

AAAS

*Science  
and  
Technology  
Policy  
Yearbook*

2001



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# CONTENTS

	Preface	ix
	<b>Part 1</b>	
	The 2000 William D. Carey Lecture	1
1.	The Wellspring of Discovery Rita R. Colwell	5
	<b>Part 2</b>	
	Science and Policy Classic	17
2.	The Scientific Establishment Don K. Price	21
	<b>Part 3</b>	
	Technology's Impact on Society	43
3.	Why the Future Doesn't Need Us Bill Joy	47
4.	A Response to Bill Joy and the Doom-and-Gloom Technofuturists John Seely Brown and Paul Duguid	77
5.	Not by Reason Alone Michael L. Dertouzos	85
6.	Nanotechnology and Societal Transformation Michael M. Crow and Daniel Sarewitz	89
	<b>Part 4</b>	
	The Year 2000 $\pm$ 25: Retrospective and Prospective Views of Science and Technology Policy	103
7.	Fifty Years of Science and Technology Policy in Ten Minutes Christopher T. Hill	107

8.	Science and the Economy William B. Bonvillian	113
9.	A Prospective Look at Science and Technology Policy Susan E. Cozzens	123
10.	Linking Scientific Research to Societal Outcomes Michael M. Crow	129
11.	Why I Am Optimistic About the Future Neal Lane	133
12.	The Age of Transitions Newt Gingrich	147
	<b>Part 5</b>	
	Genetic Modification of Foods: The Public's Mistrust of Science, and Science's Misunderstanding of the Public	157
	Commentary Maxine F. Singer	161
13.	What Is the Future of GMOs? Nina V. Federoff	165
14.	Frankenfood or Doubly Green Revolution: Europe vs. America on the GMO Debate Julia A. Moore	173
15.	Prospects for Agricultural Biotechnology— A View from Industry L. Val Giddings	181
16.	The Importance of a Rigorous Regulatory Regime in Developing Public Trust Carol Tucker Foreman	187
17.	Improving Communication About New Food Technologies David Greenberg and Mary Graham	195
18.	Bioengineered Food—Safety and Labeling Karen A. Goldman	209

<b>Part 6</b>	
Social, Economic, and Political	
Implications of Information Technologies 217	
19.	Technophilia.com 221
	Robert J. Spinrad
20.	Next Generation Internet, E-business and E-everything 227
	Michael R. Nelson
21.	From Digital Divide to Digital Opportunity 241
	B. Keith Fulton
22.	Prospects for Internet Policy Research 247
	Brian Kahin
<b>Part 7</b>	
Academic Science and Industrial	
Development 257	
23.	Technology Transfer and Academic Capitalism 261
	Larry L. Leslie, Ronald L. Oaxaca and Gary Rhoades
24.	The Entrepreneurial University 279
	Lita Nelsen
25.	Technology Transfer and Commercialization of University Performed Research: The Arizona Experience 287
	Steven G. Zylstra
26.	The Kept University 293
	Eyal Press and Jennifer Washburn
<b>Part 8</b>	
Do Medical Research and Technology	
Advances Really Lead to Improved	
Health Care? 319	
27.	Using Research to Guide Healthcare Decisions 323
	Deborah A. Zarin

28. Medical Research, Technology, and Improved Health Care Donald A. Young	335
29. The Future of Clinical Research: An AAMC Perspective Roger Meyer	341
Index	349

# PREFACE

This edition of the *AAAS Science and Technology Policy Yearbook* coincides with both the start of the new millennium and the 25<sup>th</sup> Anniversary of the AAAS Colloquium on Science and Technology Policy. In recognition of these events, it takes both a retrospective and prospective look at S&T policy, and examines the mutual impacts of technology and society. As in the past, much of the book's content is drawn from the proceedings of the Colloquium held in Washington, DC, in April 2000. However, this year's volume also has a substantial number of articles from other sources.

The book opens with a chapter by the director of the National Science Foundation, Rita R. Colwell, based on her 2000 William D. Carey Lecture. Colwell's chapter, entitled "The Wellspring of Discovery," celebrates the 50<sup>th</sup> Anniversary of the founding of the NSF and outlines the exceptional accomplishments of the organization over last half-century.

Part 2 consists of a science policy classic—"The Scientific Establishment" by the late Don K. Price, founding dean of Harvard University's John F. Kennedy School of Government, author of *The Scientific Estate*, and former AAAS president. The paper, originally printed in *Science* in 1962, outlines the brief history of science policymaking in the United States, and describes the role that science had in creating the system that we now have.

Part 3 begins by examining the implications that the forthcoming wave of nanotechnology, robotics, and genetic engineering innovations will have on society. Included here is the controversial article from *Wired*, "Why the Future Doesn't Need Us," by Bill Joy, CEO, co-founder, and chief scientist of Sun Microsystems. In Chapter 3, Joy predicts a future in which our unfettered scientific and technological pursuits run the risk of reducing all life to "gray goo." However, before we begin restocking our abandoned Y2K shelters for the impending apocalypse, two chapters present rebuttals to Joy's dystopian vision. John Seely Brown, former director of Xerox PARC, and Paul Duguid of the University of California at Berkeley, explain that Joy may not be seeing things clearly in an article originally published in *Industry Standard*. Michael L. Dertouzos, director of the Laboratory for Computer Science at MIT, seconds the sentiment and suggests that we instead rely on our humanity, feelings and beliefs when determining the impacts of technology. The part concludes with an original paper on

nanotechnology and societal transformation, from Michael M. Crow and Daniel Sarewitz of the Center for Science, Policy and Outcomes, a project of Columbia University.

The *Yearbook* strikes a reflective pose in Part 4, “The Year 2000 ± 25: Retrospective and Prospective Views of Science and Technology Policy.” Six chapters are presented here, including papers by former Speaker of the House, Newt Gingrich (R-GA), President Clinton’s science and technology advisor, Neal Lane, William Bonvillian, legislative director for Sen. Joseph Lieberman (D-CT), Christopher Hill, vice provost for research at George Mason University, Susan Cozzens, chair of the School of Public Policy at the Georgia Institute of Technology, and Michael Crow, vice provost and professor of science policy at Columbia University.

The continuing debate concerning the public’s perception of genetically modified organisms (GMOs) and the genetic engineering of food is given voice in Part 5. Maxine Singer, president of the Carnegie Institution of Washington, opens with a commentary in which she explains why the approach that was used at Asilomar cannot be applied to the current GMO controversy. The first three chapters contain articles discussing the scientific underpinnings of the debate; the viewpoint of the agricultural biotechnology industry; and a discourse on the rationale for differences in American and European attitudes. The final three examine the regulatory environment that food issues are facing, including legislation introduced in the 106<sup>th</sup> Congress.

Part 6 discusses the social, political and economic impacts of information technology (IT). Included here are chapters on the Internet by Robert Spinrad, retired vice president, technology strategy at the Xerox Corporation; on e-business by Michael R. Nelson, director of Internet technology and strategy at IBM; on the digital divide by B. Keith Fulton, director of corporate relations at America Online; and on Internet policy research by Brian Kahin, a fellow at the Internet Policy Institute.

Academic capitalism, technology transfer, and university/industry collaborations are at the center of the debate in Part 7. Included here is “The Kept University,” by Eyal Press and Jennifer Washburn. The article, which originally appeared in *The Atlantic Monthly*, argues that universities are forsaking their educational mission in the pursuit of profits. Lita Nelsen, director of the Technology Transfer Office at MIT, discusses the issue from the point of view of a large, private, research-oriented university. Larry Leslie, Ronald Oaxaca, and Gary Rhoades of

the University of Arizona provide a chapter on academic capitalism at the institutional, departmental, and individual levels. Finally, Steven Zylstra, formerly of the Arizona High Technology Industry Cluster, closes the part with a chapter on the experiences of Arizona's three large public universities.

Part 8 concludes the book with three chapters that address the question: Do medical research and technology advances really lead to improved health care? The chapters represent the very different views of researchers, the insurance industry and medical colleges. Included are papers from Deborah Zarin of the Agency for Healthcare Research, Donald Young of the Health Insurance Association of America, and Roger Meyer of the American Association of Medical Colleges.

As in past years, this *Yearbook* was produced by the staff of the AAAS Directorate for Science and Policy Programs with guidance and support from the Committee on Science, Engineering, and Public Policy (COSEPP). Related AAAS publications include the annual series of *AAAS R&D Reports*, published in the spring, which examine funding trends and policy issues associated with R&D in the President's budget, and their fall counterparts, the *AAAS Reports on Congressional Action on R&D in the Federal Budget*, which present the results of the annual congressional budget process.

Periodic updates on science and technology policy and budget issues are provided on the R&D Budget and Policy Program home page on the directorate's web site and through a newsletter, *Science and Technology in Congress*, published monthly in hardcopy and on the web when Congress is in session. The directorate maintains e-mail lists to inform regular readers when updates have been posted on the web. Information about these and other AAAS science and technology policy publications, programs, meetings, and services can be found on the web at [www.aaas.org/spp](http://www.aaas.org/spp).

A number of the Colloquium papers included in this volume are based on texts provided by the authors; others have been prepared from transcripts of presentations delivered at the meeting. All have been professionally edited and reviewed by their authors prior to publication. The reader should note that the views and opinions expressed in these papers are those of the authors and do not necessarily represent the views of AAAS.

Many people contributed to this *Yearbook* and we are grateful for their contributions. Most important, of course, are the authors whose

works are contained here and whose ideas are the *raison d'être* for the book. We appreciate the efforts of editor, Rebecca Brune, and production manager Glenda King. And, once again, we acknowledge with gratitude the contributions of the members of COSEPP to this book and to the annual Colloquium on S&T Policy. The full text of past editions of this Yearbook are available online at [www.aaas.org/spp/yearbook](http://www.aaas.org/spp/yearbook).

Up-to-date information about AAAS's S&T policy activities and publications may also be obtained by contacting the Directorate at AAAS, 1200 New York Avenue, NW, Washington, DC 20005 (telephone: 202 326 6600; fax: 202 289 4950; e-mail: [science\\_policy@aaas.org](mailto:science_policy@aaas.org)). Comments on this book and suggestions for articles to be included in future editions are welcome. Please address them to the editors at the address above (e-mail: [ateich](mailto:ateich), [snelson](mailto:snelson), [cmcenane](mailto:cmcenane), or [slita@aaas.org](mailto:slita@aaas.org)).

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