CAREER CHOICES

Finding—and Keeping—Minority Professors

In 1988, Duke University set out to attract more blacks to its faculty of 1600 professors. At the time, there were only 31 black professors, and the leaders of the prestigious southern school felt "almost a moral responsibility" to make the university a center of black scholarship and provide role models for black students, says Provost Thomas Langford, who is white. Faculty members themselves supported the plan, and resolved that each of Duke's 56 departments should hire one black faculty member by 1993.

But the results have not been impressive. By this past May, only 18 new black professors had been hired, none of them in the natural sciences. And during that same period 14 black professors already on the faculty left. Since May, six more have been hired—and two others have left, for a net gain of eight black professors. The university now has a grand total of 39 tenure-track black faculty members.

Duke is not the only school that has trouble recruiting and retaining black professors, nor are blacks the only group missing from U.S. faculties. Universities may be bastions of liberalism and political correctness—but they are also overwhelmingly white, at least in the professorial ranks, and especially in the natural sciences. In 1988, the last year for which national figures are available, only 2% of the natural science faculty members at 4-year U.S. universities were Hispanic, 1% were American Indian, 1% were black, and 7% were Asian-American, according to the National Center for Education Statistics.

Finding and keeping minority science faculty is a major challenge facing American universities today. The pool of candidates is small to begin with, and they are competing with a glut of mostly white job seekers now in the academic market. Because of this, some schools have opted to create faculty positions specifically for minorities—a practice that has caused heated debate within the academic community. And even when such approaches do result in a minority hire, there's no guarantee the faculty member will stay around. Many new professors find themselves burdened with committee assignments as a "minority representative," overwhelmed by feelings of isolation on mostly white campuses, and undersupplied with graduate students. All this makes it hard to do science, and, sometimes, hard to get tenure. "Getting [minority] faculty members hired is one thing. It's the environment you create that will make them stay or go," says black zoologist Pauline Lawrence, of the University of Florida in Gainesville.

The big problems. The first difficulty universities like Duke face is that there simply aren't very many new minority Ph.D.s in science (see chart). Furthermore, in some fields, minority Ph.D. candidates are entering an extremely competitive market already saturated with job seekers—most of whom are white. Of course, it's always possible to lure professors away from other schools—and indeed, a handful of top minority scientists may find themselves with several offers.

But moving a few minority scientists from school to school won't solve the problem in the long run. Ultimately, more younger professors must enter the ranks. "It's a very tough period in academics right now," says Brown University associate provost James Wyche, a black cell biologist. "For the last two positions we've had, we've gotten nearly 300 applications each, and maybe 10 are minority. So there's a glut of people on the market, and probably the top 30 are all outstanding." At that point, it's the nuances of how well a scientist matches the research or teaching needs of a department that nudge one candidate ahead of another. But, says Wyche, simply on the basis of statistics, "The chances of a minority—one of those 10—making it into the top few are remote." So unless diversity is explicitly considered in hiring, it's very unlikely that a minority will be chosen, Wyche says.

His view is echoed by Jim England, provost at Temple University, where 2% of the natural science and mathematics faculty are underrepresented minorities: "Asking for a minority adds a boundary condition that will only accidentally be met, unless the department and search committee decide it's a condition they want to meet."

Even well-intentioned schools have trouble hiring minority scientists.

POOL SIZE: 1991 DOCTORAL RECIPIENTS

	White	Foreign	Amer. Ind.	Asian	Black	Hispanic
Life Sciences	4657	1686	19	324	116	126
Physical Sciences	3593	2211	14	306	53	99
Social Sciences	4563	961	21	154	231	197
Engineering	2218	2473	6	401	55	59

Source: Commission on Professionals in Science and Technology

Revolving door. And what of those few minority scientists who do manage to make it through this process? It's hard to document a stream of departures when there are only a handful of minority scientists on campus in the first place. But anecdotal reports from both white and minority administrators, as well as statistics from individual schools like Duke, suggest that keeping minority professors is at least as big a problem as hiring them in the first place. "It's one thing to get a job," says Alison Williams, assistant professor of chemistry at Swarthmore College, who is black. "Keeping it, and keeping your sanity, is something else altogether."

CALIFORNIA STATE UNIV., NORTHRIDGE

Surrounded by support. Maria Elena Zavala and students have departmental backing.

Once on board, many minority scientists like Williams report feeling both isolated from their peers and beleaguered with extra duties because of their minority status. Minority women in particular are likely to be asked to join every committee in the university. Minority undergrads may gravitate toward them. All this takes precious time away from research and teaching.

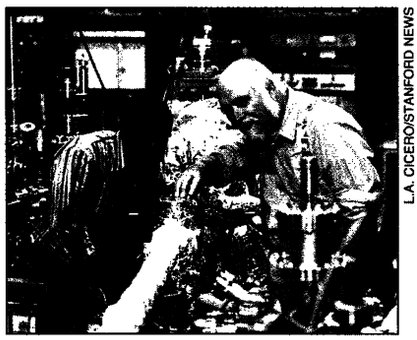
"Some days it seems that every marginalized student on campus ends up camping out outside my door. But I

What Works

Reaching Critical Mass in Graduate School

Most U.S. physics departments have exactly the same number of black graduate students: zero. In fact, most universities in this country have never graduated a single black physics Ph.D., although almost every school says it is eager to do so.

But for a short time in the 1980s, during a remarkable episode at Stanford University, the school became a mecca for black physics students. As of this year, 19 black students will have earned Ph.D.s since 1984—more than any other major university. In 1987, graduate student Albert Green arrived from the University of Chicago to find about a half-dozen other black students, out of a total of about 150 in the graduate program. "It was a critical mass," says Green. How did Stanford pull it off?



L.A. CICERO/STANFORD NEWS

Multiplying the numbers. Five black Ph.D.s came out of Bill Spicer's lab.

The original formula included a handful of pioneering black students, several committed white faculty, and, eventually, an informal network of support and advice among the students themselves. It began with a few senior professors, notably the head of graduate admissions, Walter Meyerhof, and a sympathetic department head, Alexander Fetter. The graduate program really got rolling in the mid-1980s, when Meyerhof convinced two of the first black graduate students to tour the South to recruit other blacks. And as more blacks came to Stanford, Meyerhof asked several students to form an advisory committee to help him recruit minorities and to review their applications—reviews that included calling students and their professors.

Once the students were on campus, they got support from older students, and several key professors. One of the first bits of inside information the students shared was which labs to avoid—and which to seek out. Early on, Green was told to take a look at the lab of renowned physicist Bill Spicer. "It's not like he's recruiting black students, but when you visit a lab and see three other black students, you notice," says Green, who became the fifth black to earn his Ph.D. with Spicer.

Spicer tended to judge students more on their potential than on whether they had the right academic background. Occasionally, he took students who lacked top grades, or who didn't graduate from one of the best schools. He says: "You have to ask yourself, what's the potential of this guy in 10 to 20 years?"

But to unlock that potential, Spicer sometimes had to invest a good deal of time in these students. In one case, he spent hours advising a master's student how to make up for her poor training. Although she had earned a degree at an Ivy League university, the physics department there was more interested in pushing her through the program than finding out what she needed to be a successful physicist, says Spicer. Finally, he arranged for her to take undergraduate physics at Stanford.

In most cases, Spicer says he took the time to get to know students well enough that they could confide in him about their problems in the lab. Green, for one, recalls feeling isolated after a postdoc he'd worked with left. It wasn't until Spicer recommended that he work with a visiting researcher that he finally formed a collaborative research project, working on a condensed matter physics problem that became his dissertation. Today Green is considering offers from industry research labs.

But the mix of faculty interest and student support proved a fragile one. Spicer and Meyerhof have retired. Fetter's replacement as department chair, as well as a new group of younger faculty, didn't make it a priority to recruit and retain blacks or Hispanics, say Green and Spicer.

"Times are leaner, and it's harder to take care of these students," says Doug Osheroff, who just took over the chairmanship in September. Osheroff plans to reapply for a James Irvine Foundation grant that expires this year to recruit minorities. But as of now, black students have been setting their sights elsewhere. The word on the grapevine at the National Conference of Black Physics Students, according to Green, is that "The places to go now are Michigan State University and Georgia Tech. The chairmen of those physics departments have picked up the ball."

–Ann Gibbons

know what it's like to be considered 'the other,' and I don't always want to say, 'No, I can't talk you,'" says Williams. She says she wants the same thing most researchers do: an environment where she can focus on research and teaching.

While feeling crowded by extra demands, many also say they long for the camaraderie of other minority scholars. Sometimes minority professors feel that they are outside the mostly white social circles of their new departments. "There is just a comfort or discomfort level some people feel," says Marc Walters, a black chemist who just won tenure at New York University after a protracted battle. "If they haven't had much contact with blacks, it's harder to relax, harder to converse about a variety of topics—among them science.... Having contacts just doesn't happen as readily as for whites."

Of course, at many major research universities, all new faculty—white or minority—are left to sink or swim. "It's pretty Darwinian out there," says black chemist William Leicester of the University of California, Berkeley. But minorities or women are likely to have a particularly tough time dealing with such cold cultures. "Black [and other minority] faculty do feel they come and get isolated, that's why we need a larger mass of them," says Duke provost Langford. "Everywhere I go, to campuses around the country, I hear that."

The point of collegial contacts is not just for friendship, but because they may lead to scientific collaborations. Many minority faculty told *Science* they worried about their lack of scientific contacts in their departments. "People stop by and say, Sandra, what about this situation in South Africa?" says cell biologist Sandra Murray of the University of Pittsburgh, who is black. "But especially at first, no one seemed to want to talk about what I wanted to talk about—my *work*, my area of expertise."

Then there's the issue of graduate students—the lab labor force that gets the research done. Minority students may be more likely to seek out a minority professor—but whites or foreigners are not. And since most

students are white, some minority faculty report trouble getting students. For example, in the late 1980s immunologist Martha Zúñiga found herself in a department at the University of Texas,Austin, where most of the new grad students were male, Asian immigrants. As a Hispanic woman, Zúñiga found that she had difficulty bridging the culture gap. "I don't know for sure why—whether it was just cultural, or that I was a woman... all I knew was that I wasn't getting students." After 4 years, Zúñiga left for a job at the University of California, Santa Cruz, in a department where the student pool includes more U.S. minorities and whites.

On the other hand, a few minority "star" faculty, usually older and well-established, find themselves with a steady stream of offers to work elsewhere. For example, well-known chemist Bertram Fraser-Reid of Duke, who is black, had two offers pending earlier this fall; biologist and administrator Wyche, at Brown, also reports numerous expressions of interest.

For younger minority scientists, too few grad students and too much committee work can add up to a slowdown in research—a dangerous situation for any scientist seeking tenure. Indeed, whether for this or other reasons, minorities do seem to have more trouble getting tenure. "My experience in knowing many minority faculty is that they do less than well," in getting tenure, says physicist Walter Massey, former head of the National Science Foundation and now provost of the University of California system. The only numbers available, taken from nationwide data on all university faculty in 1989, support Massey's impression, says Reginald Wilson, senior scholar at the American Council on Education: In 1989, white professors up for tenure had a 71.9% succcess rate, compared to 61% for blacks, and 63% for Hispanics. And Asian-Americans —although numerous in faculty positions—had a success rate of only 60%, adding statistical weight to anecdotal reports of Asian-American problems with promotion (see essay on p. 1127).

Seeking solutions. What can a well-intentioned university do to attract and retain more minority faculty members? When it comes to the first step—hiring—many have adopted a set of strategies, ranging from advertising in Hispanic and black publications, to postdoctoral programs that bring young minority scientists onto campus.

But by far the most aggressive step is to create "target of opportunity" positions, meaning that the opportunity is "targeted" toward a certain group, usually women and underrepresented minorities. Typically, these positions are financed by money controlled by the central university administration, rather than the departments. The basic principle is simple: If a department finds a qualified woman or minority candidate, the dean will assign that department a new faculty slot. There are also variations in which departments eventually cover a portion or all of the funding for the new job from their regular allotment of positions.

The Massachusetts Institute of Technology (MIT) began such a program 3 years ago, and has spent about $1 million so far. It seems to be working: In 1992 and 1993 together, nine out of roughly 100 new hires were underrepresented minorities, says provost Mark S. Wrighton. At the University of Michigan, the pool has been $1 million every year since 1988, and the money has substantially supported 60 new minority professors.

But not everyone is a fan of such programs. A few minority professors say the searches can be conducted in an insulting manner. Jamaican-born Fraser-Reid of Duke recalls that "someone phoned once and said, 'We're looking for black faculty,' and I told them the F word and hung up the phone. They didn't even know who I was! That's an extremely impertinent approach." Another Jamaican-born scientist, Phillip Phillips, who was denied tenure at MIT last year and is now a tenured full professor at the University of Illinois at Urbana-Champaign, criticizes MIT's targeted program and others like it because "departments have certain needs. They won't hire someone just because they're a minority. If there is no need in that area, it won't be a natural fit, and the person won't be very happy. So the program by definition is doomed to fail."

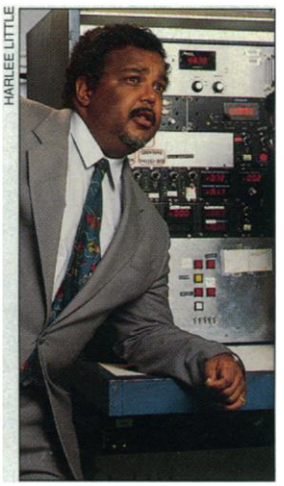
Indeed, many minority scientists told *Science* that they would rather receive an offer through a regular search process. For example, in 1986, Zúñiga interviewed at the University of California, Santa Barbara, for a target of opportunity job. During her visit, one prospective colleague said to her, "What's a smart girl like you doing sneaking in the back door like this?" Zúñiga was offered the job, but turned it down for the Texas job, which was not a targeted position.

Not surprisingly, some of the most bitter opposition to targeted positions comes from white male candidates frustrated by years of job searching. On computer bulletin boards such as the Young Scientists Network, where scientists seeking jobs share advice and tales of woe, angry charges of reverse discrimination sometimes heat up the networks. In response to a query from *Science*, one white male botanist, seeking a position after his third postdoc, wrote of his frustration when his department interviewed two candidates in his field for a "minority" position: "They were interviewing for a job I couldn't even apply for...I was even asked to take both of 'em to lunch....The whole process is basically unethical and immoral." At Berkeley, the target of opportunity positions were so controversial that 3 years ago the school renamed the program the exceptional opportunity program and opened it to white males, although minorities still receive extra consideration.

Despite the debate, university deans tend to support such programs for one simple reason: They work. At the University of California, Davis, for example, 10 underrepresented minorities have been hired on such positions in the last 8 years, (although white women have gotten 42 targeted jobs, the lion's share of positions). "I am sure they would not have been able to convince everyone on the faculty to hire me without target of opportunity [money]," says William M. Jackson, who in 1985 was recruited from Howard University to become a full professor of chemistry at Davis.

Many minority scientists simply shrug off any notion of affirmative action stigma. "My advice is, take the opportunity and run with it. It's up to you what you do when you get the job," says Wyche. Besides, adds Massey, "You're going to have to work three times as hard as anyone else to prove yourself no matter how you get in."

Staying the course. Many professors note that a campus with a strong minority presence is a powerful attraction. That's why materials scientist Michael Spencer has spent 11 years at Howard University, despite interest from other schools. "There's a significant representation of very capable scholars who happen to


HARLEE LITTLE

"There's a significant representation of very capable scholars who happen to be black, and there's a great sense of joy in that."

—Michael Spencer of Howard Unversity

Are Asian-Americans 'Underrepresented'?

The relationship between diversity programs and Asian-Americans has always been an uneasy one, since there are proportionately more Asians in science than in the general population. But more refined definitions of just what "underrepresentation" means may well lead to opening up some minority programs that so far have been closed to Asian-Americans.

A case in point is a decision rendered last spring by the Boston branch of the U.S. Department of Education, which opened up the state's Minority Advancement Program (MAP) to hitherto excluded groups. Three years ago Paul Bock, a Chinese-American emeritus professor of engineering at the University of Connecticut, charged that MAP, which is designed to enhance the minority presence in higher education, was violating the civil rights of Asian Americans and American Indians by excluding them from the program. Bock contended that MAP, which spends about $1.2 million a year on programs to get more minority students, faculty and staff into higher education, should calculate a group's underrepresentation in relation to the available pool of "relevant" people, rather than to the general population.

The groups in question were left out when the program was started in 1985 because officials thought they were already adequately represented. Only 0.61% of Connecticut's population is Asian-American, yet they comprise 1.5% of the college students and 1.73% of the higher education workforce. Corresponding percentages for American Indians are 0.15%, 0.3%, and 0.10%. On 7 May, though, the Department of Education's Office of Civil Rights agreed with Bock that the program "should have used relevant student and labor market data, rather than general population data, to determine which racial and ethnic groups were underrepresented in the Connecticut higher education system."

The state Board of Governors for Higher Education is currently revising the MAP program, but it's easier said than done. In this case, "no party could suggest what was relevant data," says Valerie Lewis, the board's deputy commissioner. So Connecticut is trying to figure that out with the help of demographic information from the latest census. For example, for a college president, the "relevant" pool would be nationwide, whereas for some staff jobs it might be the pool of qualified local personnel.

Lewis says that the significance of the decision is in large part symbolic. But although she believes MAP is better for it, she readily acknowledges that this is yet another example of how confusing the world of affirmative action has become. Other observers agree. "The whole area is just a morass," says Barbara Lerner, a Princeton, New Jersey, lawyer and consultant. There are number of ways of defining underrepresentation and people choose the definition they think will serve their ends, she says. But one thing that's clear, she adds, is that "general population figures never make sense" as the basis for determining underrepresentation.

Although when to include Asian-Americans in diversity programs remains a puzzle, several government investigations have made it clear that when it comes to general admissions policies, Asian-Americans must not be held to a higher standard than whites. In 1989, the University of California, Berkeley, confessed that in some previous years, a disproportionate number of qualified Asian-American applicants had been turned down (although an investigation found no evidence of systematic bias). But today, at Berkeley, as well as at UCLA and UC-Irvine, there are more Asian-Americans than whites among entering freshmen, school officials say.

Still, the issue has not vanished. In many private schools, contends Berkeley chancellor Chang Li Tien, it is still the case that "Asians require much higher test scores to get in." And Tien says that despite the strong Asian-American presence in graduate programs in the sciences, "they're still underrepresented" in relation to the number of qualified Asian-American college graduates—the standard of comparison that would be implied by the Connecticut ruling.

–Constance Holden

be black, and there's a great sense of joy in that," says Spencer. He adds that white professors may not realize the importance of such a community—because they enjoy one automatically.

One implication is that schools should think in terms of hiring more than one minority faculty at a time, says England, provost at Temple. "If all you do is hire one minority faculty member in dept x, you'll find that you'll lose that faculty member in pretty short order," he says. "It's important to have some critical mass, so that the people who come to your university will have colleagues. People need friends." Cluster hiring gives new faculty an automatic support group and provides enough minorities to share the committee burden. Of course, that requires plenty of openings—a luxury few universities have today.

But even without dozens of other minority scientists, a few key faculty mentors can help keep new professors from being stretched too thin. When developmental botanist Maria Elena Zavala, who is Hispanic, arrived at California State University, Northridge, for example, her department chair took her aside and warned her to stay off certain committees; he also discouraged others from asking for her participation—a practice mentioned by many as a powerful tactic to keep them on track. "The department did whatever it could to support me," says Zavala. "Everyone should have a boss like that."

When Sandra Murray arrived at Pittsburgh, on her very first day at work, while she was still unpacking boxes, "The only other woman in the department walked down the hall, stuck her head in, and said, 'So, are you writing your grant yet?'" It was a clear signal, a reminder, says Murray, of what her priorities should be. After all, the point of all these interventions is not just to make minorities feel welcome but to help them do the best science they can.

The most basic solution of all, of course, goes back to the source of the problem: that tiny pool of Ph.D.s. Universities themselves are responsible for producing new doctorates, so this remedy ought to be within their control. If Duke is any guide, then there are grounds for guarded optimism: As part of its black faculty initiative, the university also pledged to double the number of black Ph.D. students. Although the school fell short of its mark in hiring minority faculty, they actually exceeded their goal for students, and the number of black graduate students has risen from 20 to 55 today, including 15 in science and engineering.

–Elizabeth Culotta