LETTERS

Public Involvement in Scientific Decision-Making

Philip H. Abelson is certainly right that, "Part of the difficulty in gearing up to meet future energy needs is that few people seem to grasp the magnitude of the problem" (Editorial, 15 Oct., p. 261). I would go further and say that ignorance is the major part of the problem, especially if we include our ignorance of the magnitude of health effects from nuclear fuel reprocessing for the proposed "plutonium economy."

Three articles in the issue of 15 October (News and Comment, pp. 301, 303, and 306) serve to bring into perspective the perilous heights to which rapidly advancing science and technology have inadvertently brought our civilization. Balancing somewhat dizzily on this high place, we are trying to weigh the short-term, obvious, and proven benefits of nuclear power, Mirex pesticide for fire ants, and recombinant DNA research against the long-term suspected but unproven dangers from these to future generations. The dangers might include cancer, genetic diseases, new pathogens, and other "potentially grievous risks" that Robert Sinsheimer fears may result from genetic engineering.

Philip M. Boffey's article in the same issue (News and Comment, p. 306) describes the "Science for Citizens" program of the National Science Foundation (NSF) and points out the real issue. Just as climbers on Mount Everest must continually question their own judgment and keep in communication with their supporting camps at lower levels regarding whether or not it would be safe to continue climbing, so also we scientists, eager to keep pushing higher, should question our judgment and keep in communication with the public who support our efforts. It is they and future generations who will have to suffer the consequences if our sins of hubris (overweaning pride and arrogance) result in having to pay up on the Faustian bargain. I fully agree with the letter to this effect from Philip Siekevitz (15 Oct., p. 256).

Crucial value decisions have to be made, and they should not be made only by involved scientists closeted with financially interested industrialists and governmental authorities. They should be made by unbiased and informed members of the general public after hearing all sides of the questions, with balanced input from scientists, humanists, historians, philosophers, theologians and, most of all, from ordinary citizens. For this we need the public education of the NSF "Science for Citizens" program, and we need much more.

We need new ways of getting an informed public consensus on issues of vital importance; some methods have been suggested (*1*) that would be more effective and quicker than our present haphazard approaches. We also have to have checks and balances on public education programs to ensure that they are truly presenting all sides of the questions.

The "Science Court" idea is perhaps useful, as far as it goes, for establishing questions of scientific fact. But for decisions involving value judgments, we need more diversified input and a more representative and adequately informed jury. Our criminal courts utilize the trial-by-jury process whereby a group of peers, after hearing both sides, decide the fate of a man accused of a capital offense. Could some development of this process help in deciding life and death issues for society?

JOHN C. COBB
Department of Preventive Medicine and Comprehensive Health Care, University of Colorado Medical Center, Denver 80262

References

1. J. C. Cobb and L. Kaiser in *Interdisciplinary Environmental Approaches*, A. E. Utton and D. H. Henning, Eds. (Educational Media Press, Costa Mesa, Calif., 1974); C. Holden, *Science* **190**, 862 (1976); E. Leonard, A. Etzioni, H. A. Hornstein, P. Abrams, T. Stephens, N. Tichy, *Bull. At. Sci.* **27**, 4 (November 1971).

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EUGENE E. HINMAN
Department of Geology, Cornell College, Mount Vernon, Iowa 52314

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