunctional scholarly communication system”, believes it is time for the research community to take ownership of the scholarly communication system back from publishers, and build a “modern scholarly infrastructure”.



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Björn Brembs

Like palaeontologist [Mike Taylor](#) ([interviewed earlier in this series](#)), Brembs is a second-generation OA advocate. His interest in OA began in 2004, ten years after self-styled [archivangelist Stevan Harnad](#) posted his [Subversive Proposal](#) calling on researchers to create their own local FTP archives and make their published papers freely available on the Internet.

And two years earlier, in 2002, a group of like-minded people had gathered in Hungary to launch the Budapest Open Access Initiative ([BOAI](#)). Although the notion of making papers freely available had been around for a decade or more, it was in Budapest that the term “Open Access” was finally adopted.

We could also note that 2004 was the year that Springer [launched Open Choice](#), pioneering the controversial form of OA known as [Hybrid OA](#). The same year the UK House of Commons Science & Technology Select Committee published [an influential report](#) recommending that all UK researchers be mandated to deposit copies of their articles in their institutional repository so that their research could be “read, free of charge, online.”

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Today, OA advocates like Taylor and Brembs believe the goal of OA should be more far-reaching and more

radical [**** see note at end**] than first-generation advocates do. This is unsurprising: a lot has changed since the *Subversive Proposal* was posted, or indeed since the physics preprint server [arXiv](#) was launched (in 1991) — not least in terms of the development of the Internet and of web technologies.

In addition, the [Creative Commons](#) and [free and open source software](#) movements have changed how many researchers view the way in which text, software and data ought to be used and shared. And although the BOAI definition [did assume reuse for scholarly papers](#), it did not include data or software within its definition.

By contrast, younger researchers today tend to assume that scientific information should encompass data and software as well as papers, and they believe that all three types of information should be distributed with reuse rights as the default.

Another generational change is that there is much greater disenchantment with legacy publishers amongst younger activists, not least as a result of the way in which these publishers have responded to OA, seeking to derail it by lobbying against it for instance.

In addition, there is now a widespread conviction that traditional measurement tools like the journal Impact Factor ([IF](#)) have been discredited (and that in any case in an online world the appropriate unit for measuring impact is the article not the journal), and that the whole system of “[journal rank](#)” is malign. Finally, younger activists tend to assume that pre-publication peer review is probably no longer fit for purpose.

For these and other reasons, Brembs argues that advocating for “read access” alone (i.e. the ability to read information but not to mine it or to reuse it) is woefully inadequate, since it can remedy only one small part of a much larger dysfunction, not least the “write access” problem that journal rank imposes (i.e. the difficulty of getting research published).

“The scientific community is facing a much more pressing and much more pernicious infrastructure failure and we need to develop ideas and solutions to remedy it,” says Brembs. “We can’t confine ourselves to read access. We need to see the bigger picture and that encompasses software, data and literature.”

He adds, “Solving the read access problem is like palliative care for a dying patient: helpful, desirable and humane, but not a solution. We need to stop the patient from dying and we have a cost-effective treatment at hand, we just need to deploy it.”

For Brembs, therefore, neither Gold nor Green OA is an adequate end point. “Both schemes can only serve as complementary, transitional strategies towards a scholarly communication system that maximizes the utility of each tax-dollar spent on it,” he says.

Modern scholarly infrastructure

So what exactly is the end point? The end point, explains Brembs, is a “modern scholarly infrastructure” managed and controlled not by publishers, but by the research community itself. In other words, the current publisher-based system must be replaced with “an institution-based scholarly communication system, where universal open access is an added benefit to a myriad of larger issues being solved.”

Currently, he says, “there is essentially no sustainable, functional digital infrastructure supporting the faculty at today’s research institutions. What exists is either dysfunctional (literature), unsustainable (research data management) or a temporary stop-gap (scholarly software). None of the above is in the hands of the institutions that generate the world’s knowledge to begin with.

How do we arrive at this end point? Writing [on his blog](#) last year Brembs explained, “I propose that a small set of competent and motivated libraries with large subscription budgets and substantial faculty support cooperate in taking the lead. This group of libraries would shift funds from subscriptions to investing in developing infrastructure and other components for a library-based scholarly communication system.”

In other words, the [\\$6bn currently spent on journal subscriptions](#) should be redirected from paying publishers and channelled into building the new infrastructure that Brembs proposes. He estimates that this could deliver savings of somewhere between 30-90% over today’s subscription costs.

But surely this is pie in the sky?

Brembs insists not. In fact, he says, there already exists a model that could be treated as a starting point, namely [SciELO](#). Originally developed in Brazil as a bibliographic database, SciELO is viewed by many younger OA advocates as a compelling alternative to the current publisher-based system. SciELO, says Brembs, “might well be suitable as a stepping stone” for the institution-based system he would like to see.

But re-engineering scholarly communication in this way would be a huge challenge. How, for instance, would subscription money be channelled away without causing a meltdown in the current system before the new one is in place. How would the transition be managed, and how would it be coordinated globally?

“Whenever people ask that (and they ask it almost universally), I ask back: how was TCP/IP, http and HTML globally coordinated when they were being developed?” responds Brembs. “This was all done by universities! I wasn’t around at the time, but people tell me that computing centres just started using it and banded together to coax politicians to support the physical infrastructure (which is now already in place). I see no reason why institutions shouldn’t do the same thing with [the kinds of standards needed for the infrastructure I want to see] as they did with http et al.”

In fact, he adds, most of the components are already available. “Essentially, all it takes is expanding the silos we already have into one big, decentralized collection of information and then implement functionalities like those we know from Google, [GitHub](#), Reed Elsevier, [R](#), MS Word, [FidusWriter](#), [Feedly](#), [Peerage of Science](#),

http, [BitTorrent](#), [SciELO](#), Amazon, eBay, Facebook, Twitter, etc. It's all there, we just need to take it and build something useful. Once we have the standards, each missing functionality is just a matter of creating it and not of first asking publishers to pretty please allow us to deploy it (as is the case with content mining, for instance).”

Brembs makes it sound easy. But the core protocols and technologies underlying the Internet were created not in order to replace something else, but as part of a new project funded through [the US government's defence budget](#) surely? As such, it was not necessary to syphon off money from a system replete with vested interests determined to prevent it happening.

Brembs responds that this is only an issue for the literature, not for data or software. And he suggests that adequate strategies could be devised to help libraries during the transition — by, for instance, developing a system that would allow libraries that have cancelled a journal but need occasional articles from it to trigger automatic requests for copies from libraries that still have a subscription — using, say, an extended version of Harnad's [eprint](#) button.

Recent developments in the US have served to convince Brembs of the practicality of his scheme. Earlier this year the US Office of Science & Technology Policy ([OSTP](#)) issued a [Memorandum](#) instructing all Federal agencies with more than \$100M in R&D expenditures “to develop plans to make the published results of federally funded research freely available to the public within one year of publication and requiring researchers to better account for and manage the digital data resulting from federally funded scientific research”.

The Memorandum raises an interesting question: how will people access the published results from these agencies? For biomedical and life sciences literature there is [PubMed Central](#) of course. But the Memorandum will impact a wide range of agencies, including the [Department of Education](#), the [Department of Energy](#), the [Environmental Protection Agency](#), [NASA](#) and the [National Oceanic and Atmospheric Administration](#). How and where are the papers funded by these organisations going to be made publicly available?

Conscious of this, and the potential opportunity it offers, publishers and librarians quickly sat down and drew up competing solutions for a new OA platform.

Publishers have proposed [CHORUS](#) (The Clearinghouse for the Open Research of the United States) — described as “a framework for a possible public-private partnership to increase public access to peer-reviewed publications”.

The library community meanwhile has proposed [SHARE](#) (SHared Access Research Ecosystem) — “a system of cross-institutional digital repositories”.

Baby step

In both cases the aim is to provide a platform for OA research papers. But where CHORUS would leave publishers still in control, SHARE is designed to put libraries (and by implication the research community) in the driving seat.

Unsurprisingly, Brembs favours SHARE. Writing on his blog in June, [he said](#), “In principle, this sounds almost verbatim like the system I advocate, with a few exceptions. Clearly, SHARE is still a ‘green’ OA route, meaning that regular journal publishing still occurs. I see no major issue with this, as some transition period will inevitably be required. The important part is that we wrestle at least some control over our literature back from the publishers.”

After also pointing out that there was no mention of software in the SHARE proposal, Brembs concluded, “[T]his might be a very first baby-step of our emancipation from corporate publishers. If we take [the example of SciELO](#), and inspire concerted action of a critical mass of institutions of higher education and research, we might just be able to achieve a fully functional scholarly communication system, perhaps even within this generation.”

Importantly, he points out, if the new infrastructure were firmly in the control of the research community it would be impervious to publisher lobbying. “If institutions decide to provide literature/ software/ data archiving and publishing as part of their infrastructure, there is nothing publisher lobbyists can do to stop it: no political or funder action is required due to the already existing, huge budgets. This route is, to my knowledge, the only one that is completely self-contained within the scientific community and only requires ourselves to act.”

Before writing this introduction I emailed Brembs to express some scepticism about his strategy. I pointed out, for instance, that the “scientific community” is not a single unified body that always acts in consort, and indeed it may not even be even capable of doing so. Moreover, I said, [some believe](#) that librarians (who would sit at the heart of the Brembs’ system) are — despite their decades-long grandstanding over the cost of journal subscriptions — the weakest link when it comes to withstanding publisher influence.

Brembs replied, “[I]f you’re alluding to the political (rather than the technical) issue of getting these organisations (except publishers) to agree on a standard, I’d definitely agree that the political/social obstacles are larger than the technical ones, no question about that.”

But while conceding that it will clearly be difficult to coordinate the heterogeneous interests of the scientific community, Brembs argued that the [rising number of retractions](#), the growing belief that the journal rank system is holding back science, and the realisation that the potential savings could be huge, coupled with an increasingly widespread belief that open access is both optimal and inevitable (but cannot be efficiently delivered by publishers) will surely at some point coalesce into the unity of purpose needed.

Doubt

In short, Brembs has a grand and wonderful vision; one that many researchers will doubtless find extremely appealing. However, there must remain some doubt as to its practicality.

But however impractical Brembs' vision may appear to be, and however likely or unlikely it is that the research community will eventually take back ownership of the scholarly communication system, we can certainly anticipate that over time more and more people will come to share Brembs' belief that significantly more far-reaching changes are needed to the scholarly communication system than appears to have been catered for eleven years ago in Budapest.

Certainly Brembs and his coevals are advocating for a far more radical approach today than was articulated in BOAI: For them it is no longer about read access alone, or even read access plus reuse. It is about write access and journal rank (and even the very necessity for journals); it is about the inadequacies of pre-publication peer review and the journal form associated with it; and it is about the very nature of what could be said to constitute scientific information and scientific impact.

And while Brembs' vision may be too radical for many today, it seems fair to say that data and software are coming to be viewed as equal partners in scholarly communication (Indeed, some would now argue that data is the most important component). We can also venture to say that altmetrics looks likely to replace the Impact Factor at some point; and we could predict that many traditional journals will morph into repository-based publishing systems in the near future (this, after all, is surely what [PLOS ONE](#) and the other mega journals are all about).

But whatever the end point turns out to be for scholarly communication, the next battle is surely going to be fought in the repository space.

As publishers come to accept that NIH-style OA policies are here to stay, and that repositories like PubMed Central are becoming increasingly important entry points for the literature, the current jostling between the publisher-controlled CHORUS and the alternative library-controlled SHARE is a foretaste of that struggle — for it is he who controls the gate to research who controls the process of scholarly communication. Historically the gate was the paywall; in the future it will likely be the platform.

Add to this the question of what role institutional mandates and institutional repositories will play in the fight for control and the picture becomes that much more complicated.

Whether we end up with the kind of institution-based system envisaged by Brembs, and the gradual marginalisation of publishers, remains to be seen. As Brembs points out, SHARE still assumes that regular journal publishing continues. Indeed, even the SciELO model that Brembs is enamoured of is still only a promise of the future he imagines, not a certainty — which is of course why he refers to it as a likely “stepping stone”.

Why have I yet to be convinced? Because past experience suggests that the likelihood of the research community ever achieving the kind of coordinated unity of purpose needed to create a scholarly infrastructure outside the control of publishers is more dream than reality.

Nevertheless, we must conclude that without energetic activists and dreamers like Brembs the OA movement would be a far less effective, and a far less exciting, phenomenon to observe.

*** When I sent this introduction to Brembs he responded that he did not feel the term “radical” was an entirely appropriate description of him and his coevals. What has changed, he said, is not that younger activists have been radicalised, but that there are now more technical means available for fixing the problems of scholarly communication, and so they are keen to make use of them. While I agree that that is so, I still think the term appropriate for what I was trying to convey, for I believe that second-generation OA advocates are more radical in their advocacy. Not only do they advocate for a more fundamental overhaul of scholarly communication than first-generation OA advocates, but they are clearly prepared to take on publishers, and at times to do so in a pretty belligerent manner — e.g. by regularly referring to them as parasitic and exploitative, and by making the kind of [comments that Brembs made](#) to De Gruyter’s Sven Fund in an [earlier interview](#) in this series. I think the definition of radical [here](#) gets my meaning.*

The Q&A begins

Q: *When and why did you become an OA advocate?*

A: It must have been around 2004 or thereabout, when I started setting up my own lab. Having worked at large universities in Germany and the US as a graduate student and postdoc, I was privileged in that most of my literature was accessible. It was a real pain to get some of the few important papers my institutions did not subscribe to ([#icanhazpdf](#) on Twitter did not exist, yet), but then again, so were some aspects of the experiments as well (e.g., gluing tiny fruit flies to little copper hooks for hours on end, control experiments not working for seemingly no reason at all, or the outcome of just one 20 min. experiment necessitating another week of extra experiments for statistical reasons, etc.), so I took that as just part of the job, no big deal, really.

Things changed when social media started to develop in earnest and I connected with a wider, online scientist community. I started to learn more about the inner workings of our publishing system and I didn’t like what I learned.

Until then, I had published in [Science](#) and other traditional journals with only few (but nevertheless exceedingly frustrating) rejections. In the following years, I realized that attempting to publish the same work as before, but without the big names by my side would turn out a lot more difficult than I had imagined.

My until then most important research finding had been rejected by all of the top-tier journals (it went on to be more highly cited than our *Science* paper). So it turned out that read-access was only one side of a totally mangled infrastructure, as write-access was also completely inappropriate.

But now it wasn't the same frustration anymore. Now I knew that this was not an aspect of the world that had to be accepted. Now I knew that these were obstacles set up by a parasitic industry, invited and propped up by our own behaviour.

Today, I've arrived at the conclusion that access is only one, minor aspect of a largely dysfunctional digital scholarly infrastructure (the worst problems summarized [here](#)) and that reforming this infrastructure will solve the larger issues and provide universal OA as an added benefit along the way.

Q: What would you say have been the biggest achievements of the OA movement since you became an advocate, and what have been the biggest disappointments?

A: The most tangible change over the last decade in which I was involved is the growth of the movement and the effects that it has had. The previous interviewees in this series have enumerated the many developments quite exhaustively, I think, including funder mandates, repositories at many universities, new OA publishers such as [PLOS](#), [Frontiers](#), [PeerJ](#), [eLife](#) or the fact that now most of my colleagues at least know what I'm talking about when I mention OA.

Or, as Joe Esposito [said](#): "OA, as predicted, is being absorbed into mainstream publishing." And [Peter Suber](#): "Today policy makers agree that the question is not whether to make the shift to OA, but how."

For the kind of infrastructure reform I envisage, the initiatives forming at libraries and computing centers all over the world, often funded directly by LIS funding streams from major funders, are the most exciting developments to me right now. As proud as the movement can be of such growth and widespread acceptance (at least in principle if not always in practice), given the speed of innovation in digital media in the last decade in general, the biggest achievements of the OA movement pale in comparison.

Thus, my biggest disappointment is how comparatively slow everything is developing. This is due to various forces of inertia, not the least legacy publishers who, collectively, act as if to publicly demonstrate: "that's our money now, suckers!" and use it to oppose publishing reform tooth and nail.

I'm quite aghast at this decade-long raised middle finger towards essentially all of academia. The two latest examples in a long, long list are the [blockade](#) of EU-brokered negotiations on content mining, and the statements of De Gruyter CEO Sven Fund in [this interview series](#), where he states "Just for the record: No, De Gruyter has never lobbied against OA". Fund states this despite the fact that his company is a long-time paid-up [member](#) of a trade organization that [markets](#) its "intense lobbying efforts" against OA on its own website. The corporate counsel for this organization even [publicly stated](#) that "scientists are our natural

enemies”.

Of course, as revolting as this belligerent behaviour has been, it is only part of the story. Journal rank is still at the heart of the scientific meritocracy, in spite of [reams of evidence](#) against its usefulness. This is a disgrace for what arguably ought to be the most evidence-based community on this planet. Without journal rank, which we, the scientists, are responsible for from beginning to end, we would be free to choose the scholarly communication system that serves the community (and the public at large) best.

As Alexander Grossman said [in his interview](#) here: “One thing that would push authors to make the level of access to their paper a central consideration would be for funding bodies and universities to change their assessment standards to focus on [article-level metrics](#) rather than journal [impact factors](#).” However, funders are not the only ones involved — it is a much broader mindset.

Q: There has always been a great deal of discussion (and disagreement) about Green and Gold OA. In light of recent developments (e.g. the [OSTP Memorandum](#), the [RCUK OA policy](#), the [European Research Council Guidelines on OA](#) and the [new OA policy at the University of California](#)) what are the respective roles that you expect Green and Gold OA to play going forward?

A: Both schemes can only serve as complementary, transitional strategies towards a scholarly communication system that maximizes the utility of each tax-dollar spent on it.

Not being an economist, I’d assume that unregulated Gold OA will be a market like any other with pricing ranging from economy to luxury. In this market, what would keep publishers from raising prices like they did with subscriptions? What would keep publishers from brokering ‘big deals’? In fact, it is already happening: my institution pays all our APCs via various funds and memberships. Cameron Neylon also points to this spreading practice [in his interview](#): “The scary thing is that libraries seem to be jumping to create big APC deals, which will have exactly the same problems as the big subscription deals.”

Unless journal rank is obliterated, a luxury segment will exacerbate its current pernicious effects by extending them to funding as well: in such a world, a scientist would not only have to come from a well-known lab, working on a currently particularly hip project and personally know the editor as today, but on top of that also be either exceptionally well-funded or go into debt to afford the one publication that will make their career. Thus, all else being equal, unregulated Gold OA looks like an even worse situation than what we have now and that is saying something. Clearly, it’s unlikely that all else will remain equal, but I’m a scientist, not a prophet.

As regards Green OA, not even Stevan Harnad [sees this as a final solution](#): “So once we reach 100% Green OA, my OA work is done. I am confident it will soon lead to a transition to [Fair-Gold OA](#), copyright reform, publishing reform, [Libre OA](#) and all the re-use rights that users need and authors wish to provide.” Thus, mandated Green OA is a way to force the public’s best interest onto a scientific community whose best interests are not always aligned with that of the public at large.

Clearly, a stable system is one where the interests of the individual scientist are aligned with that of the public who pays them. In the absence of any evidence that publishers are even remotely interested in collaborating to achieve this goal, I'm now trying to convince libraries and computing centers to step up and provide the required functionalities. To my delight, it seems like wherever I go, I'm preaching to the converted: libraries are getting ready to take over and provide the much needed infrastructure.

Q: What about Hybrid OA? What role, if any, should that play? And what role do you think it will actually play?

A: Given the track record of corporate publishers over the last decade, it is straightforward to speculate that so-called 'hybrid' (a quite benign word for something that's more like a monstrous chimera) OA is simply a scheme to triple dip the public purse.

Obviously, this need not be the case in all implementations, but with effectively zero effort from publishers so far to convince us otherwise, I see no reason to revert that assessment.

Q: Do you think that OA inevitably leads to conflict and disagreement between publishers and the research community? Certainly in the wake of the failed attempt to get the [Research Works Act](#) passed in the US there appears to be growing disenchantment amongst researchers with commercial publishers. In the first Q&A in this series, for instance, palaeontologist [Mike Taylor](#) argued that legacy publishers "are not our partners, they're our exploiters". If you agree that conflict is inevitable, then why? Is it that researchers, librarians and research funders expect more of publishers than they can reasonably deliver? Is it that the profits of scholarly publishers are, as critics argue, excessively high? Or is there some other reason for this disenchantment

A: Of course OA does not 'inevitably' lead to conflict between publishers and the research community. Customers and their governments make decisions in their best interest and businesses adapt or die.

For instance, publishers can simply adopt a Gold OA business model and keep doing what they're doing, with all the pernicious consequences for the public purse and science in general.

There is a growing list of profitable Gold OA publishers out there and the 'Glamour Magazines' surely need not worry about their luxury segment: if people are willing to pay hundreds of thousands for an Ivy League education just for a degree that *might* get them a job one day, they'll certainly be willing to pay a measly 50k in APC for a *Nature* or *Science* paper that "[puts your career on an entirely different level.](#)"

Publishers have had more than a decade to bring their businesses into the 21st century. Given their strong bottom lines, one would even have expected them to lead the way there, rather than being dragged kicking and screaming. Today, the scientific literature is a balkanized and dysfunctional mess, in dire need of some

modern information technology.

The scientific community knows the power of digital knowledge dissemination: we originally created the Internet for the needs of scientists. Today, we use the amazing new technologies being developed every day — just not for science. Publisher obfuscation about the research community making “unreasonable expectations” (as you imply) is probably one of the reasons for the disenchantment.

Through their actions over the last decade, legacy publishers have demonstrated beyond the shadow of a doubt that ‘exploiters’ or ‘parasites’ are quite accurate descriptions of an industry that extracts tax funds from a community without showing any willingness to provide much of anything in return.

Hence, my efforts have now turned away from reforming the current publisher-based system towards replacing it with an institution-based scholarly communication system, where universal open access is an added benefit to a myriad of larger issues being solved.

Q: How would you characterise the current state of OA, in Europe, North America, and globally?

A: That’s a wide-ranging question that’s probably best answered with ‘fledgling’: small, but growing and with the potential to take off. Given the reactionary position of legacy publishers still today, I see this potential largely with libraries and computing centres supporting the infrastructure demands of researchers today. New initiatives like [Frontiers](#), [F1000](#), [Recently](#), [Peerage of Science](#), [PubPeer](#) or [LIBRE](#) (and many more) are already showcasing how modern technology can be leveraged for science communication.

On top of that, libraries are expanding on their centuries-long experience in archiving and making accessible the works of their faculty: literature repositories, linked open data (LOD) projects, research data management, software management, or literature alert services. More and more institutional libraries and computing centres are starting to provide these infrastructure components as we speak.

Q: What still needs to be done, and by whom?

A: Once one realizes that read access is really only one (and for what [Peter Murray-Rust](#) calls “[the scholarly rich](#)” relatively minor) negative aspect of the entire scholarly communication infrastructure, not a whole lot has happened in the grand scheme of things.

Depending on their field, scholars produce software to generate and/or evaluate their data and use this data to draw conclusions summarized in text form. Thus, software, data and text are the most immediate products of any institution’s faculty.

Yet, there is virtually no institutional infrastructure to support the faculty around their three main products: we

post our software on [GitHub](#) or [Sourceforge](#) (if we don't leave them on our hard drives), we store our data in several thousand different, usually economically very fragile specialized databases (if not on a spreadsheet on our computers) and we give away our texts to publishers and then rent them back for limited periods of time for high prices with minimal re-use value.

This means that currently there is essentially no sustainable, functional digital infrastructure supporting the faculty at today's research institutions. What exists is either dysfunctional (literature), unsustainable (research data management) or a temporary stop-gap (scholarly software). None of the above is in the hands of the institutions that generate the world's knowledge to begin with.

So, essentially, there still is 99.9% of the work to be done and in my opinion the institutions should use their subscription budgets to extend the already existing infrastructure to archive and make accessible the work of their faculty: software, data and text.

I agree with Alexander Grossmann when he said [in his interview](#): "As long as libraries are caught in the big deals and traditional subscription models, we all have less chance to move forward". There are more than enough funds tied up in subscriptions to add the few components that are still missing in what libraries already provide.

For instance, the library of our university alone runs several open access journals, a green OA repository, hosts our data, develops software hosting abilities and spends more than €2 million per year in subscriptions on top of that.

I have been approached by library directors telling me that they could in principle (not that that would be legal given current laws) make all back-issues openly available even when subscriptions were cut, as they have archived all the material on tape.

Stevan Harnad has been proposing that "the repository's eprint request [Button](#) should be implemented to provide individual copies to users who request them." Libraries could extend that functionality to send such requests to cooperating libraries which still carry a subscription whenever one of their users encountered an article to which they lack access. Cutting subscriptions to free up funds does not necessarily entail a worsening in read access.

All of these developments will fail, however, if the stream of manuscripts to publishers doesn't cease because scientists are still ranked according to the covers on their publications. Several conditions need to be met for journal rank to die, one of which being the realization by scientists that we must abandon policies which are not evidence-based.

Another condition is a drop in readership of legacy journals as subscriptions are cancelled and superior alternatives to disseminate knowledge among peers are developed. Glamour is nothing if nobody reads you.

Although Stevan Harnad and I might seem to propose largely overlapping solutions, there is a detail where he and I differ: he proposes mandates to force an eventual drop in subscriptions and to keep journal rank as a “post-green” tiered peer-review service.

There are four main reasons why I propose a different path:

1. The evidence that journal rank is detrimental to science,
2. The additional time and effort (Harnad: “keystrokes”) required by researchers to also post their papers to green repositories,
3. The bureaucracy and costs involved in enforcing green mandates, and
4. Stevan’s proposal involves additional support/funds by funders and governments (mandates and enforcement), while my proposal requires no assistance from outside our own institutions.

Hoping, perhaps overly naively, that scientists will abandon unscientific policies such as using journal rank for evaluations, I propose instead that libraries develop superior alternatives to the current system (technically easy enough and already on its way) and that researchers then do what everybody does: choose workflows that save time and effort, rather than be mandated extra work.

Estimating from my personal workflow, if we had the infrastructure I propose, I would stand to save on the order of 4-7h of my time every week, on top of the billions in saved tax funds per year globally, not to mention all the opportunities for further innovation: researchers win and the public wins, without resorting to ethical pleas, moral grandstanding or enforced mandates to coax scientists into behaviours that are not in their immediate self-interest.

Q: What in your view is the single most important task that the OA movement should focus on today?

A: To realize that read access, as paramount and important as it may have seemed for all these years, is merely the tip of an iceberg. The scientific community is facing a much more pressing and much more pernicious infrastructure failure and we need to develop ideas and solutions to remedy it. We can’t confine ourselves to read access. We need to see the bigger picture and that encompasses software, data and literature.

If we solve the bigger issue and bring our own products back under our own control, determining who gets

access to what becomes just another administrative decision and not a political movement.

Solving the read access problem is like palliative care for a dying patient: helpful, desirable and humane, but not a solution. We need to stop the patient from dying and we have a cost-effective treatment at hand, we just need to deploy it.

Q: *What are your expectations for OA over the next 12 months?*

A: Looking back over the last ten years, I keep expectations very low for the next 12 months and hope for pleasant surprises...

Q: *Will OA in your view be any less expensive than subscription publishing? If so, why/how? Does cost matter anyway?*

A: As it stands today, academic publishing is primarily paid out of the public purse. Thus, costs do matter. A lot.

Speculating about the future is of course always tricky and I'm not a financial expert. What one can do is to look at some existing variants and extrapolate from there.

If we were to only look at the literature, one could already cut out a publisher profit estimate of around 30% simply by going non-profit. Publishing costs are of course very real and need to be paid for.

For instance, if current subscription journal publishing had a [volume of about \\$6b](#) per year, then roughly 2b would be publisher profits and 4b the actual costs of publishing and archiving. Once some scheme has been arranged that distributes these costs fairly, there is no need to restrict access any more.

However, the potential for savings is likely to be much more substantial than that, if we abandon legacy publishing altogether in favor of a modern scholarly infrastructure. Less fortunate countries have long since realized that the [\\$4,800](#) the developed world currently spends on publishing the average research article is a complete and utter waste of tax funds.

Some of them have developed [SciELO](#), a fully open publishing standard in which each peer-reviewed article is published at an average cost of just [\\$90](#). SciELO is actually in a lot of ways quite close to the proposed infrastructure I have outlined above and might well be suitable as a stepping stone for it.

Thus, the potential savings for successful infrastructure reform (entailing OA as an added benefit) will probably come to lie somewhere between 30-98%, likely closer to the higher figure. Some part of these

savings will have to be invested first in developing and then maintaining software/data management systems in a way that integrates the three pillars of scholarly work. I'd estimate this portion to be quite small, as institutions are already implementing such technologies on top of still paying for subscriptions.

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Björn Brembs is a neurobiologist working on how brains make decisions. He did his PhD with [Martin Heisenberg in Würzburg, Germany \(2000\)](#) and his postdoc with [John H. Byrne in Houston, Texas, USA \(2003\)](#). In 2004 he started setting up his own lab in Berlin, Germany.

He received a Heisenberg Fellowship in 2009 and was able to hire a postdoc, a graduate student and a technician into the lab that until then consisted only of him. Since 2012 he has been a tenured Professor of Neurogenetics at the [University of Regensburg](#), in Germany.

Brembs says he is a reviewer with more journals than he can list and assists in handling peer-review as editor for PLOS ONE and Frontiers. He is also a faculty member of F1000 and on the editorial board of several other journals.

Besides campaigning for infrastructure reform on his blog, and by delivering invited talks at various conferences and institutions, Brembs has co-authored [one peer-reviewed article](#) reviewing the empirical literature on journal rank.

He is currently [editing a special issue](#) on publishing reform for the journal "[Publications](#)":

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Earlier contributors to this series include palaeontologist [Mike Taylor](#), cognitive scientist [Stevan Harnad](#), former librarian [Fred Friend](#), SPARC director [Heather Joseph](#), publishing consultant [Joseph Esposito](#), de facto leader of the Open Access movement [Peter Suber](#), Open Access Advocacy leader at the Latin American Council on Social Sciences (CLACSO) [Dominique Babini](#), and Cameron Neylon, advocacy director for the non-profit OA publisher Public Library of Science (PLOS).

The full list of those taking part in the series is [here](#).

Posted by Richard Poynder at 12:42 

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10 comments:

Professor Charles Oppenheim said...

Excellent piece and I agree with much of what Brembs says. But he makes misleading statements about Impact Factors. It is senior management in Universities and research institutes that are obsessed by them, not research funders. These senior managers think that their staff getting published in high IF journals guarantees success, when it self evidently does not. Publishers of course unsurprisingly push this agenda, but research funders do not.

But all power to Brembs and his colleagues for their vision and efforts.

[September 30, 2013 8:38 am](#)



[Mike Taylor](#) said...

Thanks, Bjorn, for this very inspiring big-picture analysis. Despite the huge importance of Open Access as a single issue, you're absolutely right that we need keep our eyes fixed higher than just being allowed to read what we write. That is a first step towards a rational scientific system, not the last.

"If institutions decide to provide literature/ software/ data archiving and publishing as part of their infrastructure, there is nothing publisher lobbyists can do to stop it."

That sent chills down my spine, as I realised that trying to *prevent* progress really is the natural reaction for legacy publishers. I suppose it makes sense: it's the single most important thing that can do to protect their own interests.

[September 30, 2013 9:37 am](#)

[Bjoern Brembs](#) said...

You are right, Dr. Oppenheim, which is precisely why I wrote:

"However, funders are not the only ones involved — it is a much broader mindset."

After the quote. This broader mindset includes senior management, of course. See here for what I do in funder peer-review panels:

<http://blogarchive.brembs.net/comment-n911.html>

Inasmuch as we are involved in funder decisions, we are a major part of the problem, at least in some countries.

[September 30, 2013 10:01 am](#)

Anonymous said...

Brembs believes that the costs of publishing are mainly related to infrastructure, although they are mostly not. Publishing is a service, and like most services it is based on human work, which is many times more costly than infrastructure and software. Shifting the publishing service from Publishers to Librarians will therefore not reduce costs. It seems still many advocates of (green) OA have yet to understand that free is not the same as without costs. The three fundamental questions are: who does the work? at which price? who pays for it? Those that do not want to tackle these questions are promoting what I would call "Troll OA" - something impossible.

[September 30, 2013 10:11 am](#)



[Mike Taylor](#) said...

"Anonymous" is quite wrong about the "three fundamental questions". He or she has omitted the most fundamental one of all: *what* work is done. And in the current regime, much of the work done as part of the so-called publishing process is either valueless or of net negative value. Toss that out, and costs fall very dramatically, as OA publishers like Ubiquity and PeerJ are showing.

[September 30, 2013 10:29 am](#)

[Bjoern Brembs](#) said...

Dear Anonymous,

Thank you very much for supporting my argument of cost savings in scholarly publishing!

Mike didn't explicitly provide answers to your fundamental questions, so let me tackle them:

1. Who does the work?

We do: writing, editing, reviewing

2. At what price?

Our salaries already cover this work, so zero.

3. Who pays for it?

Nobody has to pay for zero cost, silly.

I agree, tackling these three fundamental questions explains why arXiv runs at US\$7 per paper and SciELO at US\$90. Thus, taking your three questions and currently available examples, we arrive at a conservative cost per scholarly paper of US\$100.

[September 30, 2013 1:00 pm](#)

[Richard Poynder](#) said...

Bjorn says, "[A] stable system is one where the interests of the individual scientist are aligned with that of the public who pays them. In the absence of any evidence that publishers are even remotely interested in collaborating to achieve this goal, I'm now trying to convince libraries and computing centers to step up and provide the required functionalities."

Bjorn also says: "[A]ll else being equal, unregulated Gold OA looks like an even worse situation than what we have now and that is saying something."

Mike says, "I realised that trying to *prevent* progress really is the natural reaction for legacy publishers. I suppose it makes sense: it's the single most important thing that [they] can do to protect their own interests."

I assume we conclude that neither Bjorn nor Mike see a useful role for legacy publishers in the future. But what about OA publishers like PLOS, BMC and Frontiers?

If libraries are destined to take over the function of publishers, and if unregulated Gold OA is likely to create an even worse situation than with today's subscription publishing, what role, if any, would Bjorn and Mike anticipate that the current crop of OA publishers would play?

[September 30, 2013 2:40 pm](#)



[Mike Taylor](#) said...

I'm not sure that Bjorn and I are on exactly the same page here.

At the moment, I think publishers do still have a useful role -- it's just a much, much smaller role than the legacy publishers have been used to assuming. Any publisher whose mission is to make research available, rather than to prevent its free distribution, is fine by me.

That said, even the best of the modern publishers may find in another ten years or so that there's not so much need for their services. If academic libraries do take the initiative as Bjorn wishes (and as SHARE may encourage them to do), and if post-publication peer-review becomes more common than pre-publication, then the need for publishers (and indeed journals) will be much less than it is now.

I'm honestly not too bothered either way. What I care about is science being done in the open, and published openly. Whether that's done by universities or publishers is detail. What I *do* object to is when "publishers" *inhibit* publication. In fact the longer I've spent becoming familiar with the scholarly publishing world, the more hostile I find myself towards these big organisations. What they do has negative net value. How dare we in academia spend money on that?

[September 30, 2013 2:47 pm](#)

[Bjoern Brembs](#) said...

I agree with Mike here: I don't particularly care who provides the infrastructure, as long as it works.

In the print era, the means of dissemination were expensive (printing presses, logistics) and subscriptions cheap. Now, the situation has reversed. What could possibly be a reason to keep the system in place even if the environment has reversed? That would be like the Polar Bear still relying on ice when the poles are gone. It's not an evolutionary stable strategy.

In the last decade, legacy publishers have proven that they're about as trustworthy as arctic sea ice.

But be all that as it may, even if all publishers freeze the arctic over and agree to make everything available at reasonable costs, it's still just a drop in the bucket in the grand scheme of things: the literature is still just as

balkanized and dysfunctional as before - just now everybody can see it. Our data are still in constant threat of obliteration and there is still not even a single scheme for taking care of our software.

The scientific community has bigger fish to fry than saving a few scholarly publishers from melting away: we need to find a way to adapt to a hot, post-internet, austere climate.

I invite everybody who fails to grasp that perspective into my lab to see the conditions under which we have to work: it's like it's 1995!

[September 30, 2013 8:22 pm](#)

[Bjoern Brembs](#) said...

More to your last question, Richard: "what role, if any, would Bjorn and Mike anticipate that the current crop of OA publishers would play?" **Björn Brembs on the state of Open Access: Where are we, what still needs to be done?**