Employing Immigrants: It's Not Them vs US

Cynthia A. Walsh, in her letter in the December issue (page 102), opposes the provisions in the Immigration Act of 1990 that allow businesses to recruit alien workers to make up for shortages in the sciences. This is an issue about which I, and I think many physicists, have very mixed feelings. On the one hand, my own experience looking for a job in late 1989 suggests that there is indeed a shortage of jobs, at least for physicists in my field and in my cohort (I received a PhD in plasma physics in 1977), rather than a shortage of scientists to fill jobs. Under these circumstances it does not make sense to preferentially admit immigrants who are physicists. On the other hand, I have many physicist friends and colleagues who are immigrants, several of whom fled persecution in their native countries. I have worried with them over problems they encountered dealing with the bureaucracy of the Immigration and Naturalization Service, and I have celebrated with them when they became permanent residents and citizens. In their native countries, their prospects for employment as physicists, or even for survival, were in many cases considerably worse than the prospects of American-born physicists for finding jobs in the present economy. I could not comfortably adopt the America-first, know-nothing tone implicit in Walsh's letter.

One way to improve employment prospects for American-born physicists without hurting foreign-born physicists is to increase immigration quotas in general, rather than just for physicists. While preferentially admitting physicists adversely affects the job market for American physicists if there is already a shortage of jobs, admitting an increased number of immigrants with the same distribution of job skills as the existing population would not have this effect. The reason for this is that to zero order, every immigrant creates one job in the economy in addition to taking one job. The jobs created are not, for the most part, in the immigrant's own field, but are created by the products and services the immigrant consumes, and include jobs for auto mechanics, real estate agents, teachers, farmers and so on. Jobs for physicists are also created—by immigrants whose children take college physics courses, who buy consumer products that use technology developed by physicists, and who pay taxes that support defense and space research. Economic research, both theoretical and empirical, has shown that contrary to popular opinion, increasing immigration quotas in general (not just for one occupation) does not hurt the employment prospects or wages of the native-born population.[1]

In fact, due to first-order effects, increased immigration would lead to an improved job market for physicists, provided the zero-order term is made to vanish by not giving special preference in immigration to physicists. These first-order effects[1] include the fact that immigrants pay $2500 more in taxes each year than they consume in government services, mostly because the immigrant population includes fewer senior citizens than the general population. Some of these taxes support space and military R&D programs and pure research programs, which employ physicists. Also, immigrants are more likely than natives to start new businesses. Most of these businesses are small, and small businesses are the major source of new jobs in this country. Based on my own experience (I was laid off from a university research staff and hired by a small business), I suspect this is also true of physics jobs. An immigrant physicist who invents a new technology that can be used in a consumer product can create a large number of jobs for other physicists, both immigrant and native born. Even more such jobs will be created if, as Walsh rightly recommends, tax incentives are developed for in-house research by private industry.

There may be some subfields of physics, some positions with inflexibly low wages or some geographic areas for which there is a shortage of native-born scientists, and if this is true, then giving preference to immigrants capable of filling those positions does make sense. The zero-order effect will not be present if there is no native-born physicist to fill the position, and the beneficial first-order effects will still occur, so opposing the recruiting of aliens to fill these positions would be counterproductive. It is necessary to carefully research whether and where such shortages exist, of course.

We could improve the physics job market even more by increasing immigration quotas for everyone *except* physicists in those fields where there is a shortage of jobs, since this would make the zero-order effect on the job market beneficial to physicists. But butchers, bakers and candlestick makers could make the same argument, and if Congress listened to all of these special interests, the result would be lower immigration for all occupations. We would then lose both the zero-order and the first-order benefits.

I hope that those readers who, in response to Walsh's letter, urge their Congressmen to oppose preferential admission of immigrant scientists in fields where there is a shortage of jobs will also ask their Congressmen to increase immigration quotas in general. In doing so, we will be looking out for our own economic interests as well as following our humanitarian inclination to help our immigrant colleagues.

Reference

1. J. L. Simon, *The Economic Consequences of Immigration*, Basil Blackwell, Oxford (1989), ch. 11.

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I have some comments on immigration and the letter of lamentation from Cynthia Walsh. An employer won't hire an "alien" scientist unless he or she is better for the job than the available "native" scientists. And the United States is the winner in the transaction—we can always use a few more good men and women. Walsh refers to scientists' "employment rights." One person's right is generally someone else's duty, in this case apparently the taxpayers' duty to provide jobs for scientists in their favorite fields. No such moral or legal right exists, be it for physicists or Chevrolet dealers. Walsh is simply appealing for a trade barrier, which, like a tariff on Toyotas, would mulct the general public for the benefit of a special group. By the way, if indeed some of "America's scientists are retraining . . . into secondary education," as Walsh writes, isn't that good news?

Finally I, like Walsh, have a personal interest in this matter. My grandfather, who had received his doctorate in Prague, came to America 125 years ago to take a job for which he had been hired, doubtless in preference to local candidates. (His doctorate was in divinity, and the job was as the rabbi of a New York synagogue.)

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Minorities Can Fill US Science's Ranks

It is often asked whether the hiring of foreign scientists and engineers con-

stitutes a threat to the employment of US citizens.[1] These individuals may be perceived as "scab labor," as Robert Lynch phrased it in his eloquent letter to the editor (February 1991, page 121). Perhaps his observation should even be extrapolated to the abusive practice of using the same "scab labor" instead of native-born members of minority groups in minority-enhancement programs and positions in education, government and industry.

According to one recent report,[2] enrollment of foreign citizens in US graduate schools is increasing twice as fast as enrollment of US students. What this and similar reports[1] fail to mention is that the influx of foreign students is concentrated almost entirely within groups that are minorities in the US—in particular, Asians. (I myself am a US-born member of an Asian minority.) A recent National Research Council report contains data on the ethnicity and citizenship of US PhD recipients and of PhDs employed in this country.[3] Comparing these data, I obtained the bottom line result that foreign PhDs effectively reduced the job pool for black, Hispanic and Asian PhDs with US citizenship by 17%, 37% and 80%, respectively. For white PhDs with US citizenship, the job pool was reduced by less than 5%. *Is America trying to import its "minorities"?*

One disturbing point in Lynch's letter is his comment that native-born Americans don't have the motivation to "expend a decade or so of strenuous effort" to obtain jobs "offering salaries that are laughable." I would be very much surprised indeed if any native-born member of a minority group—or for that matter, any native-born American—having sacrificed the necessary time, pain, money and effort to obtain a scientific or engineering degree, would be anything less than appreciative of being given a chance to earn a "laughable" salary that in all actuality is not that bad and, particularly in the case of minority Americans, is typically far better than anything his or her parents ever earned.

True, higher salaries might provide an incentive to pursue science-related careers for native-born Americans already accustomed to high salaries. However, social repression can be just as powerful, if not more so, a force of motivation. Lynch writes that scientists from developing countries are attracted to employment in American universities because of the opportunity "to enjoy the freedom and luxuries of our open and democratic society." But one does not have to come from a foreign country to be subjected to a "repressive" environment. Repression comes in many forms: ubiquitously in the visage of poverty and, in the case of minorities, the omnipotent burden of the double standard. The scientific and engineering advances made in this country due to the sacrifice of foreign-born Americans cannot be questioned. What I do question, however, is the underutilization of resources already available *in this country* to fill our scientific ranks. They should not be viewed as a liability, and they have plenty of motivation.

References

1. For example, see R. Pool, Science **248**, 433 (1990).
2. Res. Tech. Management, November–December 1991, p. 51.
3. D. H. Thurgood, J. M. Weinman, *Summary Report 1990: Doctorate Recipients from United States Universities*, Natl. Res. Council, Washington (1991), appendix tables B-2 and A-4.

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Multicultural Science Essays Assailed

I was startled by the letter (June 1991, page 145) from Paul Engelking of Lowell, Oregon, in which he reported that "Portland State University has proposed to eliminate its undergraduate programs in applied science [and has] marked for suspension [its] undergraduate program in physics." I share certain of Engelking's concerns about the "university experience" absent the intellectual substance and challenge of applied science and physics. However, my reaction also stems from a different, but perhaps related, source in the same locale. [*Editor's note:* Portland State has "reinstated the undergraduate degree program in physics," according to a subsequent letter (August 1991, page 13) from William Paudler, the dean of the university's College of Liberal Arts and Sciences.]

The curriculum department of the Portland, Oregon, public schools has recently published a document, entitled "Using the *African-American Baseline Essays*," designed to enable its readers "to understand the African-American experience." The essays themselves are essential ingredients in the development of a "multicultural" curriculum in Portland. These materials now form the basis of detailed lesson plans for all elementary public school classes there. According to this publication, "teachers of art, language arts, mathematics, science, social studies and music are expected to use the *African-American Baseline Essays* as a resource and should infuse relevant content into the adopted curriculum." Other teachers and staff are expected "to use the Critical Topics to guide their presentations of information about Africa and people of African descent." While the concept of multiculturalism in education is worthwhile and important, there are aspects of the Portland approach that also are startling and may interest readers of PHYSICS TODAY.

The first of the "Critical Topics" developed for science in "Using the *African-American Baseline Essays*" is that "science is a culturally driven process leading to information based on a particular scientist's point of view." This statement apparently derives from the preface to the essay "African and African-American Contributions to Science and Technology," by Hunter H. Adams III. (Adams is described as a research scientist, historian and consultant who has been at the Argonne National Laboratory since 1970. Adams is cofounder and associate director of the Life-Ways Sciences Institute.) According to Adams, "this process of investigation called science is not value neutral, nor is it culturally independent; furthermore, there can be no ultimate objectivity. Why is this so, when neutrality and objectivity are believed to be an inherent and defining feature of science? Well [here Adams quotes from a "privately published" work by a "theoretical social psychologist"], 'science is the formal reconstruction or representation of a people's shared set of systematic and cumulative ideas, beliefs, and knowledge stemming from their culture.' "

Among the subtopics for science in "Using the *African-American Baseline Essays*" is this, for physics: "Early African writings indicate a possible understanding of quantum physics and gravitational theory." In his subessay "Egyptian Cosmology/Time in the Egyptian Mind," Adams suggests that "many of the philosophical aspects of quantum theory in contemporary physics" are alluded to in a treatise called *The Book of Knowing the Evolutions of Ra*, contained in a papyrus written at Thebes about 2300 years ago. "The House of Wisdom—Egypt's Premier Science Academy" is another subessay by Adams, in which he tabulates "a few examples of the discoveries that have been inappropriately claimed," including the "law of gravity" attributed to the "European discoverer" Newton rather than