

# PREFACE

As the largest general scientific society in the world, the American Association for the Advancement of Science (AAAS) has both the opportunity and the obligation to provide strong leadership for the science and technology (S&T) community, not only within science and engineering but in the relationships of science and technology to society. The Association's central mission is to ensure that the work of scientists and innovators continues to advance science while serving the needs of society. Throughout its 154-year history, AAAS—which draws its membership from all fields of science and engineering as well as from interested members of the lay public—has led the way in facilitating communication between scientists and policymakers, by analyzing critical issues, providing a forum for their discussion, and speaking out on such issues on behalf of the S&T community.

The September 11, 2001 terrorist attacks upon the United States make it imperative that the S&T community consider carefully the contributions that it can make to combating terrorism and strengthening homeland defense. At the same time we in this community must consider the impacts that strengthening security measures will have on the nation's research and education institutions. We must make sure that the conditions under which the United States has developed the world's most dynamic scientific and engineering enterprise are not jeopardized in the name of increased security, so that scientists and engineers can continue to conduct and communicate their work in ways that benefit the long-term public interest.

Security measures initiated by the federal government are already having impacts on many scientific institutions, including, especially, the nation's research universities. It is vital that all members of the S&T community carefully consider their own professional and personal roles and responsibilities in the post-September 11 environment. AAAS has expedited the publication of this book in an effort to bring these issues to the wider community of scientists, engineers, and policymakers, and to stimulate a broader dialogue concerning the responsible conduct and use of science and technology in the new era of security concerns.

The six chapters comprising *Science and Technology in a Vulnerable World* are based on talks presented at the AAAS Colloquium on Science and Technology Policy, April 11-12, 2002, in Washington, DC. The Colloquium, which has been held annually since 1976, provides a forum for discussion and debate about budget and policy issues facing the S&T community. Not surprisingly, the roles of S&T in the war on terrorism and homeland defense were highlighted at this year's meeting, and provided the theme: "Science and Technology in a Vulnerable World: Rethinking Our Roles."

In an ordinary year, these six Colloquium presentations, together with other papers from the meeting, and other key articles, speeches, and reports that appeared during the year, would have been published as part of the 2003 *AAAS Science and Technology Policy Yearbook*, which will appear in December. However, this is not an ordinary year, nor are this volume's issues ordinary policy concerns. Hence, we have decided to expedite their publication by producing this volume. The remaining Colloquium papers will be published on a regular schedule and both it and this book will be available online at [www.aaas.org/spp/yearbook](http://www.aaas.org/spp/yearbook).

*Science and Technology in a Vulnerable World* begins with an article by M.R.C. Greenwood, chancellor of the University of California, Santa Cruz, and a past president of AAAS. Greenwood's paper, "Risky Business: Research Universities in the Post-September 11 Era," is based on the 2002 William D. Carey Award Lecture, which she presented at the Colloquium. In her chapter, Greenwood outlines the risks to research universities that may accompany proposed changes in policy stemming from the threat of terrorism and proposes approaches for addressing these risks.

Chapter 2, by Lewis M. Branscomb, Aetna Professor of Public Policy and Corporate Management emeritus and former director of the Science, Technology and Public Policy Program at Harvard University's Kennedy School of Government, and co-chair of the National Academy of Sciences' Committee on Science and Technology for Countering Terrorism, discusses the changing relationship between science and government in recent months, and the role that science and technology play in both enabling and countering terrorism.

Donald A. Henderson, principal science advisor to the Secretary of Health and Human Services for public health preparedness and chairman of the Secretary's Council on Public Health Preparedness,

contributed Chapter 3. Henderson focuses on the dangers posed by bioterrorism, discusses the steps the government is taking to prevent future attacks, and provides a brief overview of the problems faced by the research community.

A paper on the national information infrastructure by Eugene H. Spafford, professor of computer science and philosophy, and director of the Center for Education and Research in Information Assurance and Security at Purdue University, comprises Chapter 4. In it, Spafford outlines some information security problems the nation faces, including the increasing number of computer viruses, poorly written software, and a shortage of professionals in computing science.

In Chapter 5, Baruch Fischhoff, university professor in the Department of Social and Decision Sciences and the Department of Engineering and Public Policy at Carnegie Mellon University, examines the psychology of risk, risk analysis, and risk communication, and applies our growing understanding of these areas to the problems posed by the threat of terrorism.

The book concludes with a paper by Eugene P. Skolnikoff, professor of political science emeritus at the Massachusetts Institute of Technology. Skolnikoff discusses the impacts that the events of September 11 have had on research universities, and whether the responses required by future threats conflict with the values that universities embody in the course of their work.

AAAS hopes that the papers in this volume will contribute to the public discussion of how science and technology can contribute to the war on terrorism and homeland defense while preserving their essential values of freedom and openness. As always, we would be pleased to receive comments and suggestions from readers on this book and on how we might pursue these objectives most effectively.

Albert H. Teich  
Stephen D. Nelson  
Stephen J. Lita

Washington, DC  
July 2002