

WHY AID FSU SCIENTISTS WHEN SCIENTISTS ELSEWHERE ARE SUFFERING TOO?

A large amount of coverage and valuable space in the May 1992 issue was devoted to soliciting help for science and scientists in the former Soviet Union. Certainly we all sympathize with their situation. However, some of the statements made by Roald Z. Sagdeev and Evgenii L. Feinberg in their articles (pages 22 and 30, respectively) are questionable, and their demands often unrealistic.

First of all, FSU scientists are not unique in their struggle. There are many economically troubled countries where scientists face similar difficulties and have not received such attention nor learned how to use political pressure. Sagdeev's statement that Western investment in science in the FSU would return benefits is not realistic: Most likely it would benefit the FSU scientists rather than the investors. Sagdeev suggests awarding grants (\$100 000 per dozen FSU scientists per year) and warns that the grants should not be too small, to avoid humiliating the scientists. Feinberg envisions the creation of large international research centers, based at existing research institutes, to be substantially funded from outside: "Investment . . . would be very efficient, both economically and politically." I think probably the latter.

I know that Sagdeev and Feinberg have good intentions, but they have a poor understanding of free-market economy. Let me point out where the problem lies, because it is not apparent from their articles. Higher education was socially valued in the former Soviet Union. As a result a lot of capable scientists were produced. To provide 100% employment, the Communist government created an oversupply of research institutions, often regardless of real need. The present societies on both sides of the Atlantic have neither the need nor the resources to support that amount of science, no matter how good it is. The governments of countries newly formed from the former Soviet repub-

lics have to make their own economic decisions on their scientific endeavors—to what extent they are willing to support research and to which specific, useful fields they want to give priority.

In this context the article by John M. Rowell in the same issue (page 40), about malaise among condensed matter physicists in the US, was most appropriate. The malaise extends to other areas of physics and beyond. The section heading "Surviving under the Soviet system," from Sagdeev's article, applies equally well if "Soviet" is replaced by "US." Many groups of American scientists would cry for the \$100 000 grants that Sagdeev requests. Rowell correctly points out that "as funding difficulties continue, people will give up research in frustration. The second way is for all of us to decide voluntarily to shrink the field."

Help for former Soviet scientists is already taking place in the form of small contributions. (See the news story on page 56 of the May issue.) Particularly useful and appropriate may be the NSF program Sagdeev describes that allows up to 5% of grants to be used for collaboration with FSU scientists. However, any government-level budgeting of considerable research grants or support for large laboratories in the former Soviet Union would be unfair to the thousands of US scientists who are forced to give up science in frustration. In addition, it would increase our already high budget deficit.

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FEINBERG REPLIES: I believe I do understand something of the laws of a free-market economy. I observe the flow of highly qualified scientists emigrating from the former Soviet Union who in free competition press Western scientists out of their working places. Would not it be better

for American taxpayers to spend relatively small sums to keep FSU scientists at home (similar to what is being done for FSU nuclear technology specialists, albeit for different reasons)?

Western scientists are worrying about the situation of science in the FSU. This is a noble worry, and demonstrates the wonderful international fraternity of scientists, of which I, personally, am proud. I am not begging and crying for Western help. I just discuss which forms of this help (for which we here are truly thankful) are most efficient. I advocate establishing international research centers on the basis of the still very high scientific potential of the best FSU institutions. The centers would be governed by the best scientists both from the FSU and from Western and Asian countries, would be subsidized by all partners and would involve both young and mature scientists from all participating nations, and maybe from others as well. The economic efficiency of these centers should follow from the very low dollar-equivalent cost of living and labor within the FSU, which inevitably will persist for many years, if not decades.

There is no need to suggest shrinking science in the FSU. It is already shrinking swiftly. The danger is that the shrinkage will proceed down to a level below that which is normal for a regular democratic state. This may happen, due to the present extremely poor economy, and it can ruin the still very high scientific potential in the FSU. The governments of the various republics have not managed to exploit properly the vast possibilities offered by the reduction of the military sphere. (It seems to me that the US government also has failed to do this satisfactorily.)

I am afraid that I diverge with Thomas Semkow in my feelings about the international nature of science. The outstanding Soviet theorists Lev D. Landau and Evgenii M. Lifshitz

published a famous ten-volume course in theoretical physics that helped to educate an enormous number of scientists throughout the world. Its editions in many languages occupy several long shelves in the CERN library. Who "profited" more from this course—the FSU or Western and Asian science? More than ten years ago Soviet theoretical astrophysicists predicted, within the inflationary cosmological theory, the quadrupole anisotropy of the 3-K cosmic background radiation. Recently American experimental astrophysicists observed this anisotropy, in quantitative agreement with the prediction. American newspapers reacted enthusiastically to this discovery. Who gained more from such a nonformalized collaboration across state boundaries?

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Soviet Scientists' Apolitical Past

Our attention was attracted by the way some Russian physicists have portrayed in your pages the political stand of Soviet scientists under Communist rule.

In particular, Roald Sagdeev (May 1992, page 22) refers to the history of Soviet science as "surviving under the Soviet system" and says that this survival occurred "despite every attempt by the government to alter the tradition of the Soviet intelligentsia and turn its members into ideological robots." We think this gives a rather distorted picture of reality. Soviet scientists, and physicists in particular, were an elitist and politically passive group. Their freedom of thought rarely went beyond discussions around the kitchen table, while objectively they were supporting the regime by their complacent behavior. Sagdeev writes, "The Soviet Academy of Sciences was in many ways an heir to the Russian Academy." In the way of scientific traditions, yes, but not in the way of free political thought. In tsarist Russia, protests against political trials and solidarity with student movements were norms of behavior among university professors. Never in its pre-Gorbachev history, however, did the Soviet Academy of Sciences protest against political repression inside the country, including the killing and imprisonment of its own members during the Stalin and Brezhnev eras.

For their silent approval of the Communist regime and contribution to the building of Soviet military

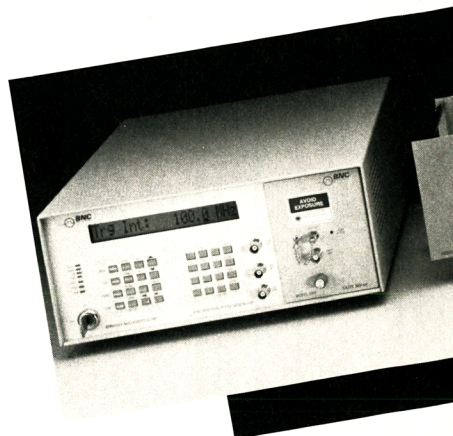
power, members of the academy were granted enormous privileges. These included top salaries, the best apartments, dachas, cars with drivers, access to special stores and hospitals and (for non-Jewish scientists) almost unrestricted foreign travel. Calling this "surviving under the Soviet system" sounds like a joke. Of course, the elite academy represented only a small fraction of Soviet scientists. Its members, however, as leaders of scientific schools and research institutes, had a major influence on young scientists. The political obedience among scientists was overwhelming, and the government insured it by keeping their quality of life higher than average.

Leading Russian scientists who are now crying for Western help do not seem to recognize their share of responsibility for what happened to the country. Instead, there is a trend by some authors to associate the past of the Soviet Academy with such names from the human rights movement as Andrei Sakharov and Yuri Orlov. The academy never supported them when they were in exile or labor camps. It is indeed true that in recent years some members of the academy became involved in politics. One should clearly distinguish, however, between the political opposition in pre-Gorbachev Russia and during the era of *glasnost*. The difference between the two is similar to the difference between opposing fascism in Germany before and after May 1945. It is difficult to blame scientists for not risking their jobs and freedom, but acknowledging the past, as some German physicists did, would be a healthy phenomenon.

The central issue of the recent articles in *PHYSICS TODAY* is aid to the troubled science in the former Soviet Union. We fully share the opinion that the West should help physics in the FSU, as a unique and valuable part of world physics, to overcome the crisis. At the same time, we believe that the aid should not be delivered in a way that would help scientists to maintain their privileged position. In a country where pensioners are living in poverty and hospitals are running out of basic supplies, this would only deepen the gap between scientists and the rest of the people. Instead, the help should be given in the form of joint grants, science journals and equipment needed to continue normal research. Living conditions in modern Russia remain much better than they were in the 1930s, when Lev Landau and Andrei Kolmogorov grew into leading science figures of this century. Given the strong traditions

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