

Should we make a fuss? A case for social responsibility in science

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If society is to remain in step with new technology, the scientific community needs to be better educated about the social and ethical implications of its research.

“If they [eugenicists] want to do this sort of thing, well and good...but I think it is just as well for some of us to set a better standard, and not appear as participators in the show. I have no desire to make any fuss.” (Thomas Hunt Morgan, 1915)

“People keep asking me why I do not rebut *The Bell Curve*. The answer is because it is so stupid, it is not rebuttable.” (David Botstein, 1997)

Two geneticists, nearly a century apart, react to critical moments in the interface between genetics and society. Thomas Hunt Morgan, arguably the leading geneticist of his day, responds to the claims and activities of the eugenics movement, which had a profound social influence in the United States¹. More recently, David Botstein, one of the architects of human genome mapping, comments on the book, *The Bell Curve*, in which authors Richard Herrnstein and Charles Murray provided genetically based arguments for changing social policies in areas, such as welfare and education, policies that parallel those of the eugenicists². Both Morgan and Botstein are disdainful of these uses of genetics by others to argue for the intellectual and social inferiority of lower social

classes and various ethnic groups. Yet, Morgan, in a private letter, and Botstein at a conference on the Human Genome Project disavow any need for them, as scientists, to respond to these arguments.

Why engage the public?

A majority of the early geneticists may have considered the claims of eugenicists as poor science and may have abhorred the sterilization, miscegenation and immigration restriction laws that were passed with support of eugenicists. And most geneticists today probably reject the genetic claims of Herrnstein and Murray and the social prescriptions they offer. But few spoke publicly about the flaws in the scientific reasoning and the unwarranted extension of questionable conclusions from genetics into the realm of social policy.

Should geneticists have played a role in these very public controversies? Do scientists have a responsibility to participate in public discussions about the implications of their science? We would argue that there are many cases where scientists should indeed ‘make a fuss.’ When social harm may result from the misuse and misrepresentation of science, who better to present the criticisms, describe the uncertainties or identify the falsehoods than scientists knowledgeable in the relevant field? Who better to point out, for example, that research and conclusions in the study of human behavior are often influenced by the social attitudes of researchers? Yet, although the scientists with an interest in influencing social policy often go public because of their strong belief in the conclusions of the research, scientists who see the flaws in the research are much less likely to confront the issues in a public setting. The impact on society is thus skewed.

Laissez-faire and denial

Why do scientists choose not to engage in those social debates that have important scientific components? When challenged to consider such activism, scientists often respond: “My role is just to do my science. It is up to the politicians to decide how it is used.” This laissez-faire attitude is fostered by the education of scientists. In the life sciences, many of us were trained to think of ourselves as working in the ‘ivory tower’ mode—seekers of truth uncontaminated by the outside world. Few students of science receive as an integral part of their



Thomas Hunt Morgan, who was on the board of the US Eugenics Record Office in 1915, failed to publicly challenge the co-option of genetics to justify public eugenics programs. (AP Photo)

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scientific education an analysis of the social impact of science and rarely is there a mention of social responsibility. We learn of none of the history of those periods when scientists became active in confronting the social consequences of their field.

Most notably, after atomic bombs were dropped on Japan, nuclear physicists who participated in the Manhattan Project came to question what they had been doing. Highlighted by J. Robert Oppenheimer's plaint that "physicists have known sin," a resistance movement arose that influenced the broader community of physicists. These 'awakened' scientists started the socially concerned "Bulletin of the Atomic Scientists" and spoke out, lobbied and even went door-to-door seeking a ban on the testing of atomic weapons in the 1950s and 1960s.

Anthropologists, particularly in the latter half of the 20th century, were forced to consider the ethics of their field research because of its obvious impact on the groups they studied. Although it may be less obvious to geneticists and other biological scientists that the products of their field can have profound effects on society, the impact is no less important.

The 1960s saw another stirring of the scientific conscience. Initially provoked by the use of science for the development of war technologies in Vietnam, scientists in the United

States, Europe and elsewhere (including one of the authors of this piece) began to examine the social role of their own fields^{3,4}. Geneticists publicly criticized the faulty arguments of psychologist Arthur Jensen about heredity, race and IQ. Others raised concerns about the potential dangers of genetic engineering. Some were active in opposing efforts to water down or eliminate the teaching of evolution in schools. For a relatively brief period, many in the biological community became active.

Thus, a sense of social responsibility in science has emerged from time to time in spite of the fact that scientists were not prepared by their training to think about these issues. Their activism was stimulated by crises, such as the use of atomic weapons or the political environment of the 1960s. These events, not the education of the scientist, were the 'educational moments' that generated social responsibility among scientists.

What to do?

Waiting for such crises will not do. More science is being conducted today than at any time in the history of the world and its consequences for society are expanding correspondingly. The research enterprise both reflects and influences social policy. It is more necessary than ever that scientists be part of the public conversation that fosters both an understanding

of science and shapes the impact science will have on society.

Instead of responding to crises, scientists should be prepared by their courses and by their mentors for this component of being a scientist. We propose that education at the graduate level should include the study of the social implications of science and the historical instances where scientists have spoken out. Such courses should be supported by policies at the academic institutional level. Furthermore, the adoption of social/public service requirements of scientists during their graduate study, whether this involves working in developing countries or mentoring high school students in the community, may help broaden the perspectives of budding scientists.

If a goal of scientific training is to help scientists to be more critical thinkers, then preparing them to be engaged in looking critically at the social implications of their science can only aid in achieving that goal.

1. Allen, G. *Genetics, Eugenics and Class Struggle*. *Genetics*. **79**, 29-45 (1975).
2. Botstein, D. in: *Plain Talk about the Human Genome Project*, (eds. Smith, E. and Sapp, W). 207-214 (Tuskegee University Press, Tuskegee, AL, 1997).
3. Beckwith, J. *Making Genes, Making Waves: A Social Activist in Science* (Harvard University Press, Cambridge, MA, 2002).
4. Weiner, C. in *Gene Therapy and Ethics* (ed. Nordgren, A.) 51-64 (Acta Universitatis Uppsaliensis, Uppsala, 1999).