

Current Comments®

EUGENE GARFIELD

INSTITUTE FOR SCIENTIFIC INFORMATION®
3501 MARKET ST. PHILADELPHIA, PA 19104

Science Advocacy: The Public Has a Need to Know and Understand

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Quackery—and news of a small group of “quackbusters”—got front-page coverage recently in *THE SCIENTIST*®.¹ With a core membership of physicians, scientists, and educators, and a tiny budget, this group is out to expose, and so deter, medical fraud. It is also exemplary in its dedication to public education and community action.

As concerned scientists, we all have an obligation (both to science and to society) to fight misinformation with plain, level-headed explanations of what scientists are working on and why. While general scientific information is often best conveyed by science journalists, scientists must also contribute—by walking out of their labs and into public view. It is ultimately up to them to help educate the general public and decision makers about their scientific activities and research needs.

THE SCIENTIST, for its part, offers the information, debate, and support necessary to scientists in their varied professional capacities. In other words, it looks at science through the eyes of those who influence,

perform, and administer it. Indeed, by informing scientists about funding decisions, science policy matters, and other aspects of the *process* of science, *THE SCIENTIST* gives them the tools they need to be heard when and where it counts.

The two editorials reprinted here, published earlier this year in *THE SCIENTIST*, highlight these pressing issues for the scientific community: the public's ignorance (and, oftentimes, distrust) of science and the scientist's role;² and the urgent need for a stronger science lobby, to help shape national support for scientific research.³

Informed science advocacy can only come from *within* the scientific community. Scientists must participate—at all levels: political, social, and economic—in a strong educational effort if they are to influence science policy, funding decisions, and public opinion. If well organized, objective, and persistent, scientists' activism can promote both science education and scientific research, while safeguarding their professional status and academic freedom.

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REFERENCES

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3. ———. A handbook for activist scientists. *THE SCIENTIST* 2(4):7, 22 February 1988.

The Cost of a Fortress Science Mentality

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The U.S. electorate is preparing to vote for a new president later this year. There are now about as many candidates as, according to string theory, there are dimensions. In fact, strings—tiny, vacillating bits of matter capable of assuming variable form—remind me of so many politicians, but that's another editorial. Most scientists will be wondering whether the presidential contenders will discuss science policy as a campaign issue.

Past elections here and abroad provide little hope that science will be discussed directly. Mrs. Thatcher's miserly support for science never really became an issue in the British elections—except among scientists. Granted, there is a consensus that governments ought to be doing more about AIDS, but that only illustrates the level at which the public understands the need for science. Science policy issues, like the debates over building the supercollider, mapping the human genome, or constructing a space station, don't excite the average voter.

Arguably, the funds allocated for science represent such a small portion of a nation's budget and immediately affect so small a group that the failure to discuss science policy is only natural. There are so many other pressing, visible and publicly felt domestic and international programs. And some believe that science is better off by not being easily identified in national budgets.

The public is largely unaware of what science is and of what scientists do. (I do not mean to imply, however, that the public does not recognize or enjoy the benefits of scientific research; even the scientific illiterate can appreciate a medical triumph.) Moreover, is it reasonable to expect science policy to enter the political debate when many of our leaders can claim only marginal scientific literacy? Others simply stupefy with their remarks. Mr. Pat Robertson recently asserted that you can "catch" AIDS through airborne transmission. But even if our candidates utter scientific absurdities, I

think we should expect a little more from the public.

As science and technology make an ever greater impact on our lives and increasingly represent real investment for our nation, a scientifically illiterate populace will surely drag down both the democratic process and economic progress. Our Constitution presupposes a well-informed public, one able to judge critically the statements of candidates for elective offices. And society as a whole needs a scientifically educated public to ensure technological innovation, a dynamic engine of our economy. A certain rudimentary knowledge of science and the scientific method is the minimum requirement for everyone.

Are Scientists to Blame?

In practical terms, no one expects non-scientists to master the technical side of scientific issues; these matters are left to our representatives in government and their consultants—the national science organizations, professional scientific societies and individual expert scientists.

What we can reasonably hope for is a public that is knowledgeable enough to reach informed attitudes about science. We hope citizens will think that the pursuit of science is worthwhile, even vital. A renovation of science education is urgently needed, but we will not see the benefits of such reform for years.

As it is now, the public is too easily swayed by pressure groups who, by distorting facts, play upon ignorance and effectively advance negative images of science and scientists. Certain animal rights groups immediately spring to mind, as well as other organizations that reject gene research out-of-hand. Today, many voters actually fear what tomorrow's science may bring.

For that situation we scientists are quick to blame politicians, educators, special interest groups, the press and the public itself.

But are we blameless? How many of us harbor a "fortress science" mentality? As virtual hermits of the laboratory, many seem to be saying (or at least thinking): "I do not want to take time out of my busy schedule to explain to the unwashed what it is I am doing and why it is important (they wouldn't understand anyway), and I certainly don't want to deal with the press. After all, support has been fairly good lately. Why risk misunderstanding?" Plainly, scientists can be just as short-sighted as politicians.

Our titanic national debt will eventually force hard decisions. Science funding will not be exempted. When that time comes, a public that has heard from the scientific community about why its work is valuable will more likely support science than one that hasn't. We cannot expect the public to respond positively if we have not told them our story. We can only do so through the media.

Sending the Public a Message

Molecular biologist Bryan Sykes of Oxford University recently spent seven weeks working for a British television station under

a Science and Technology Media Fellowship, sponsored by the British Association for the Advancement of Science. He has offered his colleagues sound advice on how to speak through the media (*New Scientist*, November 26, 1987, pp. 67-68). Sykes is correct to point out that our reluctance to work with the press can only widen the gulf that now separates scientists from the rest of society.

Despite what many of us assume, the value of scientific research is not self-evident. A strong and clear message about what science has done for our society and what it can do in the future needs to be brought, again and again, to the public. Working scientists who will provide the media with simple explanations of what they are doing and why are the best messengers. The public will respond to results that are made plain.

Science is unlikely to figure directly in this year's campaign. But scientists should work to ensure that the public's own self-interest in science finds a place in the party platforms. Platitudes about competitiveness are not enough—science education is the only guarantee. ■

A Handbook for Activist Scientists

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Here is a book that belongs on the desk of every biomedical researcher in the United States: *Building a Healthy America. Conquering Disease and Disability. Facts, Figures and Funding*, edited by Terry L. Lierman. Lierman is president of Capitol Associates, Inc., a Washington, D.C.-based government relations firm specializing in health-related issues and funding.

The volume, published last November, is the successor to a series of handbooks initiated by Mary Lasker, all entitled *Killers and Cripplers*, which were issued from 1968 to 1976.

Like its predecessors, *Building a Healthy America* aims to equip the public with current statistics and plain facts about many of the major diseases and disabilities we face in this nation, such as AIDS, Alzheimer's disease, cancer, coronary heart disease, diabetes, stroke and 20 others.

Lierman gives a brief description of each, as well as up-to-date figures on the number of people afflicted, the costs in terms of medical care and lost productivity and the amount spent on research in fiscal year 1987. Lierman also provides a summary of recent research advances, a list of organizations focusing on the disease and a glossary of key terms. He has included numerous diagrams and charts to supplement the text. Moreover, in an introductory section called "How the Body Works," he describes the basics of the cardiovascular, endocrine, immune and nervous systems, thereby giving context to the discussion of each disease.

Scientists will want to read these sections of the book carefully, not so much for the basic health information they provide (although they are models of clear, concise exposition) but for the numbers that Lierman has marshaled together. These data are es-

pecially useful to those of us who are occasionally asked to comment on the level of federal funding for biomedical research and why it should be increased. For example, Lierman tells us that U.S. citizens are currently spending some \$440 billion on health care annually, but only \$8 billion on research to find solutions to our health problems. He also tells us that Americans spend \$25.4 billion a year on cigarettes—over three times the NIH's research budget. This is the type of comparison that Mary Lasker has used so successfully in making the need for government support for biomedical research plain to the public.

How to Lobby

But my chief reason for recommending this book to working scientists is for the section it contains on the federal government and how it works to support science. If you do not understand how the federal government is organized to deal with health matters or how Congress decides upon and enacts funding for biomedical research—and many scientists remain blissfully ignorant of this mind-numbing process—this is the primer for you. Lierman lists the various Congressional committees on health and describes the multiple actions, including authorization and appropriation in both the House and Senate, that are required before the funding process becomes funding reality.

Furthermore, this section contains two chapters that are, in my opinion, essential reading for activist scientists.

Previously, I have exhorted scientists to get involved in science-related public issues and to learn to lobby. In a chapter entitled "Lobbying for Medical Research," Lierman describes how to do so. He outlines what makes for an effective presentation, whether by letter or in person.

As Lierman writes, "we have not had a President in 20 years who has made medical research a high priority.... The nation's major political parties totally ignore medical research in their national platforms, and there are no national candidates who work for and strongly support such programs. Fortunate-

ly," he continues, "many members of Congress have gained sufficient understanding of the importance of aggressive medical research to maintain viable, if not fully funded, research programs. Most senators and representatives will listen to knowledgeable and enthusiastic constituents who can help them to understand the advances that could be made in the next 5 years—with adequate funding" (p. 34).

Who better than research scientists can provide our representatives with this information?

The second chapter deserving special note is "The Role of Animals in Research." This issue is of increasing concern to the public, owing to the tireless efforts of animal-rights groups. Lierman states clearly why animals are used in research and why other models are inadequate in many instances. He enumerates the many ways humans—as well as animals—have benefited from research using animals. I was particularly interested to read that 77 percent of the American public supports the use of animals in research (p. 58).

Scientists should realize the degree to which the public supports their work, but they should not squander that support by allowing their opponents to dominate the public debate. I'm afraid too many have done just that. Biomedical researchers ought to answer the anti-vivisectionists' arguments directly and often. They ought to be able to tell their neighbors about the benefits of research using animals and the safeguards the scientific community has instituted to protect laboratory animals. Lierman provides the relevant facts.

For giving scientists a very usable handbook on how to help shape national support for biomedical research and for continuing the work of Mary Lasker, Lierman deserves genuine thanks.

I strongly recommend Lierman's book. Study it closely, and then, as the author says, "when you put down this book, pick up your pen." ■

[Building a Healthy America (ISBN 0-913-113-12-3) is available for \$19.00 from the publisher, Mary Ann Liebert, Inc., 1651 Third Avenue, New York, NY 10128; telephone (212) 289-2300. Bulk sales available upon request.]