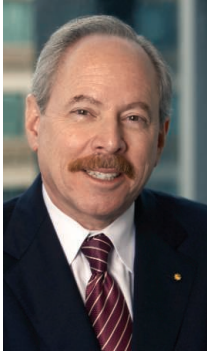

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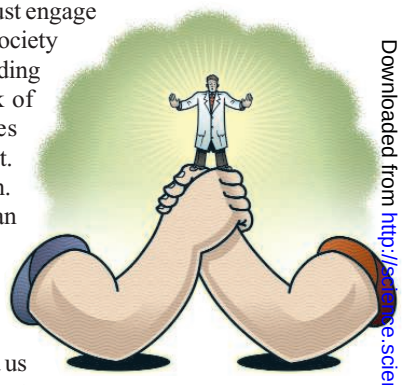
Outreach Training Needed

SCANNING THE RELATIONSHIP BETWEEN SCIENCE AND SOCIETY RECALLS CHARLES DICKENS' lead for *A Tale of Two Cities*: "It was the best of times, it was the worst of times . . ." Scientific advances are coming at an unprecedented pace, and they hold great promise for further improving the human condition. The public is clearly happy about this. At the same time, however, society is exhibiting increased disaffection, fostered by instances of scientific fraud and by scientists charged with financial conflicts of interest. Perhaps worse, public skepticism and concern are increasingly directed at scientific issues that appear to conflict with core human values and religious beliefs or that pose conflicts with political or economic expediency. These include embryonic stem cell research, the teaching of evolution in schools, evidence for global climate change, and controversies over genetically modified foods. The ensuing tension threatens to compromise the ability of the scientific enterprise to serve its broad societal mission and may weaken societal support for science.

There is a growing consensus that to lessen this tension, scientists must engage more fully with the public about scientific issues and the concerns that society has about them. Efforts that focus simply on increasing public understanding of science are not enough, because the problem is not merely a lack of scientific comprehension. In some cases, the public generally does understand scientific content in a fundamental way but still doesn't like it.



Thus, the notion of public engagement goes beyond public education. We must have a genuine dialogue with our fellow citizens about how we can approach their concerns and what specific scientific findings mean. This kind of outreach is being encouraged by government agencies and private sources in Europe, Canada, and the United States. Effective public engagement requires long-term commitment, because many issues are complex and tension is persistent. The creationism/evolution issue showed us this. It would be convenient to leave this task in the hands of a few representatives selected especially for their communication skills, but that won't work. Given the breadth of issues and the intensity of the effort required, we need as many ambassadors as we can muster.

Engaging the public effectively is an acquired skill, and preparation for outreach strategies has seldom been part of scientific training programs. There are a few exceptions, including the Aldo Leopold Leadership Program and Research!America's Paul G. Rogers Society for Global Health Research. Many young colleagues are enthusiastic about discussing their work with the public, but they also are under tremendous pressure to stick to the bench, secure hard-to-get research grants, and publish rapidly and repeatedly in high-quality journals. Many even feel that the culture of science actively discourages them from becoming involved in public outreach, because it would somehow be bad for their careers.

What can be done? First, the scientific reward system needs to support our colleagues' efforts to interact with the general public concerning their work and its implications. Funding agencies such as the Wellcome Trust and the U.S. National Science Foundation and National Institutes of Health have begun encouraging the scientists they support to include outreach efforts in their proposals. Academic institutions need to join in this chorus by rewarding faculty members who fulfill commitments to such work. That will entail putting public outreach efforts among the metrics used to decide promotion and tenure.

Second, university science departments should design specific programs to train graduate students and postdoctoral fellows in public communication. Unfortunately, this means adding yet another element to already overtaxed research training programs. Many students acquire teaching experience through assistantships, but public engagement activities are different and require other strategies. We need to add media and communications training to the scientific training agenda.

This will doubtless be an additional burden on existing systems. Unfortunately, there is no alternative. If science is going to fully serve its societal mission in the future, we need to both encourage and equip the next generation of scientists to effectively engage with the broader society in which we work and live.

– Alan I. Leshner

10.1126/science.1138712

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Science **315** (5809), 161.
DOI: 10.1126/science.1138712