

Europe, Science, and Unity

New developments in European science and science policy suggest that a new landscape is forming, one in which scientists move about as freely in Europe as they do between Massachusetts and California in the United States. The great scientific traditions of Europe have had strong national identities; one naturally thinks of Pasteur as French, Newton as British, Pauli as German. But in the movement toward an economically unified Europe, some national sovereignty had to be given up to serve a more communitarian vision. That same kind of evolution is now taking place in science, as a powerful movement toward a unified European research enterprise takes form.

In a recent editorial in *Le Monde*, several Nobel Prize winners (including French biologist Francois Jacob, Swedish biochemist Bengt Samuelsson, British biochemist Aaron Klug, and Italian developmental biologist Rita Levi Montalcini) called for a massive restructuring that would double support for science with a renewed focus on basic research, and fund centers of excellence that would be regional and not national. Soon afterward, the European Commission (EC) issued a press release pointing out that European countries collectively produce proportionally more scientists than the United States, but that scientists constitute a much smaller proportion of the working population. Noting this retention problem, the EC advocated increased European Union (EU) research investments (see the Editorial by Papon, *Science* 1 August 2003), and urged European cooperation to stop the “brain drain.”

This growth of scientific collaboration in Europe is encouraged by the Sixth Research Framework Program, which provides a granting mechanism to support work throughout the EU. The trend toward scientific denationalization will be further manifested in a brand-new all-European science event, which will take place in Stockholm a year from now. EuroScience 2004 is an ambitious plan, reminiscent of the AAAS Annual Meeting sponsored by the non-profit scientific society that publishes this journal. The deadline for submitted papers is 15 September 2003, and we look for a lively response.

All of this is good news, but there are three areas in which more work is needed. Science policy needs to follow science along its transnational course, international cooperation is needed to help solve the brain drain problem, and the further development of a European research entity should include a restructuring of priorities.

Regionalization of scientific work is one thing; creating regional science policy may be more difficult. The knowledge needed to suggest a regional policy must come from the scientists of all the involved countries, and regional centers of excellence might provide a structure through which policy matters could be explored on a regionwide basis. The dilemma here is straightforward: Although European science is increasingly carried out as an activity without national borders, science policy is still made by nations. Constructing a thoughtful integration of EU science policy with respect to broad issues (like the desirable balance between basic and applied projects) and narrower ones (like stem cells) is a task worthy of the best efforts of its science leaders.

The United States needs not only to welcome the development of a European science union, it should make some moves to help its longer-range needs. The brain drain problem is not new; it received a good deal of attention in the 1960s but slipped beneath notice as European research expenditures grew and laboratories there strengthened. U.S. institutions might well restrain, at least for a time, their temptation to conduct overseas raids to fill permanent positions. Increased international scientific exchange in all directions supports, rather than inhibits, the equitable distribution of talent, and U.S. science and immigration policies should be drawn in ways that facilitate the movement of graduate and postdoctoral scientists in both directions. Right now, they aren't. An increasingly difficult visa situation and the well-publicized political differences between the United States and Europe are impairing scientific exchange.

Some pending issues, however, will require a European solution. Widespread dissatisfaction is reported with the division, in the Frameworks Programs, between basic and applied research; there is a wish for more of the former and less of the latter. Further discussions about the formation of a European Research Council, which have been jump-started by just these kinds of dissatisfactions, need to be accompanied by a careful examination of the shape of the research portfolio.

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