SERVICE

White Men Can Mentor: Help From The Majority

White men and women can make a difference. Here's how.

You're a white scientist, working long hours trying to keep those grants and papers coming. You don't have any minorities in your lab, and there are only a few in your department. You may ask yourself: Is it really my place to help minorities get into science? But the thought has been nagging at you that perhaps you could do more—if only you knew how.

This is the situation that David Nelson found himself in 5 years ago at the University of Wisconsin, Madison. He has been a professor of biochemistry there for the past 22 years and, he says, "I was conscious that the department was empty of minorities. But I didn't know what I could do. I run a big lab with innumerable responsibilities, and I didn't think a professor could do much to recruit undergrads."

But then he met someone who changed his life—Johnnetta Cole, the president of Spelman College, a historically black college for women in Atlanta. She invited Nelson to spend a year at Spelman as a visiting scientist. "It happened to me at the right time in my life," recalls Nelson, who spent the 1991-92 academic year at Spelman, teaching biochemistry and living in the dorms with his wife, Toya Nelson.

White mentor. Biochemist David Nelson and recruits from Spelman.

Today, he is back at Wisconsin—along with four black students he met at Spelman, who are now graduate students at Wisconsin because of his encouragement. Three work in Nelson's lab, while several other Spelman students spent the summer in other Wisconsin labs on university-funded fellowships. "It's taken a lot of time and energy," says Nelson. "But I've never spent my time or energy better."

Nelson's short journey from self-doubt and inaction to energetic mentor is a vivid illustration of the difference that a white scientist can make in the lives of minorities who want to become researchers. While minority faculty may make ideal role models, it will be years before most science departments have enough minority professors to fill the need. In the meantime, it's up to whites to do the job.

Making contact. But while Nelson changed his life drastically in order to teach minority students, that is far from the only way to help. There are many smaller, thoughtful steps that also make a difference, but the single most important factor is the personal interest and backing of an individual faculty member. "The secret is personal contact," says Gerard Crawley, chair of physics and astronomy at Michigan State University, where the number of minority students in his graduate program has grown from one to 11 in the past 5 years.

Initiating that personal contact will probably require a telephone call or two. Try calling up a minority organization such as the Society of the Advancement of Chicanos and Native Americans in Science (SACNAS). Tell them your department is interested in recruiting minorities for the graduate program, and that you would be willing to talk with interested students—or even take them into your lab for a tour. Or, you might just want to log onto this group's electronic bulletin boards or get a subscription to their newsletter, both of which are read regularly by minority students and faculty (see p. 1135). If you're recruiting for your department or lab, you could even drop in on SACNAS' annual meeting, to be held this year in March in Chicago—where 1000 Hispanics and American Indians will gather. The same strategy also would work with other minority scientific organizations.

If you teach undergraduates in general science courses, that's another place to start. They could undoubtedly benefit from a professor's interest in their career plans or an invitation to visit a research lab. "One of the best things you can do is to provide a little bit of your time working with these individuals in your lab," says Patricia Laughlin, associate dean of engineering at Carnegie Mellon University in Pittsburgh, who interviewed minority engineering professors to see what common factors led to their success. Most universities also have outreach programs to local high schools, where they send scientists into classrooms where they can talk about their research—and keep an eye open for minority students who might want to visit their lab.

White faculty also can learn a trick or two from their minority faculty colleagues, such as University of Arizona mathematician William Yslas Vélez. Five years ago, he started buying pizza and inviting about 20 minority undergraduates enrolled in his calculus courses to stay late for some extra help. This year, eight Hispanic students will graduate with math degrees, and more than 200 minorities are taking first and second semester calculus—and Vélez is still trying to spend at least 15 minutes advising each student sometime during the semester.

Inside information. Contacts with minority faculty like Vélez are obviously valuable to whites seeking to diversify their departments. Take the case of Gerard Crawley. When he became chair of the physics department at Michigan State University 5 years ago, there were no minorities in the department. But he drew on his contacts at historically black colleges and universities (HBCUs)—scientists he had met at physics society meetings and as the past director of the division of physics at the National Science Foundation (NSF). He invited some to come to Michigan State to give visiting lectures or to stay for a sabbatical. And he made sure to ask them about promising undergraduates who might be encouraged to apply to Michigan State. "You have to get to know the faculty at HBCUs, and their students," says Crawley. "Push those contacts."

While those recruiting efforts were partly the work of a committed department chair—whose backing is particularly helpful—individual faculty also play important roles. Nelson, for instance, found that one crucial piece of the puzzle was something every professor has in abundance: Information about how graduate school works. Many of the best students at Spelman had never considered graduate school because they didn't think they could afford it. They didn't realize that graduate students in science, unlike undergraduates, are

What Works

Growing a Diverse Lab Culture

Geneticist Susan Henry never set out to be a mentor for minorities. But if you ask around the Pittsburgh campus of Carnegie Mellon University for the lab with the most racial diversity, you'll probably be directed to Henry's yeast genetics lab. Somehow, along the way to doing good science, Henry has become a magnet for students from a variety of backgrounds, including both U.S. minorities and international students.

KEN ANDREYO/CARNEGIE-MELLON UNIV.

Culturing diversity. Susan Henry's yeast genetics lab.

Among the 11 graduate students and postdocs now in Henry's lab, there are two blacks and four foreigners (from China, India, Slovakia, and Australia). Even she isn't sure why. "I may not be selecting them," says Henry. "They may be selecting me."

One reason may be that although she's busy—she's also dean of the Mellon College of Science—Henry is attuned to how her students are faring. Students say she knows when they need encouragement, financial support, or other assistance to help them survive—and succeed—in science. But she also expects excellence from all of them, regardless of their academic or cultural background. Finally, she's tolerant of diverse styles at the bench. "She is willing to go out of her way to keep people in her lab," says Czech-born Australian postdoc Vladimir Jiranek, 27. Adds black graduate student Margaret Kanipes: "I picked her lab, because I knew that she would protect me. I knew she really wanted me to succeed."

Henry manages all this by starting with bright students—but to her, that doesn't mean they must come from the most prestigious schools. "You have to look beyond the veneer put on a student by where he comes from," says Henry. "I ask myself, 'Is this a person with the potential to do what I'm asking him to do?" If he is, Henry is willing to work with him to develop his strengths—and overcome his weaknesses. "If a student hasn't had all the breaks, and doesn't come from the best school, then we'll have to invest more time," says Henry. "You have to think of it as cultivating potential rather than using educational background to weed people out of science and math."

When black biologist Tony Graves, 23, joined Henry's lab last year, for example, he knew that he needed "a lot of shoring up." But Graves found Henry particularly helpful in steering him toward classes and reading he needed. "She was very patient," Graves says. "I didn't feel like I was being ridiculed for what I didn't know."

But Henry doesn't hover. "We know a lot's expected of us, but she isn't the type of mentor who checks up on us every day," says Kanipes. "She allows us to try out techniques on our own. There's room for error." Still, students know that support is there. Kanipes, 25, felt isolated when she first came to Carnegie Mellon 4 years ago as the school's third black graduate student in biology; she had previously attended North Carolina A & T. "Every once in a while, Henry would pull me aside and say, 'I know things are hard, but you will be OK.' It really gave me a lift."

Bringing together people from such diverse backgrounds isn't always easy, however. Just like members of a family, members of the lab get upset when someone isn't "pulling their weight," says Henry. In one case, a student from a privileged family in Asia wasn't washing his glassware, and his labmates were annoyed. When Henry heard about it, she washed his glassware. When the student found out that a professor—a position commanding great respect in his culture—had washed his dishes, he was "mortified," says Henry. After that, he washed them himself.

On the whole, however, most of the young scientists in the lab take their cue from Henry and treat each other well. "I like the diversity here," says Jana Patton, a 30-year-old postdoc from Wyoming. "Susan makes it very clear to all of us that she doesn't tolerate anyone treating anyone else shabbily. She sets an example of tolerance."

–A.G.

usually given stipends. All it took was a little encouragement and information about fellowships and grants from the university, the NSF and National Institutes of Health (NIH) to get some students to apply to Wisconsin and other graduate schools.

The matter of money is frequently an important one. Minority students may face different funding dilemmas than typical white students, and some of the most important advice a professor can give concerns where the dollars are. In addition to all the usual sources of graduate student funding, private foundations, government agencies, and industry all provide funds for minorities seeking careers in research—and, in some cases, for professors who bring minorities into their labs (see Resources Guide, p. 1135).

Even with money available, many minority students are reluctant to apply to schools such as Wisonsin where they are sure to be outnumbered 100 to 1, says Nelson. He and his wife tried to ease that transition by inviting several Spelman students to stay with them when they arrived in Madison, and by introducing them to members of the black community, such as a black woman's professional group. "One student's first reaction when she came to Madison was, 'There sure are a lot of white people,'" says Nelson. "Students like this need somebody to go to."

That somebody doesn't even have to be on campus, but can be accessible through a computer network. The National Society of Black Physicists Net, an electronic mail network, was started by University of Maryland physicist Jim Gates to "help black students and physicists break out of feeling isolated." Gates, who is on leave from Howard University, has used the network to mentor black students at Dartmouth, the University of Washington, and Prairie View A & M University—putting several students in touch with each other and giving them advice on classes to take.

Clearly, the responsibility of faculty members doesn't end at the recruiting interview. "You can't just bring them in and forget them," says Crawley. The interest of individual professors is, in fact, critical. At Michigan State, Crawley has devised a system where each student—minority or not—is assigned a carefully selected mentor, usually a white faculty member who has similar research interests. Mentors lunch with their students on the first day of the first term, receive the

results of their students' placement exams, and advise the students on ways to fill any academic gaps. At Michigan State, physics professor Dan Stump decided on his own to take this a step farther, offering tutorials to help students prepare for Ph.D. candidacy exams.

White mentors also need to acknowledge that their students are black, Hispanic, American Indian, or Asian-American from the start. "If you have a minority student in a lab, the worst thing is to pretend this isn't an issue at all," says Dartmouth University biologist George Langford, who is black. "It's very, very important you recognize who the individual is and recognize he or she has real needs, because minorities come from a different background."

Encouragement is especially important for minorities—because of the difference in power between white professors and minority students, who often perceive that they have less power in society than whites. "A statement made by a white male to a black student can be devastating, while it would not be to a white student," says Langford. "If a white man can begin to understand that, he'll find he has less problems with his students."

Finally, the students aren't the only ones who need encouragement. If white professors are making progress—making an impact on minorities' lives— then they also need to be thanked. "One final issue," says Langford, "is white men have to be told they're making progress on these issues."

–Ann Gibbons

SERVICE

A Guide to Minority Aid From Scientific Societies

Most societies offer mentors and scholarships—but a few leave minority students to sink or swim on their own.

Most scientists make their first contact with the wider world of science at their first scientific meeting, sponsored by one of dozens of professional societies. But what do these societies do for the minority students and professors in their midst? Here *Science* offers a guide to the societies that do the most—and the least—for minority students and scientists (see table).

Some new programs match students to mentors and create databases of minority scientists to help place them in jobs or get them invited as speakers. But the more traditional efforts—research opportunities and scholarships—are still going strong.

Most societies focus on college undergraduates or older—the level most professional scientists are comfortable with. For example, one of the leaders in minority outreach, the American Society for Microbiology (ASM), offers a package of support to minority undergrads, including summer research stints, and a trip to the society's annual meeting. Society members visit minority institutions, and ASM sponsors a free computer bulletin board.

The American Physical Society also targets undergraduates, with the help of an enthusiastic, 20-year-old minority committee. They connect students to mentors and give scholarships, and this year began a new database of minority physicists, providing a list of possible speakers to supplement a traveling lecture program.

Indeed, many societies adopt this simple—and inexpensive—strategy of supporting visiting minority lecturers. The Federation of American Societies for Experimental Biology (FASEB), has also begun a comprehensive database filled with information and resumes on all minority members. FASEB sends its members to predominantly minority institutions to lecture, give research advice and help both students and faculty with grant proposals.

One of the few groups aiming at the precollege years is the American Chemical Society (ACS). ACS targets high schoolers and even elementary school students with a diverse selection of research opportunities, educational programs, and grants to community organizations.

On the other end of the spectrum, the Society of Neuroscience focuses on postdoctoral researchers and young professors, offering a package of support to about 30 young neuroscientists, including a trip to the annual meeting—and a mentor when they get there.

In addition, almost all societies offer minority scholarships to undergraduate and graduate students. But several societies offer no programs for minorities: the American Geophysical Union, the American Society for Biochemistry and Molecular Biology, the American Mathematical Society, the American Society for Information Science and the Institute of Electrical and Electronics Engineers, Inc.

–Karen Fox

Societal Support: Leading Programs

Society	Scholarships or Research Grants	Summer Research	Mentors	Meeting Travel Grants	Lecture Programs Educational Materials, and Workshops
American Society for Microbiology	undergrad graduate	undergrad	undergrad	undergrad	faculty
American Society for Cell Biology		graduate through faculty		undergrad through faculty	graduate through faculty
American Chemical Society		high school			elementary–high school undergrad, graduate
American Physical Society	undergrad	undergrad		faculty	faculty
Federation of Amer. Societies for Experimental Biology	undergrad graduate			undergrad through faculty	faculty
Society of Neuroscience			undergrad through faculty	undergrad through faculty	