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## The Image of Scientists Matters

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In the past few years I have perceived an increased anti-science sentiment—especially in the press—in the United States and other nations. Despite a spectacular history of medical miracles, labor-saving devices and new knowledge being delivered up by scientists and engineers, both the public and the press nowadays seem as likely to fear scientific contributions as to welcome them.

Certainly the development and use of the atomic bomb and the incidents at Three Mile Island and Chernobyl have instilled in many a profound ambivalence or anxiety about the work of scientists. Those conducting animal experimentation and gene research are subject to outright condemnation, as are the scientists who have developed drugs or products that have an unforeseen and devastating impact on users. Toxic waste from industrial production such as the Rhine spill and unsafe pesticides have also tainted the reputation of science. More recently, the Challenger disaster and subsequent failed missions of NASA have undermined confidence in an agency that previously stood as a clear and bright symbol of the new worlds that could be attained through science and technology.

Finally, the disease of AIDS, like cancer before it, appears to many as insoluble and those who battle it as ineffective.

Against such a backdrop, is it any wonder that recent cases of fraud and misconduct in science have received widespread attention outside the science community? For example, a recent article in *U. S. News and World Report* (June 8, 1987, pp. 72-73) carried the provocative headline "Publish or Perish—or Fake It." All too many accounts of scientific misconduct in the press read like breathless tales of scandal and leave the impression that legions of scientists behave dishonestly. Are some misguided journalists who have been teaching the public to distrust the contributions of science now teaching citizens to distrust scientists, too?

It is perhaps to be expected that the media will focus strongly on stories of things gone wrong, and will not exclude from that focus science and technology, which add an ever-greater dimension in our lives. This is not to say that scientific achievements, such as the recent breakthroughs in superconductivity and discoveries of the genetic origins of certain diseases, do not receive attention—only that

the volume of coverage is often weighted toward the "dangerous" or the failed in science.

But the prime shaper of public perceptions of science the world over is television. The glow of a television screen lights up homes in even the poorest and remotest places on earth. Moreover, the attention the public pays to television far surpasses that paid to newspapers, magazines or even the radio.

George Gerbner, dean of the Annenberg School of Communications at the University of Pennsylvania, Philadelphia, recently reported some troubling findings on how television depicts the scientist. Under an NSF grant, Gerbner's team of researchers analyzed a sample of U.S. prime-time network programs broadcast between 1973 and 1983. "Scientists, while on the whole positively presented, have a greater share of ambivalent and troublesome portrayals [than do physicians and other groups]," Gerbner discovered. "They are a bit older and 'stranger' than other professionals and are more likely to be foreigners. For every villainous scientist in a major role, there are five who are virtuous. But, for every 'bad' doctor, there are 19 'good'; for every 'bad' law enforcer, there are 40 'good'" ("Science on Television: How it Affects Public Conceptions," *Issues in Science and Technology*, Spring 1987, p. 111.) Gerbner added that scientists fail more often on television than do doctors or law enforcers and that scientists are the most highly victimized (10 percent are killed).

Gerbner then arranged a survey to test general attitudes about science among heavy and light viewers of television. He found that "exposure to science and technology through television entertainment appears to cultivate a generally less favorable orientation toward science," even among those viewers who also regularly read newspapers or watch science documentaries such as NOVA. His team tested its findings in a variety of ways, but the findings remained the same. "Television did not invent the negative image of science," Gerber noted. "It only streamlines the image, puts it on the assembly line, and delivers it into every home." (p. 115) Television's power to shape reality, now a cliché, nonetheless demands acknowledgement.

But many scientists are likely to respond with a shrug. After all, they may think, what does it matter that the masses, largely illiterate in science, hold such views? Science policy and funding are fashioned among a small group of reasonably well-informed scientists, science administrators and legislators. As long as the funds keep flowing in, does it matter how the public perceives scientists and the value of their work?

It matters a great deal. Legislators listen carefully to their constituents and implement their priorities over the long term. The example of recent support for NASA tells us that public opinion can affect funding in the short term as well. On a smaller scale, shrewd university and college ad-

ministrators, who appreciate the importance of public perceptions, are hiring more and more science publicists to ensure that the good news about the work of their science faculty is communicated to alumni and other sources of private support.

Scientists themselves, however, cannot leave the work of communicating with the public to surrogates. Our European Editor, Bernard Dixon, while admitting that many scientists have had bad experiences with the press, observed that aloofness and unavailability to media inquiries can only be expected to provoke an "understandable sequence of curiosity, perplexity and suspicion." (*The Scientist*, March 9, 1987, p. 12.) It is plainly not in the interest of scientists to behave in this manner.

I would go beyond this and argue that scientists who accept government funds for their work have an obligation to communicate their findings to the public. Taking a somewhat broader view, physicist Sergei Kapitza, host of a science television program in the Soviet Union viewed by some 25 million people, argued that "scientists have not only an educational and investigative mission, but we also have a cultural mission." (*The Scientist*, May 18, 1987, p.15.)

But science discussion and documentary programs, like Kapitza's in the Soviet Union and NOVA in the United States, have smaller audiences and less impact in

shaping perceptions about science than do entertainment programs. Thus, the negative depiction of science and scientists on television remains a problem.

Gerbner suggested that the science community establish a "science media coordinating council to plan strategy, streamline national media liaison activities and organize meetings with network executives and the handful of writers and directors who create most programs." (p. 115) There can certainly be no harm in attempting to better educate the creators of prime-time programming as to the real nature of scientific work and the character of scientists. Other groups have lobbied fully against demeaning stereotypes on television; scientists should consider a similar course of action.

During his recent visit to ISI, Professor Gerbner pointed out to me that it is in fact a very small coterie of writers in Southern California that determines what sorts of images of science and scientists appear on television in the U.S., and to some extent overseas as well. When asked how many copies of *The Scientist* or some other science publication would be required to better educate this group, his surprising reply was "one." The effort needed to bring positive and truthful images of science to television is small, but the potential impact of such a shift is great. ■