

# CURRENT SCIENCE

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EDITORIAL

## Science Journals: Issues of Access

For academic institutions in India, a library well stocked with science journals can be an exceedingly expensive proposition. The scientific literature is exploding and publishing is an increasingly profitable enterprise. The frenzy to judge scientific output in terms of numbers of publication is now exploited by publishers, who are rapidly expanding their stable of journals. *Nature*, which was for a long time a flagship of the science publishing enterprise, is now surrounded by an armada of journals bearing the *Nature* brand. The competition in the publishing world is fierce, with even old scientific societies turning to commercial publishers to bring a degree of professionalism to the job of producing and marketing their journals. Organizations like the American Chemical Society have a management structure and an outlook that is decidedly corporate. As journals multiply and costs increase, libraries (and institutions) must worry about budgets and coverage. The problems of libraries in India are compounded by the growing costs of sometimes maintaining both print and on-line subscriptions and issues related to 'perpetual' electronic access to backfiles.

Over the last few years a new wind has begun to blow over the turbulent world of science publishing. The Open Access movement, which appears to be most vigorously championed by activists, who have created a world-wide network, challenges the conventional view of paying for what you read. Their argument is compelling; science is most often paid for by public funds and therefore the results of research must be freely available to anyone who wishes to read. This will presumably enhance the worldwide reach of science. In effect, the internet revolution can be used to provide free electronic access to all articles. This is indeed a philosophy that must appeal to all except journal publishers, who will find few buyers if their products were freely available on the worldwide web. Journals add considerable value to manuscripts by the processes of selection and peer review; not surprisingly scientists yearn to publish in 'high impact' journals, which are most likely to reject their manuscripts. The costs of journal production clearly dictate that 'Open Access' journals will be financially unviable, unless the costs are met by another mechanism. This has given rise to a new model, the 'author pays' model. In this approach,

scientists pay for publishing their results, while no cost is borne by the reader. This is a wonderful model from the point of view of the cash strapped librarian (or individual subscriber), but one in which publication costs must be met from research grants. The 'pay for publishing' model has been adopted by high profile journals that have been started by open access advocates, of which the journals belonging to the Public Library of Science (PLOS) stable are a prominent example. The costs to authors for publishing in the high impact, open access journals can be substantial; at times a figure as high as \$6000 (a formidable Rs 2.5 lakhs) per paper has been estimated. For authors in the developed countries of the West, this figure may seem significant, but one that can be met from research grants. For researchers in India, with the exception of a very small minority of exclusive institutions, this figure is unaffordable. Authors in the developing world, understandably do not submit too many manuscripts to the most visible open access journals.

Mandating open access for all publicly funded research publications is easy to do by legislation. It is also a requirement that can be insisted upon by philanthropic private funding bodies like the Wellcome Trust and the Howard Hughes Medical Institute, which can underwrite the costs of publication. Many mainstream journals today follow a dual policy; if authors want their papers to be freely available, immediately after publication, they must pay; otherwise the papers may be read online only by paid subscribers. This is a model that appears to allow commercial publishers to profit from both the 'author pays' and 'reader pays' situations. The US National Institutes of Health, which has been a key promoter of open access, has advanced proposals which require grantees to post research papers on the PubMedCentral archive, within six months of publication. A recent report highlights a resolution passed by the Harvard University faculty that 'authorizes Harvard to place a faculty member's work in a repository that will be available to all at no cost'. Interestingly, this move by the arts and sciences faculty does not seem to affect the medical and public health schools. Faculty may opt out, but a dean's waiver appears necessary. The response from publishers has been predictably negative, with the president of the Asso-

ciation of American Publishers (AAP) noting that 'publishers may not be quite as excited to take articles from Harvard' (Lawler, A., *Science*, 2008, **319**, 102). The battle between open access advocates and publishers in the United States may still be far from a decisive stage; a report in *Nature* (Giles, J., 2007, **445**, 347) notes that the AAP appears to have hired an aggressive ('pit bull') public relations consultant to mount a media campaign against open access movements.

While the question of who will pay for 'open access' journals remains unresolved, an alternative strategy of promoting an 'open archives' movement seems practicable. Institutional repositories that maintain electronic files of all publications in a freely accessible form appear to be an attractive option for making research results widely available. Copyright issues remain, but many publishers seem comfortable with posting of publications on individual or institutional websites. Deposition of the 'pre-final' version of manuscripts has sometimes been suggested as a device to avoid controversies with difficult publishers. The idea of open, institutional archives is one that must be vigorously promoted in India. The introduction of legislation that vests copyright with institutions, in the case of publicly funded research, may also provide the necessary legal framework to avoid any contentious issues. The maintenance of open archives in institutions in India requires a considerable degree of education of researchers and administrators on the value of maintaining easily accessible repositories. With internet search engines becoming ever more powerful, with every passing day, open archives may indeed lead to greater visibility and higher citation rates for publications; an outcome that is most desirable for both individual scientists and their institutions. As libraries, worldwide, prune their subscriptions in the face of mounting costs, institutional archives are a good way of providing readers free access.

What is the future of libraries? In a 'reader pays' model, libraries remain the centrepiece of institutions. In an 'author pays' model, libraries will no longer be the conduit for payment to publishers. As fewer and fewer readers enter libraries, physically, we might envision our present structures transforming into monuments that may become objects of curiosity for a new generation. In a world of 'open access', authors will pay for publishing and institutions will pay for internet access. Faced with a monotonically increasing library budget an interesting exercise was conducted at the Indian Institute of Science,

which houses what is probably India's largest holding of science and engineering journals. This was in response to the question: 'Can we prune the library's subscriptions?'. A young (and in such exercises, youth and competence seem inextricably linked) and enthusiastic colleague quickly generated a list of journals that might be dropped. The criteria were simple. Journals, in which the institutional faculty did not publish for a period of a few years, which were not cited by institutional authors and also did not cite any papers emanating from the institution, were listed. A quick scrutiny revealed almost no high profile journals, but did yield relatively new, rising journals. A little manual intervention then resulted in a list of journals that could be discontinued, resulting in a savings of about Rs 1 crore (about \$ 250,000 in the globalized world). The hope was that the money saved could then be deployed to buy some of the new and attractive journals that are now beginning to appear in fast moving fields. Surprisingly, when the list was circulated there were strong pleas for retention of journals in which no one seemed to publish and there seemed little evidence for readership. The relationships between readers, writers, editors, publishers and buyers are extremely complex in the world of academia; sometimes bordering on the incestuous. Large publishing houses like Elsevier Science and Springer-Verlag are beginning to monopolize the world of science journals; a situation that promotes a seller's market. Efforts to contain bloating library budgets meet with resistance at every step; open access, with an 'author pays' model may eventually alter the dynamics of libraries. The cost burden will now be spread across individual researchers in an institution; a situation that will lead to a new set of problems for administrators to confront. The traditional librarian who worried about keeping his readers well informed in their areas of interest has given way to a new breed; administrators who respond to pressures from publishers and those who hold the purse strings. The traditional library is also disappearing; a place where one browsed in leisurely fashion through books and journals, attracted by bright covers and endlessly distracted by new and wonderful things to read. Internet surfing may be a poor substitute. The disappearance of the printed journal may be hastened by the wars over who pays for publishing science. Fortunately, new generations of researchers may never miss the library of yore, having grown up in the electronic world.

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