



A BIMONTHLY REPORT ON RESEARCH LIBRARY ISSUES AND ACTIONS FROM ARL, CNI, AND SPARC

ARE JOURNAL PUBLISHERS TRAPPED IN THE DUAL-MEDIA TRANSITION ZONE?

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Editor's Note: ARL recently published "The E-only Tipping Point for Journals: What's Ahead in the Print-to-Electronic Transition Zone," a report on the outlook for electronic-only journal publishing, as viewed from both research library and publisher perspectives discerned in a series of interviews. The article presented here is largely drawn from that paper and focuses on how journal publishers see the future unfolding. The full paper is available at http://www.arl.org/bm~doc/Electronic_Transition.pdf.

Most observers have long predicted the eventual replacement of printed journals with electronic-only publications. Yet today—some 15 years after the Web first captured the popular imagination—most journals are published in dual print and electronic formats and many are still published in print only. A growing number of journals are born digital, but the digital metamorphosis of established journals seems stuck in the transition zone.

With the establishment of online editions of journals, the next step was presumed to be that print would be shed and journals would continue their development in strictly electronic form. In the abstract, this makes perfect sense. After all, online publication opens compelling new possibilities for use of journals. Moreover, most users have warmly embraced online access. As a society director of publications observed, electronic publishing increasingly offers authors a "more hospitable environment" in which to publish.

While evidence suggests research libraries are moving inexorably toward electronic access to most journals, that doesn't necessarily mean users have abandoned print en masse or that printed journals

will no longer be published. Publishers are reluctant to turn their backs on existing revenue streams from print subscriptions, even if they are declining. And library subscriptions are not the only piece of the puzzle for many journals, such as those that largely rely on print advertising revenue. For society publishers, membership-related factors further complicate the situation.

Why Libraries Care

As long as dual-format journals persist, publishers remain saddled with the operational costs of maintaining two systems. However, given the apparent price inelasticity of demand in the journals market, it is unlikely that cost reductions from elimination of print would be passed along as price cuts to institutional subscribers. So why do libraries care if print editions continue to be published?

Perhaps the most direct impact for libraries is that the availability of dual formats results in dual acquisition and preservation challenges. The differences between print and electronic editions of journals will likely grow as unique capabilities of online publishing are understood and further developed and as readership bifurcates. Already differences between print and online versions of the same journal are not uncommon. For example, some publishers include extra content in the online edition—such as supplementary data in the online version that is not feasible to include in the print. At the same time, a print issue's front matter, letters to the editor, editorial board list, or other shorter pieces may be omitted from the online version.

Also of concern—to libraries and publishers alike—is the opportunity cost of supporting dual-format publication. Maintenance of print editions consumes resources that might otherwise be directed at electronic

editions. The current hybrid state is especially challenging to small publishers, whose scarce resources are stretched thin. They often find themselves at a disadvantage in relation to large, resource-rich publishers as they compete for subscribers, authors, and readers. Since these small publishers often are societies or university presses, the situation is of more than passing interest to research libraries and the institutions that support them.

It is important to recognize that many self-publishing societies, particularly in the humanities and social sciences, haven't yet entered the transition zone; their journals continue to be available only in print. These organizations probably account for the majority of the estimated 8,000 remaining print-only journals (about 40% of all peer-reviewed journals). Most of these societies publish a single journal, suggesting that lack of scale may be a barrier to e-publication.¹ Although they may serve more print-oriented users today, they face the prospect of declining impact and deteriorating financial stability as a new generation of scholars takes over and print-only journals become increasingly marginalized if they aren't available on the Internet.

Drivers of Change

Although change has reached across the journal-publishing marketplace, journals individually are at varying stages along a continuum from traditional print publication to dual print and electronic publication to (perhaps) electronic-only publication. Market-wide forces brought by the Internet will propel further change in the years ahead, but many of the next steps will be shaped by influences that need to be viewed from the individual publisher's perspective. From there we see a complex matrix of market, financial, management, and technological inputs to decision making and action.

It is helpful to separate the forces that are actually driving publishers toward e-only publication from other less dynamic factors in the environment. A series of a dozen interviews conducted in 2007 by the authors with journal publishers, publishing platform hosts, and publishing production consultants aimed to shed light on the key motivations for publishers to go down the e-only path. These interviews point to a mix of financial exigencies and user expectations. (Unattributed quotations below are drawn from these interviews.)

Shifts in the Economics of Publishing

At its simplest level, the elimination of the print version of journals is an opportunity to improve a publisher's bottom line or free-up funds to invest in new capabilities. It offers the prospect of eliminating printing, mailing, warehousing, claims, and other costs. But, of course, the net effect is favorable only if there is not an offsetting loss of revenue.

In recent years, many publishers have spoken of the added costs of publishing online. Because most of them

are now publishing in two media instead of one, their financial statements reflect the additive effect unless they've taken assertive steps to squeeze out costs via process reengineering or use of productivity enhancing electronic tools, for example to manage manuscript submission and review.

As journal pricing evolved in recent years from *print plus electronic* (p+e) to *electronic plus print* (e+p) it has paved the way for e-only by establishing the expectation that the electronic is the primary version of the journal. Yet it is apparent that relatively few print journals have actually been replaced to date with electronic journals. Today dual media is the norm.

However, under the right conditions the opportunity to profitably discontinue print publication is present and sufficient to motivate action. Some society publishers have noted that they are losing money on individual/member print subscriptions. Publishers of all types would probably agree that printing and fulfillment costs are increasing sharply; both are impetuses toward offering e-only. Whether that impetus is converted into action depends on the perceived ratio of risk to reward.

Given the possibility of large-scale cancellations of institutional print subscriptions as libraries eliminate redundancy, publishers may soon be facing a rise in unit costs of printing as quantities dwindle. The impact will be greatest among publishers that mainly serve institutional subscribers or that rely on institutional print subscriptions to subsidize member subscriptions. At present, however, most publishers seem to be experiencing only gradual erosion of their institutional print base. One publisher reported a 6% annual decline in her society's library subscriptions and another spoke of a "steady decline." Eventually, however, the proverbial chickens will come home to roost.

Some publishing managers have begun considering the impact of various change scenarios and planning accordingly. One publishing technology vendor observed, "If there's a precipitous drop [in institutional print subscriptions, the publishers are] not ready. If it's slow, they will make a series of micro-adjustments," such as developing online infrastructure, restructuring their pricing, expanding sales efforts, pricing adjustments, adding pay-per-view sales, etc.

Even without looming changes in volume, market factors also may argue for e-only publication in certain circumstances. Printing in color is expensive but is often highly valued by authors and readers. Shifting to e-only enables publishers to accommodate this demand for color without incurring the significant costs. For example, the American Society for Cell Biology (ASCB) recently decided to discontinue the print edition of *Molecular Biology of the Cell* (MBC) so that they could eliminate the cost of color printing and thus reduce color figure charges to their authors. (See Figure 1.) Only a relative handful of MBC's authors were resistant to e-only. One of their

editors reportedly asked, "What print journal?"²

A publishing consultant has observed that, "The right time to drop print is when your customers no longer want it enough to pay an economic price."³ But the risk of this approach is that it may ignore the opportunity cost of continuing to support a declining print base at the expense of a growing online opportunity. Getting clarity on those costs and choosing the right time to abandon print is the challenge facing many publishers.

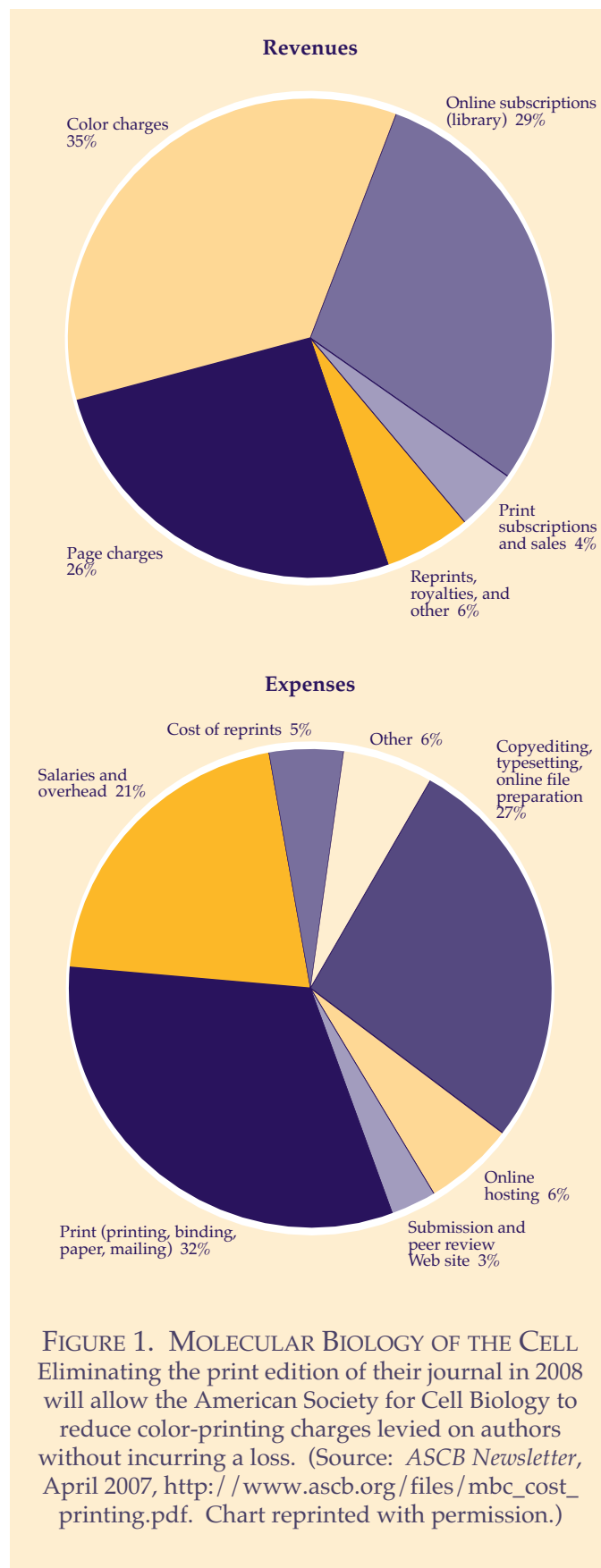
Desire to Enhance Publication

While the current importance of offering electronic editions of journals differs from field to field, most publishers appear to recognize the risk that, even in the scholarly world, readers will eventually stop using information that is not available online. Especially in scientific, technical, and medical fields, many publishers already have embraced technological capabilities that were not available in the pre-digital environment. These enhancements make editors more productive, peer reviewing faster and more convenient, and publication more timely and robust. By offering these capabilities, journals gain advantages in the competition for authors' articles.

While the benefits of electronic publication do not necessarily argue for discontinuing print journals, they do imply that electronic publishing increasingly offers authors advantages in creating, presenting, and distributing their work. As the opportunity cost of continuing to invest in print becomes too great, online will be the growing focus of publishing processes. Except for top-tier, broad circulation titles—which sometimes are used more like magazines—or other exceptional circumstances, surviving printed editions may become mere add-ons available via print on demand.

The electronic edition is a rich environment in which to present and conduct scholarship. It can be readily discovered online, accessed at the desktop, and linked to related information. It can present content that is not suitable for print—data, sound, or video, for example. Use of research is expanded and accelerated online. Citation becomes easier and more accurate. Given faster connection speeds and cheaper server space, images that once were superior in printed form can now be of sufficient resolution online to offer advantages over print. Except where their licensing costs are a barrier, it is possible to offer images online without regard to the substantial cost of color printing. New kinds of computational analysis techniques are potentially opened up online, as is interactivity between users and content and collaboration among researchers.

A university press electronic publishing director suggested that movement toward the primacy of online publishing may be hastened by introduction of increasingly robust Web-based communities, social networking, and other Web 2.0 functionality. She wonders "if the



potential for personal interaction with content will more clearly delineate the advantages of electronic over print," and is eager to understand how these features might bear upon the migration to e-only subscriptions.

Even putting aside many of the as-yet-unrealized possibilities of digital scholarship and the varying relevance of new capabilities in different fields, publishers interviewed pointed to the likelihood that generational changes will transform the publishing landscape. This shift will expand the importance of online publication—and perhaps even diminish the role of journals as we currently conceive them, regardless of medium.⁴

Dampers on Change

A move to e-only entails substantial adjustments to a publisher's business and production operations as well as cultural adjustments to the online publishing environment. Anticipated savings in printing and mailing costs must be balanced against the risks of reduced readership, lost members (for societies), and forgone revenue. Plus there is the matter of the time, resources, and expertise to re-engineer production processes and devise new business strategies.

Publishers vary dramatically in their readiness to take on such challenges. The large commercial houses are relatively well prepared for an e-only publishing scenario. Societies and university publishers, on the other hand, run the gamut from having already adopted e-only in a relatively few cases to being far from ready to consider it. At this stage, there is not yet a clear path nor are there proven guidelines to follow.

Business Models and Marketing

It has taken time for publishers to decouple the pricing for print and electronic formats. For example, although the American Chemical Society has offered their journals in electronic form for several years, they just introduced a new pricing model in 2007 that replaces the historical print price with usage data as a factor in determining the price.

For societies the business model is further complicated when the print journal is provided to members either at a discount or as a benefit of membership, as is often the case. Publications, along with membership dues and meetings, are a main source of revenue for many scholarly societies. When libraries provide desktop access to journals, societies fear it can diminish the need for an individual's subscription and thus jeopardize membership. Exacerbating the problem is the outlook for declines in membership with the impending retirement of the baby-boomer generation over the next five to twenty years.

According to one publisher, "a society may save 20% of their publication cost by discontinuing print but there are offsetting risks." Early reports on a few societies that have switched their member benefit from a print subscription to an electronic one are mixed and

reveal the need for careful planning. In one dramatic case, a society lost 25% of its members after print was abruptly dropped at the instigation of a board that was impressed with the potential for enhancements and presumed the electronic format was inherently superior.

Another society lost members and ad revenue before deciding to reinstate a print option. In both these cases, decisions were made somewhat arbitrarily and suddenly without adequate communication with members. These examples reinforce the fears of smaller societies, especially in the humanities, that declare they would lose members if they went e-only.

One life sciences society acknowledged that they subsidize their members' print subscriptions via surpluses from institutional subscriptions, saying they "lose money with every member print subscription." A business society chose to ease the transition by offering its members online access as a free member benefit and print for an added fee, while a science society is planning to allow the additional fee for print to rise over time to reflect the real costs. "Eventually, there won't be a choice for most journals," suggests one publishing technology vendor. "The longer that society journals delay, the less efficient they will become relative to the for-profits and the costs for society journals will rise as they try to subsidize print from online."

Although most print subscriptions are declining steadily, they are still a significant revenue stream for some and a source of security for many publishers. Print journals were typically marketed through direct mail and sold title by title through subscription agents. The transition to licensing electronic journals globally requires different skills internally and a new array of partners that can effectively reach libraries worldwide.

Electronic versions are more often sold as a package with other titles or additional years of content. To price the package attractively for a broad range of large and small institutions may involve tiered pricing or consortia discounts. Handling these electronic sales requires staff with the expertise to manage consortia negotiations and complex relationships with multiple agents globally. The many publishers whose titles are available online only in aggregator databases may be especially resistant to e-only since aggregator payments may not be sufficient to replace the lost subscription revenue.

Some journals, especially those in clinical medicine, rely on ads in the print publication; in one instance the ads represented 50% of the journal's income. In such cases, discontinuing print can put ad revenues at risk unless the publisher develops a plan for ads in the electronic environment or, as one publisher reports doing, creating a new printed news publication and migrating the ads to it.

Production and Distribution

Though business models may increasingly be e+p, the production process for many publishers is still p+e.

Production is built around creating a printed product—with the costs of layout, typesetting, and page design—while the electronic version is a by-product. A publishing technology vendor noted that currently half of their publishers derive the online version *after* they have created the print version. He observed that, “There are a lot of publishers whose primary production stream is print and they have not thought out the implications for online.” Until this situation is resolved, a move out of the transition zone is impractical.

When an article is available either to be read on screen in HTML or downloaded and printed in PDF, evidence shows high use of PDFs. One publisher that offers articles in both HTML and PDF reported 50% of articles accessed are downloaded in PDF form. Thus, rather than eliminating printing altogether, the e-only business model may be simply shifting this task to the user. The length of the average scholarly article prompts many readers to print a copy rather than read on screen. Images can also encourage printing if screen resolution lacks the clarity of printed images. Since most users still expect to be able to download and print articles, the requirement for publishers to create a printable version remains.

But to thrive in an e-only environment, it is necessary to optimize the potential of digital formats. This means re-engineering publishing processes to incorporate XML tagging earlier in the process so that it applies to the entire document, not just the metadata. Use of XML can provide flexibility in utilizing or repurposing content from various formats and sources to create documents that can be far more efficiently output in print or online for new applications. For example, if case studies appearing in each issue of a journal were XML-tagged, it would be easy to collect them in a single document for classroom use. XML-tagging of text also facilitates searching and discovery by humans and machines.

Of course, this adaptation requires investment, which can challenge many smaller publishers who, in addition to lacking the requisite capital, are without the technical expertise and economies of scale of larger operations. “Societies with sufficient staff dedicated to business-related issues are the exception rather than the norm. This lack of in-house resources becomes especially critical as the transition to electronic dissemination accelerates....”⁵

As print subscriptions have declined, some publishers have been forced to consider how to manage changes in demand. Their printers have responded in a variety of ways. Some have invested in digital technologies that can produce high-quality and cost-effective small print runs or print on demand. Of particular significance to some disciplines are new processes adopted by printers that drive down the cost and improve the quality of color images.

Readers, Authors, and Markets

Perceptions of readers’ readiness for electronic-only publications reinforce publishers’ thinking about continued support of print.

A manager of social science journals noted that there are no obvious benefits for the publisher to discontinue print because “print is still the center of our universe.” One society publisher who is considering e-only observed that they would “alienate” a minority of members if print were no longer available. Another society found that 25% of their members were willing to pay extra for the electronic version when it was offered in addition to their print member benefit. When they flipped their model to an electronic benefit with print for an additional fee, 33% of their members were willing to pay extra for the print.

Until members choose to relinquish print, library preference alone may be insufficient to prompt a switch to e-only by societies. Library subscription revenue is significant to most society publishers, but the number of member subscriptions far exceeds the number of library subscriptions. (See Figure 2.) And for some publishers, print advertising revenue is sufficient to motivate continued print publication for as long as individual / member subscription volume is adequate to attract advertisers.

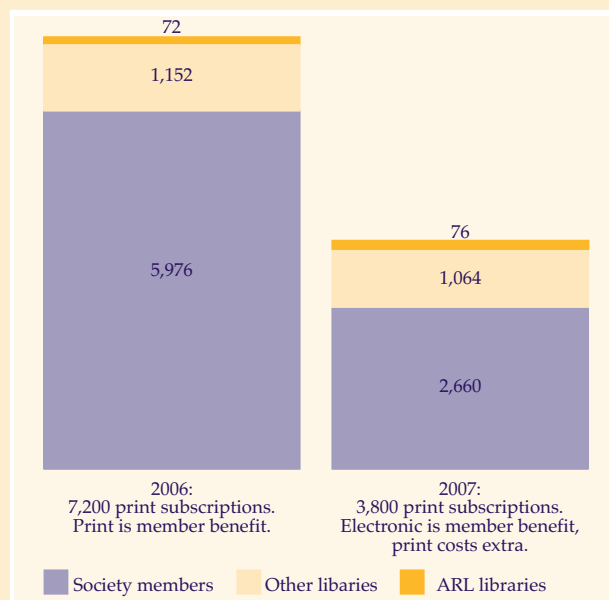


FIGURE 2. CHANGES IN A SOCIETY’S PRINT SUBSCRIPTIONS

When one society switched their member benefit from print to electronic, the proportion of print attributable to library subscriptions increased from 16% to 31% of total print. The percent increase might have been higher except that a third of their members chose to pay extra to retain their print. (Source: One society publisher’s subscription data.)

Some publishers stated that print and electronic formats are used by readers in different ways. According to one society publisher, the print edition is useful as an alerting service, is portable, and is convenient to read and browse while the online version is used as an archive to find articles that have been read or to search topics across multiple years.

Author perceptions also weigh heavily with publishers. Some publishers believe that print copies of a journal aid in attracting authors who want wide readership. The director of a platform host noted that publishers “fear they will not compete as effectively for authors without a print edition.” To the extent that dual-format publishing extends readership, actions that eliminate print may also constrict readership. The effects of such losses are more than purely economic. Society publishers emphasize a broad readership and thus fear sacrificing a portion of current readers and ultimately limiting the audience for authors by discontinuing print subscriptions.

Some commercial publishers have indicated that print is still required in particular international markets for a variety of reasons. For instance, a major disincentive to e-only sales in Europe is the Value Added Tax (VAT) tax that applies to services such as e-journals but not always to print products.

Outlook

As use and norms evolve, print journals will increasingly exist to address specialized needs or business opportunities. For libraries a 100% e-only journals environment is remote, but 95% could be on the horizon. But a more mixed picture is likely for publishers, especially societies and advertising-driven journals. Nevertheless, financial imperatives and changing use patterns will draw many publishers toward a tipping point where it no longer makes sense to subscribe to or publish printed versions of most journals.

A decline in print subscriptions will be accompanied by an increase in the relative cost of supporting each of the formats, raising the threshold for justifying their continuance. Both publishers and libraries will be driven to rationalize their investments in declining print revenue streams and to finance investments in infrastructure and emerging opportunities. Some will be faster to do so, such as those already straining from the cost burden. Others will be slower, such as publishers with a self-supporting base of individual subscribers or significant advertising revenue from print.

In the humanities, and social sciences, resistance will dwindle as generational change leaves its mark and a critical mass of electronic resources (including books and primary documents) reach the desktops of users and bring productivity gains. In the arts, progress may turn

on reduction of the higher cost of licensing images for online publication.

Large commercial publishers, being both financially attuned and generally less encumbered by membership needs (except to the extent that they publish journals for societies), could change the game by moving large numbers of journals to e-only. If their reported concerns about slower take-up of e-only by libraries outside North America are overcome, change could soon follow. This would alter the norms and embolden other publishers to follow.

The interdependency of libraries and publishers is in sharp contrast to the differences that frame their separate motivations, perspectives, and decision-making processes. Yet the impact of their actions on the work of scholars and the progress of scholarship suggests the urgency of finding an appropriate means of “social coordination” to reduce some of the risks associated with the large-scale changes in journals that lie ahead. Issues emerging from this study suggest the need for a fuller examination of and response to obstacles impeding the transition of journal articles fully into the digital networked environment.

Further work centering on these areas by librarians, publishers, or both could help accelerate the ongoing migration from dual-format publishing to a new environment of single format (electronic) publishing. The goal of focusing on these areas must be to equip publishers and librarians with sufficient information and insight to successfully navigate through today’s transition zone.

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¹ Raym Crow, “Publishing Cooperatives: An Alternative for Society Publishers: A SPARC Discussion Paper” (February 2006): 5, http://www.arl.org/sparc/bm~doc/Cooperatives_v1.pdf.

² An illuminating review of ASCB’s situation as they contemplated a move to e-only is available in: Sandra L. Schmid, Gary Ward, and Mark Leader, “MBC and the Economics of Scientific Publishing,” *ASCB Newsletter* (April 2007): 4–6, http://www.ascb.org/files/mbc_cost_printing.pdf.

³ Mark Ware, “E-only Journals: Is It Time to Drop Print?” *Learned Publishing* 18, no. 3 (July 2005): 193.

⁴ It has been argued that the traditional functions of a journal can now be distributed via the Internet among various service providers, rather than being tightly bound together in a journal. For example, it is no longer obligatory for the certification of research quality (e.g., the peer review process overseen by a particular editorial board) to be bundled with dissemination; they can be independent. This disaggregation implies the expanded significance of the article and the reduced importance or even disappearance of the journal as currently conceived. Discussed in Richard K. Johnson, “Will Research Sharing Keep Pace with the Internet?” *Journal of Neuroscience* 26, no. 37 (Sept. 13, 2006): 9349–51, <http://www.jneurosci.org/cgi/content/full/26/37/9349>.

⁵ Crow, 7–8.