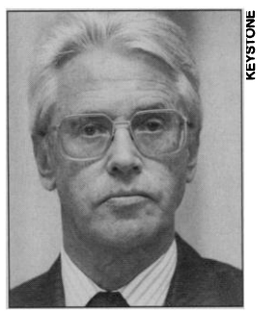
SWITZERLAND

Politicians Try Tuning Up the Swiss Research Machine

BERN—The old maxim, "If it ain't broke, don't fix it" is lost on Heinrich Ursprung, head of the Science Agency in the Swiss interior ministry. Take virtually any measure of scientific quality—citation impact or Nobel awards, for instance—and Swiss science usually comes out near the top of the pile. Yet, since taking up his job in November 1990, Ursprung has overturned the Swiss federal government's traditional hands-off approach to science policy. Rather than resting on its laurels, Ursprung argues, Switzerland needs to apply some top-down research management—or else risk losing out in the battle for economic competitiveness. "We have gaps in Swiss science, not only strengths," he says.

Ursprung is trying to plug those gaps with a variety of measures: full membership of the European Community's (EC) research programs; six new multimillion dollar initiatives in economically important areas such as optoelectronics and biotechnology; not to mention a thorough restructuring of Switzerland's universities that would see the closure of many old departments to make way for hot new disciplines. But he isn't having it all his own way. Many researchers don't want change. And Ursprung has to contend with the fact that his powers are limited because the cantons, or regions, have a great deal of autonomy in the management of the universities.



KEYSTONE

Ursprung and his critics do see eye to eye on one thing: Swiss laboratories are successful because they hire the best researchers, irrespective of nationality. "You hear a lot about Swiss xenophobia," says British-born Thomas Bickle, director of the University of Basel Biozentrum, "but they're the most open people in the world towards excellence." At the Biozentrum, he points out, only one-third of the professors are native Swiss. Whether this openness should extend to embracing the EC is hotly contended, however.

"We have gaps in Swiss science, not only strengths."

–Heinrich Ursprung

Ursprung is asking the Swiss parliament for SFr100 million (about $65 million) a year to finance a major increase in Switzerland's participation in EC research. But as the Swiss in general debate whether to join a uniting Europe, many researchers are dubious about what the EC has to offer. Many scientists fear that the EC involvement will bring complicated bureaucracy. "They should spend the SFr100 million directly [in Switzerland]," says physicist Peter Wachter from the Swiss Federal Institute of Technology in Zurich (ETH), summing up a common view.

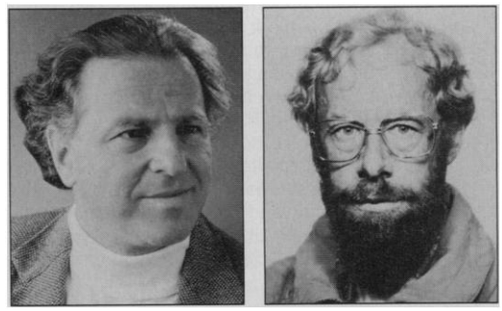
Ursprung's six "priority programs" to underscore competitiveness—originally estimated to cost around $240 million over the next 4 years—are also contentious. Some university researchers worry about their resemblance to the "oriented" projects that have been tried in other European countries with questionable economic impact. "We shouldn't try to make mistakes that other people have already made," warns Hans Güdel, a chemist at the University of Bern.

But opposition to these proposals is muted compared to the uproar that has greeted Ursprung's efforts to shake up the universities. Ursprung looks at Switzerland's eight cantonal universities and sees a wasteful duplication of small research groups. What Switzerland needs is a smaller number of "centers of excellence," he says. He wants to open laboratories in nanotechnology and other fast developing areas, and he has no qualms about closing laboratories to release money for such new initiatives. First in Ursprung's firing line are the high-energy physics groups at the smaller Swiss universities. There's a unique opportunity for restructuring, he says, with some 800 of Switzerland's 2300 professors due to retire over the coming decade.

Ursprung boasts that during his 13-year tenure as president of ETH, "I closed down four departments...and stopped 28 chairs," to finance an expansion in computer science and toxicology. He will have a difficult time persuading the cantonal universities to undertake similar pruning, however. One problem is that a Swiss university typically can't close one of its departments without the approval of the faculty as a whole, and professors aren't prone to "cannibalistic activity," says molecular biologist Charles Weissmann of the University of Zurich. "I can't remember any institute or department at the university ever being phased out." Moreover, "if [the University of] Neuchâtel wants to appoint another high-energy physicist, they can do it," says Güdel.

It might be easier to force through the kinds of changes Ursprung wants if university presidents had real decision-making power. Andreas Ludi, rector of the University of Bern, agrees that he lacks the freedom enjoyed by U.S. university presidents, but says he has mixed feelings toward change. Many universities lack the "properly trained managers" needed to conform to Ursprung's model, he says.

Swiss science policy makers accept that Ursprung's plans are meeting resistance, but they argue that many of his detractors are missing the point. Launching the priority programs was the only politically realistic way to win increases in government research spending, says Heinrich Neukomm, scientific adviser to the board of the Swiss Federal Institutes of Technology. The parliament had answered previous calls for more cash with the criticism: "You never set priorities. It just disappears," he says. And membership of the EC's research programs may be vital if Switzerland isn't to be left out of future international research projects, says Peter Fricker, secretary-general of the Swiss National Science Foundation.



Critics. Charles Weissmann *(left)* and Hans Güdel question whether the reforms will work.

For the time being, Ursprung's plans have been dented by the novel experience—for the Swiss—of an economic recession, his priority programs slashed in half. But when the upturn comes, Switzerland should become a testing ground for science policy. In a tiny country that has been built on intellectual capital rather than natural resources, the stakes are high. "We need this level of excellence," says 1991 chemistry Nobelist Richard Ernst, from ETH, stressing how Swiss perfectionism has kept the country wealthy and independent. If standards fall, he says, "sooner or later...:the French-speaking areas will be part of France, and the German-speaking areas will be part of Germany."

–Peter Aldhous