THE CZECH REPUBLIC

Science Held Back by Ghosts of the Past

PRAGUE—The telephone call from a friend woke Czech virologist Jan Svoboda out of a sound sleep. It was 5 a.m. on 21 August 1968, and the friend informed him that the Soviet Army had just invaded Czechoslovakia. When the Soviet tanks rolled in, they did more than just put an end to the Prague Spring, a brief experiment in democracy led by Czechoslovakian Prime Minister Alexander Dubcek. The invasion also terminated the remarkable rise to international prominence of Svoboda's lab and plunged Czech science in general into a new dark age.

In 1968, says Svoboda, now director of the Institute of Molecular Genetics (IMG) of the Czech Academy of Sciences, "We were just becoming integrated into world science." Svoboda's retrovirology group was one of just four or five in the world exploring the link between retroviruses and cancer. Just a year earlier, Svoboda had received his first U.S. grant, a $10,000 Jane Coffin Child Memorial Award. "Our colleagues from NIH [the U.S. National Institutes of Health] were visiting *us* to get the latest information," he recalls wistfully. But the Soviet crackdown quickly severed many of those links with the West.

Now, 25 years later, Svoboda—whose pixie-like appearance belies the inner strength it took to wait out the Soviet occupation—and his fellow Czech scientists face a tough task in regaining their standing in the international scientific community. Science is very low on the list of priorities for the new Czech Republic—a nation of 10 million citizens that was formed on 1 January when Slovakia split from the former Czechoslovakia. Research budgets have been cut in every year since the end of communism in 1989. Basic research is still done primarily at the academy, cut off from universities. And peer review is in its infancy and seems hardly to be working at all.

On the surface, all seems well at the IMG. The laboratories bustle with activity and much of the equipment is relatively modern. But beneath this cheerful veneer, the institute, like the rest of the academy, is in deep trouble. Everyone at IMG, which now has a scientific staff of 147 (71 of them with Ph.D.s), agrees that the declining budget is the major problem. "We don't have the money to send even a single person to a Cold Spring Harbor meeting this year," complains Svoboda.

The academy as a whole has lost 30% of its budget a year in each of the last 2 years, after inflation is taken into account. Svoboda estimates that research money coming into the IMG from the Czech government—in addition to institutional support used to pay salaries and overheads—dropped to about 4 million crowns (about $143,000) in 1992. Indeed, government funds have sunk so low that foreign grants, which accounted for roughly $357,000 last year, are now the biggest source of research dollars. The money trickling into IMG from the West is "the only thing that keeps any kind of competitive spirit alive here," says Vladimir Pecenka, a young researcher at IMG. Without that aid, if present budget trends were to continue, says Pecenka, "everybody would just leave."

STEVEN DICKMAN

Set back. The once-thriving Institute of Molecular Genetics and Jan Svoboda, now its director.

Work at IMG is still focused on cancer virology and molecular biology, as well as the immune response to tumors. However, the devastating effects of the past 25 years are obvious to visitors like Harold Varmus, a virologist and Nobel laureate from the University of California, San Francisco, who visited IMG in 1990 and has kept in touch with it since then. "It didn't seem like Czechoslovakia was making any effort to get back into the mainstream of science," recalls Varmus. "The scientists there are real smart but they simply don't have the materials [or] the money to travel."

The government seems slow to change from the practices imposed on it by the Soviet Union. As in many Eastern bloc states, the best scientists were shifted after the Second World War from the universities to a network of institutes run by a powerful academy. The result, according to Jaroslav Koutecky, a Czech emigré physical chemist in Berlin who runs the academy's internal granting agency from a distance, is that, with some exceptions, the university faculties are mostly filled with "mediocre nothings" who got their posts more for ideological reasons than scientific ones. Meanwhile, the development of the academy has been stifled by leaders who "abolished all criticism" of its antiquated structure by scientists, says Koutecky, because they assumed that it would endanger the academy's existence. "Of course, the opposite was true," he adds.

Some neighboring states such as Poland and, especially, eastern Germany have confronted this kind of problem by carrying out a thorough and often painful evaluation, with international participation when possible, to identify the best groups wherever they are—in academies or universities—and preserve them. But here, due partly to a lack of funds, academy leaders have repeatedly postponed an international evaluation.

Similarly, peer review has also failed to take root in a country where researchers are accustomed to guaranteed funding. The academy's internal grant system does not work, says Pecenka. "It's just like under communism—they just give the same amount of money to everybody." Also, it is hard to rely on peer review in a country so small that everyone knows everyone else.

Svoboda, who has been pushing reform from the inside, says that it will take time before peer review can work. "It took Britain 10 years during the 1960s and 1970s to implement peer review in its research institutes. You can't make these changes in a single step."

In the meantime, the situation calls for yet more patience, a quality Svoboda cultivated to survive under communism. After jumping in 1968 from group leader to acting director of the IMG (then known as the Institute of Experimental Biology and Genetics), Svoboda was, in the years that followed, often required to work without even a single technician. Although he had a chance to join many of his colleagues in the West—"the offer from NIH was already on the table," he recalls—he chose instead to stay in Prague. "I responded to Dubcek's public appeal that not all educated people leave the country," he says now, without any apparent regret. This spring, however, Svoboda finally flew to Missouri for a long-awaited sabbatical. "I just didn't think it would take 25 years until I could leave."

–Steven Dickman