Scholarly and Research Communication: A Journal and Some Founding Ideas

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Abstract

In general, publishers are motivated by social values rather than by profit. They provide a service by transforming a manuscript into an exploitable literary property targeted at a known market. STM journal publishers distinguish themselves by extracting maximum profit based on the potential financial value of the need-to-know research they report. In the 1990s and aided by the Internet, scholars began to reassert control of journals and journal publishing. Scholarly effort has focused on transmission, that is to say, production and creation of the public record. Full control by the scholarly community must embrace the transformative nature of publishing, and reinvolving publishers to provide a full range of publishing services would seem desirable. The journal *Scholarly and Research Communication* is being founded to document the developing study and technology involved in this quickly expanding field.

Keywords

Open access; Scholarly publishing; Scholarly and research communication; Online publishing; Journal business models; Commercial journal publishing; Knowledge production; Knowledge dissemination; STM journal pricing

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The nature of publishers

Publishers come to their profession and business with many different motivations – cultural, ideological, political, religious, and financial. Simplifying to make the point, four distinct types of publishing can be identified that provide insight into the range of publishing that are relevant to this discussion. First is cultural publishing, which is guided by the desire to contribute to public discourse and the public good. Often, cultural publishing is taken on by small publishers committed to ideas or creativity that they feel deserve to be made public. In financial terms, this type of publishing is a high-risk enterprise where risks are increasing with the vast expansion of information and ease of accessibility. In circumstances where the market is more predictable, through the use of known authors or publishing on topics that command public attention, larger trade publishers are participants. Such activities lead to a second category, mainstream trade-book publishing, whose members, generally speaking, are large companies made up of a number of imprints.

Large mainstream trade-book publishers bring to market books of general appeal such as Jared Diamond's and Stephen Hawking's insights, as well as Michael Ondaatje's and Margaret Atwood's fiction. In Canada such companies include Random House, HarperCollins, Pearson/Penguin, and Simon & Schuster. These companies are large, and they have the wherewithal to pay substantial author advances. They are profit oriented; however, the level of profit they make is small, usually less than 10%. They compete for the attention of the consumer in the marketplace and for the (limited leisure) time each of us has to enjoy reading and appreciate the insights and information that authors provide us about the world.

A third type of publishing that spreads over at least three types of firms is service publishing. In contrast to cultural and trade publishing, where the publisher takes on financial risk in the development of a manuscript into a publishable title, service publishing is organized somewhat differently. Trade-book and cultural publishers often take on service publishing on a fee-for-service basis. A company or institution can contract with a publisher by means of up-front payments, and formulas can be developed to share any earned revenues if the title is meant to be sold to the public. Service publishing is also carried out by non-publisher organizations to serve their own needs. For example, medical organizations publish a significant amount of health-oriented literature both to contribute to the public good and to sell their medical services. Similarly, governments have active online publishing programs to keep the public informed. A third type of service publishing that has expanded significantly over the past decade is print-on-demand publishing. Here again, publishing services are provided to clients on a fee-for-service basis that can include editing, design and layout, marketing, distribution, and so forth. In service publishing, the pursuit of profit over and above fees for services rendered takes second place.

A fourth type of publishing, led by Thomson Reuters, is need-to-know publishing, which deals in intellectual property much in the same way as do pharmaceutical companies. Need-to-know publishers exploit, indeed they often overexploit, their position of being either one of a few or the sole purveyors of financially valuable information not readily available elsewhere, if at all. The scarcity of such publishers is partly explained by the size of the capital investment required to enter the marketplace.

Lorimer, Rowland. (2010). *Scholarly and Research Communication*: A journal and some founding ideas. *Scholarly and Research Communication*, 1(1): 010101, 20 pp.

Included in need-to-know publishers are scientific, technical, and medical (STM) journal publishers. Trends in journal pricing by companies such as Taylor & Francis and Sage point to commercial social science and humanities (SSH) journal publishers modelling themselves after their STM brethren.

The historical roots of STM journal overpricing

How STM journal publishers came to exploit their position as monopoly providers of need-to-know information can be understood, at least in part, by a historical anecdote. The scoundrel, thief, probable spy, and publisher Robert Maxwell[1] could well be credited with setting in motion a transformation of scientific, medical, and technical (STM) journal publishing from a service industry to a vastly profitable enterprise.[2] Maxwell played this role (after a career in the army where he had a limited role in intelligence) as a result of the reparations of war. He was granted control over export sales for some German scientific journals (those of Springer Verlag) in the immediate aftermath of World War II (Bower, 1988). So great was the demand for access to German science of the time – which was at the forefront of rocketry – that, as Maxwell discovered, (almost) no price was too great to ask relevant research institutions for subscriptions. In a world where science, and particularly physics, was seen as the foundation of such miracles as nuclear energy as well as nuclear bombs, it is not difficult to understand the strength of demand. By the time the Germans were granted the right to take back control over their own business, Maxwell had founded his own scientific journal publishing operation, Pergamon Press, and was busily flying to science and chemistry conferences around the world, finding research leaders in opening fields, and setting them up as editors of journals that he then sold, for tidy sums, to research libraries (Bower, 1988). That Maxwell was copied eventually in his pricing levels by his publishing colleagues, more than he was reviled, suggests that he was merely a leader in establishing a dynamic that was bound to emerge, a dynamic that may have had some political underpinnings.

Librarians came to refer to postwar STM journal publishing practices as causing a "serials pricing crisis" (Association of Research Libraries, 1989; Economic Consulting Services, 1989; Okerson, 1989). From the point of view of the libraries, it was. However, this label is also a social construction of librarians reflective of their position in academe rather than an all-encompassing defining attribute of postwar STM journal publishing. It emphasizes one element of postwar serials publishing and has become so predominant that other, rather key, elements are unacknowledged. For example, the need of governments and their science agencies and communities to mine all available research knowledge of the day generally goes undiscussed.

Just to touch on the subject, in the context of the Cold War – immediately following the Second World War – scientific knowledge became the battleground on which "the West" fought Communism. This being the case, not only did the West have an interest in acquiring access to German science, but also it had an interest in freeing up the communication of all research results, whose publication was, for the most part, under the control of restrictive disciplinary associations that were in a monopoly position to control the publication of members of a discipline. This freeing up of communication included legitimizing lines of inquiry through acceptance of research for publication, and hence the opening of new fields and cross-disciplinary fertilization that was so

important to the discovery of the nature of DNA. On the foundation that the West was working towards an open information system and capitalizing on investments based on new knowledge, it seems apparent that political forces would have looked favourably upon the freeing up of the communication of scientific research that Maxwell's activities represented. In that context, the value of information circulation for which Maxwell and his followers were responsible would have far outweighed their greed in journal pricing. Higher than warranted subscription prices are a small price to pay for gaining access to scientific research activities.

Secondly, and somewhat more speculatively, it would not be all that surprising for Maxwell, dealing internationally with scientists and science agencies, to have been recruited by Israel to sell high-level computers to science research agencies. Thomas and Dillon (2002) claim that Maxwell did act as a sales agent and that the computers contained built-in spyware feeding top-secret information to Mossad. If Thomas and Dillon are correct in their claim, this would certainly shed some light on Maxwell's burial with state honours on the Mount of Olives and also his possible murder by Mossad as he stole vast sums from his employees' pensions and fought a losing battle to control his publishing empire – which no longer included STM journal publishing.

At a naïve non-political level of analysis, in wresting control from disciplinary societies, the STM publishers certainly overcharged for their product. They charged on the basis of the value of the research findings contained in the articles for which they held copyright – a value that had nothing to do with creating. That value was far in excess of their contribution of publishing services. On the academic side, librarians had very little in their arsenal to resist this practice. For years, moral suasion fell on deaf ears among publishers, university administrators, and scientists themselves.[3] As well, librarians were constrained by their responsibility to provide the information needed for researchers and graduate students. They simply were in no position to exert the full power of the consumer in that they were acting on behalf of consumers who were, at the very least, too distant from the spending to care. In the context of Cold War political variables, such pricing practices and their toleration by governments are less surprising.

The passing of science as strategically central to Western interests

As time passed and the Cold War subsided. Whatever political premium might have been built into journal pricing waned, leaving STM journal publishers with a much more slowly waning legacy of the monetary value of scientific need-to-know information over which they held a distribution monopoly. High journal prices, together with the constant refrain of librarians on pricing, and continued expansion funding requests for scientific research that increased more quickly than funding available, seem to have caused a shift of opinion in at least some members of the scientific community on journal pricing. That shift saw a minority of vocal scientists change their perspective on the high prices of journals from being a reflection of the value of scientific knowledge in society and the suitably exalted status of science and scientists to one in which those same prices were seen to be a unnecessary bottleneck to research communication. The actions that emerged out of the scientific community did not consist of a confrontation with the pricing or publishing policies of the commercial journal publishers. Rather, they came out of a different tradition and set of assumptions.

Lorimer, Rowland. (2010). *Scholarly and Research Communication*: A journal and some founding ideas. *Scholarly and Research Communication*, 1(1): 010101, 20 pp.

In 1973, computer scientist Vincent Cerf developed the idea of the Internet, an idea that came to fruition 10 years later, in 1983. Building on Cerf's work, and working in the context of the dependency of high-energy physicists on the timely and complete circulation of research findings, CERN fellow (now Sir) Tim Berners-Lee invented the World Wide Web and held out announcing it until Christmas Day 1990 (CERN, 2008). Less than a year later, in 1991, another physicist/computer scientist, Paul Ginsparg, set up a preprint server in Los Alamos to allow his colleagues to deposit their yet-to-be-published research results for all to see and review, building on a long history of preprint sharing in physics. These latter two developments presented a way for scientists in all disciplines to circumvent the ransom being demanded by the STM journal publishers. It is interesting that the physicists did not go, and have yet to go, the final step in dispensing entirely with the need for formal STM journals.[4] Some three years later psychologist Stevan Harnad expanded on this notion, opting for scholars to archive their research on a publicly accessible site adding suitable identification that would ensure each article could be found on a continuing basis (Harnad, 1995).

Seeing these and other activities, and spurred by the collapse of the Soviet Union and the desire to tap into the scientific knowledge and research capability of Eastern Europe as well as to make the knowledge of the West available to these recovering states in their impecuniousness, the vastly wealthy international currency speculator George Soros invested in an overall plan to increase the circulation of scientific information. One of the initiatives funded by Soros' Open Society Institute is recognized as the first major international defining moment of the open access movement, the Budapest Open Access Initiative (BOAI) (www.soros.org/openaccess). As Suber (2004) details, the Budapest statement was followed by others with the same intention of defining the nature of open access. The BOAI was followed by the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) and the Bethesda Statement on Open Access Publishing (2003). The three initiatives are collectively known as the BBB definition of open access. The BOAI definition of open access follows:

> By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited. (Suber, 2004)

The most recent information on what is meant by open access has been provided by Heather Morrison (2009).

Developments in the 1990s

As researchers became aware of these initiatives, and increased their understanding of information technology, numbers of publishing efforts sprang up in the early to mid-1990s, some driven by the frustrations of researchers in the social sciences and humanities seeing their research go unpublished, and some driven by the greater good inherent in maximizing the circulation of information and analysis. In general, projects evolved from putting single journals online to using online technology from beginning to end. Simultaneously, aggregation initiatives sprang up where there were centralized publishing efforts. Project MUSE (http://muse.jhu.edu/) and Érudit (www.Erudit.org), and High Wire Press (http://highwire.stanford.edu/) are good examples, as is Revues.org. Many others could be cited.

At approximately the same time, and in reaction to the control commercial publishers gained through the assignment of copyright by scholars to journals, copyright reclamation initiatives emerged. Against a background of publishers aggressively exploiting the assignment of copyright to them by authors, certain large universities began to put policies in place that challenged the monopoly position of publishers. Researchers were enjoined not to assign complete control of copyright to publishers. Some, such as the University of California, counselled faculty to retain certain rights for teaching, subsequent publication, and archiving,[5] drawing particular attention to a site where publishers' policies on copyright were made available for purposes of information and comparison (www.sherpa.ac.uk/romeo). Later, health research funding institutions, including the U.S.-based National Institutes of Health (NIH) (U.S. Department of Health & Human Services, 2008) and the Canadian Institutes of Health Research (CIHR) (2007) put policies in place that mandated public accessibility. At the same time, largely through library-led initiatives, universities began to put in place institutional repositories as a counterfoil to publishers' monopolies. MIT was a leader with its DSpace software (MIT Libraries, DSpace@MIT, 2009).

These actions by various scholars, groups of scholars, and institutions are founded on a relatively simple model of publishing. They are focused on the dynamics of production, including peer review and accessibility, that is to say, ensuring that once the article is published it is widely accessible by those who might make use of it. This perspective mirrors the dual focus of not-for-profit SSH journal publishing. A study of Canadian SSH journals found that the main concerns of journal editors and managers are the creation of the official public record of research legitimized by peer review and dissemination, at the time, by means of a subscriber base of research libraries (Lorimer & Lindsay, 2004). The subscriber base verifies "availability," which is a weaker term than accessibility and a far weaker term than marketing. While the vetting of manuscripts and the production of the public record are important elements of publishing, a publisher would argue that they are just the beginning of the publishing process.

Publishing as transformation

Like all publishing, scholarly publishing is much more than the simple transmission of article content; it is transformative in its nature.[6] Publishing is transformative of a submitted article across a whole range of dimensions. First is work on the presentation of the information and ideas begun by authors and spread across editors and conscientious peer reviewers. Their task is to evaluate the significance of what

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authors have to say and, if what authors have to say is significant, to help them to cast their findings and analysis in a manner that brings forward the key elements and makes them readily understood. This can range from drawing the authors' attention to other relevant research to helping to restructure the argumentation or interpretation of findings. In doing so they help the author open the reader to a consideration of the full implications of the research. Copy editing extends this work by transforming the article into a form that clarifies the content further, thereby allowing the reader to concentrate on the content rather than the (in)adequacy of the expression. Complementing this language work is the visual presentation of the ideas. Those who design the presentation by laying out the article on the page – based on a pre-existing designed template – confer on the article the authority of good design and readability, at times augmented by images, tabular presentations of data, and, increasingly, colour, sound, and moving images. The many different elements from type and size of font to line length and margin width all contribute to the reading experience.

Behind these day-to-day functions is the editorial strategizing that gives a journal its identity. That identity may be focused on work of a discipline in a certain region or country, an emerging field of inquiry, cross-disciplinarity, the official unchallengeable record of worldwide research, comparative research in a certain area, new lines of inquiry within or spanning a number of disciplines, methodological innovation, and so on. A journal, like any periodical, generally succeeds when it provides interactive leadership, drawing from its community, selecting issues and events of import, and leading that community with the circulation of knowledge and perspectives.

Strategic editorial planning also assists a journal to fulfill its mission. Like other publishing entities, the journals that stand out set their sights on the future; their future and the future of the knowledge community of which they are a part. Strategic planning – that is to say, considering elements as fundamental as the acceptance of a certain range of methodologies, or creating thematic issues that capture key concerns – creates an identity that guides users (and librarians) in seeking information. Journals might choose to concentrate on building the field, encouraging discussion, or creaming off the most dramatic findings of the day.

Perhaps the most dramatically under-considered factor by scholar-controlled journal publishing is marketing. The implicit model of marketing employed by scholar-controlled journals is "Seek and ye shall find." This model derives in part from the view that journals comprise the approved public record and in part from the roles and responsibilities of researchers to search out, interpret, and assess relevant information. These are the characteristics that scholar/examiners test on PhD comprehensives, and they are one of the distinguishing features of good scholarship.

Appropriate as such a model is for scholarship, it withers in the face of competition from commercial publishers intent on the full commercial exploitation of intellectual property that they control. In seeking markets for their products, commercial publishers contact scholars and researchers around the world (or their library representatives) who, on the basis of their research activities or interests, should have access to the research being published in their journal. Not being researchers themselves, and thus not being in a position to evaluate the product they produce and

sell, they work on the basis of a naïve belief in their product's value and benefit to the target audience. They also believe firmly in the need of researchers to know about all the findings of the field in which they operate. Their orientation is not unlike selling magazines. The assumption of the sales force is that those in the target audience who read the magazine will somehow benefit from doing so.

The low-ball pricing strategies of many scholar-published not-for-profit journals (keeping subscription costs as low as possible), together with undercurrents of concern that most of these journals have about cancellations if prices rise, suggest that many do not have a parallel naïve confidence in the value of their journals to the worldwide research community. Indeed, it was not so many years ago that some journals seemed satisfied if issues circulated to the membership of the sponsoring body.

Having described the long, the short of the matter is that the commercial publishers fully embrace a much richer, transformative model of publishing. Like the gaming industry, the commercial journal publishers want researchers to become addicted to their products – they would call it making their products indispensable. Thus they analyze the needs of researchers and develop both content and its organization to create value for the target audience. The organizational elements include structured abstracts, keywords, and vocabularies, links to related articles, reports of outstanding researchers, or discipline-specific news feeds.

The shortcoming of commercial journal publishing is that it also fully embraces a traditional publishing model that has already been made obsolete by technology; not the technology of print, but the industry organization that grew up around print.

Publishers, the scholarly market, and copyright

It is not surprising that commercial journal publishers see themselves as the legitimate inheritors of the market for published products and publishing services: They have been participating in that market for some time and continually expanding their presence. Like the music industry, feeling themselves to be rightful inheritors, they tend to feel that they have a derivative right to determine product form: that form being the subscription-based journal.[7] Likewise they believe that established control mechanisms are legitimate for all time and thus should be maintained. Besides selling subscriptions based on their being restricted to circulation within an institution, copyright is the most obvious example of a major control mechanism. Access to distribution channels is a third.

Copyright deserves some attention. The role of copyright in the context of research articles and scholarship is mainly author and publisher attribution in the public record and an underlying orderly market to allow access to users. In granting monopoly to the creator (or the assigns of the creator), copyright recognizes the originating publisher as the single legitimate source of publication. To provide a point of historical context, in the years preceding the photocopier, scholar-authors were given the opportunity, at the time of printing, to purchase reprints at a reasonable cost. In turn, other researchers would send postcards to authors asking for copies that authors would dutifully send them. The article might thus circulate in the working group of the person who made the request. Such reprints supplemented library subscriptions and allowed scholars and

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their graduate students to collect the research they needed for further private study. Circulation of offprints was also material proof of legitimacy.

The value of copyright for scholars is attribution in the official public record of peer-reviewed (and sometimes not peer reviewed) publications and the circulation of the information copyright makes possible. The value of copyright for authors has not increased appreciably since the advent of photocopiers, or, for that matter, the advent of the Internet. On the contrary, what some might consider transgressions of copyright, as well as an increased ability to take advantage of fair dealing, through photocopying and now digital copying, has been a boon to circulation of research and hence to authors. This stagnation of the benefit of copyright itself for authors derives from two phenomena. First, authors are strongly encouraged to assign copyright to journals, thereby denying authors standing as owners of their intellectual property (e.g., in any subsequent rights sale) and hence of any benefit beyond attribution. Second, scholar-authors have a direct benefit in the maximization of the increased circulation of their research results, whereas publishers only benefit from increased paid circulation. Financial benefit for authors comes outside copyright in the form of salary increases, promotion, and tenure. Reputational benefit comes from circulation and citation.

In contrast with the stagnation of copyright in serving authors' interests, the increasingly wide purview in the application of copyright has benefitted journal publishers considerably. Thus, journals receive payments from reprographic rights organizations (RROs) for secondary use of articles in course anthologies. Certain journals also receive rich payments from companies whose products are the subject of research: pharmaceutical companies pay journals for the privilege of circulating articles to their target market: doctors and other prescribers and para-subscribers. The difficulty with the relationship that has built up between medical journals and pharmaceutical companies is that so lucrative is the pharmaceutical market to journals through advertising and article distribution rights that the pharmaceutical companies have too strong an influence on what gets published and what does not. Indeed, the pharmaceutical companies often run the research themselves and analyze the data for the collaborating author. In short, and other examples could be cited, copyright allows for derivative business in the circulation of research. However, it is rare to find any of that income returning to the researcher or to the funding of independent research. From the standpoint of the circulation of research, the sole justification for copyright, or, more precisely, for any licence more restrictive that an BY-NC-ND Creative Commons licence,[8] should be that it benefits research – either to allow a journal to continue to publish or to fund independent research. Although a certain level of benefits does accrue to continuance, a great amount of profit is also extracted by some publishers.

An impasse already reached

The perspective of the publishers in seeing themselves as the rightful inheritors of the market and the legitimate determiners of product (or service) form is doomed because it privileges the preservation of business dynamics over customer service. No industry can pursue its own interests with little or no regard to consumer interests. While the power of consumers is much overplayed in capitalist market theory, in this instance, the market does have sufficient power to turn away from established STM journal

publishers and create alternatives. The worldwide use of Open Journal Systems (OJS) that may be approaching 5,000 journals, largely representing a gradual turning away from commercial publishers, is a dramatic case in point (see PKP / Public Knowledge Systems).

New business models in STM journal publishing in particular and all journal publishing in general are needed, and copyright practices, if not copyright itself, are being challenged. Setting aside overcharging, whereas print subscriptions represent a manner of sharing costs among those consumers able to afford to access journal content, in the context of Internet-based dissemination, subscriptions create a bottleneck to the easy circulation the Internet makes possible. Transactional costs (of providing journal content to researchers) could be greatly reduced in two ways. First would be to dispense with subscriptions, with their attendant management costs, and second would be to convert funds provided by libraries and other subscribers into direct financial contributions to necessary publishing expenditures. The value of the financial contributions from each source could be calibrated based on historic expenditures on subscriptions, enrolments, overall budgets, and so forth.

In a number of different ways, technology is undermining the commercial journal model. Access to production technology is readily available to all scholars, and, indeed, the public. It is far more costly to restrict circulation than it is to open access: The reverse was the case in print. Privileged access to distribution channels is likewise weakening. Google can as readily harvest institutional repositories and self-archived articles as it can journal articles. As well, in an online world usage measures trump traditional position and prestige as determinants of the value of journals. In trade publishing, any vanity publisher worth its salt has an arrangement with Amazon for its books to be listed alongside those of other publishers. Amazon (and others) are encouraged in the opening of the market to a much wider variety of suppliers by the notion of the long tail (Anderson, 2004), the principle of which is that when transaction costs are minuscule, perpetual availability of a vast range of products with few sales is cost effective. Self-archiving of all written communication is the scholarly equivalent. Courtesy of Abebooks (www.abebooks.com), new publications must compete with the universe of published material over all time, not only with this season's titles or what a small bookstore might reasonably hold. Ready online availability of back issues of journals and the backlist of scholarly presses is the scholarly equivalent.[9]

Outside research communication, in the wider publishing world, this public/commercial channel sharing cannot last. For one thing it leads to consumer uncertainty with respect to quality. It also leads to market instability, where suddenly a business model is undermined by a dramatically less costly service and where vendors appear and disappear in very short order. Such instability is never a good thing for making money, as the market is unpredictable and the risk is too high. The scholarly equivalent is scholars self-archiving and universities making essentially the same information as has been published in a journal available through their repositories. As well, a market that mixes content that is free and every bit as valuable as that which is quite costly – that is to say, institutional repository and OA journal content on the one hand, and subscription-based journal content on the other hand – also cannot last because it lacks rationality. With tools in place that make free content as readily accessible as costly content, monetized information cannot survive.

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There is a further dynamic that creates difficulties. In the wider publishing world, technology-facilitated ease of access combined with instant communication creates a lottery for instant worldwide attention. This too is destabilizing. In the scholarly world, such a dynamic could lead to "celebrity" research and analysis such as the aforementioned article on the long tail (Anderson, 2004), a notion that has taken hold in academe without much serious academic analysis (excepting Brynjolfsson, Hu, & Simester, 2007) and nothing I could locate from statisticians.

In addition to the above phenomena, Internet technology together with the inherent demand for goods and services that have an information component favours the non-monetized circulation of information (in its broadest sense) as an adjunct to or promotion of desired goods and services. This dynamic can be seen in distance education offerings, instruction booklets, drug information, information on the nature of diseases and symptoms, government policy, service information, legal information, and so on.

Publishers in an Internet world

The developments made possible by the Internet represent a massive invasion of what one might call "publishers' markets" but what one might equally call "information markets in which publishers participate." This claim, of course, opens up the task of defining clearly what the markets of publishers actually are and were, whether they should be defined by medium (as in books, magazines, journals, newsletters, newspapers) or by content. Although clarity and comprehensiveness are key, in increasing the ease and decreasing the expense of information distribution, the Internet has made certain institutions, organizations, and businesses into worldwide non-monetizing publishers, foreclosing on opportunities that traditional publishers might have pursued had they been able to serve them using a monetized model. Old, restrictive distributions systems – authors to publishers to wholesalers to distributors to retailers – no longer reign supreme.

Casting the issue slightly more broadly, Internet dynamics have introduced (or increased substantially) a tension between the social interest inherent in the maximization of information circulation and publishers' interests in the business of information circulation, all 30 billion pages of it on the Internet. In a sense we are back to the beginning of the Cold War, where vastly increased information circulation can indeed take place and existing publishers continue to restrict it. Ironically, scholars are playing the role of Robert Maxwell, only they have stripped down that role by eschewing the seeking of profit. While it is tempting to say that this tension did not exist prior to the invention of the Internet, it might be more accurate to say that the tension between the social and publishers' interest has been greatly magnified by the Internet. Prior to the Internet, various institutions and practices, notably libraries, lending practices, and legal deposit, ensured that what was publicly available was universally available to all members of the public. In an environment in which copying is the order of the day, as it is in computer communications, attempting to assess microcharges on every copy made is counterproductive.

Historically, copyright law controlled unfair competition among producers, and specifically between pirate printers and bona fide publishers who invested in the origination of a title. This role of enfranchising legitimate producers who have invested in

transforming and originating a work is perhaps the primary value of copyright. It has the added advantage of including within its operation author recognition and recompense.

In the current environment, copyright is being extended to restrict the nature of consumption. Publishers and especially reprographic rights organizations (RROs)[10] would claim that such extensions were made necessary by the photocopier and the mechanization of reproduction by the consumer. Notwithstanding the increased power of the consumer to create copies, and setting aside other ways of dealing with copying (by taxing the media used for copying, such as cassette tapes or CD-ROMs, or the machines – photocopiers and recording devices), this represents expansion into new territory. It is invasive of social behaviour (the singing of songs; the time-shifting of lessons; kids capturing content for mash-ups). DO NOT PLAY WITH COPYRIGHT MATERIALS is the clear message (independence of the provenance of some in the public domain). Yet this message, DO NOT PLAY WITH COPYRIGHT MATERIALS fails utterly to take into account the human appetite for creativity.

Nor is there a common front among those who share stewardship of creators' rights. The class action suits mounted by Heather Robertson (Robertson v. Thomson Corp., 2006) on behalf of freelancers against commercial periodical publishers mark unresolved tensions in how to share proceeds from such markets that have been buried by publisher power.[11] Indeed, scholarly journals have been sucked up into Robertson's second suit in which the aggregator ProQuest was named. Faced with this suit, ProQuest saw fit to agree to a definition of the plaintiff class as non-employees who had supplied content to journals. Working within this definition, ProQuest named journal publishers who had supplied content to ProQuest as third parties, based on a clause in their standard contract asking the journals to indemnify them against any damages that might ensue in their re-publication of the material supplied. By the end of September 2009, the journals had managed to extract themselves from the suit by offering a definition of scholar-authors to the court as voluntary authors not expecting recompense (Heather Robertson v. ProQuest Information, 2009).

In view of the primacy of information circulation to the scholarly and research enterprise, and the desirability of universal accessibility, scholarly communication must escape from a method of operating in which publishers' interests are paramount and copyright is used to protect those interests, with circulation of information made secondary to a viable business model. The question is how this can take place without diminishing dissemination and accessibility.

This goal of maximizing information circulation calls for a few further comments on the workings of copyright. Copyright is a mechanism of enforced scarcity that lives on in an environment in which the technology for reproduction is nearly universal and renders the effort required for reproduction trivial. The restrictions that the full possible exercise of copyright introduces in the modern technological context are not unlike the early days of the automobile, where a person with a flag walked in front to control the speed of the car and warn pedestrians, in case they could not see. The issue here is not so much copyright law as it is copyright practice. (And, quite importantly, it should be noted that practice is taken into account in the interpretation of the law.) That it is practice that is of concern can be illustrated by how practice might be extended.

Lorimer, Rowland. (2010). *Scholarly and Research Communication*: A journal and some founding ideas. *Scholarly and Research Communication*, 1(1): 010101, 20 pp.

Imagine walking down a street on which there is sculpture, architecturally designed buildings, and landscapes created by landscape architects. Two methods might be used to capture usage of the intellectual property inherent in those human creations. One would be the methods now used to capture highway usage by vehicles: a transmitter in the form of an embedded chip or a photograph of an identifying symbol could signal a person's presence and a microcharge could be assessed for one's presence within this human-designed landscape. Or, with a bit more sophistication, a means might be found to record a person looking at an artistic work. Along the same line, companies such as Monsanto, following the prosecution of Canadian farmer Percy Schmeiser (www.percyschmeiser.com), might try to control the rights of people to harvest volunteer tomatoes appearing in their compost.

My point is that the boundaries of copyright are defined in terms of normal practice (and lobbying), as successive attempts to reform Canada's Copyright Act illustrate. The Internet and computer communication change the fundamentals. Like governments, and a whole host of other organizations and institutions, publicly funded research organizations are best served by the free circulation of information. The Internet greatly facilitates flows of non-monetized information, but methods need to be found to underwrite the cost of the preparation of content to feed those flows. At the same time, the Internet greatly challenges the information monetization that publishers would like to see prevail. There are some in the creator rights-holder community who see it as appropriate to extend the reach of copyright to strengthen the ability of the vendor to circumscribe the activities of purchasers of creative works. One might call this copyright creep. Equally, there are those, following in the footsteps of French revolutionaries, who would banish copyright law altogether. The milder members of this second group might be said to be engaging in fair dealing creep. And then there are many publishers, authors, purchasers, libraries, and other users who see the need for balance, who recognize the value added by both authors and publishers, and who understand the benefit of a market for literary works.

Beyond the impasse: Re-establishing service publishing for the long term

It seems sensible to suggest, as others such as Fred Friend have done (2009), that the academy has an opportunity and a responsibility to re-establish service publishing, similar to what existed in science journal publishing prior to the Second World War. The wisdom of this suggestion is demonstrated by the fact that, without really being aware of it, the academic community is on its way to doing just that.

In Canada, three publishing initiatives are already in place that lay the foundations for the re-establishment of service publishing for scholarly research. The first is OJS (PKP / Public Knowledge Project) and related initiatives such as the University of Athabasca's investment in extending OJS to monograph production (see Athabasca University Press). These are production technologies that organize journal production to minimize administrative effort and transfer office practices readily to new staff. The challenge is to create a foundation for their sustainability. If journals are to be open access, then if the money is to come from a public source, funds must come from grants. There is also the possibility of private-sector funds. Just as IBM invested in the development and maintenance of Linux, it would be a very positive sign were one or more of the large journal publishers to invest in the ongoing development and maintenance of OJS.

The second significant initiative is Synergies (Canada) (www.synergiescanada.org), a hosting and aggregation initiative provided on a fee-for-service basis to journals, designed to bring together all Canadian social science and humanities research into a single database – the PubMed Central of Canadian SSH journals. As well as creating such a database, Synergies will develop inquiry tools to maximize the accessibilty and usability of the information contained in the database.

The third significant initiative is CRKN, the Canadian Research Knowledge Network, which exists as a consortium purchaser of online materials. The major drawback of CRKN is that, scandalously, as of September 2009, it had yet to acquire a significant collection of Canadian English-language SSH journals. The significance of CRKN is that in support of re-establishing affordable service publishing, it could readily and productively use its purchasing power to combine with existing support provided from SSHRC (the Social Sciences and Humanities Research Council, which already subsidizes Canadian journal production), to underwrite the opening of access to Canadian SSH journals to all the world. Were Canadian research libraries, through CRKN, to reallocate the funds they spend on Canadian SSH journals and allocate those funds for support of open access, nearly all the needed funds would be in place for all Canadian SSH journals to open access to the world. The necessity of subsidies to make Canadian journals viable combined with the invention of CRKN has placed Canada in an advantageous position to make a major and exemplary leap forward in research communication.

Were these three initiatives to be integrated and coordinated, we would have the foundations for a long-term public sector system. The single initiative lacking is a public indexing initiative to add value first to the Synergies collection and second to open access journals worldwide that parallels services such as Scopus (info.scopus.com) and ISI Web of Knowledge (see Thomson Reuters).

Why is this initiative important and necessary? At ELPUB 2008, Elsevier-sponsored, University of Utrect scholar Anita de Waard (2008) spoke about how journal articles contained claims that were made into facts by the consensus of the scientific community (which is, on the whole I think, incorrect, but that was her claim). Secondly, in a telephone discussion in early 2008 with then dean of law at Osgoode Law School (of York University) Patrick Monahan and OJS developer John Willinsky, I learned about the major difference between publicly accessible legal databases and the commercial products of Thomson Reuters through Westlaw Canada. The commercial databases add sufficient value that it would be counterproductive and more expensive to the client for any lawyer to use the public database rather than the commercial product.

Without claiming to do so, it appears that de Waard laid out the conceptual framework for Elsevier's emerging business model. That framework is: If scientific results are mere claims, then a superordinate publishing structure (a meta-journal publishing operation) is needed that tells researchers which "claims" are bogus, which weak, which substantiated, and which referenced widely. This would come from an operation such as Scopus that would monitor journal articles and, mimicking Google algorithms, provide citation analysis to track the impact of articles, adding the kind of value that would soon become invaluable to well-funded researchers. In short, if push came to shove, commercial publishers could yield journal production to scholars and retreat to adding

Lorimer, Rowland. (2010). *Scholarly and Research Communication*: A journal and some founding ideas. *Scholarly and Research Communication*, 1(1): 010101, 20 pp.

value through indexes and other meta-publishing initiatives that would preserve their position as profit generators, and allow them to continue to drain an unnecessary level of valuable resources from research and education. Even if push did not come to shove, the path is laid for further raids on research and education funds by firms such as Elsevier and Thomson Reuters. They are "raids" because it is highly likely that the profit levels these firms will attempt to extract will match those they have been earning.

The need for meta-journal publishing is bolstered by the sheer volume of research output as well as by claims made by publishers – which are indeed claims, and erroneous at that – that open access journals lack rigorous peer review (Esposito, 2008). Perusing the plans of the Public Library of Science (PLoS) to be far less selective (in PLoS One, www.plosone.org), I can imagine the commercial journal publishers rubbing their hands with glee over the strength this adds to their rationale for meta-publishing initiatives. Despite some PLoS journals being highly selective, PLoS may find them tainted with the lack-of-peer-review rigour brush. A final point with respect to meta-publishing: Any system that selects occurrences from a set of events that in themselves are complex (the content of research reports) necessarily simplifies them (by following citations analysis) and necessarily narrows the field of significant contributions identified as significant – thereby, inevitably I would say, leading to a narrowing of inquiry.

Back to the transformative nature of publishing. To ensure that the control scholars appear to be gaining over scholarly journal publishing is not temporary, not only must the research community assume responsibility for basic production, it must also embrace a transformative model of publishing and match commercial products seeking market dominance with research-effective products that serve scholarly and research communication. This includes production with peer review and the aggregation of journals into groups that have sufficient content and interest so that access is deemed at least useful if not critical to other researchers. Out of building aggregations and collecting data on usage will come the exchange of ideas and practices that will increase effectiveness over a broad range of measures. Embracing a transformative model of publishing also includes a public indexing, value-adding initiative that builds on the inquiry tools being developed in the Synergies project. The distinguishing feature of such an initiative would be to minimize reductionistic elements such as impact factors. As simple a notion as "impact profiles" would be a first and easy step. To steal some words from Thomson Reuters describing its Web of Knowledge index, with considerable irony, I believe that the research community needs "much more than just an aggregation of content and tools, [we need a] … unified platform that integrates all data and search terms together so that you can conduct one search to find all relevant items" (Thomson Reuters, ISI Web of Knowledge) across disciplines and through time.

The future

The future I see is slightly different from that of many of my colleagues who support open access, and it is based on the transformative nature of publishing. By concentrating on production and dissemination, the open access movement is re-establishing service-oriented publishing for the academic community. Once the service publishing model has been re-established, the academy would do well to turn journal publishing back to publishers, not on an ownership basis but for management and operations in the pursuit of the creation, circulation, and exchange of knowledge.

In the context of publishing, functions such as marketing become not boastful promotions of products that are unworthy, nor wastes of money, but rather an attempt to attract the attention of relevant readers. Neither, for a publisher, is selectivity in considering which articles to publish a disciplinary existential choice. It is market positioning. *Nature*, *Science*, and the *New England Journal of Medicine* do not chase high-impact factors. Rather, their publishing strategy and editorial vision (manifest in their day-to-day operations) position them to maintain readership and leadership. This translates into high impact. Such journals use techniques common to all publishers, ones that publishing students learn early in their careers.

In a marketplace based on the pursuit of knowledge, positions in the marketplace are legion. Service publishing in the name of knowledge creation, dissemination, and exchange, undertaken by publishers but guided by the scholarly community, allows for a heterogeneity reflective of the nature, richness, and total value of scholarly inquiry.

In short, I see a bright future for scholarship as well as for scholarly and research publishing and communication through the full recognition of all elements of publishing by the scholarly community, all the roles that need to be played, and an understanding of the transformative nature of publishing.

Scholarly and Research Communication

Against this background, and with great pride, I am pleased to introduce *not* a sustainable, value-adding, public indexing initiative, but a new journal intended to engage scholars in the development and study of research communication. That journal is *Scholarly and Research Communication* (www.src-online.ca/), a peer-reviewed, interdisciplinary, open access, online journal containing original contributions to the understanding of production, dissemination, and usage of knowledge, published by the Canadian Centre for Studies in Publishing Press and financially supported in its initial stage by its sister journal, the *Canadian Journal of Communication* (www.cjc-online.ca).

The journal has a founding editorial team that is an offshoot of Canadian initiatives in this area, including OJS, Synergies, CRKN, Bioline (www.bioline.org.br), the Budapest Open Access Initiative, the TAPOR project (portal.tapor.ca/portal/portal), and so forth. We have assembled an international editorial board of some 61 noted, indeed, some very well noted, researchers.

Initially, the journal will be receiving submissions in four different formats:

- Normal research articles
- Technical reports and demonstrations
- Commentary and analysis
- Reviews

The journal will receive submissions in all media, including interactive media. All but the reviews will be peer reviewed.

Lorimer, Rowland. (2010). *Scholarly and Research Communication*: A journal and some founding ideas. *Scholarly and Research Communication*, 1(1): 010101, 20 pp.

The content of the journal will range from the dynamics of representation through changing organizational elements, including technologically mediated workflows to knowledge flows, ownership, and legal structures and dynamics, and much more. Because part of the mission of the journal is to assist in establishing a more sound and effective scholarly and research communication system, in addition to formal original research, it will not steer clear of publishing analytical opinion that will be subjected to peer review. The journal will aim to cover all elements of scholarly and research communication, and we invite submissions. This inaugural issue comprises selected proceedings from the PKP2 conference (PKP Scholarly Publishing Conference, 2009).

NOTES

1. "scoundrel": At one point, in Britain, Maxwell was judged unfit to run a public company (Bower, 1988, p. 222); "thief": Maxwell stole money from company pension funds to further his business (Prokesch, 1992; see also Bower, 1988, pp. 310, 318); "probable spy" (Thomas & Dillon, 2002); and "publisher" (Bower, 1988).
2. See Bower (1988), pp. 77-87 (p. 85 specifically mentions science, technology and engineering); see also Haines (1988), pp. 169-179.
3. One might speculate that science researchers had a sense of the value of scientific knowledge in the Cold War. Certainly in my conversations with scientists about the cost of STM journals I found that, in general, they felt that journal prices reflected an appropriately exalted status they felt science was able to claim.
4. In a presentation made to ELPUB 2008, Salvatore Mele outlined the latest plan of the high-energy physics community. In discussion Mele made clear that physicists did not see the role of commercial journals to be communication of critical information among scholars but rather the (rather expensive – my interpretation) creation of the official historical record. See Mele (2008).
5. See the University of California policies at http://www.universityofcalifornia.edu/copyright/ownership.html#f and particularly, http://osc.universityofcalifornia.edu/manage/retain_copyrights.html .
6. Further appreciation of the mechanical or mathematical nature of communication transmission as opposed to its transformative social nature can be gained from the discussion found in Lorimer, Gasher, & Skinner (2008, pp. 11, 12).
7. Like all journals, commercial STM journals also accept research results chopped up into small and discrete units. This maximizes the number of articles and journals alike. It would appear, however, that the chopping of results is more attributable to the interests of researchers than of journals.
8. Attribution, No Commercial exploitation, No Derivatives.
9. The announcement of Harvard University Press that it has placed 1,000 titles with Scribd is a case in point (Scribd blog, 2009).
10. Access Copyright (www.AccessCopyright.ca) is Canada's RRO. The Copyright Clearance Centre (www.copyright.com) is the United States'. The International Federation of Reproduction Rights Organisations (IFRRO) is to be found at www.ifrro.org.
11. When accepting an article, publishers now demand that freelancers grant them a wide variety of rights. Their actions appear to be sounding the death knell of independence for freelance writers.

WEBSITES

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Access Copyright. URL: http://www.AccessCopyright.ca .

Athabasca University Press. Edmonton, AB. URL: http://www.aupress.ca .

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. (2003, June 20). URL: http://oa.mpg.de/openaccess-berlin/berlindeclaration.html .

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Budapest Open Access Initiative (BOAI). URL: http://www.soros.org/openaccess .

Canadian Journal of Communication. URL: http://www.cjc-online.ca .

Copyright Clearance Centre. Danvers, MA. URL: http://www.copyright.com .

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Project MUSE. URL: http://muse.jhu.edu .

Revues.org. URL: http://www.Revues.org .

Scopus. URL: http://info.scopus.com .

Sherpa. *RoMEO: Publisher copyright policies and self-archiving.* URL: http://www.sherpa.ac.uk/romeo .

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