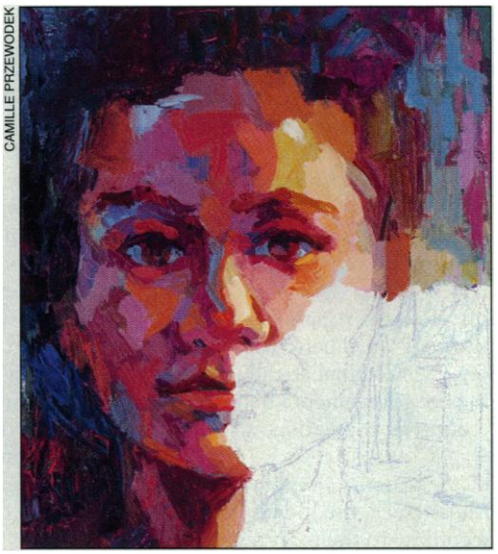
SCIENCE

## Minorities in Science '93

# Trying to Change the Face of Science

### Table of Contents





CAMILLE PRZEWODEK

Throughout the scientific enterprise, people and organizations are trying to add color to the mostly white face of science. This special issue focuses on their efforts.

Scientific activists trying to make better use of minority talent have their work cut out for them in the United States, as the Ph.D. production chart on the next page illustrates. From 1975 to 1992, the share of all scientific and engineering Ph.D.s earned in the U.S. by white citizens dropped from 70% to 56%, and there was a concomitant rise in doctorates earned by foreign nationals. But U.S. minorities continue to earn a tiny proportion of science and engineering Ph.D.s—5.9% in 1992. Furthermore, although Hispanics have increased their representation, the bulk of the increase in minority Ph.D.s is due to gains made by Asian-Americans—whose status as an underrepresented minority is a source of much debate. In 1992, blacks earned only about 40 more science and engineering Ph.D.s than they did in 1975, according to the National Research Council figures. And American Indians remain barely a presence in science, earning 0.2% of all Ph.D.s each year.

So there are few minority scientists in the workforce. Meanwhile, in many fields there are more scientists than jobs. Thus there is much jostling among individuals and groups, as whites, a handful of minorities, and foreign citizens compete for opportunities in science.

In such a situation, diversifying the research enterprise becomes even more challenging, as many of the hundreds of readers who responded to last year's minorities issue pointed out. That issue focused on the "Pipeline Problem," analyzing the programs aimed at getting students into science. This year, we explore what life is like for working minority scientists. In response to readers' suggestions, we probe minority career opportunities, the clash between minority cultures and the culture of science, and minorities in industry. Throughout this issue, we have kept in mind the oft-repeated query from white scientists: What can we do to help?

The first task is to identify which groups are most underrepresented in science (see story p. 1090), in order to direct resources and programs to those who need it most. Next, we present a report on the stubborn problem of diversifying university faculties, (p. 1091), and Susan Katz Miller examines the career paths of a handful of minority scientists who have chosen to articulate their vision of science from the conference room instead of the lab.

The United States is not the only country where minorities who are trying to make their way in the scientific world. Reporter Patricia Kahn examines the case of Turks in Germany, whose story bears the classic hallmarks of a minority experience. Back in the United States, reporter Constance Holden tackles one controversial

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## A Question of Identity

Who is a minority? In the United States, in order to help underrepresented groups break into science, and to gauge the success of their efforts, government agencies, private foundations, and colleges and universities all must define the groups they include as "minorities." Such criteria are used to assess diversity, as well as to award scholarships and training grants.

Below, we explain these often-confusing definitions.

**Blacks:** As late as 1983, the state of Louisiana still defined anyone with up to 1/32 black blood as "colored," but today the federal government, its agencies, and most academic and research institutions simply accept the descriptions individuals report on applications and other forms. Blacks are very underrepresented in U.S. science, comprising 12.1% of the population, according to the 1990 census, but only 1.9% of the employed Ph.D. scientists and engineers in 1991, according to figures from the National Science Foundation (NSF).

**Hispanics:** There's a bit more confusion in trying to define this category. The federal government defines Hispanics as all "people of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race." The Ford Foundation, however, includes only Puerto Ricans and Mexican Americans, since these are the most dramatically underrepresented Hispanic groups. Using the government's definition, Hispanics make up 9.0% of the country's population, and only 1.6% of the Ph.D. workforce.

**Asian-Americans:** These are U.S. citizens of Asian descent, which includes the Far East, Southeast Asia, the Indian subcontinent, and the Pacific Islands, according to the federal government. The government does not consider Asian-Americans, except for Native Pacific Islanders, underrepresented in science, since they comprise 2.9% of the general population, but 6.9% of Ph.D. scientists and engineers. Most government and foundation grants for minorities in science do not include Asian-Americans, although the National Institutes of Health (NIH) and many universities do count Asian-Americans when toting up the diversity in their ranks. Another complication: Naturalized immigrants and their children from some Asian countries, notably Cambodia and Vietnam, are, in fact, underrepresented in science. Many institutions are still debating whether to include them in their programs.

**American Indians:** This group, according to the federal Bureau of Indian Affairs, includes anyone acknowledged as a member by any of the approximately 550 federally recognized tribes, as well as all Native Alaskans. Tribal guidelines vary widely, however, so that most minority programs simply accept self-reporting, as they do with blacks. American Indians represent 0.8% of the U.S. population and 0.2% of doctoral scientists and engineers.

Finally there is the question of foreign nationals. At NIH and for certain NSF fellowship programs, immigrants who are members of groups underrepresented in U.S. science—blacks from Africa or Hispanics from Latin America, for example—are counted as minorities. Most universities and companies include immigrants when evaluating diversity. But the National Research Council carefully separates the foreign-born from U.S. citizens when counting up the number of Ph.D.s awarded.

–Karen Fox

interpretation of the graph on the next page: Are immigrant scientists keeping U.S. minorities out of science?

On the cultural front, many minorities responded to last year's issue with eloquent essays on the gulf between their culture and that of science. We explore various aspects of that gulf in this issue. First, two minority scientists speak for themselves. Kenneth M. Olden, director of the National Institute for Environmental Health Sciences, who is black, writes of the need to change the image of science in minority communities. Ronald R. Hoy, a neurobiologist at Cornell University, who is Asian-American, writes on the culture gap that affects many Asian-American scientists. And reporter John Travis explores one dismal consequence of the cultural gulf, tracing the path of a controversial Afrocentric education effort—judged unscientific by scientists—that has nevertheless gotten into the public school system.

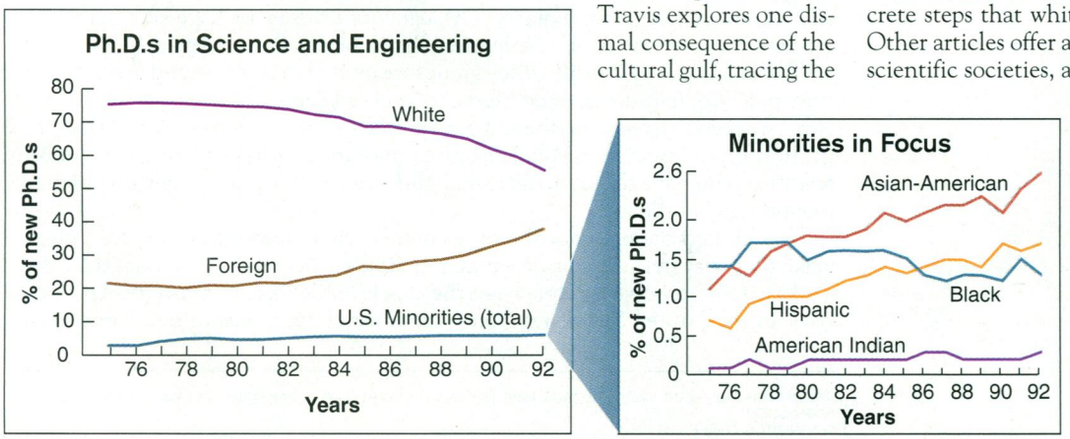
Next we turn to the industrial arena, where despite massive cutbacks, some companies continue to try to keep minorities on board; reporter Calvin Sims details minority recruitment efforts in an industry in crisis, high-tech defense contracting (p. tk). The biologically-based businesses have cheerier employment news—but there too, some minority scientists say they must push their own agenda aggressively.

Finally, we report on various ways that individual scientists—of any color—can help boost the numbers of minorities in science. Ann Gibbons examines concrete steps that white researchers can take (p. 1130). Other articles offer a guide to minority programs at the scientific societies, and a list of selected resources that individuals can use to plug into existing efforts.

In addition, throughout the issue we present model strategies for dealing with tough problems, ranging from how to attract minority graduate students to developing a truly multicultural laboratory.

And on p. 1136 you'll find the fax/poll form for your response to this year's issue. Please use it. We're listening.

–Elizabeth Culotta




**Slow progress.** Underrepresented minorities still earn only a fraction of science and engineering Ph.D.s.