

Clash on Research Priorities Concludes on Dissonant Note

Would the editors of PHYSICS TODAY please wake up? N. David Mermin's "Reference Frame" story entitled "How Not to Create Tigers" (August, page 11) has a main idea that has been repeated too often in various articles, addresses the wrong audience, and neglects several critical issues that need discussing.

The major point of Mermin's piece is that curiosity-driven research is an essential and fruitful part of science. Physicists already know this. Policymakers are the appropriate audience for this point, but PHYSICS TODAY is not the correct forum. In a public address at the National Press Club on 1 September 1999, John Podesta, the White House chief of staff, made it clear that the Clinton administration accepts Mermin's thesis. Thus, at least some of the most important policymakers accept the necessity of curiosity-driven research.

However, even if the administration and Congress accept that such research is important, most of the specific aspects of how to fund it remain unresolved. Many questions must be answered. For example, consider these four (keeping in mind that here I am assuming a fictitious government composed of economists; a real government would demand answers to such questions as "Will funding project X get me reelected?"):

1. How much curiosity-driven research should be done?
2. Who should do it?
3. What should the distribution be among the different scientists, sciences, regions of the country, and so forth?
4. Given that not all physicists should, or even can, do curiosity-driven research, how many of them should be funded?

The fundamental issue we need to consider, of course, is how best to determine the appropriate basis for answering these questions.

I find it greatly irritating that physicists mostly ignore this basic issue. Although they demand high quality in articles on physics, they wimp out when it comes to topics such as the economics of physics. For example, it has been frequently remarked that science funding is now dropping as a function of the gross domestic product. So what? Maybe it has been too high. After all, what is the optimal funding level as

a function of GDP? How can we discuss the present level of funding if we do not know fundamental quantities such as the optimal funding level? (Of course, there may be no optimal value.) Or, is our actual intention that, given a funding level of $x\%$ of GDP, we want next year's funding to be $y \geq x$?

A source of the problem is that physicists are physicists and not economists. Although many physicists are interested in the answers, they are not seriously interested in doing economics. We need to get help from economists. It is regrettable that a lack of knowledge does not inhibit even physicists from jabbering ignorantly about economic matters.

Our failure to address the important funding details results in our simple arguments coming across more like, "I want your (taxpayer's) money to do what I please. And please give some to my friends. After some unknown period of time, something wonderful, tigerlike will come of our work." And the taxpayer probably thinks, "Yeah, right. Nice job if you can get it. And what am I going to do with the cockroaches that you also invent?"

We need to develop a sound economic basis for science funding. To do this, we must apply the same rigor that we use in our research. I would be highly skeptical of any lesser effort.

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MERMIN REPLIES: In the essay that so exercised Mark Stevens, I reported an interview with Professor Mozart, conducted not long after the cancellation of the Superconducting Super Collider, when Congress was hell-bent on pruning research that was not directed to short-term practical goals. So why indeed did I think it was worth reporting half a decade later, when hymns in praise of pure research have become even more hackneyed, and Congress is now simply hell-bent?

First, because I thought my old friend, in his characteristic way, had a somewhat offbeat take on these issues. Who else would have thought to condemn, as aspects of one and the same creationist malaise, fundamentalism, Stalinism, and strategic research, while enlisting William Blake to his cause?

And second, because Bill Mozart made his points in a way that was, not to put too fine a point upon it, entertaining. I have previously urged

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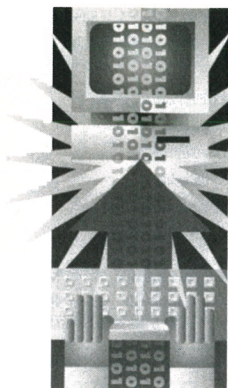
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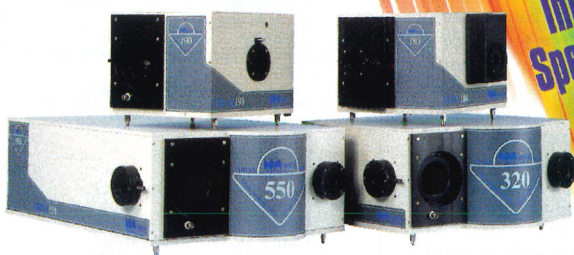
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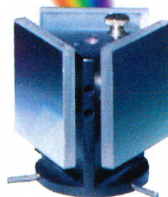
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a greater sensitivity to when somebody is at least trying to be funny (PHYSICS TODAY, October 1997, page 11), and have even been lectured on the inappropriateness of joking about matters of great gravity in this age of polemics and position papers (August 1999, page 82). Susanna bawled out Figaro for joking about serious business. Not much changes.

I put Mark Stevens's tough questions to Professor Mozart and got back this laconic reply: "I deny the validity of a distinction between research that is or is not 'curiosity-driven.' Research support at American universities should be given directly to the research assistants as fellowships and not to the faculty as research assistantships. Graduate students are much better placed than peer reviewers to sniff out where the action is."

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Geophysicists Dare to Seek Dual Careers

Upon reading Robert Dennis's letter about his troubles with a pair of married physics teachers (PHYSICS TODAY, September, page 78), I realized that I could be accused of having chosen the wrong career. You see, I majored in physics at the University of California, Berkeley while my father was an astronomy professor there. Although I carefully avoided his courses, most of his students were friends of mine. According to Dennis, there must inevitably have been a conflict of interest when two family members encountered the same student. Whether that cosmic imbalance caused grade inflation or deflation, I don't know, but I regret my part in any such catastrophe.

I have since compounded my crime by marrying a fellow geophysicist and worse, by daring to hope that we can both have academic careers at the same institution. I pray that I may somehow receive forgiveness if I do not abandon my career or my marriage.

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Correction

July, page 39—The fissile material used in the atomic bomb dropped on Hiroshima was not plutonium as stated, but uranium. ■