Research in the Face of Terror

Recently, the SPIE Executive Director, Eugene Arthurs, asked me to attend a meeting of the Committee on a New Government-University Partnership for Science and Security as a representative for SPIE. The meeting, sponsored by the National Academies, was held on June 5–6, 2006. The agenda can be found on the National Academies website.[1]

The keynote address was given by Frank Gaffney, President of the Center for Security Policy.[2] Gaffney sees two sources of American insecurity, "Islamo-Facism" and globalization. Thus, America's enemies are first the Islamic countries and their "terrorist shock troops" and second, everyone else. The first threaten the country with events resembling 9/11; the second raid the country for intellectual property and technological capabilities. The speech advocated a strong technological isolationism.

The second speaker, Grace Mastalli, the Director for Information Sharing and Collaboration in the Department of Homeland Security,[3] took a much more level-headed tone. She noted that it was the collaboration of universities and the government that helped to solve the SARS epidemic. As a counter-example she pointed out that the isolation of the USSR during Cold War hurt Soviet science. Then, having acknowledged the necessity of scientific collaboration, she dropped into BureaucraticSpeak to describe the inconsistencies in the dissemination, marking, and responsibilities for secure documentation among the federal agencies. Apparently, the effect of this documentation dyslexia on academia has resulted in mixed signals on which areas and topics are considered sensitive. This increases the burden on universities applying for grants, providing impact statements, and publishing results.

This was followed by two panel discussions on dual-use life science research. For example, a paper on the use of aerosols for the delivery of flu vaccine has been credited with providing an inexpensive and effective method for the third world. However, the paper also provided information that could be used by terrorists to prepare biological weapons for their use.

One panel presented views from the government perspective; the other discussed the issue from a university perspective. To my mind, this was the most useful part of the meeting because it provided detailed examples of the issues that are faced by those funding, policing, and doing academic research on sensitive issues.

A suggestion from the government panel for providing better oversight of dual-use research was the formulation of "guidelines, not regulations," for security reviews. There was a reference to the involvement of professional organizations through the establishment of codes of conduct. It was pointed out that because of the nature of the academy, the management of research programs at the university level is different from those in government and industry.

Obviously, there is a need for communication between the government security agencies and the university researchers. The problem right now is how to do this. But, as one panelist said, before getting to the "how," there needs to be a definition of the "what," the areas and context that must be scrutinized for possible dual uses. Then, once this is agreed upon, a set of publication rules, or perhaps guidelines, needs to be established for dual-use research and dissemination.

The academic panel's approach to biosecurity was quite different. One of the points of contention was how much self-government and oversight is needed to provide the needed security. Here the emphasis was on guidance, especially the consistency of guidelines, a topic that was touched on by the speaker from the Department of Homeland Security earlier. Another was the training of scientists on the ethical use of research. While this would seem to be something that would take place in the conduct of research, it was stated that since a large number of foreign scientists trained in the U.S. return to their home countries, it is important that they do not leave with an agnostic view of responsibility for their research.

The question is "What constitutes dual-use research?" Back in 1982, a panel chaired by physicist Dale Corson of Cornell was established that was similar to the current committee. It was asked to examine the control of scientific research publications under the requirements of technical security during the cold war. According to Elisa D.

Harris of the University of Maryland, the Corson Panel's approach to classification of research was that basic or applied research should not be restricted or classified unless all of the following criteria are met:

- Technology is developing rapidly and time from basic science to application is short.
- Technology has identifiable direct military applications or is dual-use and involves process or production-related technologies.
- Transfer of technology would give a biological warfare proliferator a significant near-term capability.
- There are no other sources of information about the technology, or others that could also be the source have effective systems for securing the information.
- The duration and nature of proposed restrictions would not seriously compromise the work of those responsible for public health.

During the discussion, it was pointed out that more problems arise from inadvertent errors during legitimate uses of technology than from subnational players (i.e., terrorists), who find it difficult to establish a facility, staff it, and construct a delivery system. It was felt that there was a need for markedly better response efforts by crisis teams to "inadvertent events."

Overall, I found the day and a half enlightening. The difficulties that some dual-use research poses should concern us as researchers and citizens. In earlier times, most sensitive work was done within the government laboratories and there was no question about one's ability to publish his or her research. More to the point, optics is now a highly developed field. The idea of subnationals establishing an advanced optics laboratory or manufacturing facility is difficult to conceive of. In comparison, the ability to culture and grow various biohazards that can threaten a large population is much easier to establish, maintain, and deliver. Our biomedical community needs to keep abreast of the situation and react through their societies, when necessary.

For SPIE journals and conferences, there is very little dual-use research that would present problems. The technologies that raise concern now are quite different from those that produced blue lasers and resulted in the cancellation of papers in the early 1980s. These current technologies tend to be simple to set up. Their power to harm derives from bioterror threats. Still, researchers in all fields should be aware of the possibilities that alternate uses of their work might open up. For those engaged in conducting research, the ethical consequences of the research should be conveyed to colleagues and, most particularly, to one's students.

References

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