Soviets expel Zabusky before lecture to 'refusenik' scientists

The surprising thing is that it had never happened before in the 25 years of bilateral exchanges between the US National Academy of Sciences and the USSR Academy of Science—even during periodic downturns in political relations between the two countries. The dismaying thing is that it happened when tensions between scientists are at their worst—even more vexing than in the period 1978–81 when Anatoly Shcharansky, Viktor Brailovsky and Andrei Sakharov were sent into "internal exile" or prison. The latest cause for concern is the expulsion of Norman J. Zabusky, a mathematical physicist at the University of Pittsburgh, who was booted out on 4 November apparently to prevent him from delivering a scientific lecture at a Saturday Evening Seminar of "refuseniks" (Soviet citizens whose applications for emigration visas have been turned down).

According to a State Department source, the science attaché at the US Embassy in Moscow was telephoned on 2 November by an official of the Soviet Academy who complained that Zabusky's conduct was "inconsistent with his status as a guest of the Academy." Zabusky would have to leave by noon Saturday, 5 November, said the Soviet official. If not, the official added ominously, the Soviet Academy could not guarantee his safety. When the attaché asked for specific reasons for expelling Zabusky, he was told the Soviet Academy could not provide an explanation and that the matter was "out of our control." Informed of the action against Zabusky, the US Academy's Foreign Secretary, Walter Rosenblith of MIT, sent a cable on 5 November to Georgy K. Skryabin, his counterpart at the Soviet Academy, asking for additional information. A month later, Skryabin replied, repeating the original one-sentence charge in essentially the same words.

'Wholly traumatic.' Reached by telephone in Munich, where he is visiting the Max Planck Institut für Astrophysik before returning to Pittsburgh in January, Zabusky says his experience was "totally unexpected and wholly traumatic." From his point of view, "it was perfectly legal to attend the Saturday Evening Seminar with scientific

ZABUSKY

colleagues," he claims—though, of course, such meetings are outside official activities sanctioned by the Soviet Academy.

Zabusky applied to NAS last fall to attend the Second International Workshop on Nonlinear and Turbulent Processes in Physics, run by the Soviet Institute for Theoretical Physics in Kiev from 10 to 25 October. His application was approved in March without the customary interview because of his scientific distinction. Zabusky is a former head of plasma physics and computational physics research at Bell Telephone Laboratories from 1961 to 1975, when he joined the University of Pittsburgh. He is best known as co-discoverer (with Martin Kruskal of Princeton) of the peculiar properties of modern solitons—localized or solitary entities that behave like particles, propagating at a uniform speed in a fluid, without dispersing their energies or changing their shapes, even in collisions or interactions with other entities. For its part, however, the Soviet Union did not grant Zabusky a travel visa until September, by which time he, his wife and daughter were in Tokyo, on their way, by way of China, to the USSR.

NAS officials consider the long delay in obtaining a Soviet visa an indication of bureaucratic uncertainty about Zabusky. On an earlier visit to Moscow in 1980, he took part in a special congress on collective phenomena that refuseniks ran in Brailovsky's apartment. A few months later, Brailovsky, a respected computer scientist, who organized the weekly seminars, was arrested on charges of "defaming the Soviet state and public order," tried in $1\frac{1}{2}$ days, with only his family and state-approved witnesses present in the courtroom, then sentenced to 5 years in exile within the Soviet Union.

In the past, the seminars, held on Sunday evenings under Brailovsky's leadership, attracted many prominent US scientists—among them, Kenneth Wilson of Cornell, Walter Gilbert of Harvard, James Langer of the University of California at Santa Barbara and Joel L. Lebowitz of Rutgers. In 1978, Arno Penzias of Bell Labs went directly from Stockholm after accepting the Nobel prize to a gathering of refusenik scientists in Brailovsky's apartment in Moscow. Discussions at the seminars frequently deal with aspects of theoretical physics because few participants work in research labs or institutes, having been sacked or demoted once they applied for emigration, and because even fewer have access to anything larger than pocket calculators. After Brailovsky's arrest, Soviet police prevented the seminars from taking place. The seminars resumed in the Moscow flat of Yakov L. Al'pert, an astrophysicist whose latest writings, *The Near-Earth and Interplanetary Plasma*, were recently published in the West (Cambridge University Press, 1983).

Upon arriving in Moscow in early October, Zabusky called Al'pert and was invited to the 8 October seminar, which concerned econometric modeling in industry. At the seminar, Zabusky agreed to lecture to the group on 5 November, once the Kiev conference was over.

Scientific warmth. Of the 80 Western scientists who were scheduled to attend the Kiev conference, only about half showed up. Six, including Zabusky, were from the US. One, Richard L. Morse of the University of Arizona, recalls that Soviet scientists seemed even warmer and friendlier than at previous meetings he has attended in the USSR. "They were very aware of

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the shooting down of the South Korean passenger plane [on 1 September]," says Morse. "They were worried about the world political climate—even more now than they had been when Afghanistan was invaded. They weren't eager to talk about specific incidents, but they did voice their feelings about the need to continue scientific links, particularly now that both the US and USSR have virtually reduced exchanges to zero. They expressed concern about increasing impediments to scientific communications between both countries."

Zabusky has similar impressions. "There was an uneasy attitude that collaboration in science between our countries was in a deep freeze," he observes. "So, at Kiev there was a concerted effort to warm East–West relations in science." Besides delivering his paper, he participated in the opening and closing sessions. Zabusky hails the conference as "first-rate, especially in the theoretical realms of fluid dynamics, plasma physics and atmospheric physics. But there is little computational work going on in the Soviet Union in those fields—unlike the West. Compared with what our scientists have to work with, Soviet computers are still in a primitive stage."

Back in Moscow, he, his wife, Charlotte, and daughter, Stacia, were asked to dinner by Eugene Lifschitz, a collaborator of Lev Landau. But on 1 November, the day of the dinner, Lifschitz called to say they could not meet. This was Zabusky's first inkling that all was not well. The next day the US Embassy informed him he was being expelled.

Why did it happen? "Did they need me as an example?" Zabusky asks. "I don't really know. Things are not the same in the Soviet Union. Even some of the best and most trusted scientists are forbidden to travel to the West. I don't think this has anything to do with science. It has to do with politics."

Political messages. Zabusky's expulsion, observes a State Department official, "sends a message to Western scientists to 'behave yourselves' in the Soviet Union." If any message is directed to refuseniks, he says, "it is that the campaign for greater discipline is intensifying in all walks of life under Yuri V. Andropov. It's hard to believe that refuseniks need any reminder of that, however, considering the harrassment and repression they continue to endure."

The picture that emerges from the Zabusky case is a Soviet policy toward science that is a mixture of bureaucratic rigidity, distrust of scientists and fears of non-conformist behavior of any sort. Frank Press, president of the National Academy of Sciences, has spoken forcefully on the current state of US–USSR scientific relations. Testifying at a Congressional hearing on scientific affairs and international security on 2 August, he acknowledged that "Our scientific contacts are withering. The causes are manifold, including the concern of our own government about technology transfer; a further desire by government to restrict cultural, educational and scientific contacts as a means of punishing the Soviets for their actions in Afghanistan and Poland; the continuing secretive nature of Soviet society and the bureaucratic impediments imposed by the Soviet government; the politicization of the Soviet process for selection of exchange scientists; and, finally, the abhorrence on our part of the abrogation of human rights of Soviet scientists. Each of these impediments can alone seriously endanger the sensitive thread of communication that exists today between our scientific communities." —IG

Physicists sign appeal for nuclear freeze

By late November 15 000 physicists in 44 countries had signed the following appeal for a nuclear freeze:

> We call for an agreement to halt the testing, production and deployment of nuclear weapons and nuclear weapons delivery systems. Meanwhile, no further nuclear weapons or delivery systems should be deployed anywhere.

Over half of the living winners of the Nobel prize in physics were among the signers.

In mid-November groups of physicists presented the call to representatives of national governments and to international organizations. The presentations, like the circulation of the call, were conducted without any formal organization. On 18 November Philip W. Anderson (Princeton University), James W. Cronin (University of Chicago) and Robert Serber (Columbia University) met with Javier Pérez de Cuéllar, Secretary General of the United Nations, to present the call. (Sheldon Glashow of Harvard University was prevented by illness from participating.) Pérez de Cuéllar gave the group a sympathetic reception, according to Serber, and welcomed the appeal. He assured the physicists that he shares their goals and is doing all he can to bring about disarmament, Serber told us.

Presentations were also made to officials of the governments of Finland, France, Italy, Japan (to the prime minister), Spain and West Germany, according to Rolf Hagedorn (CERN), one of the initiators of the petition. He told us that receptions for the most part were polite but negative.

In the US, signers made attempts to present the petition to President Ronald Reagan, Vice President George Bush, the Office of Science and Technology Policy, House majority leader Thomas P. O'Neill (D-Mass.), and Senate majority leader Howard Baker (R-Tenn.), without any success at this writing. Hagedorn did not know of any attempts to present the call in the USSR, where over 750 physicists signed the statement.

The idea for the call arose during a conversation at CERN in the summer of 1982. Daniele Amati (CERN), Nina Byers (UCLA), Rolf Hagedorn (CERN), Jack Steinberger (CERN), Victor Weisskopf (MIT) and Christophe Wetterich (CERN) discussed what they could do about the nuclear arms race. They wrote the appeal and sent it to 120 well-known physicists asking for their endorsements. Almost 80 re-

Petition presented at UN. From left: Jan Martinsen (UN under-secretary-general for disarmament affairs), Philip Anderson (Princeton), Javier Pérez de Cuéllar (UN secretary-general), Robert Serber (Columbia), Sidney Katz (coordinator of the presentation from the Center for Defense Information) and James Cronin (University of Chicago).