to present proven scientific facts, which they certainly do not. The triumph of misinformation and ignorance is so complete that even many physicists believe these stories. As far as the public and politicians are concerned, they are, of course, thoroughly convinced. Shutting down the nuclear industry in many countries around the world is only a natural and reasonable consequence.

Sweet explained that the Soviet government has asked the International Atomic Energy Agency to assess the Chernobyl situation. Apparently, rather than crack down on *glasnost* and stifle all criticism (both inappropriate and appropriate), the Soviet government has decided to fight the *glasnost*-engendered misinformation by soliciting help from the international professional community. The IAEA will be issuing a report, probably before the end of the year. I personally expect that this assessment will be very useful, will clarify many issues and will reduce the flow of misinformation. But I do not believe that this assessment will be the final word: The project has a limited scope (for instance, it will not look at the causes and physics of the accident), and its operation will be limited in time. Is there something else our profession could and should do?

I believe so. I think that we should study the accident in a systematic manner. Those of us in the West should try to do this as much as possible together with our Soviet colleagues, hoping that the new winds in the Soviet Union will eventually open all the books and records about the accident and that any remaining mysteries will get explained.

Now is the right time for AIP to form a special committee to study the causes and consequences of the Chernobyl accident. The proposed AIP study would build on the IAEA results, rather than be in redundant competition with it. Also, the IAEA assessment is being done by an international organization whose mandate is, among other things, to promote the peaceful uses of nuclear power. Future critics of the IAEA project will not overlook this fact. An AIP study would be free from this difficulty.

JOVAN V. JOVANOVICH
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9/90

Salvaging Small Science

There is a worsening crisis in university-based scientific research, one that has been aggravated by recent trends in Federal research funding. Traditionally, much of the funding has been in the form of small research grants to individual investigators, referred to as SIPs (single-investigator projects) by NSF and some other funding agencies. In contrast, recent trends have been to cut back on SIPs and to direct funding instead toward what might be called GULPs—grandiose, unnecessary, large projects. The largest GULPs are the obvious multibillion-dollar projects such as the SSC, the manned space station and "Star Wars." Even NSF, which used to provide the mainstay of SIPs, is now one of the leading GULPers; witness the Science and Technology Centers, the Engineering Research Centers, the new Laser Interferometer Gravitational Radiation Observatory and the new National High Magnetic Field Facility.

Science is a creative enterprise, and as such it cannot be effectively and efficiently managed on a large scale. Only SIPs have the flexibility to respond quickly to new research discoveries and new opportunities. This advantage is enhanced within American culture, with its emphasis on individual initiative. The bureaucratic organization of GULPs may be appropriate for large-scale production engineering, but it is not appropriate for creative science. GULPs are not even appropriate for technology transfer, which in our system is best achieved by collaborations of individual researchers with small startup companies.

Clearly, each GULP must eliminate a large number of SIPs, and that is indeed what has happened. However, the cutback in SIPs appears to have escaped the attention of most of our political leaders in Washington, who seem only to look at the bottom line—how much Federal money, in total, is going to "scientific research." In addition, heavily politicized special interests have developed in support of a number of the GULPs. To change this trend, we must individually and collectively contact elected representatives and other policy-making officials, and get across this simple but powerful message: SIPs are better than GULPs when it comes to scientific research. There may still be time to prevent major and irreversible damage to the base of scientific research in our universities.

ALAN M. KADIN
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Rochester, New York
4/90

The existence of PhD programs at our universities is in jeopardy because of the universities' overwhelming preoccupation with securing grants for the continuation of research programs. Most universities push their faculty members to apply for grants rather than work on projects of their own and their students' interest. As a result, design and development projects sponsored on the basis of shortsighted needs of funders dominate some university programs. Administrators, professors and even junior faculty are sometimes hired not so much for their merit and vision but rather because of their success in securing financial support.

If we let this continue, the country will lose its intellectual base in engineering and applied sciences. We need to face the questions: Are we producing salespeople or scientists? Are we planning to import our engineers and scientists from the other side of the Pacific?

There are many people who are concerned about this situation. The president of the National Academy of Sciences has proposed pooling the fundamental research programs and making them accessible to proposals from the general scientific community. We would like to propose a different solution.

Most of the great scientific and engineering discoveries have appeared as results of the curiosity, insight and motivation of the researchers, not of their sponsors. We believe that basic research is a personal matter. Therefore we propose government funding of relatively small projects *on the basis of the researchers' personal merits.* Support people, not projects! Persons who have repeatedly demonstrated their capability to produce interesting ideas or solutions and can pass the scrutiny of their peers must be trusted to use their allocated funds to work toward goals they set for themselves. PhD students and younger faculty could be supported either through the people selected this way or directly, based on evaluations of their potential.

The implementation of our proposal would automatically ensure support for the best faculty, relieve them from the continuous and time-consuming burden of grant hunting and make it possible to attract the best students to PhD programs. Is it not worth a try?

The present system of funding works well for big projects: Both government and industry have the right and obligation to sponsor projects of their interest. It is, however, the utmost duty of the government to

save basic research from fading into oblivion.

MIKLOS SZILAGYI
CHRISTOPHER ZELL
University of Arizona
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9/90

April Cartoon: Joking at Women's Expense?

I am writing in immediate response to your April issue. I was deeply offended by the cartoon on page 48, which very obviously discriminates against women. It depicts a woman and an older man, both dressed in scientific garb, standing beside a chalkboard with mathematical equations written on it. The caption had the woman saying to the man, "It's an excellent proof, but it lacks warmth and feeling."

I am a female physics undergraduate student at Virginia Tech. I subscribe to PHYSICS TODAY through my university's chapter of the Society of Physics Students, of which I am a board member. I am continually having to prove myself academically and intellectually to the overwhelmingly male students around me, since, in general, I am viewed less seriously. I am disgusted at how few women study physics and am outraged by the fact that PHYSICS TODAY magazine is in no way helping to encourage women to pursue this field. In my viewpoint the cartoon is making fun of women by taking the same position that so many male scientists take: that women are emotionally minded and mathematically inferior. The lack of women in science is a major issue in this country, and I feel that magazines such as yours should motivate women to study physics rather than discourage them.

BONNIE JOHNSON
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4/90

I discovered an ironic juxtaposition in the April issue. On page 66 Jean Kumagai reviewed an AIP report entitled "Who Takes Science?" The report points out that social barriers appear to keep female high school students from enrolling in physics courses. A cartoon by Sidney Harris on page 48 shows a female, presumably a scientist, contemplating an equation on a blackboard and complaining that "It's an excellent proof, but it lacks warmth and feeling." The irony lies of course in the fact that this cartoon is symptomatic of the social barriers bemoaned in the report.