

Dealing with potential dangers

Two weeks ago, a press conference on bioterrorism was held at the American Association for the Advancement of Science's annual meeting in Denver, Colorado. Ronald Atlas, President, American Society for Microbiology, announced the development of a new policy, endorsed by many leading journals, pertaining to the handling of manuscripts that could potentially damage international security. Although still a work in progress (see the 20 February 2003 issue of *Nature* for the joint statement), four initial points were stressed: (i) all papers in peer-reviewed journals must contain enough information to adequately reproduce the results; (ii) journals are committed to improving identification of papers before review and/or publication that have the potential for abuse; (iii) journals will form clear policies as to the process to which such papers would be subjected; and (iv) if a paper is deemed inappropriate for publication as is, it would be either modified without compromising its reproducibility or communicated to the scientific community through other avenues.

Numerous areas of microbiology are especially vulnerable to overreaction by government agencies in the name of national security. Ronald Atlas has been working tirelessly to bring together leaders in government, the biological sciences and the scientific publishing community. His goal is to produce voluntary, rational guidelines to help biology journals from inadvertently abetting terrorism, while simultaneously upholding the foundations on which the scientific research system relies: that of an open exchange of information that results in a verifiable scientific literature. Last October testimony was offered by Atlas and other stakeholders to the US House of Representatives Committee on Science at hearings on this topic. Also in October, the Presidents of the three US National Academies (Medicine, Engineering and Science) published a joint report, *Science and Security in an Age of Terrorism*, to advise both the US government and the scientific community on the first steps necessary for a constructive dialog on the possible restriction of public access to some biological research. This led to meetings in January 2003 at which the guidelines were derived.

One of the major issues is whether, as suggested early last year by the US Office of Homeland Security, a new category of 'sensitive but unclassified' research should be created, to limit the publication of certain results or methods. Papers written in certain defined areas could be subjected, after the fact, to vetting by the US Department of Defense or other security agencies, to determine the appropriateness of publication. In testimony to the US Congress, M.R.C. Greenwood, Chancellor, University of

California Santa Cruz (UCSC), and Sheila Widnall, professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology (MIT), implied that such a category could wreak havoc with university research and the research enterprise in general. In this scenario, research in the US in 'sensitive' areas would be off-limits to international students, in a misguided effort to prevent knowledge and know-how from leaving the country. But because modern biology expertise is dispersed, unlike the physical sciences after World War II, similar security approaches will not yield similar results. Greenwood compared this approach to "closing the barn door after the horse has left." Biological science is dependent on an international pool of students. If the US imposed restrictions, such research would continue elsewhere, with the benefits reaped first by the country with more open policies—and the security risks would not have diminished as a result.

Both Widnall and Greenwood also pointed out that many universities have clear procedures for handling classified research. Both UCSC and MIT prohibit classified work from being performed on campus and do not allow students to participate in such activities. Facilities are provided off-campus for faculty and personnel with security clearances to apply their expertise to classified problems. In a strong policy against the creation of 'sensitive but unclassified' research categories, MIT also refuses to accept any government contracts that retain the right to evaluate research on an *ad hoc* basis for sensitive information or methods, as this has the potential to disrupt the free flow of information that is paramount to the success of unclassified research. Widnall recommended strongly against introducing a new type of gray-area research category. She instead encouraged biologists to identify narrow areas of research for 'classified' status, but warned that, by so doing, progress will be inevitably slowed: campuses that structure their research as do MIT and UCSC could no longer allow research in that area and would not be training the students and postdocs so necessary for keeping a field innovative.

The statement published in *Nature* and elsewhere commences our construction of procedures that balance the free flow of scientific information with security concerns. Successful dialogue between US officials, senior scientists and the editorial community has led to the recognition that the benefits of research into the principles behind biological processes or the successful application thereof usually outweigh potential threats. Initiating a means to recognize the rare exceptions is an important first step. We will keep you posted as policies and procedures to deal with the exceptions mature.