



SCIENCE AND DIPLOMACY

AAAS S&T Policy Fellows Risk Their Lives to Rebuild Iraq

Alex Dehgan remembers the sound—it was like a car door closing. And then a few seconds of waiting, helplessly, never knowing whether the mortar would explode nearby, or at a distance. Some nights he went to sleep at his quarters in the fortified Green Zone wearing his flak jacket like a blanket.

It was not what he envisioned when he first applied for the AAAS Science & Technology Policy Fellowships. But like a small corps of current and former Fellows, Dehgan, as a Diplomacy Fellow at the State Department, made a remarkable commitment to rebuilding war-torn Iraq.

AAAS Diplomacy Fellow Krista Donaldson, also at the State Department, made two extended trips to Iraq, using her expertise as a mechanical engineer to help bolster the nation's electrical grid. Peter Smallwood, a 2003–04 Congressional Fellow, spent nearly 10 months in Iraq managing the U.S. State Department's program to direct former Iraqi weapons experts and other scientists into reconstruction efforts. Dehgan, after 5 months in Iraq last year, worked with a half-dozen AAAS S&T Fellows from the Departments of State and Defense to organize a virtual library of science and engineering publications that will soon serve hundreds of Iraqi scholars and students.

Dehgan directed the weapons scientist program in its first months of operation—an

effort seen as helpful in stabilizing the nation and keeping the scientists from going to work for hostile forces.

Despite the extreme risks, Dehgan said recently, "I don't regret it, so long as others can continue working on building science in Iraq, and so long as the Iraqi people have hope in their future. But it was hard facing these fears all the time without the support of my family—I could not tell them of the dangers that I was in, or that I was even in Iraq—because I didn't want them to worry."

After winning the fellowship, Dehgan was assigned to the State Department's Bureau of Near Eastern Affairs and volunteered to work with the Coalition Provisional Authority, which governed Iraq after Saddam Hussein's fall. Though he was based in the Green Zone, he frequently ventured outside the walls to work with Iraqi colleagues at the program's headquarters.

In a recent interview, he described narrowly avoiding injury in nearby explosions, getting caught in cross-fire, and living with death threats. "Even upon leaving, my plane and the airport came under fire," he said. "The stress never stopped until I was in the United Kingdom, where I was briefing the British Ministry of Defense—and even then, it took months before I could relax."

Smallwood, a behavioral ecologist, served during his fellowship as an aide to U.S. Senator Joe Lieberman (D-Conn.) on environmental issues. He and Dehgan were friends, and when the fellowship ended, he signed on with the State

Department's Iraq Reconstruction Management Office. Dehgan came home in mid-June 2004; Smallwood was sent to replace him in September.

By the time he reported for work in Baghdad, the security situation had deteriorated further, and leaving the Green Zone was still more dangerous. "Everyone deals with stuff in different ways," Smallwood said. "I adapted to my own security situation pretty well. Much more difficult for me was making decisions that affected the security and safety of others. That's not something I have any training for."



Mechanical engineer Krista Donaldson on duty in Iraq last winter.

During his time in the war zone, he too dodged bombs and survived attacks on the Green Zone—but two friends and a half-dozen acquaintances were killed. He returned to the United States at the end of June and will resume teaching in the fall semester at the University of Richmond.

After his return home, Dehgan continued to work with scientists in Iraq and the Middle East. He also was an organizer of the Iraq Virtual Science Library, which is slated to go online this fall to help replace the libraries and academic institutions that were looted in Iraq. Other AAAS Fellows who have collaborated on the program: Susan Cumberledge, D.J. Patil, and Ben Perman at the Defense Threat Reduction Agency; Ranjiv Khush in the Office of the Science and Technology Adviser at the State Department; Kwabena Boakye-Yiadon at the Office of the Secretary of Defense; and Barrett Ripin, a 2001–02 Diplomacy Fellow and now a senior science diplomacy officer at State.

The U.S. National Academy of Sciences, Sun Microsystems, and an increasing number of scientific journal publishers also are partners in the project.

With the yearlong fellowship ending this month, most of the Fellows are returning to labs, teaching, and other jobs. Dehgan has not decided what he'll do next. He received a letter of commendation from the Department of Defense, and in July he received the State Department's Superior Honor Award, given "in recognition of a special act or service or sustained extraordinary performance."

The same month, he finally told his parents of the work he'd done in Iraq.



Peter Smallwood (left), a 2003–04 Congressional Fellow, and Alex Dehgan, a 2003–05 Diplomacy Fellow, at a Baghdad restaurant in May 2004.

EDUCATION

AAAS/Packard Graduate Scholars Blaze Ph.D. Trail

Virtually everyone who has gone to graduate school in science, engineering, or math knows that the road to an advanced degree is rigorous, requiring long hours over several years and the ability to stay focused even in periods of struggle. But scholars coming from historically black undergraduate schools to major research institutions often face additional challenges: isolation, a lack of role models, and, sometimes, disrespect.

The challenges were at the forefront of discussion when more than 50 young researchers in the elite AAAS/Packard Graduate Scholars Program convened last month in Monterey, California, for their annual meeting. They are ambitious scientists and researchers, many already on a track to leadership, and during 3 days of meetings and panels they did what grad students usually do when they meet—talk about their research and career options.

In panel discussions and in interviews, they also focused on the obstacles that can confront African-American scholars who come from small schools that might not be well known. The opportunity to have such discussions is what makes their annual meeting—and the program itself—vitaly important, they said.

“Even though we don’t have a large network of African-American students in our respective institutions or departments, when we come together at this meeting, we have a support system because everyone is on the same page and going through the same experience,” said A. Nicki Washington, who received her Ph.D. in computer science this spring from North Carolina State University. “It motivates us to continue and it also should be a motivating factor to those coming behind us, to see that there are people who make it, people who succeed.”

The David and Lucile Packard Foundation established the program in 1992 to help graduates of Historically Black Colleges and Universities (HBCUs) pursue doctorates in the sciences, engineering, and mathematics. The program awarded 15 scholarships annually, each for \$100,000 disbursed over 5 years. The foundation stopped funding new scholars in 2003 and turned management of the program over to AAAS.

Since its inception, 147 fellowships have been awarded. To date, 42 of the scholars have gone on to receive Ph.D.’s and three more are expected to receive Ph.D.’s by December; 56 others remain in the Ph.D. pipeline.

The program is important because recent studies have shown that the U.S. science and

engineering labor pool is getting older and that interest in these fields among younger people has waned. In order to keep that labor force globally competitive, many experts say, it will be essential to recruit and cultivate future scientists and engineers from the broadest possible pool of talent.

Currently, African Americans comprise only a small percentage of the students earning advanced degrees in science, technology, and engineering. Averaged over the last three decades, just over one African-American woman per year has received a Ph.D. in physics; in 2004, the scholars program alone produced two such scholars.

“The Graduate Scholars Program shows that there is a lot of talent in HBCUs,” said Shirley Malcom, AAAS head of Education and Human Resources. “Though this may not be the prevailing perception in many of the departments in our major research universities, the program indicates that there are many highly qualified students in HBCUs who, with the right financial, moral, and intellectual support, can be extremely successful.”

Though the numbers are relatively small, they may provide a foundation for growth, said Marcus Jones, who this year earned his Ph.D. from the Department of Microbiology at New York University School of Medicine.

Generally, a degree obtained from a historically black school “is seen as far in-

ferior compared to a degree from a majority institution,” Jones said. But the relationship with the Graduate Scholars Program helps to strengthen the small schools’ reputations. And that, Jones added, “will also help with the quantity of minorities entering the sciences and better prepare them for a career in the sciences.”

Jones, an expert in anthrax, has taken a postdoc position with The Institute for Genomic Research in Rockville, Maryland. Washington has taken a job with Aerospace Corp., based in Chantilly, Virginia.

“It shouldn’t necessarily be that we’re the first and that we’re the elite few,” Washington said. “It should be commonplace for African-American students who are in science and engineering, especially at historically black colleges and universities, to be able to go on to obtain higher degrees, so that they can come back and teach at these universities and influence and support and inspire the generations behind them.”



A. Nicki Washington earned her Ph.D. in computer science this year.

MATHEMATICS EDUCATION

AAAS Joins in Efforts to Teach Math Teachers

More than three dozen Washington, D.C., middle-school mathematics teachers are preparing to go back to school—but this fall, they’ll be the ones learning. Twenty teachers will join a class of 18 already enrolled in a 3-year professional master’s program in middle-school mathematics, a new degree at The George Washington University (GW).

The middle-grades teachers are the most important to target, as research shows that math learning slips during the early teen years, explained GW Math Department Chairman Dan Ullman, who taught a class for the teachers this summer at AAAS. Ullman’s class was featured on the 13 July evening news on WRC-TV, the local NBC affiliate for Washington, D.C., Virginia, and Maryland.

Besides teaching their own classes full-time, the teachers meet weekly to practice math and compare teaching methods. They also meet leading national math educators and observe each other’s classes. This fall, teachers will begin coaching their colleagues for 9 months, so that every D.C. public, private, and charter school teacher might eventually benefit from the program.

“This [program] gives you an opportunity to constantly be invigorated,” said Michelle Johncock, an Edmund Burke School teacher entering her second year of the program. “It doesn’t let teachers fall into a rut of teaching.”

A cadre of D.C. middle-school science teachers will begin a similar program this fall. In preparation, Jo Ellen Roseman, director of AAAS’s Project 2061, which laid the groundwork for the nationwide science standards movement of the 1990s, taught GW science faculty this summer to design a curriculum based on those standards.

AAAS administers the programs in partnership with GW and the D.C. Public School System. Funding is provided by the D.C. State Education Office, through the Mathematics and Science Partnership Program of the U.S. Department of Education.

—LONNIE SHEKHTMAN