

Open Access Scholarly Publishing and the  
Problem of Networks and Intermediaries in the Academic Commons

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## 1. Introduction

Much has been said and written about the communal or gift economy underlying the work of academic researchers who publish in scholarly journals. Scholars mutually agree to give away their published research to all their counterparts – that is, all potentially interested peers and inquirers – in order to further the progress of science. The progress of science is dependent upon these conditions of open exchange among peers, and it is this openness that allows other members of the academic commons to inspect, revise, modify and improve upon the knowledge developed by each contributor. In other areas of intellectual creation the free sharing of research might lead to a ‘tragedy of the commons’ whereby the absence of access-restricting property rights over intellectual work encourages free-riding which deters would-be contributions. The academic commons circumvents this tragedy by giving each contributor the right to be credited and recognized by those peers and counterparts who use one’s work. As a contributor, the accumulation of this credit and recognition gives me formal status in a profession that provides access to careers and promotions and protections of my autonomy.

In recent years a great deal of attention has been paid to the last contributor to the value chain of scholarly communication: the academic journal publisher who also happens to be the owner of the final product (Willinsky 2005). As a result, we have a user-pays system that has made a great deal of scholarly output today inaccessible to the very constituencies that collectively produce it. Just as importantly, the potential of the Internet to lower access costs and broaden access is largely untapped. This situation has prompted the open access movement, a series of loosely related initiatives to harness the self-organizing capacities of the academic commons and eliminate or sufficiently reduce the cost of dissemination. After all, the process of writing articles and reviewing them is provided by the free labor of scholarly peers who get remunerated in ways that do not depend on publisher revenue.

In what follows I want to argue that many of the arguments in favor of ‘open access’ systems of scholarly publishing need to be tempered, or at least re-examined in a fresh light. In particular, I want to call attention to the role of intermediaries and network forms that might be threatened by a wholesale adoption of open access practices and solution. I offer no

alternatives, nor do I suggest turning back the clock on the initiatives that exist. Rather I hope to highlight some cautionary thoughts that might help us both understand and prepare for the value trade-offs that will be involved.

## **2. Journals and Libraries as Intermediaries**

It has often been pointed out that the gift economy of scholarly communication originated in the exchange of letters among scientists and researchers. This, in turn, spawned a market for scholarly journals which, in turn, created a global community of scholars. The gift economy of scholarly communication was never a result of a complete suspension of market forces. It is more interesting to observe how the academic commons gains its independence from the direct pressures of the scholarly journals market itself. In large part this is because academic institutions receive direct support and subsidies for salaries, project grants and infrastructure from public and private sponsors. In providing this support the sponsors largely accept the need for curiosity-based inquirers to be protected from everyday market forces. Institutions gain because they and their stakeholders are interested in providing a productive home for collegially organized scholars. Science and scholarship also gain because the production of knowledge itself crucially depends upon free, open and collective consumption by all of its potential users and creators.

In this context the research library has had an important role to play as a kind of intermediary in the process of scholarly communication and the operations of the journal market. The research librarian who is responsible for assembling and building a collection is a trustee for the collegial community at a given institution and also a buyer of market commodities (Lyman 1999). He or she must respond to both the demand for journals and other publications within the institution as well as the incommensurate needs of multiple stakeholders which may include research faculty, teachers and students. To perform the job well, and with a limited budget, he or she must learn how to assess the relative importance of journals according to multiple criteria and considerations such as impact factors, demand within the institution and the emergence of new and unproven fields. The research library bears special mention because this intermediary serves as a kind of market proxy for the academic commons. Journal subscriptions by institutions are bought in the market but they are used and shared by the users of the research library through a form of pooling that constitutes a

public domain. Consequently, as a scholar or student located at an institution, the availability of this collective resource does not appear to me to be shaped by the operation of market forces. When this system works well there will be no conflict between the profit motives of sellers in the journal market and the needs and preferences of the scholarly community.

At first glance, academic journal publishing is a unique and seemingly improbable market. The size of the market for the average academic journal is small and, due to the lack of a definable common consumer interest among readers of each title, there are fewer opportunities for revenue from advertising as compared with other periodical markets. The market is sustainable not only because these libraries are willing and able to pay a high price for scholarly journals, but also because the publishers can count on volunteer labor from members of the academic community who get rewarded for their contributions of articles and peer-review services by earning recognition and career advancements. Hence, part of the reason the journal market works – or has worked in the past - is that publishers can capture a good share of the support and subsidy received by the academic commons itself. Another reason is that, within the academic commons, there is a strongly inelastic demand curve for journals. Unlike readers of general interest magazines and newspapers, scholars organize themselves as specialists in fields, and their status in their fields is largely earned by observing and contributing to the commonly known specialist journals to which each scholar must have access. This is not possible in the case of other types of periodical literature. For example, it is arguable that the mass media is a poor servant of the public's interest, especially its interest in current events and news - because the demand curve for individual publications is very elastic. For each publication there are many alternative or free sources from which we can get close substitute versions of the news, so prices cannot be high enough to cover costs. In addition, journalists' cannot survive on the gift economy of recognition. They must draw salaries from the revenue earned by publishers, which leads to large first copy costs, which in turn requires high volume distribution. As a result mass media publications must operate in a way that leads to a mismatch between the market and the public interest: they must survive by support from advertisers, they must ensure those advertisers that the readership they serve can be treated as a commodity and they must fail to keep their readers and audience informed and educated in a socially optimum manner (Baker 2002).

From the above discussion we can see why the scholarly journal has been able to obtain its privileged position in the periodical literature and why the market and the academic commons can exist in peaceful coexistence.<sup>1</sup> In recent years, however, many stakeholders of the academic commons have begun to doubt whether this symbiotic relationship is sustainable. Much of the new tension is due to the continuing decline of print-based scholarly communication. In the print era the research library could successfully manage the boundary between the market and the commons since it had the optimal scale required to coordinate the pooling of institutional resources needed for the professional organization of acquisition, search and retrieval. Just as the research library has been the intermediary that managed the boundary between the market and the commons, so the journal has been the intermediary that managed the boundary between the invisible and visible college. Members of the academic commons cannot have a commons at all unless they contribute to ‘invisible colleges’ (Crane 1973) or trans-institutional research networks of peers. In the era of print-based communication they couldn’t do this unless they first submitted their work to publishers who, in turn, had to earn revenues from distribution in order to cover the costs and investments necessary for publication and distribution. This economic function of the scholarly journal can obscure its equally important service of network integration, allowing the invisible colleges to work in harmony with the visible colleges housed in institutions. The mediation of scholarly communication through the print-based journal has been important to the solidarity and legitimacy of the visible college, allowing the philosophers and historians have the same claim on the acquisition resources of the library as the molecular biologists.

### **3. Transformational Forces and the Open Access Alternative**

It is not surprising that today we hear doubts about whether this system is sustainable. In the era of unaffordable journal prices and new tools of dissemination many have asked whether it still makes sense for the members of the invisible college to donate freely their research information and quality-control services only to have the visible college buy it back in the journal market. The Internet has arguably changed the optimal network form of scholarly exchange. It has made the invisible colleges more independent, vastly increasing the efficiency of connectivity within them, providing a richer platform for combining multiple forms of

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<sup>1</sup> Following Peter Lyman (1999) we can say that this arrangement can be sustained because the research library serves as the boundary manager between the journal market and the self-organizing academic commons.

communication such as article publishing, content from academic conferences, pre-publication collaboration and private exchange (Houghton, 2005). This has led many in the academic community to question why so many commercial publishers should be earning such high profits from distribution (whether in online or print form) at a time when the value of journals appears to have been narrowed to their role of providing peer review services.

There is of course a more purely economic dimension to the upheaval in scholarly publishing. Research output has exploded over the last thirty years in line with the advent of the so-called knowledge society and the boom in higher education more generally. However, the research library budget of the average collegial institution has not kept pace. There are also other factors in this crisis such as the relative decline of public funding, the increased competition for publication credits within scholarly communities (Lynch 2004), and the shift of funding away from collegial infrastructure in favor of strategic infrastructure required for commercialization initiatives and private sector partnerships. The new technology has lowered the transaction costs of pre-publication collaboration and post-publication distribution. It is arguable that the optimal scale for production and reception of scholarly information has become smaller and more focused due to the new technologies. These and other developments have driven large commercial publishers to pursue their familiar business strategy known as “The Big Deal” where publishers sell packaged subscriptions that bundle low and high impact journals, stripping research libraries of the power to make optimal “value for money” acquisitions decisions.

Finally, we must also recognize that the so-called ‘knowledge society’ has reshaped the social norms associated with scholarly communication. This is partly due to the increasing salience of scientific research outside the confines of traditional academic institutions and elite research communities. The appearance of new constituencies for cutting edge research allows us to imagine a more complete and inclusive integration of the global scientific community. In addition research stakeholders and funding agencies have taken a more active role in shaping the social and normative meaning of research investments and output. This has changed our understanding of how the public interest might be served by scholarly exchange. In the past the public interest of scholarly communication was connected with the ideal of the social autonomy of the community of scholars. The freedom and openness of scholarly exchange is not only good for scholars seeking recognition from each other; the public also was said to

have an interest in a robust and independent academic commons which guaranteed protection for the freedom of inquiry, exposure to hard questions and unpopular views and the social benefits of disinterested quality control (Lieberwitz 2005). While we have not relinquished this ideal entirely, today we are more focused on having our systems of scholarship serve more explicitly the goals of national productivity, innovation and improved access to knowledge.

It is this combination of different forces that forms the backdrop for the development of several new models for publishing many of which seem to be converging upon a single goal, namely, the elimination or reduction of access barriers and controls. The two main approaches are distributed self-archiving and author-pays journals. Distributed self archiving - or the 'green road' to open access - involves posting supplemental versions of published scholarly articles in institutional or disciplinary archives. Although it is the subject of a great deal of deliberate advocacy and lobbying it is also an evolving practice that flows rather naturally from new technologies and scholarly ambitions which sees the network as the central platform of scholarly exchange. The author pays approach, the 'gold' road, can be characterized more as a new business model for journals whereby they would be funded from research budgets rather than library subscriptions. With this model journals remain the central platform but revenue generation doesn't depend upon payments for access or the imposition of license requirements for interested readers and users.

The gradual strengthening of these alternative publishing models and reforms is understandable and probably unavoidable, especially in light of the real pressures for change introduced by developments in technology, dysfunctional publication markets and the changing normative culture of research. They are the result of evolving markets and practices rather than deliberate policies. However, some advocates of the reforms have taken great pains to defend the new models as an expression of the rights of the academic community and the public, suggesting the need for formal mandates by research councils to require open access for publicly sponsored research. The more general appeal to the scholarly community is based on the insight that open access would allow research to be controlled by the producing members of the academic commons themselves, thereby overcoming the barriers to scientific progress posed by unnecessary fees and restrictions imposed by publishers (Suber 2004).

Not everyone sees the advantages of open access as self-evident. Some observers have tried to point out that by reconfiguring the networks and displacing the old intermediaries we

are very likely also introducing forces that change what scholars do and what kind of value they create. Along these lines Joseph Esposito (2004) offers the following critique:

Many of the proponents of OA seem to believe that the imminent OA regime will look very much like the current proprietary paradigm; senior academics chairing editorial boards, peers reviewing articles, established "brand names" (that is, publications that are highly prestigious) defining their fields, and tenure based in large part on research publications. Everything will be the same as the current proprietary model, that is, except for one thing: access to information will be free. This is the Change One Thing worldview. We see this notion everywhere, not just in the world of OA, but also in, Singapore is a great place — too bad it's not a democracy! Or, Company X is going gangbusters — but we really should cap the CEO's salary! That a company or a society or the process of academic publishing is a system gets overlooked. Instead, we think we can Change One Thing: out with the One Bad Thing, but let's keep everything else. Unfortunately, many OA advocates have as limited an understanding of the systemic dimension of information creation and delivery as Shylock pretended to have of biology: take one pound of flesh, please, but not one drop of blood.

Whether or not one agrees with Esposito's spirited dissent, his remarks touch on a valid point: it is very rare to hear any of the advocates of open access concern themselves with how changing the mode of access might also change the interests and priorities of the academic commons.

#### **4. Purified Networks of Peers**

To take a closer look at this problem we might want to reflect upon the distributed self-archiving movement. Its chief goal, as advocated by Stevan Harnad (2003a) especially, is to minimize the lost research productivity resulting from increasingly unaffordable and technologically archaic dissemination through subscription-based access systems. In its purest form this approach is not simply economic; it primarily appeals to the natural (almost teleological) attraction of the academic commons toward a web-based interoperable archive where optimal exchange and network performance would be created by citation-linking and federated searches among the free archives (Harnad 2003b). The basic claim is that both society and science will be better off if we supplement the journal literature with unpriced access to self-archived versions of articles published by the journals themselves. This is because scholars' interest in boosting the impact of their research is nicely aligned with society's interest in maximizing the usage of each article published. Distributed self-archiving

allows us to serve the public interest simply by appealing to the self-interest of researchers, their institutions and their funding agencies. In the end, because all potential users of research articles will have improved access there will be an increase in the productivity of research in general.

Of course, if distributed self-archiving becomes the primary mode of access for the journal literature there is the considerable likelihood that many journals will no longer be able to support themselves, at least in their current form, by subscription or licensing revenues. This would appear to be the Achilles heel of the green model, since it purports to be a mere supplement to the journals which are valued by scholars. The distributed self-archiving model does not merely supplement but rather replaces journals, since the articles in the archives can be accessed directly by the tools used to selectively search and sort them. This is the problem of the disaggregation of journals.<sup>2</sup> Whether or not journals survive, the decentralized system of archives will be integrated by large scale secondary filtering tools such as Google Scholar, which allow freely available federated search and retrieval with citation ranking. In either case, if the green model succeeds, it would seem that the journals will turn out to be less important for organizing the attention space and topic space of scholarly communication (Houghton 2005).

This may be unimportant to those proponents of distributed archiving for whom journals are merely coordinators of peer review services and for whom the real work of research productivity is simply that of scientists building on each other's work in a linear fashion. I would argue, however, that one of the key functions of scholarly journals cannot be captured in the linear model of increased productivity. Only if journals remain the primary mode of access can they also perform their function of organizing a space for announcing interesting and prospective developments within fields of inquiry or discovering connections between them.

Borrowing some terms from social network theory, we can say that journal publishers are 'network entrepreneurs' or 'network bridges' among specialized networks (Burt 2004). By contrast distributed self-archiving is a tool for purifying the specialized networks among peers.

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<sup>2</sup> As Crow (2002) puts it: Fundamental to implementing this disaggregated model is the logical separation of the content and service components . . . This separation allows for distributed open access content repositories to be maintained independently of value-added services fulfilled discretely by multiple service providers. Once the components of scholarly publishing are logically separated, the registration, certification, and awareness functions, orchestrated by publishers in the current publishing model, can be undertaken by any organization with sufficient intellectual prestige, organizational standing, and market position.

The green model requires or creates a strong demand for secondary filters – or perhaps collaborative filters - which can allow authors to sort threads of scholarly contributions by telling them which articles have been important to their peers. Some of these filters, like Faculty of 1000, allow a high degree of personalization and access to commentary by secondary reviewers – for a price. But the secondary filters that most will gravitate towards will be those like Google scholar which organize the scholarly literature according to citation-based systems of relevance. Another secondary filter is direct email exchange though listservs and direct correspondence. Although these forms enrich scholarly conversations some have suggested that they also may harbor an unintended communications bias in favor of specialization and “balkanization” of fields (Van Alstyne & Brynjolfsson 1999; Nentwich 2003). The network bias of the secondary filter comes from the fact that it serves a particular kind of market demand: it provides tools that make it easier for each scholar to link up with the work of authors who can be known in advance to have similar interests to him-or herself. By contrast, journal publishers explore market opportunities differently; they can take the risk of recognizing and supporting new strands within disciplines, or perhaps across disciplines. This is often how new journals are sprouted, that is, by knowing when an intellectual field might be improved by a new vision or by following heterodox or previously unexpected strands that lead it beyond its present models and approaches.<sup>3</sup>

In any case, the real question is not whether we have reason to worry about the survival or influence of journals per se, but rather whether we should care about the possible loss of network entrepreneurship and other functions that the journals are especially capable of providing. As I mentioned before, journals speak equally well to the needs of both invisible colleges (networks of peers) and the visible colleges which include not only researchers but also teachers, students and the public.<sup>4</sup> As a teacher I am able to provide lists of journals to students and I know that my invitation to browse them will provide a valuable guided tour of the fields. By simply drawing up a list of different journals I can instruct them on the difference between alternative ways of understanding scholarly interests. For example, students can learn a great deal by examining the distinction between journals with a problem-

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<sup>3</sup> It is true that the publisher’s primary entrepreneurial motive is to make a profit or to establish brand power for its journal titles, rather than to improve the system of scholarly communication (Rous 2004; Guédon 2001). But that discrepancy between selfish motive and socially beneficial result applies to all participants in the game of scholarly communication.

<sup>4</sup> A similar point is made by Guédon (2004).

based focus and those defined by a methodological orientation. This is just one of the ways in which academic communities can benefit from journal-like roadmaps of intelligibility for fields of inquiry that are not normally provided by the communication platforms organized by purified networks of peers.

### **5. The Best Showcase**

Open access publishing will not only ‘disintermediate’ traditional journals but also the research library. In the case of the green road it will require libraries to supplement their traditional role of collection-building with the newer function of institutional self-archiving. One unfortunate feature of institutional archives is that they are competitive. When librarians spend their institution’s money on their collection of subscription journals they are not competing with other libraries. Instead, they are simply trying to build the best collection possible for their collegial community with the funds available. In some cases, this means creating cooperative arrangements with other libraries in purchasing site licenses through consortia or coordinating inter-library loans. If these same institutional representatives were to start spending their effort, attention and money on institutional archives they would be thrust into the role of competing with other archives at counterpart institutions. Distributed archiving rests on the incentive each institution or nation has to build the best archive or showcase for one’s own authors. It is a competitive game and the value of one’s showcase will always be comparative since the prize - the impact and recognition that each participant seeks - is a positional good. If I have more impact, someone else must have less. The more efforts one makes competing for a positional good, the more some other competitor will have to follow suit, escalating the competitive efforts needed to attain the same overall amount of impact between them.<sup>5</sup>

It is true that each individual self-archiving ‘move’ yields more potential citation and usage than if the same contributor were to simply let the published version be discovered by those with licensed access. The goal is to increase the marginal impact of each contribution. But if an article is used more, does this reflect its value to science, or simply the success of someone’s strategy to make it more influential? In short, what would it take for us to say that

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<sup>5</sup> For example, Esposito (2004) argues that the benefit of user-pays publishing is that it limits costs by containing them within the acquisitions budget of the research library. He argues that when every author, or research sponsor, has made their work visible through institutional archives they will seek to get the upper hand by purchasing other services that enhance visibility.

the system of self-archiving is yielding a better or more productive exchange of ideas? Would we have to see more citations overall, or would we need to have faith that, because of the operation of some invisible hand, more availability has produced better science? It is true that distributed self archiving enables scholars and institutions to usurp much of the branding power that used to be in the hands of journal publishers. Is this how we want scholars spending their time and institution's resources? It is true that the *inclusiveness* of scholarly exchange can be improved by addressing the unmet demand for research access by poorer constituencies. But will this lead to greater research productivity on the part of scholars from poorer countries? Without a shift of resources toward investigating problems that concern researchers from poorer sectors, will science itself become more inclusive in the sense of being open to new problems that were previously excluded?

We have to take seriously the possibility that many aspects of the new system would simply favor the most well-endowed authors or research sponsors – those who can afford the best showcases for their work - thereby earning them the most attention and influence within their fields. This may be especially true of the gold road, or open access journals. Because they rely upon revenues from research sponsors and not library budgets they will inevitably be more appropriate to those fields and disciplines that enjoy better research support. Author-pays journals need to survive in the market for paying authors and this will tilt the playing field in favor of the richer academic disciplines. Journals that can't survive on publication charges will have to develop publishing mandates that can appeal to external sponsors. This appears to play into the increasing divisions in the academic world between sponsored and non-sponsored research, especially at a time when commercialization initiatives and performance-based funding is on the rise. We already know that the social sciences and humanities disciplines appear to be less than enthusiastic to accept the call to experiment with open access both for economic reasons and because it may be less suited to scholarly ambitions in these fields (Suber 2004).

In the end, we should be cautious about making grandiose assumptions about the role that open access might play in the improvement of scholarship, if for no other reason than that it might distract us from other, equally important challenges in making science itself more open. The move toward open access represents a structural change, not just a quantitative or remedial change; it will affect whose ideas have impact, how they have impact, what kind of

impact and forms of research are valued by (and available to) the research community and, finally, it will create new opportunities for stakeholders to exert influence over science. Whether these changes are positive or negative, they are certain to transform the substance of science and scholarship itself.

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