

Scholar-Based Initiatives in Publishing

Gerry McKiernan

In the decades-long arguments over STM . . . journal publishing, . . . one thing has changed in the last few years. Scholars have become involved. Everyone in STM journal publishing, no matter whether they work on the publishing . . . side or on the library . . . side, agrees that scholars are involved now. The question is, what will come of their involvement? (Kutz, 2002: 28)

More than a decade ago, Paul Ginsparg, then a particle physicist with the Los Alamos National Laboratory, New Mexico developed arXiv.org, an Internet-based service that enabled authors to store and access preprints—pre-publication versions of their work—from a central location. While the system was intended only to organize a haphazard and unequal distribution of electronic preprints, it quickly became a primary means of communicating ongoing research information within select scientific

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communities. Perhaps more importantly, arXiv.org also directly and indirectly inspired others to establish eprints servers for other disciplines, or to develop other alternative forms of scholar-based publishing.

In this *Sci-5* column, we profile five initiatives that seek to transcend the predominant paradigm of scholarly publishing by exploiting the inherent potential of the Web for open communication and publication.

CITE: Myer Kutz, "The Scholars Rebellion Against Scholarly Publishing Practices: Varmus, Vitek, and Venting," *Searcher* 10 no. 1 (January 2002): 28-43. Also available at: <<http://www.infotoday.com/searcher/jan02/kutz.htm>> (3 March 2003).

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WHAT? BioMed Central: The Open Access Publisher

WHERE? <http://www.biomedcentral.com/>

WHEN? May 2000

WHY? "BioMed Central is an independent publishing house committed to providing immediate free access to peer-reviewed biomedical research."

HOW? "All [of] the original [journal] research articles . . . published by BioMed Central are immediately and permanently available online without charge or any other barriers to access. This commitment is based on the view that open access to research is central to rapid and efficient progress in science and that subscription-based access to research is hindering rather than helping scientific communication."

BioMed Central publishes a wide variety of journals and other services, including nearly 60 titles in the BMC series that cover the "whole of biology and medicine" (e.g., *BMC Biochemistry*, *BMC Genetics*, *BMC Surgery*) (www.biomedcentral.com/info/about/thebmcjournals), as well as many other online or online/print journals, including *Arthritis Research & Therapy*, *Genome Biology*, and the *Journal of Biology* (www.biomedcentral.com/info/authors/otherjournals). In addition, BioMed Central also publishes *Faculty of 1000*, the leading literature evaluation service and "new online research tool that highlights the most interesting papers in biology, based on the recommendations of over 1000 leading scientists" (<http://www.facultyof1000.com>). Research articles published by BioMed Central are archived in *PubMed Central* (PMC) (www.pubmedcentral.nih.gov), the "digital archive of life

sciences journal literature” of the U.S. National Library of Medicine (NLM), and indexed and abstracted in the NLM *PubMed* bibliographic database (www.ncbi.nih.gov/entrez/query.fcgi).

All submitted manuscripts to a *BioMed Central* journal are fully and expeditiously peer-reviewed, although the form of review will vary depending on the editorial policy of an individual journal. In select cases, most notably with all the *BMC* medical journals, reviewers are requested to provide signed reviews, and the pre-publication history of each paper (i.e., submitted version(s), reviewers’ reports, authors’ responses) is posted with the published article.

For those interested in establishing a new journal, *BioMed Central* will make its online submission and peer-review technology available without charge to groups of scientists who wish to manage Open Access, online journals under their own editorial control (www.biomedcentral.com/info/authors/startajournal).

BioMed Central offers an Institutional Membership Program that enables institutions to actively support Open Access scholarly publishing (www.biomedcentral.com/info/about/instmembership). In early February 2003, the University of Nottingham became the 100th member of the program, joining other prestigious research institutes and colleges, universities, and other institutions of higher learning from more than twenty nations (www.biomedcentral.com/inst/).

The copyright for original research articles published in *BioMed Central* journals is retained by the author(s). In addition, *BioMed Central* supports “non-exclusive digital archiving of research articles by as many international archives as possible to ensure the security and permanent accessibility of that research, and will deposit its research articles in other digital repositories as and when they are available.”

WHO? *BioMed Central* is part of the Current Science Group (current-science-group.com), a “group of independent companies that collaborate closely with each other to publish and develop information and services for the professional biomedical community.” The Group is headquartered in London, England, with additional offices in Philadelphia, New York, and Tokyo. Vitek Tracz serves as Chairman of the Current Science Group, and Jan Velterop serves as the Publisher of the BioMed Central Group, a separate company within Current Science.

CITE: BioMed Central. n.d. “Open Access Publishing: The BioMed Central Model.” Available at: http://www.biomedcentral.com/download/advocacy/lib_advocacy.ppt (2 March 2003).

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WHAT? DSpace™: Durable Digital Depository

WHERE? <http://dspace.org/>

WHEN? November 2002

WHY? DSpace™ (dspace.org) is a “newly-developed digital repository [originally] created to capture, distribute and preserve the intellectual output” of faculty and staff of the Massachusetts Institute of Technology (MIT).”

HOW? DSpace™ is organized to accommodate the multidisciplinary and organizational needs of a large institution and can provide access to the digital intellectual assets of an entire institution. It accepts text submissions, as well as images, audio, and video. Articles, preprints, working papers, technical reports, conference papers; books; theses; data sets; computer programs; and visual simulations and models are among the types of resources it can accommodate.

At MIT, the DSpace™ repository (hpds1.mit.edu/index.jsp) is organized into “Communities” and “Collections.” The Center for Technology, Policy, and Industrial Development (CTPID), the MIT Department of Ocean Engineering, Laboratory for Information and Decision Systems (LIDS), MIT Press, and the Sloan School of Management, are the current MIT DSpace™ communities. CTPID, the largest community, includes collections for such initiatives as the Cooperative Mobility Program, the International Motor Vehicle Program, the Materials Systems Laboratory, the Program on Internet and Telecoms Convergence, the Program on Science, Technology, and Environmental Policy, and the Technology and Law Program.

The entire MIT DSpace™ repository, or all the resources associated with an individual community or single constituent collection, can be browsed by title, author, or date. In a title or date browse, entries within a community or collection include the title, author(s), and the ‘Date of Issue’ for a resource, while an author browse will provide an alphabetical author listing without title or date.

For any browse type, entries are hyperlinked to a brief record for the item, which include the resource title, author(s), assigned keywords, issue date, and abstract. A URI (Uniform Resource Identifier) and collection identifier are also provided for each item. In addition, the names of associated files, their size(s), and their format(s) are listed beneath the rec-

ord data. An associated file can be retrieved by clicking on the 'View/Open' link found in the lower right-hand side corner of the record display. The full record for each item in MIT *DSpace*TM repository is in the Dublin Core format (dublincore.org), and can be displayed by clicking on the 'Show full item record' hotlink within the brief record screen.

*DSpace*TM can also be searched, either globally, or within an individual community or constituent collection.

In early November 2002, the *DSpace*TM software was released and is available free-of-charge from *SourceForge.net* (sourceforge.net/projects/dspace/). In late January 2003, the Massachusetts Institute of Technology Libraries formally announced the establishment of the *DSpace*TM Federation, an initiative to extend the MIT *DSpace*TM institutional repository model to other institutions and to explore its scalability, enhancement, and sustainability. The original federation partners include Columbia University, Cornell University, Ohio State University, the University of Rochester (N.Y.), the University of Toronto, and the University of Washington.

*DSpace*TM at MIT is a registered 'Data Provider' with the Open Archives Initiative (openarchives.org).

WHO? *DSpace*TM is a collaborative project between the MIT Libraries and the Hewlett-Packard Company, funded in part by a \$1.8 million grant from the computer manufacturer. MacKenzie Smith (kenzie@mit.edu), Associate Director for Technology at MIT Libraries, currently serves as the *DSpace*TM Project Director.

CITE: Smith, MacKenzie; Barton, Mary; Bass, Mick; Branschofsky, Margret; McClellan, Greg; Stuve, Dave; Tansley, Robert; and Walker, Julie Harford. 2003. "DSpace: An Open Source Dynamic Digital Repository," *D-Lib Magazine* 9 no. 1 (January). Available at: <http://www.dlib.org/dlib/january03/smith/01smith.html> (1 March 2003).

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WHAT? Organic Eprints

WHERE? <http://orgprints.org/>

WHEN? September 2002

WHY? "*Organic Eprints* is an open access archive for eprints related to research in organic agriculture."

HOW? Organic Eprints has been established to promote Open Access to research results. “Open Access means that the documents are freely accessible to all who have access to the Internet.” Through an Open Access archive such as *Organic Eprints*, “researchers and research institutions can document their production and make their research products available . . . to a larger audience,” thereby improving the quality of research, and its impact. In addition, it is believed that Open Access to such research can also support the building of international research networks.

Authors are encouraged to archive any one of a variety of scholarly documents, including:

- eprints, postprints, and off-prints of scientific papers;
- conference papers and posters;
- theses and dissertations; reports;
- books and other monographic works, book chapters;
- magazine articles;
- Web products;
- project descriptions; or,
- other types of published or unpublished documents.

The criteria for acceptance in *Organic Eprints* are that submissions be related to organic agricultural research, that they are in final (or near final) form, and that associated metadata is correct. *Organic Eprints* supports all languages, although an English-language abstract should be provided for all non-English submissions.

Within *Organic Eprints*, contributions can be browsed by ‘Subject Area,’ ‘Project’ name, or ‘Year.’ Broad and subordinate subject areas include:

- Farming Systems
 - Buildings and Machinery
 - Farm Economics
 - Social Aspects
- Animal Husbandry
 - Breeding and Genetics
 - Health and Welfare
 - Production Systems
- Crop Husbandry
 - Crop Combinations and Interactions
 - Soil Tillage
 - Weed Management

- Soil and Nature
 - Air and Water Emissions
 - Nutrient Turnover
 - Soil Quality
- Food Systems
 - Community Development
 - Education, Extension, and Communication
 - Markets and Trade
- Research Methodology and Philosophy
 - Systems Research and Participatory Research
 - Research Communication and Quality
 - Specific Methods.

Organic Eprints has been created using the *GNU EPrints* software (v. 2.2.1), developed at the Department of Electronics and Computer Science at the University of Southampton, England. The *GNU EPrints* is available free-of-charge from the eprints.org Web site (software. eprints.org).

Users can search *Organic EPrints* using a basic ‘Search’ (‘Search Titles, Abstracts and Keywords’) or a ‘Simple Search,’ which permits a search of the ‘Title/Abstract/Additional Abstract/Keywords’ fields and/or a search of ‘Authors/Editors’ and/or ‘Year’ (or range of years) and/or ‘Language.’ By default, search results are displayed in order by ‘publication.’ Alternatively, search results in a ‘Simple Search’ can be sorted by other fields (e.g., ‘by title’; ‘by eprint type’; ‘by author’s name’) or other criteria (e.g., ‘by year (most recent first)’; ‘by year (oldest first)’), if preferred.

In an ‘Advanced Search,’ users can not only search the same fields offered in a ‘Simple Search,’ but can also select from one or more broad (or subordinate) ‘Subject Areas’ (e.g., ‘Farming Systems: Social aspects’); and/or, ‘Project’ date (i.e., ‘Denmark: DARCOFF II (2000-2005)’); or one (or more) project names (e.g., ‘Denmark: DARCOFF II (2000-2005): I. 1 (ORTCTOM) Organic production of cucumber and tomato’). In addition, the user may search (or limit a search) by ‘Eprint Type’ (‘Journal (normal, paginated)’; ‘Conference paper’; ‘Working paper’), and/or search (or limit) by publication status (‘Unpublished’; ‘In Press’; ‘Published’), among other options.

WHO? Organic EPrints has been established as a community service by the Danish Research Centre for Organic Farming (DARCOF) (Denmark). DARCOF (www.darcof.dk) plans “to make its full research production available on *Organic Eprints*, and encourages other institutes,

organizations and individual researchers involved in organic research to utilize and contribute to this service.” Hugo Fjelsted Alrøe , a post-doctoral scientist with DARCOF, currently serves as the *Organic EPrints* site administrator.

CITE: Organic EPrints, “Organic Eprints User Documentation,” n.d. <<http://orgprints.org/help/>>.

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WHAT? The Public Library of Science

WHERE? <http://www.pubiclibraryofscience.org/>

WHEN? October 2000

WHY? *The Public Library of Science* (PLoS) “is a non-profit organization of scientists committed to making the world’s scientific and medical literature a public resource.” *PLoS* seeks to “establish online public libraries of science that will archive and freely distribute the complete contents of every published scientific article, and:

- greatly expand access to scientific knowledge by giving any scientist, physician, student—or anyone with access to the Internet, anywhere in the world—unlimited access to the latest scientific research;
- facilitate research, informed medical practice and education by making it possible to freely search the full text of every published article to locate specific ideas, methods, experimental results and observations;
- enable scientists, librarians, publishers and entrepreneurs to develop innovative new ways to access and use the information in this immensely rich but highly fragmented resource.”

HOW? *The Public Library of Science* is committed to Open Access to the scientific literature, by which is meant “its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the Internet itself.”

The *PLoS* “initiative began with the circulation of [an] . . . open letter (www.pubiclibraryofscience.org/openletter.shtml), urging publishers to allow the research reports that have appeared in their journals to be

distributed freely by independent, online public libraries of science.” Although the focus of the *PLoS* initiative has shifted to the publishing of its own journals, as of early March 2003, nearly 33,000 individuals from more than 180 countries have signed the letter.

PLoS currently plans to begin publishing the first of journals (tentatively titled *PLoS Biology* and *PLoS Medicine*, respectively) starting in the second half of 2003. It plans to “compete head-to-head with the leading existing publications in biology and medical research, publishing the best peer-reviewed original research articles, timely reviews and commentary.”

To cover the costs of “managing peer-review, providing editorial oversight and ensuring the highest production standards” for its journals, *PLoS* has adopted a business model in which “all of its expenses will be recovered entirely by imposing a modest charge to the authors or research sponsors for each article they publish.” Such “one-time publication charges will allow us to make all works that appear in our journals freely available to anyone for viewing, full-text searching and downloading from the moment of publication, via online public libraries such as *PubMedCentral* (www.pubmedcentral.nih.gov) as well as the *PLoS* website.”

In December 2002, *PLoS* received a five-year, \$ 9 million grant from the Gordon and Betty Moore Foundation to launch a scientific publishing venture that “will make the published results of scientific research more accessible and useful to scientists, physicians and the public.”

WHO? *PLoS* is governed by a Board of Directors which currently consists of three of the founders of the organization: Harold E. Varmus, M.D. (President and Chief Executive Officer of the Memorial Sloan-Kettering Cancer Center, and former Director of the National Institutes of Health (NIH)); Patrick O. Brown, M.D., Ph.D. (Professor, Department of Biochemistry, Stanford University School of Medicine, and Howard Hughes Medical Institute); and, Michael B. Eisen, Ph.D. (Computational and Evolutionary Biologist, Ernest Orlando Lawrence Berkeley National Laboratory and the University of California at Berkeley). *PLoS* is assembling an editorial board of specialists affiliated with major national and international universities, research centers, and institutes (www.publiclibraryofscience.org/cgi-bin/plosEditors.pl).

CITE: Andrea L. Foster, “Scientists Plan 2 Online Journals to Make Articles Available ‘Freely and Universally,’ ” *Chronicle of Higher Education* (December 18, 2002): Available at: <http://chronicle.com/free/2002/12/2002121801t.htm> (2 March 2003).

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WHAT? SPARC—The Scholarly Publishing and Academic Resources Coalition

WHERE? <http://www.arl.org/sparc/>

WHEN? June 1998

WHY? The *Scholarly Publishing and Academic Resources Coalition* (SPARC) is “an alliance of universities, research libraries, and organizations” that seeks to serve “as a catalyst for action, helping to create systems that expand information dissemination and use in a networked digital environment. . . .” Currently, there are approximately 200 institutions in North America, Europe, Asia, and Australia, which are either full, domestic and international supporting, or consortial members. In addition, there are several dozen European sponsoring organizations and research libraries that are members of SPARC Europe.

HOW? Among other activities, SPARC has demonstrated that “new journals can successfully compete for authors and quickly establish quality,” at a reasonable cost for personal and institutional subscribers. It has encouraged publishing collaborations through three major initiatives: *SPARC Alternatives Program*, *SPARC Leading Edge Program*, and the *SPARC Scientific Communities Program*.

The *SPARC Alternatives Program* “encourages and supports projects that represent a direct and strong competitive alternative to existing high-priced titles in important established . . . [scientific, technical, and medical (STM)] fields.” Current *SPARC Alternatives* titles include *Algebraic and Geometric Topology* (www.maths.warwick.ac.uk/agt/), *Evolutionary Ecology Research* (www.evolutionary-ecology.com), *Journal of Machine Learning* (www.ai.mit.edu/projects/jmlr/), *Journal of Vegetation Science* (www.opuluspress.se), *Organic Letters* (pubs.acs.org/journals/orlef7/index.html), and *PhysChemComm* (www.rsc.org/isis/journals/current/physchemcomm/pccpub.htm).

The *SPARC Leading Edge Program* “encourages and supports projects that represent a paradigm shift in technology use, introduce an innovative business model, and/or meet the scholarly and research information needs of an emerging or fast-growing STM field.” Current *SPARC Leading Edge* initiatives include *BioMedCentral* (www.biomedcentral.com), *Documenta Mathematica* (www.mathematik.uni-bielefeld.de/documenta/Welcome-eng.html), the *Internet Journal of Chemistry* (www.ijc.com), the *Journal of In-*

sect Science (www.insectscience.org), and the *New Journal of Physics* (www.njp.org).

The *SPARC Scientific Communities Program* partnerships “recognize the importance of building new outlets for scientific communication around the broad information needs of the communities of users they serve. The program supports development of non-profit information aggregations or portals that serve specified scientific communities by providing high-quality, reasonably priced access to peer-reviewed research and other needed content from a variety of sources or publishers.” Current *SPARC Scientific Communities* include *BioOne* (www.BioOne.org), *Columbia Earthscape* (www.earthscape.org), *eScholarship* (escholarship.cdlib.org), *Figaro* (www.figaro-europe.net), *MIT CogNet* (cognet.mit.edu), and *Project Euclid* (projecteuclid.org/Dienst/UI/1.0/Home).

To assist those considering alternatives to the current predominant scholarly publishing paradigm, SPARC provides a resource page of “software tools and suites for publishing and managing online journals, archives, and repositories” (www.arl.org/sparc/core/index.asp?page=h16). In addition, it offers an ‘Institutional Repositories’ resource page that includes a listing of key topical SPARC publications, relevant SPARC-sponsored workshops, and a link to the SPARC Institutional Repositories electronic discussion list (SPARC-IR@arl.org) (www.arl.org/sparc/core/index.asp?page=m0).

WHO? Rick Johnson and Alison Buckholtz currently serve as the Enterprise Director and Associate Director of SPARC, respectively, while Julia Blixrud serves as the SPARC Assistant Director for Public Programs, and Raym Crows serves as a Senior Consultant.

CITE: SPARC, 2002. “SPARC FAQ,” 2002, <<http://www.arl.org/sparc/core/index.asp?page=e0>> (1 March 2003).

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NOMINATIONS

Members of the science and technology community are invited to nominate quality science and technology Web sites and resources for potential review in *Sci-5*. Of greatest interest are sites with uncommon but useful content, and those with innovative features and functionalities. Nominations should be sent to Gerry McKiernan (gerrymck@iastate.edu).