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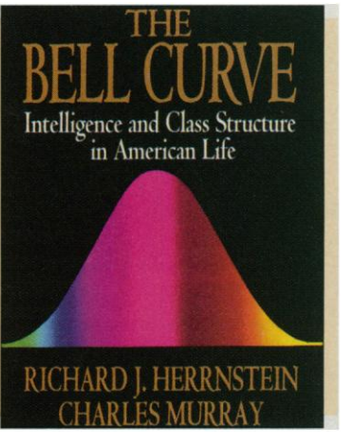
LETTERS

Genetic discourse

The ethical, legal, and social implications of genetic determinism, as represented in the book *The Bell Curve*, are discussed by two members of an NIH-DOE working group, who "deplore" the book's message. Concerns about the patenting of genetic material are raised by a spokesman for the Rural Advancement Foundation International. Other letters discuss the proposal that noncoding DNA has "linguistic features," the question of whether global warming has an effect on coral bleaching, rare North American trees, and Italian academic turnover.



The Bell Curve: A Statement

In 1994, a highly publicized book, Richard Herrnstein and Charles Murray's *The Bell Curve* (*1*), claimed that IQ is largely genetically determined and that the differences in IQ between ethnic groups are substantially explained by genetic factors. We are especially concerned about the impact of *The Bell Curve*, and books developing similar themes, because we believe that the legitimate successes of the Human Genome Project in identifying genes associated with human diseases should not be used to foster an environment in which mistaken claims for genetic determination of other human traits gain undeserved credibility. . . .

As geneticists and ethicists associated with the Human Genome Project, we deplore *The Bell Curve*'s misrepresentation of the state of genetic knowledge in this area and the misuse of genetics to inform social policy.

We urge consideration of the following three points:

First, Herrnstein and Murray invoke the authority of genetics to argue that "it is beyond significant technical dispute that cognitive ability is substantially heritable." Research in this field is still evolving, studies cited by Herrnstein and Murray face significant methodological difficulties, and the validity of results quoted are disputed. Many geneticists have pointed out the enormous scientific and methodological problems in attempting to separate genetic components from environmental contributors, particularly given the intricate interplay between genes and the environment that may affect such a complex human trait as intelligence.

Second, even if there was consensus on the heritability of cognitive ability, lessons from genetics are misrepresented. The authors argue that because cognitive ability is substantially heritable, it is not possible to change it and that remedial education is not worth the effort or cost. This is neither an accurate message from genetics nor a necessary lesson from efforts at remedial education. Heritability estimates are relevant only for the specific environment in which they are measured. Change the environment, and the heritability of traits can change remarkably. Saying a trait has high heritability has never implied that the trait is fated to be. Height is both genetically determined and dependent on nutrition. Common conditions in which genetics play a role, such as diabetes or heart disease, can be corrected with insulin or cholesterol-lowering drugs and diet. The disabilities associated with single-gene conditions, such as phenylketonuria or Wilson disease, can be prevented or significantly ameliorated by medical or nutritional therapy.

Third, the more scientists learn about human genes the more complexity is revealed. This complexity has become apparent as more genes correlated with human genetic diseases are discovered. We are only beginning to explore the intricate relationship between genes and environment and between individual genes and the rest of the human genome. If anything, the lack of predictability from genetic information has become the rule rather than the exception. Simplistic claims about the inheritance of such a complex trait as cognitive ability are unjustifiable; moreover, as the history of eugenics shows, they are dangerous.

Genetic arguments cannot and should not be used to determine or inform social policy in the areas cited by Herrnstein and Murray. Since the lessons of genetics are not deter-

ministic, they do not provide useful information on deciding whether or not to pursue various programs to enhance the capabilities of different members of society. Those decisions are moral, social, and political ones.

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References and Notes

1. R. J. Herrnstein and C. Murray, *The Bell Curve: The Reshaping of American Life by Differences in Intelligence* (Free Press, New York, 1994).
2. A longer version of this statement was endorsed by the National Society of Genetic Counselors.

■

Genetic Patents

I would like to comment on the article "Scientists attacked for 'patenting' Pacific tribe" by Gary Taubes (News & Comment, 17 Nov., p. 1112). The Rural Advancement Foundation International (RAFI) is not questioning molecular biology but rather the ethics of patenting human genetic material. The basis of RAFI's concerns about patenting genetic material from the Hagahai tribe in Papua New Guinea have been clearly laid out in the "Blue Mountain Declaration," which states

> The humans, animals, microorganisms and plants comprising life on earth are part of the natural world into which we were all born. The conversion of these life forms, their molecules or parts into corporate property through patent monopolies is counter to the interests of the peoples of the world.
>
> No individual, institution, or corporation should be able to claim ownership over species or varieties of living organisms. Nor should they be able to hold patents on organs, cells, genes or proteins, whether naturally occurring, genetically altered or otherwise modified.

Substantial numbers of people around the world are developing a consciousness that there is something ethically wrong with the patenting of life forms, particularly human genetic material. For example, the Parliament of the European Union voted last 1 March against the issuance of such patents. Those of us who discuss these matters at churches, union halls, and community assemblies find that ordinary Americans are appalled when they find out about the patent applications that have been filed.

The members of RAFI are not "anti-science." They have not attacked the Institute of Medical Research in New Guinea. They have asked how and in what fashion the Hagahai gave their approval to the patenting of their genetic material. They have asked how and in what fashion the individual whose cell line has been immortalized gave "informed consent" to this procedure. They have asked how having a "clear understanding of the concept of ownership" can be construed as approving the ethics of patenting a human cell line, as many people in Europe and North America who understand ownership also oppose such patents.

To raise such questions is essential to the necessary public discourse that must be conducted about these scientific and institutional developments.

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Explaining "Linguistic Features" of Noncoding DNA

In the article "Hints of a language in junk DNA" (Research News, 25 Nov. 1994, p. 1320), Faye Flam described the statistical