

The Cooperative Open Access Publishing Study:
An initiative of the Public Knowledge Project

To Flip the Script: APCs, Cooperatives, and the Future of Scholarly Publishing

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Without fanfare or celebration, a significant milestone was passed in 2014 in the proportion of research and scholarship to which there is free access. At least two studies have determined that for that year, if not earlier, open access copies could be found for more than half of the research literature.¹ These findings make clear the extent to which researchers are posting freely available copies of their otherwise subscription-locked work, if too often in violation of the publisher's copyright agreement. They are also submitting their work in substantial numbers to the more than ten thousand open access journals available today, many of them published by the once outspoken critics of open access.² This growth in open access is promoted by policies requiring it -- if after an embargo period intended to protect journal subscriptions -- which now accompany research funding from the United States government, European Commission, United Nations, Wellcome Trust, Gates Foundation, and others, although often involving an embargo period intended. If this free access was regarded at the turn of the century as harebrained utopianism, it now falls squarely within the "institutional imperative" of science, to use Robert K. Merton's phrase in identifying the ethos of collective ownership or "communism," as he put it that sets this field of endeavor off from other human enterprises (1978).

The crossing of the halfway point also tends to highlight the current limits on the right of access. It is little comfort to think that a doctor can now lay her hands on half of the relevant

¹ Jamali and Nabavi (2015) found that of the roughly 25 million research articles published in English-language scholarly journals between 2004 and 2014, copies of more than half can be found freely available online, with Archambault et al. 2014 offering confirmation, least for 2014.

² The four leading journal publishers -- Elsevier, Springer Nature, Taylor and Francis, Wiley Blackwell -- each offered in 2014 over a 1,000 "hybrid" titles, which publish open access articles in a subscription journal, with Elsevier and Springer Nature also publishing 392 and 491 open access journals respectively (*Open Access 2015*, 2015, 16).

literature when facing a difficult case, with publishers allowed to embargo the most recent research, according to the National Institute of Health's Public Access Policy. It also draws attention to the piecemeal and partial nature of the current state of access. Research that is freely available often consists of illegally posted copies -- making copyright infringers of their authors -- or drafts of published work.³ Coming this close to universal access to this body of work only makes all the more apparent a need to move beyond halfway measures intended to protect a subscription market in which the exclusion of interested readers serves neither library nor researcher.

The interest among research libraries, societies, publishers, and scholars working on scholarly communication in achieving a systematic, scalable, and sustainable approach to universal access has become focused, in recent years, on reallocating the money that libraries spend on journal subscriptions -- upwards of \$10 billion annually on a global basis -- to publishing this research literature on an open access basis (Shieber, 2014; Björk and Solomon, 2014; Schimmer, Geschuhn, and Vogler, 2015, LERU, 2015; Butler, 2016).⁴ As early as 2003, Mark Rowse, then CEO of Ingenta, spoke of a "flipped" business model, in which a country's library subscription fees would enable its authors to have their articles made open access to the world (Hane 2003; Suber, 2007). An early champion of the subscription flip, Peter Suber noted almost a decade ago that "flipping the business model is a simple act because, under our assumptions, it changes almost nothing" (2007). This is a critical observation. What is most attractive about this model is the simplicity with which the flip promises to move the current subscription economy into an open access model. Yet with this sense of *almost nothing* a good deal is changed. The flip turns open access into one of the goals of scholarly publishing. Authors typically retain their copyright with open access, with the article placed under a Creative Commons license. This is to, in effect restore the ownership of research to its authors, while

³ Archambault et al. report that in 2014, that while roughly half the literature from 2012 was open access, less than ten percent of it was posted by authors in compliance with the publisher's required embargo and "final draft" policies for such self-archiving, while somewhat more than ten percent and growing appeared in open access journals, while over 30 percent of the open access articles are "rogue or robin hood" copies post by their authors (2014, pp. 4, 16).

⁴ The global subscription revenues is based on the STM figures of Ware and Mabe, 2015. Schimmer, Geschuhn and Vogler calculate that current subscription revenues are sufficient to underwrite an APC of EUR 3,800 for the whole of the literature. base their calculations on an estimate of two million articles published annually (2015).

providing universal access to the academic community as a whole, as well as to the public. In this way, the flip transforms publishers from research's proprietors to a provider of publishing services.⁵ Libraries are no longer publishers' customers but are now the underwriters of their authors' publishing activities. So by virtue of changing almost nothing, the APC flip alters the standing and status of this body of knowledge.

Since Rowse's initial speculations, the first steps have been taken that would seem to be leading up to this critical flip. These steps have been following two patterns, the one concerned with authors' payment of "article processing charges" (APC) to secure open access for their work, and the other, which relies on cooperative initiatives to achieve open access. If the APC provides a cash nexus for open access, then this spirit of cooperation gives it historical continuity. The APC was originally introduced by BioMed Central in 2000 to finance a new set of open access journals by tapping into deductible expenses of researchers' biomedical grants, and it continues to dominate open access in the sciences more generally.⁶

Over a much longer period, this sense of knowledge as a common good has pervaded the history of the learned and learning in the Christian West that can be traced through monasteries, schools, and down to the medieval and early modern universities.⁷ More recently, the concept of a *knowledge commons* has become the oft-repeated metaphor of the digital era's progressive voices.⁸ The subscription flip is about opening that commons in one fell swoop actually

⁵ The publisher's role as a monopolist proprietor of research led to accusations of them holding research "hostage" in setting subscription prices (Bosch 2005, p. 111; Harnad, 2000). On the other hand, publishers such as Springer Nature have begun to introduce service models without ownership with its open access Global Science Journals: "Journals hosted on GSJ are not published by Springer. You remain the publisher and have full control and responsibility for the editorial content of the journal and for the submission, peer-review and production of the journal articles"; Global Science Journals, Springer, Berlin. By the same token, Elsevier provides "production and hosting" to a series of open access journals, such as the *African Journal of Emergency Medicine*, for which the content is placed under a Creative Commons BY license.

⁶ The APC has its origins in the "page charges" introduced by science journals in the last century, The *Astrophysical Journal* continues (in 2015) to refer to how its "page charges [\$110/page] allow us to more fairly share charges between researchers and libraries" and provide "open access after two years"; "Page Charges," *Astrophysical Journal*, IOP Science.

⁷ I deal with this history in all too much detail in *The Intellectual Properties of Learning: A Prehistory from Saint Jerome to John Locke* (in preparation). Communitarity is one of learning's distinctive intellectual properties, I argue from this history, setting it apart from other property, on the one hand, while this and other properties of learning do much to inform the initial legal conception of intellectual property.

⁸ For example, Charlotte Hess and Elinor Ostrom introduce their collection *Understanding Knowledge as a Commons* with the claim that they are engaged in "a new way of looking at knowledge as a shared resource, a complex ecosystem that is a commons" (2007a, p. 3). This edited volume arose out of a "Workshop on Scholarly Communication as a Commons."

undertake this much-needed flip, it calls for a reasserting of the principles by which open access will move the circulation of research beyond a subscription economy marred by maneuvering for financial advantage that has led to ongoing inequalities among fields of study and global regions.

The APC and the Script Flip

A number of libraries are exploring how subscriptions fees can be used to offset authors APCs in the publishers' hybrid journals. The major publishers offer a great number of hybrid journals that offer authors an option of paying an APC for open access to their article in an otherwise subscription title. In 2007, Springer entered into what proved a short-term trial with a number of institutions, including the University of California Libraries and the Max Planck Society, in which subscription fees were allowed to offset the APCs for their authors in Springer hybrid journals.⁹ In 2013, the Royal Society of Chemistry launched a "Gold for Gold" program based on granting libraries APC vouchers. Libraries that subscribed to the Society's complete set of 37 journals -- marketed as RSC Gold -- were granted a financially equivalent number of APC vouchers, then at \$2,280 each. The vouchers allowed authors to make their RSC articles what is known as "gold" open access (as opposed to "green" open access, in which only the final draft is made open access by authors).¹⁰

The following year, the association of the Netherland's fourteen universities (VSNU) negotiated a subscription "big deal" of an untold amount for 2,000 Springer journals in which articles by researchers at Dutch universities would be made open access in a select number of journals, with a similar deal struck in the U.K. in 2015 with 1,600 Springer journals (Butler, 2016).¹¹ More recently, at the end of 2015, VSNU struck a big deal with Elsevier, after threatening to boycott the publisher, that includes with its three-year term of undisclosed subscription payments for all of Elsevier titles, with open access provision for only thirty percent of the articles led by authors at Dutch institutions in a select number of Elsevier titles and only by 2018 (Butler, 2016).

⁹ In the case of the California libraries, this agreement ended in 2010 ("Springer Open Access Pilot Ends," 2010).

¹⁰ See "Gold for Gold," Royal Society of Chemistry website.

¹¹ Jan Velterop: "As I understand it, open access without further APCs authors is not offered for journals published, but not owned, by Springer, and for the BMC journals" (2015).

It is also worth pausing over what is not changed in these early trials of this model. The agreements continue to lack financial transparency, which has long marked the publishers' big deals. The agreements demonstrate the APC's capacity to mask large price hikes going forward, with Elsevier's provision of 30 percent open access, for example, suggesting that the publisher expects a tripling of the equivalent of current subscription fees to bring about complete open access. The publishers' approach of limiting which journals or what percentage of articles can go open access undermines the very simplicity of the APC Flip premise, namely, that the great subscription price run-up of the last three decades should be more than sufficient to fund the journals on an open access basis, as costs would be no higher.¹²

Instead, these initial agreements reflect a continuation of the earlier monopolist price hikes that the large publishers levied through the 1980s and into the twenty-first century.¹³ This pattern, repeatedly characterized as "unsustainable" by the library community, ended up reducing access to the literature as a whole, at least prior to the arrival of open access.¹⁴ By that point libraries were paying three to ten times more to the corporate publishers than to nonprofit publishers for the same journal value (based on cost-per-citation), according to the economist Ted Bergstrom and colleagues, who had to use freedom of information legislation to obtain the financial data for this study.¹⁵ APC rates reflect a similar disconnect between value and price, according to Bergstrom and other colleagues, with a substantial proportion of open access journals choosing not to ask authors for APCs (West, Bergstrom, and Bergstrom, 2014, p. 6).¹⁶ In

¹² Ralf Schimmer, Kai Karin Geschuhn and Andreas Vogler, of the Max Planck Digital Library, tested this premise with Germany, France, and the U.K., as examples of productive countries that bear a greater portion of the cost with the APC model, and found that in 2013 the annual journal subscription expenditures divided by the number of articles each country published suggested an APC of EUR 2,000, which is higher than the current average APC charged at the time across all open access publications that charge APC (2015, pp. 11).

¹³ A major part of that was the 1986-2004 journal price increases of 273%, which was 200% above inflation increases ("Monographs and Serials," 2004).

¹⁴ Whisler and Rosenblatt put it plainly: "The costs of scholarly publishing have become unsustainable for both research libraries and university presses" (1997); with the unsustainability theme taken up by Roberts, 1999; Russell, 2008; Adema and Schmidt, 2010 among others.

¹⁵ Bergstrom, Courant, McAfee, and Wilson: "Among the commercial publishers in our study, Elsevier's prices per citation are nearly three times those charged by the nonprofits, whereas Emerald, Sage, and Taylor & Francis have prices per citation that are roughly ten times those of the nonprofits" (2014, p. 9429).

¹⁶ On the setting of APCs, Elsevier, the largest among the corporate scholarly publishers, states that it considers "journal impact factor; the journal's editorial and technical processes; competitive considerations; market conditions; other revenue streams associated with the journal"; "Pricing" Elsevier, RLX Group, London, Jan 25, 2016. In 2013, Elsevier's average APC for its hybrid journals was \$2,551 in biomedical research; \$1,835 for the social sciences; and \$1,452 for the humanities (Björk and Solomon, 2014, p. 25).

an effort to rectify this and “to help authors comparison shop among alternative open access venues,” they have created a website through which authors can compare journals’ cost-effectiveness based on APC rates and Impact Factors (ibid.).¹⁷ Greater price awareness and competition, they believe, can bring about a greater alignment in the cost and value of the research article within the publishing services model suggested by the APC and crucial to a sustainable subscription flip to open access.

Cooperation and the Script Flip

An unprecedented level of cooperation is taking place between research libraries and journals, and in particular open access journals. Libraries are increasingly taking advantage of online publishing tools to collaborate with journals, presses, and funding agencies in supporting open access to peer-reviewed research and scholarship through a number of initiatives (Table 1). These initiatives are principally in the social sciences and humanities. Scholars working in these fields do not find the APC an appropriate model for their publishing work, if in light of the relative paucity of grants relative to the sciences.¹⁸ To take one example among those listed, the Library Publishing Coalition (LPC) represents something of a U.S. federation of distinct collaborative initiatives. The LPC represents 115 U.S. research libraries that were, in 2014-15, involved in supporting over 400 journals and 773 books in association with 30 university presses.¹⁹ In another approach, the Knowledge Unlatched initiative has been able to solicit support from 297 libraries in underwriting the cost of publishing open access editions of 28 monographs, and is working on a second round.

¹⁷ Their interactive website “Eigenfactor of Open Access Fees” at Eigenfactor.org allows author to compare journals, publishers, and fields. West, Bergstrom, and Bergstrom: “The journal’s Eigenfactor score... is a type of eigenvector centrality measure for the citation network in which journals represent nodes and citations represent directed links” (2014, p. 2) They argue that the market needs to encourage price sensitivity among authors by making them responsible for paying a good part of the APC: “Our view is that full subsidies of article processing charges will create the same problems that arise under subscription-based publishing.

¹⁸ The aversion to APCs in the social sciences and humanities is based on its price, resemblance to a vanity press, and its attraction of opportunists. The six editors and thirty-one editorial board members of *Lingua* resigned in October 2015 in a dispute with its publisher Elsevier over an APC of \$1,800 (Wexler, 2015). My colleague Rachel Lohtan in the Stanford University Graduate School of Education has written to me: “I would love to support open access, but the financial ties and the requirement for authors to pay to be published are suspect” (personal communication, November 10, 2015). On the opportunistic use of APCs among upstart journals, see Cenyu and Björk, 2015.

¹⁹ “Library Publishing Directory 2016,” Library Publishing Coalition.

Table 1. Fourteen examples of cooperative publishing initiatives by year of origin, field of scholarship, numbers published, presses involved, member institutions (principally libraries), and granting agencies in support of open access in 2015.

Organization	Origin	Field	Journals/ Books	Presses	Member Institutions	Funding Agencies
eLife	2012	Life sciences	1 J	-	1	Wellcome Hughes
Erudit	1998	Hum., Soc. Sci.	127 J/ 20 B	2	75	CFI FRSC
HAU Network Ethnographic	2011	Anthropology	1 J/ 17 B	2	37	-
Knowledge Unlatched	2013	Humanities	28 B	13	297	JISC
Lever Press	2015	Humanities	- B	1	40	-
Library Publishing Coalition	2013	Hum., Soc. Sci.	400 J/ 773 B	30	115	-
Open Access Network	2012	Hum., Soc. Sci.	6 J	4	40	-
Open Book Publishers	2008	Hum., Soc. Sci.	67 B	1	72	JISC
Open Humanities Press	2005	Humanities	17 J/ 21 B	1	3	JISC
Open Library of the Humanities	2015	Humanities	10 J	1	181	Mellon
OpenEdition	2011	Hum., Soc. Sci.	415 J/ 2,569 B	49	150	CNRS
Redalyc.org	2002	All	1,057 J	-	1	UAEM
SciELO	1997	All	1,249 J/ 321 B	9	27	FAPESP CNPq
SCOAP ³	2014	Physics	10 J	9	3,000	CERN

A number of research libraries are also creating open source software tools in what I take to be further indications of a cooperative approach to scholarly communication. For example, LOCKSS (Lots of Copies Keep Stuff Safe), which is being developed by Stanford University Libraries, is now preserving and ensuring the persistence of online journals for over 500 publishers. Thousands of institutions use DSpace, which originated with MIT Libraries, to set up digital repositories that hold, among other things, pre-prints and other open access copies of

research and research data. My own involvement in these cooperative ventures comes through the Public Knowledge Project (PKP), which I direct at Simon Fraser University Library and Stanford. With the ongoing support of the library community and funding agencies, PKP has developed the open source publishing platforms Open Journal Systems and Open Monograph Press, with close to half the 9,500 journals using the open source software in the Global South in 2014.²⁰

These various collaborative and cooperative initiatives have enabled a great deal of research to be made open access in a secure and persistent form. Journals have been able to move online from print and go open access; many innovative and specialized new journals have been born digital and open. The cooperative spirit is responsible for that fact that a majority of open access journals do not use APC for financing their operation, an especially salient factor for the spread of this openness within the social sciences and humanities.²¹ Still, this cooperative spirit has not yet been the source of a coordinated and large-scale transformation of what is still the dominant form of the subscription journal. What appears to be called for is a rethinking of how, between APCs and the cooperative principles of a knowledge commons, such a flip can be exercised within a field or across a region.

Fortunately, a path has been cleared by SCOAP³ (the Sponsoring Consortium for Open Access Publishing in Particle Physics) which combines elements of the APC and cooperative routes to open access (Romeu, Gentil-Beccot, Kohls, Mansuy, Mele, Vesper, 2014). It was launched in 2014 after considerable work and global outreach by CERN the European Organization for Nuclear Research, dating back to 2006 (Brooks, 2007). The consortium is made of 3,000 libraries and institutes, as well as three funding agencies, from 44 countries that contribute to a common fund and participate in a governing council.²² It has essentially flipped the better part of the field, moving six high-energy physics journals to open access and covering the article charges for four additional open access journal, amounting to 4,000 articles 2014.²³

²⁰ For current stats on journal use of the software, see “OJS Usage,” Public Knowledge Project, Simon Fraser University.

²¹ See Directory of Open Access Journals for APC and non-APC open access journals.

²² Among notable absences from SCOAP³ library membership is Stanford University Library, while the American Physical Review withdrew two of its journals out of a concern for financial stability (Van Noorden, 2014).

²³ The American Physical Society withdrew *Physical Review D* and *C* from this agreement.

Through a tendering process with publishers marked by financial transparency, it paid an average of APC \$1,213 for 2014-15, which it has been able to establish as “the best value-for-money in the Open Access marketplace” (Romeu et al, 2014).²⁴ A country’s contribution to the common fund is based on its authors’ publishing activity, with that amount sufficient to enable physicists from an additional 46 countries to publish through this program.²⁵

There is much to be learned from SCOAP³ in its application of both APC and cooperative elements, its work with commercial and non-profit publishers, and the global applicability of its benefits. That said, I am aware that projecting what can be done in other disciplines, as a result of this analysis, provides few assurances about what will happen. It is fair, then, for David Crotty, Editorial Director, Journals Policy, Oxford University Press, to call the idea of a global APC flip a form of “magical thinking” (2015). Such a flip will take a great deal of planning, unprecedented degree of coordination, and a number of practice runs within the academic community on scholarly publishing. Magic is like that. I would also counter that there is something no less fantastical to the recent VSNU-Elsevier agreement in the publisher’s treatment of the APC offset as an invitation to multiply revenue.²⁶ This sort of trick with the academic community’s intellectual property has been played often enough does not need to be repeated. To that end, I am proposing that we think about flipping subscriptions into open access as a three-step process, based on the principles and probabilities of this needed transformation of scholarly publishing:

Three Steps Toward a Script Flip

1. *The Run-Up*. An obvious preliminary step is to identify, approach, or establish organizing bodies that are capable of reaching out to the key players in scholarly publishing who will be

²⁴ Romeu et al: “The disconnect between quality and price for hybrid journals discussed for the physics journals is a widespread phenomenon” (2014).

²⁵ See the Directory of Open Access Repositories, University of Nottingham. It is worth noting that in 1991, high-energy physicist Paul Ginsparg established the first pre-print server for scholarly papers. Now known as arXiv.org and hosted by Cornell University Library, with support from over a hundred libraries, it makes over a million preprints and postprints freely available in fields that extend into other sciences and related areas. Following his example, thousands of online archives are now hosted by research libraries; see Directory of Open Access Repositories.

²⁶ “Let’s continue to experiment and find new ways of improving what we do,” David Crotty proposes in what I take to be a call to publishers, “driving real world progress rather than hoping for magical overnight solutions” (2015).

orchestrating the flip. CERN did as much for SCOAP³. What it invested in the eight-year run up to the launch of SCOAP³ in 2014 should make it somewhat easier for those who follow, but it still offers a remarkable lesson in the persistence and patience needed. Fortunately, a number of collaborative initiatives introduced above (Table 1) have been directing themselves toward taking just such a lead in coordinating a flip through different means and models.

The Open Library of the Humanities, led by Martin Eve and Caroline Edwards, is a growing force in open access publishing, with ten journals on board and support from 181 libraries, which form part of a governance structure, as well as from the Mellon Foundation. The Max Planck Institute Digital Library is another group, led by Ralf Schimmer, that is actively engaged in soliciting support for large-scale transformations away from subscriptions; it has produced a white paper clearly setting out the financial viability of the flip, held international conferences among stakeholders, and begun to solicit expressions of interest in such changes from the wider academic community. The Open Access Network, operated by Rebecca Kennison and Lisa Norberg, is also assembling an expanding group of members, collaborators, and benefactors from among individuals and institutions, with a target of underwriting open access to major scholarly resources, such as key journals.

My own work in this coordinating role has been with the Public Knowledge Project team of Kevin Stranack, Smith Esseh, and Kamran Naim, who are working in collaboration with Raym Crow of SPARC (Scholarly Publishing and Academic Resources Coalition). We have helped to foster Libraria, led by the anthropologist Alberto Jaminez, which is a chartered collective of eleven anthropology and related journals in a mix of subscription and open access titles. It is beginning to build out a supporting library community, following the lead of its member journal *HAU: Journal of Ethnographic Theory*, edited by Giovanni Col, which has established a network of 37 institutions that support its work. Libraria is in discussions with the American Anthropological Association over what it would take to create a sustainable place for a large learned society, with a stable of 22 journals, as part of an open access publishing cooperative.

We are also working with the scholarly publishing portal Erudit in Montreal, which is operated by a consortium of Quebec universities. Our focus is on establishing a national

cooperative to support open access to English and French journals in the social sciences and humanities. Discussions are underway with the Canadian Research Knowledge Network (CRKN), which represents research libraries across the country, on phasing in support for a mix of subscription and open access journals, in conjunction with the federal journal subventions, from the Social Sciences and Humanities Research Council of Canada (SSHRC), that play a vital role in sustaining the country's scholarly contributions.

And finally, we are investigating the feasibility of a regional publishing cooperative across Sub-Saharan Africa among research libraries, journals, and societies that would demonstrate how it is possible for Africa to provide open access to its research in return for the rest of the world doing the same for Africa. This cannot take place, of course, until both parties are ready and prepared to reciprocate. Part of our work is to establish the willingness among African librarians, journal editors, and societies to create a continental commons, knowing the forcefulness of Africa leading the way in universal access. What the very possibility of large-scale transformation requires is a working out of the dependencies among the parts that enables them to fit into the whole. We cannot be certain that Canadian and African journals form the most reasonable units of analysis among those parts, we can only be sure of the value of trying to identify the parts.

As part of this preliminary phase, we are gathering financial data from journals, libraries, and societies to help us assess the economic feasibility and structuring of publishing cooperatives. While the data is being granted to us under terms of confidentiality, the longer-term goal for us and the other initiatives is to extend the spirit of openness to the financing of scholarly publishing. We seek to create, with this flip, conditions in which the competitive advantages of secrecy are not part of the equation for success, a point I return to in the third step, which comes after the flip has been launched.

2. *The Launch.* With a variety of coordinating bodies in place, and a number of different paths being pursued among them, the next step is to assess the willingness of libraries, journals, societies, publishers and other stakeholders to participate in the flip. Chastened by what took place when institutions and countries approached high-priced publishers for an APC-offset deal,

our goal is to propose two simple principles for guiding the flip. The first is that a journal's subscription revenue covers its article processing costs. The second, a corollary of the first, is that this subscription revenue could be redirected to finance open access for that journal, with the consent of the subscribing libraries and institutions. For the price of a subscription, libraries flip journals. This quid-pro-quo model exemplifies Suber's principle of changing "almost nothing."

A flip to open access on these principles need not disturb how the journal operates nor interfere with such matters as the allowances and perks afforded editors and their graduate students; the 40 percent royalty fee that a publisher may have allocated to a scholarly society for publishing its journals; the shareholder value of a publicly traded publisher. Now, down the road, this move from a proprietary monopoly to open access, is bound to alter with more on this below, but in the first instance, there can be as firm and secure landing as achieved by a talented gymnast.

This model's advantages over APC-offsets include immediate and complete access both for readers and authors on a global scale, rather than dealing in the mixed bag of the hybrid journal. It brings open access to the back issues, if only the relatively recent, following the typical terms of subscription agreements.²⁷ It allows publishers to retain the tiering of fees by institutional type, region, and currency. And, at least for the early adopters in a field, journals can increase market share through an uptick in readership and submissions (given the absence of author-paid APCs), which offers journals, in, turn, the prospects of a legitimate basis for increased charges to the libraries.

However, to bring quid-pro-quo model introduces a third principle. Once again following the example of SCOAP³, the establishment of a legal, representative body of libraries, whether a consortium or a cooperative association, will make it easier to extend the flip to additional journals, as well as to attract and retain libraries interested in having a greater say in scholarly communication economy. Such an association might well take one of two forms, with the SCOAP³ version the simpler of the two.²⁸ It involves forming a library purchasing coalition that agrees to pay the current subscription fees for an initial period to those publishers who accept its

²⁷ Where the subscription agreement does not cover the complete set of back issues, there would be room for negotiations possibly involving JSTOR, which has seen to the digitizing of back issues for many titles and which could itself be subject to a similar flip arrangement.

²⁸ I am indebted to Raym Crow (2006) on the form and structure of these different scholarly publishing associations.

principles for moving to open access, while gradually moving to, perhaps, the tendered APC rates that SCOAP³ employs with gains in cost-effectiveness, as noted, in its dealing with both big commercial players, such as Elsevier and Springer, and non-profits, including the Institute of Physics and Oxford University Press.

The second form of association, which prevails among social science and humanities open access initiatives, is to extend the organization of libraries to include journals associated societies and publishing entities. This can take the form of a multi-stakeholder cooperative association, as it is known.²⁹ This type of association makes a common cause of scholarly communication across the board, enabling members to bring their particular expertise and resources to bear on the quality of publishing and access, and to participate as partners in its governance. Such a cooperative would enable libraries to bring in the open access journals that they are already hosting and supporting. The mix of subscription and open access journals is part of the picture that we are working with in all three of our case studies on the feasibility of social studies and humanities publishing cooperatives. While the mix alters the Subertian simplicity, in its favor, it represents a convergence of open access journal types within the cooperative framework.³⁰

More generally, multi-stakeholder associations will be in a strong position for collaborating on tools and systems that serve authors, readers, and users, and that can then be shared with cooperatives in other areas, with the commitment to openness also serving information science and communications researchers interested in investigating scholarly communication questions. It will still be in a position to contract publishing services from outside the cooperative. It also does not assume the role of publisher but is an active agent for its members, which may include publishers, on behalf of the larger knowledge commons.

3. *The Follow-Through.* Once the flip has taken hold, and what was previously a subscription journal is now open access, new economic forces come into play. The cooperative's funding

²⁹ See "Types of Cooperatives, Center for Cooperatives," University of Wisconsin-Madison.

³⁰ In the proposed Canadian cooperative under development, libraries will be credited for hosting open access journals that belong to the cooperative; the Social Sciences and Humanities Research Council of Canada is subsidizing journals; the Canadian Research Knowledge Network is supporting the journals and their publishing platforms (Erudit) and software (PKP).

allocations to the journal will increasingly be determined by an evolving APC, whether tendered through external publishers following the SCOAP³ model, or allocated internally as an APC paid to member journals of the multi-stakeholder co-op. In this post-flip economy, the APC rate will be determined by multiple factors. It will likely reflect the amount of work that goes into the publication of the article; the venue's impact and influence; its editorial and reviewing efficacy; its innovative design and systems. Rather than a race to the bottom in the pricing of publishing services, the APC will be influenced by authors who are working with more information about process and value. There may also, perhaps, be cooperative incentives for both journals and authors to make more cost-effective choices in the pursuit of quality publishing.

Key to these informed choices is an ability to bring the Bergstromian calculations of journal value into wider circulation. This might take a similar form to nutritional labelling, or better yet, the automobile's fuel economy and environment label.³¹ The auto label rates vehicles by fuel economy and emissions on a ten-point scale, as well as providing total and relative fuel costs. Journal labels could post APC fees, as well as discipline-based cost-effectiveness ratings reflecting journal influence, submissions volume (and rejection rates), peer review, article complexity, and other factors, which speak to cost and quality. The labels could also identify associated grants and author institutions for automating APC transactions and updating granting agency records. This information forms a natural extension in the growing use of article-level metrics covering article views, downloads, tweets, likes, citations, and other measures (Lin and Fenner, 2013). It is not only consistent with the whole theme of open science, but encourages the move from monopoly to market pricing of publishing services, which is very much a part of the flip.

This labelling and metrics speaks to another force in this academic market. This is the extent to which what matters is this literature as a body of work. As cooperatives grow in their representation of fields, regions, and languages, their concern for improving the quality of the commons will encourage the sharing of open tools and systems, making provision for the incubation of new titles in new fields, and the posting of more explicit guidelines -- directed toward journals, as well as authors and the public -- for membership in these scholarly publishing

³¹ The fuel economy and environment label is available online at "New Fuel and Environment Label," U.S. Department of Energy, Washington.

operations. An interest in the whole, combined with a greater sense of cost effectiveness, may also lead to a more equitable distribution of support for scholarly publishing across fields, regions, and types of publishers than traditionally marked the subscription economy.

It is this development of the knowledge commons that will be most likely to attract the support of funding bodies, excited by the potential of global impact and public benefit. This move to support of the whole would have a way of affecting what is the current APC-journal market in open access. It may begin to make more economic sense for larger research granting agencies to contribute to the whole of publishing rather than asking individual researchers to pay APCs, not only on the Donneian principle that no work is an island entire of itself but is part of the main, but because of what such an agency can gain from investing in knowledge infrastructure such as PubMed.³² This new publishing economy will be driven by demonstrations and documentation of scholarly and public value, of take up and use of this work. This is what will sustain societal support for this work.

While I have been working on this paper, Alexandra Elbakyan, a young Kazakhstan researcher in neurotechnology and information security, has been in the news for pirating, by her own admission, some 47 million research papers, which she has made available through a site called Sci-Hub (Wadell, 2016). Having found 12 million of its own papers on the site, the publisher Elsevier has taken Sci-Hub to court for “irreparable damages” of up to \$150,000 per paper, and succeeded in obtaining a preliminary court injunction that has driven Sci-Hub into the darknet. Elbakyan has written to the presiding judge, explaining that she created Sci-Hub after finding that the “payment of 32 dollars [for an article; Elsevier points out that it’s as high as \$41.95] is just insane when you need to skim or read tens or hundreds of these papers to do research.” She adds, “I could obtain any paper by pirating it so I solved many requests and people always were very grateful for my help” (2015).

Although in her letter to the judge, Elbakyan cites my work on the access principle by which which people have a right to this knowledge, along with the Cambridge mathematician

³² On the funding agencies current APC support, in 2004, the NIH spent \$30 million on “page charges and other publication costs,” as well as covering indirect costs for grantee’s institutions (Zerhouni, 2004). In 2012-13, Wellcome Trust spent 3.9 million pounds on APCs (“Cost of Open Acces,” 2014). For 2014, Outsell estimated that the APC market was \$290 million, with a growth rate of 15% (“Open Access 2015”).

Timothy Gower's boycott of Elsevier, I clearly think that there is another of realizing that right in the digital era, of moving beyond the grip of the old publishing economy, which the three of us all agree, does not serve research and scholarship well. The actions of both Elbakyan and Elsevier strike me as both speaking to the urgency with which we need to take careful systematic, scalable, and principles steps toward this new standard of universal access.

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