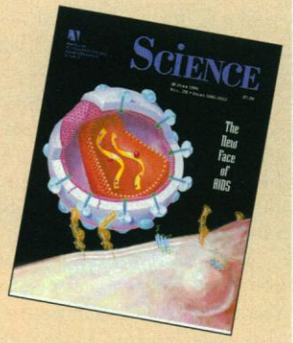
LETTERS

Politics and pussycats

Rustum Roy's comments, made in an earlier editorial, about public funding for scientific research are called, by various readers, "important, but unpopular," "a conundrum," and "an utter illusion." Elsewhere, the "existing official definition" of scientific misconduct is defended. The politics of AIDS research—and how reporters depict this research community—are discussed. A tokamak under construction in India is described. And concerned readers ponder the fate of Schrödinger's "unfortunate cat."



Funding Basic Research

Rustum Roy's editorial (19 July, p. 163) about how to enter the fray of public debate in the political arena over science funding goes a long way toward injecting realism into the discussion. Both *Science* and Roy are to be commended for bringing to the attention of the readers an important, but unpopular, view. I want to reinforce the message and help focus the debate. Although overall federal funding levels are generally looked to as a measure of the nation's science health, it is critical to also consider the allocation of funds within a given total together with the management of whatever allocation is made to a particular field. Significant increases in productivity can be made even within a shrinking budget, if a more thoughtful approach is taken in preparing and managing the science budget after a vigorous discussion of the options. Most appeals are for more money across the board, and the average scientist is admonished to simply support the decisions made by the entrenched bureaucracy. As Roy points out, however, if you are tempted to speak out about the allocation of funding and the management, be prepared to hear from the contented scientists who want only to talk about the unrealistic need for ever-increasing budgets.

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Roy decries the political, social, and budgetary ignorance of the scientific community and its selfishness in seeking public funding. Actually, the shoe is on the other foot. In comparison with other developed countries, the tax burden in the United States is very low and its public finance position is one of the best. If people go without food in this country, it is not because there is a shortage of food; if public schools are crowded, it is not because of lack of building materials.

Roy's notion that investment in basic research ought to meet an economic cost-benefit test presents a conundrum: how does one evaluate the future flow of benefits from the investment? Indeed, how does one evaluate the dangers yet to befall us, but of which we remain ignorant? Roy seems to accept the "end-of-science" thesis: all basic science is already known, and it remains only to apply it. Nothing could be further from the truth.

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I am dismayed by Roy's editorial, in which questions are raised about whether federal support of basic research should take an example from the abandonment of support from the corporate world and whether undirected research should be privatized and rely on the philanthropy of our billionaires. Finally, we are admonished that "when activist scientists have done their homework on questions such as these, they will be ready to enter the fray of public debate." I have done my homework and have been in the fray.

I can document that throughout the history of medical science the major advances in diagnosis, treatment, and prevention of disease were based on the curiosity of biologists, chemists, and physicists unrelated to the ultimate applications of this basic knowledge to the develop-

ment of drugs and devices. In such a way came the discoveries of x-rays, penicillin, the polio vaccine, and genetic engineering. No industrial organization or philanthropy *had* or *would ever have* the resources or disposition to sustain such costly, long-range, apparently impractical programs. In sharp contrast to the success of investments in basic research are the disappointments in narrowly directed programs, such as the assault on cancer, in which the complexity of the problem far exceeds the essential available knowledge.

The current bipartisan support in Congress of the National Institutes of Health attests to the recognition that the federal support of basic research is a cost-effective investment in the nation's health and economy. I can make a similar case that truly pioneering inventions (for example, the airplane, xerography, the transistor) are the sources of industrial strength. It is an utter illusion to expect that philanthropy and industry will for the foreseeable future do more than catalyze the long-term support of basic science from federal sources.

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Defining Misconduct

In his editorial of 12 July (p. 163) Kenneth J. Ryan indicts the "scientific community" as a whole, saying it "has been reluctant to discourage misconduct and sloppy research" and that "the current research environment seems to foster cynicism about simple virtues such as honesty and fairness." Against this background of harsh pronouncements, Ryan defends his attempt to replace the existing official definition of misconduct (fabrication, falsification, and plagiarism) by his far more sweeping and vague categories of "misappropriation, interference, and misrepresentation."

Because Ryan refers to writings by each of us, we feel it necessary to make clear to readers of *Science* that neither of us endorses this redefinition. Moreover, it should be pointed out that this proposed definition has encountered widespread opposition by thoughtful people and organizations, including the Council of the National Academy of Sciences (CNAS) and the Federation of American Societies for Experimental Biology (FASEB) (*1*). To remain healthy, scientific research must be protected not only from misconduct but also from undue zealotry in expanding the grounds for charging misconduct.

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Notes

1. For recent summaries of the reasons for CNAS and FASEB opposition, see *The Scientist* **10**, 3 (22 July 1996).

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Fowl Call

The caption of the picture (p. 1873) in the item "The tale of a peacock's tail" (Meeting Briefs, 28 June, p. 1872) states, "Computer model finds female peacocks limit time spent on choosing a mate."

No time whatsoever can be so spent. The world lacks female peacocks. There are, however, peahens and peachicks. The picture shows three peafowl—two peacocks and a disinterested peahen who, surely, would take offense at being regarded as a mere "female peacock."