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## Associations

Whether in representing the professional interests of an academic discipline (such as the American Psychological Association) or in giving voice to new areas of research (as does, for example, the Cognitive Science Society), associations publish journals to provide a focused venue for the work of their members and to define their leadership and professional identity in the field. As these associations grow in size, it often takes more than one journal to represent the scope of interests that they represent. With more than 150,000 members, the American Psychological Association (APA), for example, lists no less than fifty journals on its Web site, ranging from the *American Journal of Orthopsychiatry* to the *Review of General Psychology*. The Institute of Electrical and Electronics Engineers, Inc. (IEEE), with over 360,000 members and over 100 journals, manages to publish 30 percent of the literature in electrical engineering and computers. Both of these associations have a membership made up of faculty researchers and practicing professionals, with the journals serving to increase the flow of information between these two groups. Many associations generate a considerable budget surplus from journal sales, which they use to support other society activities. Associations work hard to ensure that their journals are among the top titles in their field, and they use free or discounted subscriptions to their journals as a membership incentive.

Historically, it actually took some time for associations to discover the value of publishing journals. As I describe in chapter 13, the Royal Society of London held back for almost a century before becoming more than nominally involved in the publishing of the *Philosophical*

*Transactions*, which essentially published the correspondence of the society, which began as a private publishing venture in 1665, albeit operated by the secretary of the Royal Society, Henry Oldenburg. By the eighteenth century, the society's members had realized that the journal could well further the goals and reach of the organization and its members. Today, a scholarly association wouldn't be caught charging membership fees without offering those members at least one journal. Now, however, these associations face a new set of challenges associated with journal publishing. They have to manage the transition from print to electronic publishing while contending with basic changes in the way that people are reading research, which is now far more often by selecting articles from an index rather than by subscribing to a journal and reading a smattering of articles in it.

According to researchers Carol Tenopir and Donald King (2001), "the average number of personal subscriptions per scientist ... roughly halved" over the last two decades of the twentieth century.<sup>1</sup> Scientists are now doing a third of their reading in electronic form, drawing on a broader range of journals than they did even a decade ago, when they might typically read through a single journal. There are just too many journals today that touch on a scholar's work, which discourages individual investments in a single journal.

Although some have accused the associations of riding the upward subscription price spiral of corporate publishers to their advantage, what is perhaps more troubling is the number of scholarly associations that have turned their journals over to these publishers, effectively moving the journals out of the nonprofit sector. For example, Reed Elsevier announced in 2001 that it was offering thirteen new journals, ten of which it had acquired from scholarly societies, and Sage Publications pointed to the fact that ten of its thirty-five new titles for 2002 repre-

1. Nearly forty years ago, it is worth noting, Fritz Machlup (1977, 224) found that between 1966 and 1977, the number of individual subscriptions to five out of the six journals in science and technology he was examining had declined, with the number of institutional subscriptions going down for all six journals. Machlup observed that despite the decrease in the number of noninstitutional subscriptions, the revenue from these subscriptions did not decline but actually rose between 76 and 167 percent, as a result of price increases.

sented “society contracts,” according to the Web sites of these two corporate publishers. Some of the major journal publishing houses, such as Sage, are offering the associations the equivalent of “signing bonuses,” in the tens of the thousands of dollars, for turning their well-established titles over. Other services, such as Ingenta, charge associations for setting up and maintaining online access for their journals, with a promise of royalties from licensing and pay-per-view fees.

Placing an association’s journals with a commercial publisher or service may raise the journals’ profiles among librarians, as the corporate publishers have excellent marketing arms. In addition, an association’s journals, once placed with a commercial publisher, may well be bundled with other journals, increasing their likelihood of further sales. Yet the increased subscription fees that typically follow on the corporate acquisition of journals could as easily result in a drop in subscriptions and readership for a society. On the other hand, some associations are experimenting with different forms of open access. They are permitting authors to use open access e-print archives for their published work (as are many of the corporate publishers at this point).

Adding urgency to the need for scholarly associations to plan for the future is an inevitable undermining of the subscription-based membership model. The problem is that most members and potential members of the associations are beginning to have ubiquitous access to association journals—at the office, at home, and on the road—through their research library’s subscription to electronic editions. That is, membership confers no additional advantage for those who belong to subscribing institutions, or at least it won’t after the associations drop their print editions, as increasing numbers of readers move online. This obviously undermines the subscription benefits of association membership.

Let me offer an example, from the high end (financially) of the scholarly association field, of how access redundancy can affect an association. The American Astronomical Society (AAS), with around 6,500 members, publishes three journals, which, taken together, contributed \$5,834,020 in revenue to this nonprofit society’s total budget of \$8,683,893 in 2000 (see appendix B). The AAS operates a very successful publishing operation. The society’s two principal journals, the *Astronomical Journal* and the *Astrophysical Journal*, are published for the

AAS by the University of Chicago Press, whereas the AAS itself publishes the *Bulletin of the American Astronomical Society*. A membership in the AAS costs \$110 annually, and although that does provide members with a number of newsletters, it also entitles members to purchase online access to the society's two journals and bulletin at a discounted rate of \$50, which is a considerable bargain compared to the normal fee.<sup>2</sup>

The advantages of AAS membership (at least those regarding journal access) quickly evaporate, however, when one considers that the journals are no longer the first or exclusive source of the material they publish. The field of astrophysics may not be typical among scholarly fields of inquiry, given how much of its literature is freely available online, but where it finds itself today may well be where other sciences are headed, especially with the prospect of mandated self-archiving policies among institutions and funding agencies.

David Rusin's (2002) paper "The Expected Properties of Dark Lenses" provides a typical instance of how the new state of redundant access works with the AAS. Rusin's paper, by the way, is not about astronomers carrying on like the Blues Brothers, which Dan Aykroyd and John Belushi made famous in the movie by that name, with their ever-present dark lenses, but about the effects of "multiple-image gravitational lens systems formed by dark matter halos" (2002, 705). It was published in the *Astrophysical Journal* in June 2002. By that point, however, it had already been read by every scholar and student of astronomy with a particular interest in the issues Rusin raises. When the editors of the *Astrophysical Journal* notified Rusin, in February 2002, that they had decided to accept the article for publication, he did what many researchers in physics do: He posted a copy to the open access database known as the

2. The annual subscription fee for *Astronomical Journal* for 2005 was \$525 for twelve issues a year covering print (including shipping) and electronic versions, with the electronic version alone costing \$425, and the thrice-monthly *Astrophysical Journal* had an annual subscription fee of \$1,800 for paper (including shipping) and electronic versions, with an additional \$200 for its *Supplement Series*. For research libraries that require airfreight delivery of the print edition, the charge can add another \$440 to the cost of the two journals. The society does have a "journal donation" program, in which members offer complete sets of the journals, covering various years, but again the acquiring libraries must pay shipping.

arXiv.org E-Print Archive, supported by the National Science Foundation and the Energy Department of the U.S. government (Kling, Spector, and McKim 2002). As I noted in chapter 3, physicists all over the world make a point of visiting arXiv.org every working day to check what is new in their field, and many papers go up there long before they are even seen by a journal. After Rusin's paper went through the editorial process with the *Astrophysical Journal*, Rusin then updated the arXiv.org version, on May 2, with the comment: "Final version, minor corrections, 18 pages, ApJ June 20 2002."

By June 2002, identical versions of Rusin's article were available from multiple sources. The article first appeared publicly in the arXiv.org E-Print Archive, which made it available free to anyone with Internet access. This was followed by the publication of both print and electronic versions in the *Astrophysical Journal*, published by the University of Chicago, and circulated among individual and institutional subscribers. Thus a member of the AAS who took advantage of the discounted electronic subscription would have four possible routes of access to Rusin's article.<sup>3</sup> Members, as well as libraries, are paying for something that is otherwise available for free.<sup>4</sup> All three electronic versions are virtually indistinguishable on a computer screen in the office, at home, or on the road. Association membership is losing its associated privileges, at least in regard to access to its journals. (The Rusin example does not even exhaust the current redundancies within the current scholarly publishing economies, as the overlap extends to the indexing of the article, which I treat in more detail in chapter 12.)

It may not be all that surprising that journals making the substantial transition from print to digital publishing media would take some time

3. As for the copyright legality of this redundancy, the University of Chicago Press was still in 2004 among a minority of publishers (14 percent) that did not permit self-archiving in e-print services such as arXiv.org (see the Web site of the SHERPA Project at <http://www.sherpa.ac.uk/>), although the press does not appear to have sought legal redress for the placement of its property in such open access archives.

4. To reduce this redundancy, a "peer review overlay" for arXiv.org E-Print Archive has been tested in various forms but has yet to become a feature of the archive.

to sort out redundant and overlapping services. However, what is clear is that the personal-copy-of-the-journal advantage of membership does not transfer to the online medium. The library's electronic edition is available everywhere, for the vast majority of potential members who, if they can afford to join AAS, are likely to work at an institution that subscribes to its journals. But the eventual e-print archive buildup of articles from the journal, whether placed there voluntarily or by institutional mandate, puts the association's retention of the library's subscription in jeopardy.

So what is a scholarly association to do, where is it to turn? Well, as always, it should turn to the best interests of its membership. What other purpose does it have? From a researcher-as-author perspective, increased readership (and citation) will always trump journal revenues. Associations need to recognize, if they have not already, the declining value of a membership copy of an association's journals. On the other hand, opening access to the journals increases their readership (and that of the association's author-members). The question for the associations is, Why keep the membership's research from those in their field who do not belong to the association or have access to a good research library if a form of open access to this literature can be provided without destroying the viability of the association's journal publishing? The time has come to explore different routes for increasing access to the work that the association is devoted to supporting.

Associations may be tempted by schemes that try to ensure that a library's electronic copy does not replace a member's copy (for example, by limiting the number of users of an electronic edition at any one time, as some publishers do), or they may seek to provide members with "value-added services," such as reference linking to which members alone have access. These approaches seem a little shortsighted and again not in the best interests of the membership, as they hamper rather than advance access to the membership's work by a larger realm of potential readers.

To help associations realistically address this question, I have assembled budgetary information for twenty scholarly associations in the United States (see appendix B). Just how much do the scholarly associations make on the sale of their journals to libraries and other institutions? The associations in my sample (which leaves out the large organizations

taking in tens of millions of dollars annually) saw, on average, \$691,873 in publication revenue in 2000 (a figure that does not include membership fees). The range in revenue is considerable among associations. The Cognitive Science Society and the International Association for Feminist Economics (which publish their journals through Elsevier and Taylor and Francis, respectively) declared no revenue from the sales of their journals. The American Astronomical Society (which as I noted above publishes its journals through the University of Chicago Press) claimed \$6.4 million in publishing revenue. The associations' publishing revenue is supplemented by the royalty sales of material previously published, which averages \$22,918 for the twenty associations, suggesting that the after-initial-sales market of back issues and reprints is not all that strong.

The revenue and royalties obtained through journal publishing need to be set against, of course, the publishing costs. The average annual publishing expenses for the sample of scholarly associations considered here is \$921,250. Although these costs may include other of the association's publications, it is safe to conclude that journals make up the bulk of it. What this means is that selling subscriptions to institutions covers close to 80 percent of the publishing costs, on average, for the twenty associations. Some associations do much better than that and are able to devote their entire membership dues to other aspects of the association, while at the same time making a profit on their subscription sales. But more often, the library and other institutional subscribers cover a good portion of the associations' publishing costs, with the rest of their publishing expenses, averaging 22 percent of the costs, covered by membership fees. Open access would seem to place the revenue from subscriptions at risk, leaving associations scrambling to make up close to 80 percent of their publishing costs.

This may seem to pose an insurmountable problem, but pioneers in open access have demonstrated that it need not be. Some sense of the details behind a viable transition to open access is provided, for example, by John Hawley, executive director of the American Society for Clinical Investigation. Hawley sought to fill in my account of association practices, when I initially published this analysis (2003a), by describing the economics of the open access *Journal of Clinical Investigation*. The journal is published bimonthly and runs to 350 articles and 3,000 pages a

year and thus requires, not surprisingly, a full-time science editor and executive editor. The journal costs \$2.5 million per year to produce, including \$200,000 in honoraria paid to its editorial board and unstated compensation for the chief editor. The journal charges its authors a manuscript-processing fee of \$50 and has publication charges, on a per-word basis, that can run up to \$1,500 an article. It also continues to sell subscriptions to its print edition. Against all of that, the society has been able to offer immediate and complete open access to the electronic edition of the journal since it went online in 1996. As Hawley (2003) explains in a *Journal of Clinical Investigation* editorial, since the journal's move to open access, institutional subscriptions to the print edition have fallen by 40 percent, whereas its Web site is now receiving some 20,000 unique visitors each week. The journal is managed online, with reduced costs and improved efficiency in its publishing operations, but it has also been increasing its author fees, compensating for the reduced number of subscriptions and allowing it to maintain its revenue levels a little ahead of a decade ago. Its impact factor increased 66 percent between 1998 and 2002, although Hawley attributes this increase to the reduced number of papers it accepts and publishes, rather than open access.<sup>5</sup>

The *Journal of Clinical Investigation* provides but one instance of how an association can increase access to its publications without suffering any loss of revenue. Associations have a number of options in this regard. At the most basic level, they can support their members' self-archiving of articles that are published in their journals, as well as in

5. Also, see Hawley 2004. In addition, John Vig, a vice president with IEEE, wrote to me in response to an earlier version of this chapter (2003a) with an open access proposal that he was developing for the more than 100 journals published by his institute. His approach is driven, he explained, not by "revenue replacement but profit (surplus) maintenance" (personal communication, January 30–February 3, 2004). He also attempted to correct my assumption that an association's primary mandate is to serve its members. Such a stance did not stand up to IEEE's lawyer's advice on nonprofits; the position nonprofit organizations were instead advised to take is neatly summed up in the IEEE mission statement, which Vig cited: "The IEEE promotes the engineering process of creating, developing, integrating, sharing, and applying knowledge about electro and information technologies and sciences *for the benefit of humanity and the profession*" (IEEE 2005, emphasis added).



other journals, making it explicitly part of their association's and their journals' publishing policies, as some associations already do. They can further support self-archiving by establishing an open access e-print archive for their discipline. I would take that to be the most basic and responsible of responses to what is otherwise the prospect of declining access to research and scholarship on a global scale, in the face of an opportunity for greatly increased circulation. Authors who self-archive the work they publish do not appear to pose a threat to associations' subscription lists. So one might conclude from Alma Swan's (2005) study of arXiv.org E-Print Archive's impact on subscriptions, with authors self-archiving 42,000 papers annually in high-energy physics, condensed matter, and astrophysics. Swan surveyed the relevant associations, namely, the American Physical Society (APS) and the Institute of Physics (IOP), both of which report that arXiv.org has not affected subscriptions to the journals that carry articles that appear in the archive. However, speaking to points made earlier in this book about the current state of access, both organizations noted a long-standing and continuing decline in their overall subscription numbers, which affects journals in areas outside the realm of arXiv.org, as well as those that deal with topics covered by the e-print archive.<sup>6</sup>

To move beyond support of self-archiving, scholarly associations can continue to sell subscriptions to their journals, but offer delayed open access to their journals' contents, as do the National Council of Teachers of English and the Massachusetts Medical Society (publisher of the *New England Journal of Medicine*). The impact of delayed access? The American Society for Cell Biology, with 10,000 members, started (in 2001) to provide open access to its flagship journal, *Molecular Biology of the Cell*, with a two-month delay from initial publication. Ray Everngam (2004), director of publications for the society, reports that three years later, subscriptions to this journal, which began publishing in 1989, were continuing to increase, although Everngam suspected that its open access policy is not widely known. Other associations are offering print subscriptions and online open access simultaneously, as the Staff Society of Seth G. S. Medical College and K. E. M. Hospital in Mumbai, India, does with its

6. See note 10 in chapter 2.

*Postgraduate Journal of Medicine*. Associations are also giving authors the option of purchasing open access for their own work by paying a fee, as the Florida Entomological Society does with the *Florida Entomologist*.

These approaches can be thought of as transitional strategies in the move to digital publishing, during which both print and online editions need to be maintained. They do not make for sound long-term publishing policies, given that publishing in two formats is hardly efficient, especially as readers and libraries are moving from the far more expensive print edition to the electronic version for its greater ease of searching, access to its growing archives, and the linking of references from an article to the work that is cited in the article.

That being the case, what about strategies that would see the associations into a postprint future? What if a scholarly association went to one of the library organizations that represents the vast majority of its subscribers, such as the Association of Research Libraries or the Association of College and Research Libraries, and proposed a different kind of agreement between publisher and library that indeed furthered the access principle? That proposal would take the form of a publishing cooperative between scholarly and library associations that would be guided by two principles: providing sustainable support for managing and publishing the association's journals and providing immediate open access to the journals. The key to the cooperative's sustainability, especially for scholarly associations with memberships that do not typically have research grants sufficient to cover author fees, would be reducing publishing costs. The cooperative would move toward dropping the print editions of the journals it publishes, while at the same time implementing, with the libraries' support, open source journal management and publishing systems.<sup>7</sup> Recent data from a sample of social science and humanities journals suggest that the savings from such initiatives could be as high as 50 percent (see appendix D, table D.1).

The libraries could contribute to further savings by utilizing some of their technical infrastructure to host the journal and its management sys-

7. The targets for cost reduction in publishing include printing, layout, mailing, filing, duplicating, postage, and other clerical support, which can be eliminated by online management and publishing systems (with details on how this works in the next chapter, on economics).

tem, as well as providing archiving, preservation, and indexing support. The libraries would be looking at reduced storage and personnel costs, with the electronic editions of the journals, in addition to the reduced outlay to obtain access to the journal. Then comes the kicker to this cooperative idea: With the cooperative in place, the journals would have a sustainable model for offering the rest of the world open access, to the benefit of authors, associations, and libraries. (Let me stop here with this idea, as I devote chapter 6 to the publishing cooperative model. I introduce it here only as it grows directly out of the situation of the associations.)

Still, having set up the open access imperative for scholarly associations, I fully recognize the risk it poses to them. An association's members may decide, when renewal time rolls around, to leave it up to their colleagues to join and do the work, while they ride into the glory of this greater readership by publishing in the association's open access journals. We are faced, in other words, with the tragedy of the commons, in which when some leave it up to others to act responsibly with property held in common, and when that doesn't happen—with the farmer who brings one cow too many to graze on the commons, in the classic case—the value of the commons rapidly declines, and this prospect constantly haunts the open access movement.

Yet a scholarly society is, in addition to a vehicle for publications in the field, a means for faculty members to contribute to the development of their profession. It gives them a chance to be part of a larger academic community and to increase, through the association, their level of public service. This is not a minor consideration, according to a Stanford e-journal user survey of 10,000 participants, which found, among other things, that the “most popular reason for joining societies was to support the society's mission” (e-Journal User Study 2002). Still, “the second and the third most frequent motivations given were economic benefits—receiving journals free or discounted with memberships and attending conferences at a reduced rate.” I am not suggesting that it will be easy to change ideas about associations' journals. Yet associations will need to seriously reconsider the journal as a revenue stream for supporting the rest of the organization, when maintaining this revenue stream is costing the journal's authors the readership they deserve and desire.

The privilege of exclusive access to the journal, which individual subscriptions afforded members, can no longer be the basis for membership recruitment. Here then is a need and opportunity to demonstrate disciplinary leadership around issues of access and ownership, not only in publishing, but in the sharing of data sets and related research databases to strengthen the quality of research and encourage the scientifically productive notion of an information commons against increasing efforts to privatize data (Reichman and Uhler 2001).

Fritz Machlup noted, at one point in his economic inquiries into scholarly publishing, that “in a wide sense of the phrase, any activity is ‘economically viable,’ if its product is promoted to the ranks of public good and its cost is borne largely out of public funds, such as an actual or potential tax revenue” (1977, 217). Scholarly inquiry is economically viable, in the first instance, as a public good—with research costs prior to publication largely borne by public funds—and the scholarly publication of that research should be no less viable for the same reason, as colleagues edit, review, and join in nonprofit societies, to further the very work of that inquiry, with public support. With so much scholarly activity supported by public money, it is only natural to ask whether there is now a way to distribute the resulting research in ways that make it open and available, as a global public good.

Scholarly associations have to ask themselves whether they are about to use this new publishing medium, already integral to the scholarly process, to extend and advance the circulation and exchange of knowledge. The associations need to add to their agendas items on the principles of access and the viability of open access publishing in an immediate, transitional, and long-term sense. They need to do so, given that this public good that we work so hard to produce can be made unequivocally part of a larger and revitalized public sphere. They need to consider working in greater cooperation with research libraries and otherwise attune themselves to what is in the best interest of their members and authors, as well as the cause of research and scholarship which they serve.

Having said all of that, what of my colleagues who have told me that their scholarly associations cannot consider dropping the print editions of their journals? It is not only the revenue stream that is at issue, although it is that too. It is because, well, the members count on receiving

the journals in the mail. They are fond of the journal's fine paper, and of the ease with which they can take it out to the back deck to read an article or see who is up to what. And while I, too, appreciate the scholarly pleasures of working with a desk full of well-bound journals, this may no longer be a sustainable means of circulating knowledge or of building an association's membership among a new generation of printless and wireless colleagues. The pleasures of the printed page—at least when it comes to the journal—may no longer justify denying the rights of tens of thousands of interested faculty and students access to this knowledge, in the face of open access alternatives that would expand the circulation of knowledge. Print does not need to be dropped immediately to increase the circulation of the knowledge in question. The options for opening access are many. What does need to be considered is whether, in the long term, going digital will mean more of the same or will extend not only the right of access to scholarly literature, but the opportunity to participate more fully in this public good.