POLAND

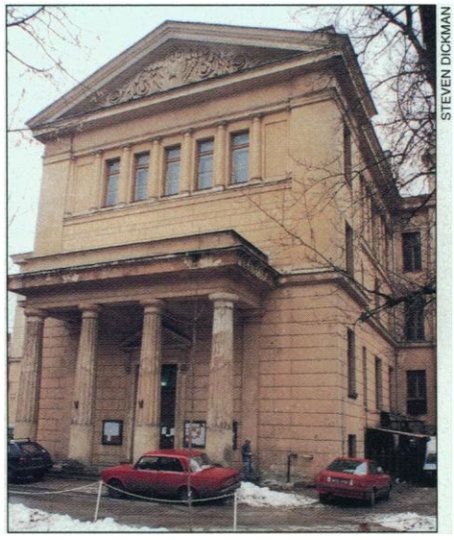
Solidarity Pays Off for the Elites of Polish Science

WARSAW—For most scientists in Central Europe, a visit to Warsaw University's Institute of Experimental Physics (IEP) would be like a trip to Disneyland. The laboratories, though far from modern, are jammed with expensive equipment and the latest computers. Better yet, institute researchers can jet off to visit colleagues or attend scientific meetings nearly as easily as if they were in the West—and they are given generous government grants to do so, something unheard of in most of Poland's neighbors. "The situation is so good here," enthuses Andrzej Twardowski, a solid-state physicist, that "I have nearly forgotten how difficult things used to be." Twardowski sits in a room almost completely filled with a supersensitive magnetometer as high in quality as any found in the West, and he spends a month each year at the Massachusetts Institute of Technology.

Life at IEP is not all a bed of roses—salaries, for example, are abysmally low—and the situation at other less distinguished Polish institutions is a whole lot worse. But IEP's relative good fortune reflects a central feature of the Polish government's science policy: It has pinpointed the best science centers and focused its limited resources on them. IEP is certainly among Poland's elite institutions, turning out high-energy physicists who have become key collaborators at European accelerator centers like CERN in Geneva and DESY in Hamburg.

It is tempting to think that other East European countries can learn from the Polish example. But unfortunately for Poland's neighbors, its scientific success story has deeper roots than the transformation that has occurred since the fall of communism. Poland has a long tradition of keeping ideology separate from science and Polish researchers managed to maintain their links with colleagues in the West even in the darkest times. Moreover, when the communist government collapsed in 1989, scientists, not former communist apparatchiks, grabbed positions of influence over science. It was these scientists' familiarity with peer review, and their experience of the structure and organization of Western democracies, that allowed Poland to restructure its science quickly and efficiently.

Not surprisingly, the situation for Polish science has improved in step with the Polish economy. The "shock therapy" applied to Poland's command economy in 1990 has resulted in rapid privatization and the increased availability of consumer goods, particularly



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Favored institution. Warsaw University's Institute of Experimental Physics.

Western imports. The startling speed of this transition is apparent from a walk down Hoza Street, where the institute is located. Neon-lit Western-style storefronts advertise everything from photocopiers to Campbell's soup ("Mm...Mm...Pycha!").

Unlike countries such as the Czech Republic that are hamstrung by the presence of scientists selected as much for their Communist Party membership card as for their scientific work (see next page), Polish universities are refreshingly free of ideological holdovers. This has allowed the authorities to move quickly toward a more Western-style system. "In Poland," explains Andrzej Wroblewski, a high-energy physicist at IEP and currently rector of Warsaw University, "it was never required that you be in the Party in order to become a professor. There were 54 full professors in the physics department, and only one was a Party member."

Scientists were also well positioned because they played a pivotal role in the Solidarity movement that ultimately overthrew the communists, according to Marek Demianski, a soft-spoken physicist formerly at IEP and now at the Copernicus Astronomical Center in Warsaw. Demianski, who returned to IEP from a U.S. sabbatical at the height of the tension of the early Solidarity years, says that at that time, scientists used their computers to make short-range TV broadcasts in their neighborhoods—sending messages like "Solidarity Is Alive!" to local TV screens.

So when communism finally collapsed in Poland, academics, including some natural scientists, were prepared. Seven of the nine ministers in the first postcommunist cabinet came from Warsaw University. Forty-two university professors were elected to Parliament in 1990, and with the help of Deputy Prime Minister Jan Janowski, a professor of metallurgy, they appropriated funds for science, opening the way for equipment purchases like Twardowski's magnetometer.

The most significant act of the new regime in terms of science was to set up the State Committee on Scientific Research, or KBN, which acts like a more powerful version of the U.S. National Science Foundation. One sign of KBN's influential status: Its leader, physiologist Witold Karczewski, has a post in the cabinet. The agency distributes not only research grants but also some of the basic budget money for salaries and overheads that IEP and other institutions need to survive. But the basic budget is apportioned on a peer-reviewed basis and it is through this "Darwinian" mechanism, which has been applied more rigorously here than anywhere else in the region, that KBN has begun to eliminate unproductive institutes and redirect the funds to more successful centers like IEP.

But everyone at IEP agrees that, despite all these promising developments, the future of the institute is still far from secure. Although KBN fended off budget cuts in 1992, this year's budget increase of 20% in nominal terms is still not enough to compensate for inflation, which is running at 32%. The area that is suffering the most is salaries, which are not under KBN's control—in fact, the average bus driver makes more than the $200 a month the average IEP scientist takes home.

Equally troubling is the apparent inability of IEP physicists to forge links with industry. To make a case for Polish science to receive more funding, says Karczewski, he will have to persuade the government that the Polish economy will ultimately depend on innovations from the scientific community to make it competitive in world markets. But, complains Czeslaw Radzewicz, a specialist in laser physics at IEP, the leaders of the institute discourage applications-oriented work. "They are trying to build a shrine to physics here."

After 3 years of fighting for science budgets, Karczewski of KBN admits that his battle has just begun. "The moans from the ivory tower are never heard [in Parliament] as loudly as the moans from the man on the street," he laments. But, in the meantime, well-funded scientists like Twardowski are sitting pretty. "We could use five more people in our group," he says. Since there are not enough Poles who are qualified for the job, he says, "we are seriously thinking of importing some Russians."

–Steven Dickman

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