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MOVEMENT OF THE PEOPLE

ILLUSTRATION: ALLAN M. BURCH

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How shall we deal with "movement of the people" at the beginning of a new millennium? I believe emigration and immigration should be a matter of concern to American scientists. The intellectually exhilarating enterprise of science depends on free communication. And over the last 150 years science has only benefited from the movement of scholars between countries—I think of those Russian students in Bunsen's mid–19th century Heidelberg laboratory who, returning home, helped shape modern and Russian chemistry. What is new in the last 50 years is that study abroad, especially in the United States, often turns into emigration.

Science, open as it is, does not operate in a vacuum. It is done in countries, cultures, and economies. In the service of knowledge, scientists also train the most skilled component of the work force—at no cost to the employers. And the movement of these newly trained experts may deprive another country of its desperately needed human potential at a critical stage of development. Scientists in the United States, in their addiction to what gifted foreign hands and minds bring to their research groups, should not turn their eyes away from the negative effects that immigration of a scientist to the United States may have on the scientist's home country.

Here are some facts and feelings that shape my concerns about immigration:

- I was born in southeast Poland. Part of my family survived the Nazi occupation and the abiding anti-Semitism around us. The United States eventually received us, the true stateless refugees that we were. It did not receive us all that graciously—do you remember the racist immigration quotas of 1921 to 1965, which delayed our immigration by a few years and completely discouraged so many others? But once we came, the world was open to me, as it was to the rest of "Hitler's gifts to America."
- A foreign postdoctoral researcher has asked me to write a letter supporting her application to switch to permanent-resident status. She has consulted a lawyer, who sends along an oft-copied form, suggesting the extravagant language I should use.
- My research group has two postdoctoral associates or senior visitors from Germany, one from Morocco, one from Switzerland, one from Korea, and two from Argentina. Of my four graduate students one is Armenian, one Northern Irish, one Chinese, and one American. Thirty-nine percent of chemistry Ph.D.'s last year were not U.S. citizens or permanent residents. In engineering fields the percentage was much larger.
- If Cornell admitted its entering class of chemistry Ph.D. students without regard to language ability, and only on academic merit (measured as imperfectly as that may be), I estimate that our class of 32 students would have 24 students from the People's Republic of China (PRC), 3 Indians, 2 Russians, 1 Korean, 1 Taiwanese, and 1 American. In fact, in 1997 we enrolled a majority of U.S. citizens or permanent residents, 5 PRC students, 2 from India, and one each from Hungary, Israel, and Liberia.
- Ninety-five percent of the PRC graduate students now in the United States will probably try to stay here. The vast majority will succeed in doing so. Yet they will likely face discrimination. In hiring new faculty, U.S. universities may subtly discriminate against American-trained, Asian-born Ph.D.'s—to the benefit of industry, which pays Asian immigrant Ph.D.'s less than Americans.

I feel the agony around emigration and immigration very personally—can I tell that Chinese or Russian student not to aspire to what came to me? When I talk to people about the problem, I typically hear: "Oh, in time it will be one world, and it does not matter where people work." Or, "If my students go back, they will never be able to do the science they are capable of doing here. I am actually saving them by helping them stay." Or, "It's up to the government to set immigration policy; that's not my job." And, "How can I say no to the pleas of an individual to help him change his visa? He's my student!"

I will argue against two of these responses, express some anger over the third, and respect the fourth. But let me begin with some observations about immigration to the United States.

Things we can agree on. The United States tolerates diversity and provides tremendous opportunities for immigrants. It is something to be proud of—our record on immigration is much better than that of any other developed country, except perhaps Canada. Not that immigration here is an unalloyed delight—it is often the most wrenching personal decision.

We depend on immigrants—mostly those at the bottom of the economic ladder—to be the nannies and cleaners in our society. And remarkably, we also depend on those at the top of the ladder—to provide the Ph.D.'s that American students, especially American males, now avoid—and that the economy craves. For the United States, immigration is an unquestionable boon.

Our immigration laws are capricious and porous. The national will to enforce them at the top (those Ph.D. students trying to change their visas) and bottom (illegal working-class immigrants from China and Latin America) is just not there. Illegal immigrants often manage to stay. And an interesting alliance of the affluent (industry) and the less wealthy (Hispanic political pressure groups) ensures this status quo.

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Not all foreign researchers are flocking to the United States. For a blend of cultural, political, and economic reasons we do not seem to attract the elite from countries such as Italy, Morocco, Japan, and Brazil. But for other countries, such as Russia, China, and India, the brain drain is a reality. Without doubt the economic situation in a home country can sway the movement of the people over time. Most Taiwanese Ph.D.'s remained in the United States 20 years ago, whereas today most return. Some Irish are returning to a richer Ireland.

It will be one world. As international as science and commerce have become, the dream of completely free movement of labor forces, in one world, will probably not be achieved. In the experiment of European economic unification, what I see in the management of Hoechst, BASF, and Bayer—more than what I see in European universities—encourages me to dream on. The universities, the locus of much advanced scientific research (looking outward, to the world), are also the inward-looking repositories of national culture. They do not always welcome these foreigners.

At the same time, inequalities in the standard of living of nations will persist. Those who can, will head toward nations with higher standards of living, perhaps exacerbating the problems that hinder development. And since travel is so much easier than in the past, I suspect there will actually be a nervous sharpening of immigration restrictions; we see this in Europe already.

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It's better for the best not to go back. When I see the working conditions in a Romanian or Indian university, I despair. The infrastructure is lacking, power failures are typical. How could one possibly do good science in that unsupportive setting? Indeed, the average U.S.-trained scientist will suffer at the very least a reduction in productivity on return—if he or she is not forced to leave science. And yet, while many returnees would be less productive (and more unhappy)—perhaps even unemployed—on the average I believe the country (not necessarily the individual) would gain. I am also encouraged by the ability of young people (trained to be flexible by *us*) to do credible, world-class research in difficult circumstances.

U.S.-trained Chinese scholars proved how critical the presence of these scientists can be. When our relationship with the PRC was normalized 20 years ago, a Cornell delegation to Beijing was greeted by a hundred aging alumni singing the alma mater. This was more than touching; those scientists and engineers were directing the enterprises of a vast China—it was they who maintained the standard of learning in those dark days of the Cultural Revolution, the standards that shaped the education of the thousands of brilliant Chinese students who have since come to the United States.

Immigration policy? Not my business! For a scientist to say, "It is up to the government to set immigration policy, it is not my business" is to evade social responsibility. Sure, it is up to the government, and—as imperfectly functioning as our democracy is—that means us. To say "It is not for me to think about the consequences of my actions" is a morally and politically risky act, because such refusal to engage in an ethical and social calculus turns others against science. And it drains science of its essential humanity.

Indemnities, obligations, and restrictions. In many countries—not including the United States—higher education is government supported. These countries ask why they should invest in the training of their best students to have us reap the benefits. Is it realistic for a country, or an employer, to pay an education indemnity to the country that trained an emigrant? I think so. Could one impose an obligation of service to one's home country on an emigrant—the subsidy of a fellowship back home, returning to lecture? Emigrants who are professionals, though they should know better, are sometimes not all that grateful—I've heard in India the flow of money from the Arabian peninsula (often from ordinary workers sending money to their families) is greater than that from America. And in the Philippines, despite relatively poor economic conditions, more than half the students trained in the United States return. Often not immediately, a friend tells me, but after having built some financial security. The high return rate may be the result of a strong sense of obligation to the country, inherent in the society and strongly reinforced in the schools and universities.

We must restrict scientific immigration to the United States, so as to improve the chances of scientific and technical development of the broadest range of countries. Distinctions can be made in the motives—economic, political, or personal—for emigration. Yet I am haunted by the presumption of a policy-setting committee making such distinctions, and by a quota ignoring the personal mix of motives that makes every individual's situation unique.

Suppose more U.S.-trained foreign scientists returned home. The industrial demand for U.S. students would rise, and so would the salaries offered. We might be able to recoup some of the "internal brain drain" we have suffered in the United States from science to medicine and business.

The ethical dilemmas. Substantive ethical questions are those in which agreed-on goods collide. Two such questions tear at me when I consider the problem of immigration—first, the proposition that immigration be restricted for whatever reasons; second, the problem of helping a particular foreign student to stay in this country. The conflict in each case has to do with the rights of an individual versus the obligations, real or perceived, to a state.

We live in states, by mutual consent. At times we forget the social contract that we have entered into by birth. Yet, without human beings yielding some of their individual rights to the state, civilized life would be impossible. It is within the framework of a social contract that we construct immigration laws. Yet these collide with the interests of the individual. A part of me argues, as I have done here, for immigration laws. Another part of me believes that a person in any country should have the right to leave that country. And yet that freedom may be in conflict with the legitimate interests of not one, but possibly two states!

Much the same goods collide in dealing with the anguished pleas of students to change their visa. The anguish is augmented by the personal bond between teacher and student. I will not tell you what you should do, only that there is no doubt as to what I would do. Even as I want that student to go back to his or her country, even as I think there are good reasons for restricting immigration, even as I believe that education indemnities and an emphasis on community and service can help—even so, I will write that letter. And make it as strong as I can.

ILLUSTRATION: TERESE WINSLOW