



Open Access—Dreams and Realities

Mark E. Funk

Head, Resource Management—Collections
Weill Cornell Medical Library
New York, NY
USA

Meeting:

98 Health and Biosciences Libraries

Simultaneous Interpretation:

No

WORLD LIBRARY AND INFORMATION CONGRESS: 73RD IFLA GENERAL CONFERENCE AND COUNCIL

19-23 August 2007, Durban, South Africa
<http://www.ifla.org/iv/ifla73/index.htm>

In my lifetime, and probably in most of your lifetimes, the biggest change in technology that has affected our professional lives, and maybe even our personal lives, has been the rise of the internet. From its origins as a military tool in the 1960s, it has morphed into a worldwide communication tool that is difficult for many of us to live without.

I am a collection development librarian, and my activities today are almost completely different from what I did merely 10 years ago. Ten years ago, my library had fewer than 30 electronic journals available for our users. Today, we have over 7,000. Almost all scientific, technical, and medical (STM) publishers have started to offer electronic versions of their journals. In just one decade, hundreds of publishers, and thousands of libraries worldwide, have made the journey from print journal subscriptions, to print plus electronic access subscriptions, and are now moving to electronic only subscriptions.

The idea of a paperless society looked good—on paper. But as we move to electronic only access, we haven't seen the predicted lower prices and greater access to information. Instead, prices climb higher every year, usually higher than our budget increases. In addition, licensing restrictions on electronic information make access difficult and confusing. While ultimately it may come true that electronic delivery of information will become cheaper, providing resources during this publishing paradigm shift has become a very expensive proposition.

Open Access (OA) is a response to the problems that STM publishers have caused libraries and researchers in the last two decades. Even before online publishing came about in the mid to late 1990s, escalating journal prices had caused many of us to cancel large numbers of journals. This in turn led to poorer access to the scientific literature. Open Access offers the dream of a “road to utopia,” with access to all of the world's

scientific literature, free of charge to anyone with an internet connection. However, in the harsh light of reality, this road is rough, littered with sharp rocks, and is not clearly marked. I am here today to explain both the dream and the realities of Open Access.

So what is Open Access? OA is simply literature that is available free of charge on the internet and also free of most copyright and licensing restrictions. This sounds quite simple, but it is complicated by different defining principles of OA, put together by different groups at different times. In addition, there are quite different strategies for achieving OA.

The best known principles of OA come from the “Three Bs” meetings: the Budapest Open Access Initiative in 2002, the Bethesda Principles in 2003, and the Berlin Declaration on Open Access in 2003. Each of these meetings came out with slightly different definitions, but the overarching principles that define OA are:

- It must be free on the internet, where users can read, download, copy, distribute, print, search, and use it for any lawful purpose without financial or legal barriers
- Authors control their copyright, and must be properly acknowledged and cited
- A complete version of the article must be deposited in a public repository

OA became feasible with the rise of the internet and its near ubiquitous access (at least in the developed countries.) Before the internet, publishing a journal required a huge investment in equipment, space, and people. As a result, very large, very wealthy, and very powerful publishing companies have come to dominate scientific publishing. The internet simplifies distribution of information, at a fraction of the cost that the print world required. Even grade school children can publish on the internet. But while it is very simple to distribute information over the internet, OA does not mean, “anything goes,” which is how most of the internet operates. The goal of OA is to have access to **peer-reviewed** journal literature, so that a standard of quality is assured, equal to that of traditional journals. There are two main strategies for achieving this goal: self-archiving and OA journals. These have become popularly known as the Green Road and the Gold Road.

The goal of self-archiving, the Green Road, is not to replace the current system of journal publishing, but to supplement it in a parallel system. In the traditional passage of an article: author submits article to journal → article is peer reviewed → article is modified per reviewers’ suggestions → article is accepted and published. Self-archiving keeps this system in place, but relies on individual authors also placing an electronic version of their paper in a public repository, where anyone can download it. This is possible because many publishers already allow this. However, different disciplines have developed different customs about how this is done. For example, Physics and Economics generally allow unrefereed pre-prints (articles before peer review) to be deposited in advance of publication. Other disciplines, such as Biomedicine, generally allow only refereed post-prints (articles that have passed peer review) to be deposited in a repository. But even within a discipline, different publishers have different rules as to what is allowed. It’s gotten quite complicated, but an organization in the United Kingdom called

SHERPA/RoMEO has collected the policies of many publishers, and made them available on their web page: <http://www.sherpa.ac.uk/romeo.php>

The different archiving policies have been categorized by color:

- Green publishers - allow archiving of both pre-prints and post-prints
- Blue publishers - allow archiving of post-prints but not pre-prints
- Yellow publishers - allow archiving of pre-prints but not post-prints
- White publishers - allow no archiving

There is a Registry of Open Access Repositories that lists over 900 OA worldwide repositories. <http://roar.eprints.org/> While ordinary search tools such as Google Scholar can be used to locate the archived articles, there are also specialized search tools that can be found at the Open Archives Initiative. <http://www.openarchives.org/>

Many organizations that fund research (particularly those that are publicly funded through taxes) are realizing that the traditional publishing system greatly limits access to the results they funded. They want their research to be more accessible to the public, so these organizations are beginning to formulate policies that *mandate* their funded authors to make their articles OA within a certain time period after acceptance or publication by a journal. To help authors decide where to publish, SHERPA/RoMEO indicates not only the “color” of a publisher, but also whether it is compliant with the OA policies of the different funding agencies. Here are some examples from SHERPA/RoMEO of scientific publishers, their archiving policies, and their compliance with various funding agencies:

- Green – National Academy of Sciences (pre-prints and post-prints)
compliant: ARC, BHF, Cancer Research UK, CSO, DFG, DoH/NIHR, FWF, FWO, Inserm, MRC, NHMRC, NIH, STFC, Wellcome Trust
- Blue – American Academy of Pediatrics (post-prints but not pre-prints)
compliant: ARC, BHF, CSO, DFG, DoH/NIHR, FWF, FWO, Inserm, MRC, NHMRC, NIH, Wellcome Trust
- Yellow – Nature Publishing Group (pre-prints but not post-prints)
compliant: ARC, BBSRC, BHF, Cancer Research UK, CSO, DFG, DoH/NIHR, FWF, MRC, NHMRC, NIH, nserm, Wellcome Trust
- White – American Society of Nephrology (no archiving)
non-compliant: Inserm, MRC, NIH, Wellcome Trust

As you can tell, the seemingly simple idea of an author archiving his or her article is in reality quite complicated. First there was the long process of getting funding, then performing the research, and then writing the article. Now, the author may have to find out whether the journal in which he or she wants to publish is actually compliant with the rules that the funding agency has set down. After all that has been accomplished, there is still the process of actually archiving the article.

In the United States, the National Institutes of Health, the largest public funding agency for biomedical research in the world, formulated a policy in 2005 that *requested* their funded authors to electronically archive their articles in a free repository called PubMed Central within six months of publication. Note that this was a request, not a mandate. To date, only about 4% of eligible articles have been deposited. It is difficult to tell whether the authors are unaware of this request, find the process too time consuming, too

confusing, or just don't care. As you can see, the dream of Green Road self-archiving is not that far from a nightmare. Some funding agencies are now mandating that their funded authors archive their articles in a free repository, but these still represent a minority.

But however little the Green Road might be traveled by authors, many publishers and scientific societies are worried about the possible negative effects of OA repositories on their journal subscriptions. They fear that if enough funding agencies demand OA repositories, and if the time requirement between publication and depositing is too short, libraries will cancel their subscriptions. They fear that the perception among librarians will become "if we wait just six months, we can get everything free, so why should we subscribe?" Few traditional publishers are actively supporting OA, and *Nature* reported this January that a group of publishers had arranged to hire an aggressive public relations expert (called a "pit bull of public relations") to counteract the OA messages that have been sent out by its proponents.

<http://www.nature.com/news/2007/070122/full/445347a.html>

So while traditional publishers are mostly fighting the Green Road, the other strategy of OA, the Gold Road, is about creating a new system of OA journals. These are peer-reviewed journals that publish their articles on the internet following the OA principles—the articles are free for anyone to use. When talking about OA journals, many people focus on the main players such as BioMed Central <http://www.biomedcentral.com>, the Public Library of Science <http://www.plos.org/>, and Hindawi Publishing <http://www.hindawi.com/>. However, there are many such journals, and a very comprehensive list, the Directory of Open Access Journals (DOAJ) is maintained by Lund University in Sweden. <http://www.doaj.org/> As of this July, the Directory listed over 2700 OA journals.

Since OA journals perform peer review and publish articles just like traditional journals, they have many of the same costs of traditional journals. How are they able to make their articles free for anyone? While many OA journals are supported entirely by universities or societies, the greatest attention has been paid to a new business model usually called "author pays." In this model, instead of *subscribers* paying for access, the *author* pays a charge to cover the costs of editing and distributing an article. A variation of this model is an institutional membership, where the author's institution pays an annual membership fee to an OA publisher, and all authors from that institution have their payments for accepted articles either waived, or offered at a discount. In most cases, the author's payment comes not from his or her pocket, but from either departmental funds or from the grant used to fund the research. In almost all cases, OA publishers make exceptions for authors who cannot afford to pay the article processing fees. There is a growing worldwide movement for grant-funding institutions to include these costs automatically in the grants they fund. A comprehensive list of funding institutions that have archiving policies and article fee policies is maintained by BioMed Central.

<http://www.biomedcentral.com/info/authors/funderpolicies>

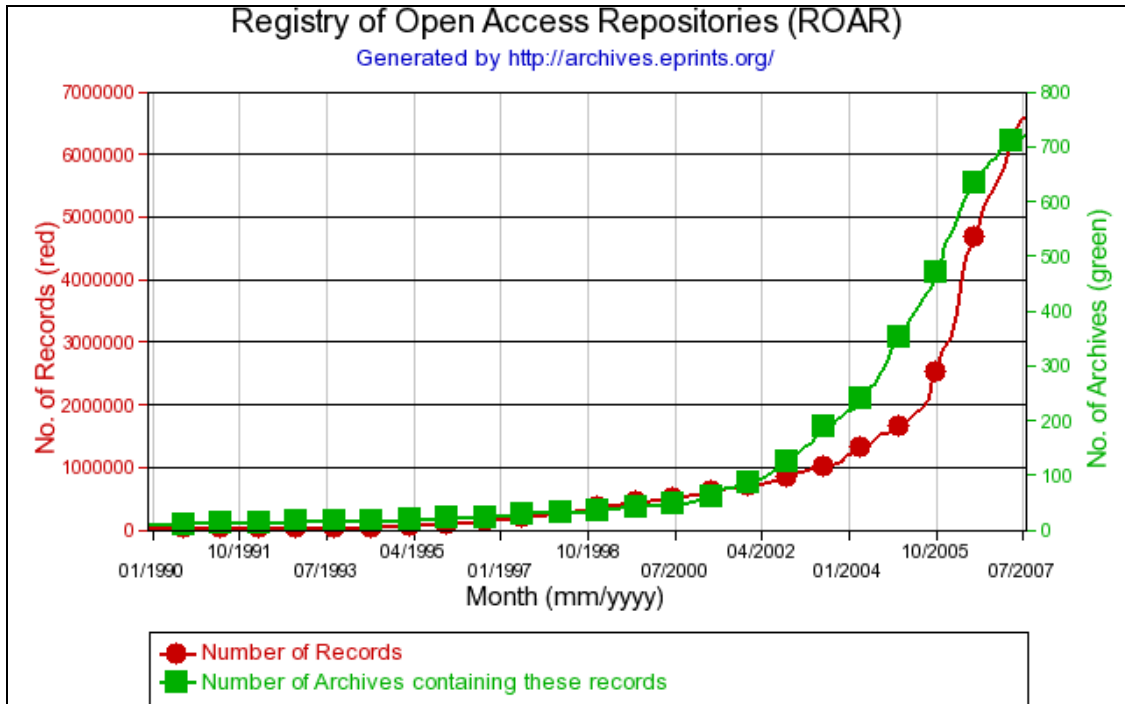
OA journals are a relatively new phenomenon, competing against a very large market of long-established traditional journals. At this point, it is impossible to predict if they will succeed. The Public Library of Science was founded on a grant from a foundation, and that money will eventually run out. Can PLoS continue without that funding? At a session at the American Library Association meeting this past June, a representative from BioMed Central said they were hoping to announce that they would finally become profitable before the end of this year.

So, we have many barriers to authors archiving their own articles on the Green Road. On the Gold Road, we have only a few major Open Access publishers, most with an uncertain future. What kind of progress has the dream of the OA movement actually made? There has certainly been a lot of discussion. On July 21 I Googled “open access,” and got just over 32 million hits. But other than discussion, what actual change has there been? There have been both positive and negative changes:

Negative changes	Positive changes
- Little voluntary archiving	+ More agencies requiring depositing
- Many societies/publishers fighting OA	+ Increase in number of OA journal
± Some hybrid opportunities for free access	

Some traditional journal publishers are offering this last item, the so-called hybrid form of OA. In this case, once an article has been accepted for publication, if the author pays an additional fee to pay for peer-review, copyediting, and internet distribution, the article becomes available for free to anyone on the internet. The article is not truly OA in that copyright is still usually held by the publisher (Springer is an exception), and in most cases the articles are not placed in a public repository, but held only on the publisher’s web site. While somewhat encouraging to see both societies and for-profit publishers experimenting with the traditional publishing model, the hybrid path is not being used by very many authors, and it appears to me that publishers are actually making more money with this system—receiving both subscription income and the hybrid fees.

So far, neither the Green Road nor the Gold Road has lead us to the dreams of OA. Both roads appear to be long, rough, and not well traveled. Utopia may be farther away than we originally thought. However, there are some encouraging numbers. In June of 2007, the Directory of Open Access journals listed over 2700 OA journals, of which 809 were searchable at the article level, and over 134,000 articles were easily available. That’s a lot, but small when considering that MEDLINE, which indexes only biomedical articles, added over 623,000 articles in 2006 alone. Still, the numbers are growing. Also, consider that the Registry of Open Access Repositories now lists over 6 million OA articles available freely to anyone with internet access. The growth of both repositories and archived articles has been remarkable:



While the reality of ubiquitous OA is still considerably distant, it has gotten much closer in the past few years, and it appears it will get even closer in the future. Spread the word, tell your users about OA, and don't be afraid to dream.