15 Peer Review and Institutional Repositories

Burton Callicott

What role, if any, do institutional repositories (IRs) have in terms of scholarly peer review? Since the advent of the Royal Society in London in 1662 and the birth of a peer-review system, there has been debate on the efficacy and value of having scholarly oversight and a gatekeeper that determines what should and what should not be published in a given journal.[1] The open access (OA) movement coupled with a culture of immediate, open online commentary has intensified and changed the shape of the debate in recent years. The remarkable success of arXiv and other preprint, subject repositories coupled with the creation of numerous institution-based online "journals" and experiments with open, crowdsourced review processes have set the stage for what could be a radical shift in the way that scholarship is vetted. As Wheeler puts it, "Whether peer review will remain the mandated norm for scholarly recognition is not yet up for grabs: what is uncertain is the form it will take—more likely, the multiple forms it will take" (2011, p. 317). In a post to the SCHOLCOMM listserv, Glenn Hampson, director of the National Science Communication Institute, posits a potential major role for IRs in terms of peer review: "If research institutions could take it upon themselves to set up a peer review process and edit pieces so they are clear and readable and if the press offices of these institutions could help promote these works to the outside world (including immediately posting them on institution websites or OA resources), we are 99% of the way there. . . . The rest is just institutional inertia with regard to tenure" (2014). In addition to the glacial pace of change when it comes to the culture of academia

and the Catch-22 nature of tenure review (those with the most at stake have the least amount of power to change the system), Hampson's vision ignores the difficulties smaller institutions with smaller departments would have to field a pool of reviewers deep and broad enough to provide an adequate sounding board, not to mention the myriad of potential personal biases that would crop up in such a system that would be far from anonymous and could easily silence objectively important contributions. However, if oriented and implemented properly, IRs have a serious and significant role to play in developing, directing, and shaping the evolution of scholarly peer review.

It has been well documented that institutional repositories have struggled to acquire scholarly content from academics. Of the various reasons for this, the fact that repositories provide little if any credentialing in the form of peer review is arguably the single biggest reason that scholars do not actively provide content to their home IR. At present the gold (and in many cases only) standard that tenure and promotion review committees value and count are publications in traditional peer-review journals and academic presses. A 2006 survey at the University of California, sponsored by the Center for Studies in Higher Education, concluded that "Peer review is *the* hallmark of quality that results from external and independent valuation. It also functions as an effective means of winnowing the papers that a researcher needs to examine in the course of his/her research" (King et al., 2006). Although many faculty members indicate in surveys and interviews that they value and support efforts to make scholarship available to those who do not have the means to access material published in traditional journals, they rarely take the time and effort to deposit material into their institution's repositories. Easy but legitimate excuses such as concerns about copyright infringement as well as clunky, difficult to use deposit interfaces belie the underlying reason: most faculty do not feel compelled to add to their IR because they do not see that it will have any effect on their tenure and promotion. In their 2008 study, "Institutional Repositories: Faculty Deposits, Marketing, and the Reform of Scholarly Communication," Jantz and Wilson remark on the remarkable lack of deposits and interest in IRs: "Given the lack of faculty participation, the obvious question is 'why the lack of interest?' The most likely answer is that faculty do not perceive any significant value of an IR to their scholarly endeavors. We believe this is

due, in large part, to two factors: immaturity of the IR platform (both content and infrastructure) and the absence of any coherent articulation of how IRs can advance scholarship" (p. 194).

Faculty are busy and without a mandate to deposit, most will not take the time or put forth the effort to do so. Managers and ambassadors of IRs who are at institutions that do not have a deposit mandate have two things to offer faculty that can leverage tenure and promotion needs in order to increase participation: a place to gather and collate all scholarly impact measures and a platform for publishing and disseminating gray literature.

FROM GRAY TO WHITE

Because of its very nature, gray literature is tricky to define and, with the rise of open access and growth of the Web, it has already outgrown the 2010 "Prague definition" established at the 12th annual Conference on Grey Literature: "Grey literature stands for manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by library holdings or institutional repositories, but not controlled by commercial publishers i.e., where publishing is not the primary activity of the producing body" (Schopfel, 2011, p. 15).With the myriad of ways to make information available electronically, what it means to publish something is not as obvious or straightforward as it once was. The key distinguishing term in the Prague definition is "commercial." Although many academic publishers are not huge money makers, they are ultimately commercial ventures. Despite the budgets and marketing that undergird any institution of higher learning, those that feature an IR or some other means of serving up scholarship nurture a free exchange of ideas, and that work done to make scholarship available to anyone with access to the Internet is done without commercial motivations—at least not in a direct way. This new, noncommercial institutional publishing space is tailor-made for gray literature, which typically does not seek or hold monetary value. Examples of gray literature include working papers, preprints, conference papers, technical reports, information sheets, datasets, honors essays, theses, and so on. In essence, gray literature describes anything of potential informational value that was either not intended to be published or was rejected by a traditional publisher. With the right configuration, IRs

provide a natural home and a nouveau form of publication for this information that can transform it into something that can not only serve the academic mission of the institution but can also impact a tenure and promotion packet. For polished, fully formed scholarly work that was previously published or destined for a publication in an established journal, subject or disciplinary repositories make all the sense in the world. For everything else, including data that supplement published work, an IR provides the perfect home and complement to subject repositories.

In a 2003 ACRL report, Clifford Lynch outlines the true raison d'etre of IRs that can be seen to rest largely on gray literature:

> Institutional repositories can encourage the exploration and adoption of new forms of scholarly communication that exploit the digital medium in fundamental ways. This, to me, is perhaps the most important and exciting payoff: facilitating change not so much in the existing system of scholarly publishing but by opening up entire new forms of scholarly communication that will need to be legitimized and nurtured with guarantees of both short- and long-term accessibility. Institutional repositories can support new practices of scholarship that emphasize data as an integral part of the record and discourse of scholarship. They can structure and make effective otherwise diffuse efforts to capture and disseminate learning and teaching materials, symposia and performances, and related documentation of the intellectual life of universities. (p. 1)

Lynch's report has proved to be prophetic. IRs have been quietly and, in some cases, dramatically legitimizing and nurturing gray literature to the point that it has made an undeniable impact on scholarship. Because of a moratorium on making previously published literature available in its IR due to lack of in-house legal counsel, Purdue University originally only sought out and served up gray literature in their IR. Some IRs have reversed this process and have begun to pointedly shift focus from acquiring pre- and postprints to gray literature. In an effort to get out of a time-consuming copyright clearance quagmire, the director of the Digital Repository at the

University of Maryland (DRUM) began to phase out of a program geared toward populating its repository with previously published research and to engage in a new program designed to acquire gray literature: "Because much of this formally published research was most likely available on the journal website or in another repository, such as PubMed Central, the decision was made to discontinue the project [of acquiring preprints] and instead concentrate on acquiring and making available the unique gray literature produced at the University" (Owen, 2011, p. 154).

Those on the forefront of the open access movement will surely grimace at this quote as it reveals the way that those in large institutions are often comfortably unaware of the difficulty many scholars in smaller, less endowed institutions, especially those in small-market economies, have to simply get their hands on current scholarship. Without diminishing the potential role IRs have in expanding access to the ivory tower, it is important to put things in perspective. As is also implied in the quote, subject repositories provide the natural place for soon-to-be or "formally published" material—they provide the ontological community and logical place for discovery. As such, it can be argued that national and consortially based repositories have more leverage and are perhaps better suited to be on the forefront of the open access initiative. This is not to say that IRs do not have a role to play in terms of advocacy, education, and curation of the work itself but simply to say that IRs have a unique role in terms of providing a locale and access point for gray literature. In their 2010 study, "Authors' Awareness and Attitudes toward Open Access Repositories," Creaser and colleagues found that: "Although 46% of authors expressed a preference for depositing in subject-based repositories, compared to 22% preferring an institutional repository, only 37% of respondents knew of a suitable subject repository they could use" (p. 153).

Opposition to gray literature in IRs rests largely on two arguments: (1) that the potentially less scholarly work will contaminate and pollute repositories and turn faculty away, and (2) that by not making gray literature a primary focus of an IR, this will signal a defeat or at least provide a distraction from what proponents of the open access movement regard as the foremost responsibility of IRs: "The reason OA is urgent is that potential research uptake, usage, and impact—hence applications, progress and productivity—are being lost, daily, cumulatively, some of it probably

irretrievably, because the only users with access to journal articles are those whose institutions can afford subscription access to the journals in which the articles are published" (Harnad, 2013, p. 5). The fear of contamination is largely due to miscommunication and paranoia. As Bankier and Smith note in their 2010 study of repository collection policies: "There appears to be little or no conclusive literature showing that faculty are dissuaded from participating in the IR simply because the repository might also publish less scholarly faculty endeavors or content from other groups on campus" (p. 247). Bankier and others conclude that as long as the IR hosting the material makes it clear whether or not a given item has gone through a peer-review process and has been previously (or will soon be) published, there is no logical or essential reason that the work would be confused or tainted by association with non-peer-reviewed material.

Harnad has been one of the most vocal and impassioned of the OA mandate camp. In a "counterpoint" to Kennison's essay "Institutional Repositories: So Much More Than Green OA," he contends that "all the evidence suggests that there is no point in just continuing to collect other kinds of contents [gray literature] in the hope that they will somehow lead to an OA mandate and compliance" (Kennison, Shreeves, & Harnad, 2013, p. 6). Harnad's arguments and conviction are convincing, but his proof by negation is unsupported by the experiences of most IR managers who have worked closely with faculty. Dave Scherer, who has been involved in Purdue's IR from inception, echoes the experience of most if not all IR managers: "Gray literature is an easy 'in' with faculty. There are fewer concerns on copyright and sharing and in most cases the copyright is either held by the university or the faculty member. It is a way to get them started with the IR and to experience the benefits. Once they've experienced it for some time it's a great way to lead into 'We can do this with your published work too'" (personal communication, October 30, 2014). Harnad rightfully points out that the number of schools with an OA mandate is growing slowly. However, the gospel is spreading on a grassroots level that may ultimately lead to an open access culture that is more organic and stronger than one that is mandated. The results of Creaser's study back up what many veteran IR managers are observing and reporting: "Of those authors surveyed who had deposited a stage-two manuscript, 70% reported that they did so voluntarily. The most frequently cited motivations to deposit included: suggestion from

a colleague (12% of those who had deposited); invitation from the repository in question (11%); request from a co-author (10%); publisher invitation to deposit (8%); mandated by institution (8%); and funder mandate (3%)" (Creaser et al., 2010, p. 156).

Though it does not go through a traditional peer-review process, gray literature does have a legitimate role to play in scholarly communication. A chapter in *Scientific Communication for Natural Resource Professionals* addresses the importance of gray literature in the field: "Gray literature typically serves to formally document field projects, policy development initiatives, and other activities of government agencies and educational institutions, industry, or public institutes, and nongovernmental organizations. These documents provide supplemental information in a broad framework of knowledge within which researchers can place their work" (Eells, Vondracek, & Vondracek, 2012, p. 3). In their article "Grey Literature: A Growing Need for Good Practice," De Castro and Salinetti (2013) note, "Our recent search (May 2013) using PubMed . . . showed a massive increase in the number of times the term 'grey literature' occurred in titles and abstracts of articles indexed in the database in the last 20 years" (p. 66). Seymour (2010) makes an impassioned case for the importance and quality of gray literature in the field of archaeology in his "Sanctioned Inequality and Accessibility Issues in the Grey Literature in the United States." Because of the informal and unstructured way that gray literature has been circulated, it has been hard to find. As more and more of this material gets served up in IRs, more and more will be discovered and cited. These citations serve to record the importance and impact of the work and can be used to supplement and augment a tenure or promotion packet as well as raise the profile of the home institution. Those institutions that have strict collection development policies that may bar gray literature for reasons other than adequate digital space may be unwittingly suppressing valuable work that has the potential to impact the scholarly community, the tenure and promotion packets of scholars at their institution, as well as the prominence of the institution itself: "Some value is relatively explicit, as when previously inaccessible grey literature becomes freely available on the Web. Such is the view from the content-focused perspective: value is generated for the library, faculty member, and the university alike through open access dissemination of an ever-larger corpus of scholarship" (Palmer, Teffeau, & Newton, 2008, p. 255).

Due to the initial work of IRs to catalog, describe, house, and make gray literature available to Web crawlers, a growing number of these items are gaining acceptance, use, and citations—undoubtedly this work would previously have languished on a single hard drive or a cloud-based account shared with few if any. The now popular and frequently downloaded *Dictionary of Invertebrate Zoology* edited by Maggenti, Maggenti, and Gardner provides an illustrative example. After having been rejected by traditional publishers, the manuscript wound up in a departmental lab literally gathering dust until an IR coordinator at the University of Nebraska–Lincoln went to meet with faculty and saw the copy "lying on the shelves" (Giesecke, 2011, p. 537). After a brief discussion and some minimal editing, the manuscript was published in DigitalCommons@University of Nebraska–Lincoln. Due to the high number of downloads, a print-on-demand version of the dictionary was made available and can be purchased from Amazon and Barnes & Noble (p. 538). A study of the Cornell ILR repository underscores the positive feedback loop that can result from a liberal collection development policy that welcomes previously unpublished material: "In terms of content type, the Cornell ILR repository utilises a strategy of housing content relevant to the faculty's research. . . . It provides an example of materials of interest outside the post-print collection scope which serve an important purpose for faculty engagement, and are able to create more awareness and, in a circular fashion, bring in more content" (Bankier & Smith, 2010, p. 250).

The ability to record the number and frequency of downloads is where IRs can play a serious and potentially foundational role in terms of tenure and promotion and, by proxy, peer review. Evidence that work is being read and having an influence on the expansion of knowledge can add legitimacy to gray scholarship and function as a measure of importance and a form of peer review when it comes to tenure and promotion. "Many researchers include the JIF's [Journal Impact Factor] for journals in which they have published on their vitas when going up for tenure or promotion, as a means of documenting the impact of their work. By also including supplemental measure of impact (usage counts and altmetrics) for traditional publications as well as grey literature and other outputs deposited in IRs, faculty can more fully document the impact of their scholarship" (Konkiel & Scherer, 2013, p. 23). In their "Tenure and Promotion in the Age of Online Social Media," Gruzd, Staves, and Wilk conclude: "In sum, the idea of incorporating

social media mentions/publications into scholars' overall scholarly impact is growing in popularity and acceptance" (2011, p. 8). Since this literature is rarely published anywhere else, IR managers have a responsibility to the scholarly community and in particular to scholars at their home institution to make it discoverable and consequently, to make its impact measurable: "They [IRs] have a major role to play in extending the metadata systems, and technical interoperability that will support regional and global subject access to repositories, that will bring them more into line with the needs of their academic communities" (Cullen & Chawner, 2011, p. 496).

After his article, "Twitter Mood Predicts the Stock Market," was rejected by numerous peer-reviewed journals, Johan Bollen made it available on arXiv. The subsequent attention and downloads that the article received led to it being accepted by the *Journal of Computational Science*. The remarkable response that Bollen received—73,000 downloads in the first week on arXiv—is unique if not unprecedented, but it does reveal not only the Achilles' heel of the traditional peer-review system but the potential reservoir of important work that may be languishing unread because it had been rejected by a publisher. Because the pool of reviewers is not only small but consists of established scholars with reputations to defend, they may be unable to see (or be afraid of) the implications of new takes on old arguments or new arguments altogether. IRs and subject repositories can be seen as the YouTube of scholarly communication. Though Justin Bieber and E. L. James, author of *50 Shades of Grey,* may not provide the best examples in terms of objective quality (and reveal the flip side of a more popular/democratic form of peer review), the success and subsequent recording and publishing deals that resulted from a popular response is an illustration of the way that a small number of experts can miss or reject important work. If not a means for uncovering scholarly rock stars, by accepting, properly tagging, and publishing rejected work, IRs can potentially legitimize faculty members who have tried and failed to find a publisher. Although the number of these lost gems may be small, given the amount of digital space most IRs have available, it makes no sense not to solicit and upload them to an IR. By increasing the number and the prominence of impactful scholarly work that found legitimacy through a more crowdsourced (and open sourced) means, repositories can provide the evidence and the mechanism to radically change and democratize the peer-review publication process.

In "The Invisible Hand of Peer Review," Harnad makes explicit what almost anyone who has published knows and in a lot of cases has experienced: "There is a hierarchy among journals, based on the rigor of their peer review, all the way down to an unrefereed vanity press at the bottom. Persistent authors can work their way down until their paper finds its own level, not without considerable wasting of time and resources along the way, including the editorial office budgets of the journals and the freely given time of the referees, who might find themselves called upon more than once to review the same paper, sometimes unchanged, for several different journals" (2004, p. 236). Like subject repositories, IRs can serve as a segue or stepping-stone toward the subversive proposal that Harnad first suggested in 1998 where "papers will be submitted in electronic form, and archived on the Web (in hidden referee-only sites, or publicly, in open-archive preprint sectors, depending on the author's preferences). . . . To distribute the load among referees more equitably the journal editor can formally approach a much larger population of selected, qualified experts about relevant papers they are invited to referee if they have the time and the inclination" (p. 240). With the right setup, IRs can password-protect or make publicly available draft essays. Librarians and authors can serve not so much as journal editors but as promoters or brokers who can match up interested readers for informal peer review/test audience services. Download statistics coupled with altmetrics as well as reader responses can funnel essays to the right journal and provide editors with valuable information about the potential impact of new work. As most journal editors know, there is a looming crisis of peer review that is due to a dramatic increase of scholarship that will tax the already overburdened stable of peer reviewers who do their work anonymously and free of charge: "With other countries such as Singapore and Brazil joining the fray, all of them adopting the same numbers-driven incentives for researchers to publish, and European countries and the United States exponentially increasing their publication outputs as well, a 'publication tsunami' appears likely in the next decade" (Baveye, 2010, p. 204). By employing IRs as lodestones that can naturally attract readers and document interest, they represent an easy and natural pathway for evolving the publishing model that can blunt the coming peer-review crisis, help authors (especially those without a strong publishing history), and provide a new role for librarians as partners in the publication process.

NOTE

1. See Lee, Sugimoto, Zhang, and Cronin (2013) and Shatz (2004).

REFERENCES

Bankier, J., & Smith, C. (2010). Repository collection policies: Is a liberal or inclusive policy helpful or harmful? *Australian Academic and Research Libraries, 41,* 245–259.

Bavaye, P. (2010). Sticker shock and looming tsunami: The high cost of academic serials. *Journal of Scholarly Publishing, 41,* 191–215.

Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of Computational Science, 2,* 1–8.

Creaser, C., Fry, J., Greenwood, H., Oppenheim, C., Probets, S., Spezi, V., & White, S. (2010). Authors' awareness and attitudes toward open access repositories. *New Review of Academic Librarianship, 16*(S1), 145–161.

Cullen, R., & Chawner, B. (2011). Institutional repositories, open access, and scholarly communication: A study of conflicting paradigms. *The Journal of Academic Librarianship, 37,* 460–470.

De Castro, P., & Salinetti, S. (2013). Grey literature: A growing need for good practice. *European Science Editing, 39*(3), 65–68.

Eells, L., Vondracek, R., & Vondracek, B. (2012). Fishing the deep web: The search for information. In C. A. Jennings, T. E. Lauer, & B. Vondracek (Eds.), *Scientific Communication for Information Professionals*. Bethesda, MD: American Fisheries Society.

Giesecke, J. (2011). Institutional repositories: Keys to success. *Journal of Library Administration, 51,* 529–542.

Gruzd, A., Staves, K., & Wilk, A. (2011). Tenure and promotion in the age of online social media. *Proceedings of the American Society for Information Science and Technology, 48,* 1–9.

Hampson, G. (2014, August 28). Re: Version of record [Electronic mailing list message]. Retrieved from http://lists.ala.org/wws

Harnad, S. (2004). The invisible hand of peer review. In D. Shatz (Ed.), *Peer review: A critical commentary* (pp. 235–242). Oxford, UK: Rowman and Littlefield.

Harnad, S. (2013). Ordering institutional repositories vs breaking through open doors. *Journal of Librarianship and Scholarly Communication, 1*(4), eP1105. http://dx.doi.org/10.7710/2162-3309.1105.

Jantz, R. C., & M. C. Wilson, M. C. (2008). Institutional repositories: Faculty deposits, marketing, and the reform of scholarly communication. *Journal of Academic Librarianship, 34,* 186–195.

Kennison, R., Shreeves, S. L., & Harnad, S. (2013). Point and counterpoint: The purpose of institutional repositories: Green OA or beyond? *Journal of Librarianship and Scholarly Communication, 1*(4).

King, C. J., Harley, D., Earl-Novell, S., Arter, J., Lawrence, S., & Perciali, I. (2006). *Scholarly communication: Academic values and sustainable models*. Retrieved from http://www.cshe.berkeley.edu/publications/scholarly-communication-academic-values-and-sustainable-models

Konkiel, S., & Scherer, D. (2013). New opportunities for repositories in the age of altmetrics. *Bulletin of the Association for Information Science and Technology, 39*(4), 22–26.

Lee, C., Sugimoto, C., Zhang, G., & Cronin, B. (2013). Bias in peer review. *Journal of the American Society for Information Science and Technology*, *64*, 2–17.

Lynch, C. (2003). Institutional repositories: Essential infrastructure for scholarship in the digital age. *ARL Bimonthly Report, 226,* 1–7.

Owen, T. (2011). Evolution of a digital repository: One institution's experience. *Journal of Electronic Resources Librarianship, 23*(2), 142–149.

Palmer, C., Teffeau, L., & Newton, M. (2008). Strategies for institutional repository development: A case study of three evolving initiatives. *Library Trends, 56,* 142–167.

Schopfel, J. (2011). Towards a Prague definition of grey literature. *The Grey Journal, 7*(1), 5–18.

Seymour, D. J. (2010). Sanctioned inequality and accessibility issues in the grey literature in the United States. *Archaeologies: Journal of the World Archaeological Congress, 6,* 233–269.

Shatz, D. (2004). *Peer review: A critical commentary*. Oxford, UK: Rowman and Littlefield.

Wheeler, B. (2011). The ontology of the scholarly journal and the place of peer review. *Journal of Scholarly Publishing, 42,* 307–322.