BOOKS: SCIENCE COMMUNICATION

Science and Civics, Still Immiscible

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As Jane Gregory and Steve Miller observe in *Science in Public*, the American Association for the Advancement of Science was founded 150 years ago "with the central aim of drawing a clear line between professional and amateur science" (p. 23). Shaping the role of science in society has been a concern of the AAAS ever since. In her 1997 presidential address to the association, Jane Lubchenco issued a powerful call for a new social contract that would commit scientists "to communicate their knowledge and understanding widely in order to inform decisions of individuals and institutions"(*1*). With whom might such a contract be made? Gregory and Miller's discussions of efforts to improve the public's understanding of science demonstrate that this question is a troublesome one.

Science in Public
Communication, Culture, and Credibility
by Jane Gregory and Steve Miller
Plenum Trade, New York, 1998. 304 pp. $29.95, C$41.95. ISBN 0-306-45860-8.

Science in Public surveys a heterogeneous set of activities. Coverage of science and risk by the media, science museums, and academic studies of science, technology, and their social relations are all discussed. The treatment is uneven, giving the book the air of a textbook for a survey course in communications. Those not assigned to read *Science in Public* may wish to do so selectively.

Perhaps because the authors are journalists themselves, the liveliest parts of the book are the three chapters that describe how the mass media approach science as news and then examine several examples. These brief case studies show how news values (such as relevance, unexpectedness, and personalization) influence the way science is treated in journalism. The 1996 furor over "mad cow disease" in Great Britain illustrates problems that often recur. The British government, torn by conflicting desires to protect both industry and public health, did not provide consistent messages to the press. Scientists were unsure of the mechanism by which disease might be transmitted, so the scientific community's messages were confusing as well. The media could not provide lay readers with a way to gauge the magnitude of the risk to health. Consumers "resorted to common sense" (p. 178) and avoided British beef en masse. Was this a scientifically informed response? Surely not. Could science and journalism have done better? That is less clear—which is, in a way, the point of *Science in Public*.

This book may disappoint the general reader because it summarizes a field that remains ambiguous in its practical implications. The diverse activities grouped under the label of public understanding of science "are widely separated from the theory" (p. 240). Practitioners (scientists or science-trained journalists) act in accord with the "deficit model"—meeting what they describe as the public's need for understanding by providing scientific knowledge. Theorists and critics (grounded in social sciences and humanities) focus instead on the processes and social context in which science is an important economic, cultural, and political force. Gregory and Miller suggest that these very different perspectives on the place of science in democratic culture need to be combined in a unified model of social action. Yet the divergence between theory and practice makes it difficult to see how to do this.

A nucleus of controversy. The Smithsonian's exhibition *Science in American Life* sparked a complex and heated debate over its presentation of the scientific enterprise. It is notable for including historical context as well as basic principles and for taking an analytical rather than merely celebratory perspective.

The key to public understanding, in the authors' view, is to recognize that "Communication is a process of negotiation. ... [I]f the public's needs are to be met, the public must articulate what those needs are" (p. 247). But the many groups and individuals that comprise "the public" espouse conflicting views and display large variations in knowledge. These facts undermine the notion of communication as negotiation.

To the scientist-practitioner like Lubchenco, the deficit model is compelling. (If people only knew the magnitude of human-caused modifications of the planet, they would be galvanized, as she is, to better manage those modifications.) To the theorist cultivating skepticism, however, the deficit model carries with it an implicit social agenda: we scientists know better, so you had better follow our guidance (*2*). At this point, the negotiation that *Science in Public* calls for breaks down—not so much because the citizenry shares the theorist's distrust, but because in the face of complexity too many citizens click their remote controls and move on.

Although scientists may not know better, they do have knowledge from beyond the realm of everyday experience (as much in astronomy as in cardiovascular medicine). When that knowledge stirs the imagination, citizens can share scientists' enthusiasm. But when knowledge implies unwelcome change—as with global climate change or diets high in fat and salt—power and control come into play, often shoving aside science in a babble of wills and wants. Even in these conflicted areas, however, one finds hopeful signs. Many people do eat more sensibly, and the Intergovernmental Panel on Climate Change has forged a scientific consensus and influenced policy.

The links that the AAAS fosters between science and civics are frail. The social contract that Lubchenco urges upon scientists is hard to ratify because there is no single intelligence at the other end, the end we call "society." Government's best attempt to mediate such a contract may have been the late Office of Technology Assessment. It brought a thoughtful, scientifically informed voice to public life but failed to survive the politics of federal downsizing. More generally, public understanding of science remains fragmented—a reality that *Science in Public* probes, sometimes with insight, but in the end inconclusively.

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References

1. J. Lubchenco, *Science* **279**, 491 (1998).
2. See, D. R. Sarewitz, *Frontiers of Illusion: Science, Technology, and the Politics of Progress* (Temple University Press, Philadelphia, 1996).