edited by KAREN HOPKIN

The Problem Solvers: Engineers with Disabilities

"The most important characteristic of a good engineer is persistence," says Ralph Hotchkiss, one of the engineers featured in the new AAAS video *The Problem Solvers: People with Disabilities in Engineering Careers*.

"People with disabilities come to the field [of engineering] better prepared because we're all used to having to sweat to get things done," he says. "We look for the optimal way of doing things, and we have to do this everyday."

AAAS Science, Technology, and Disability project director Virginia Stern agrees. "The engineering curriculum is a rigorous one, but people with disabilities have solved a lot of problems before they got into engineering school," she says.

The video features 24 engineers and engineering students with disabilities working in labs and classrooms at seven universities and eight different work sites. They discuss why they entered the field; how assistive technology helps them do their work; how they were encouraged by teachers, mentors, and family members; and what can be done to overcome fear and ignorance about persons with disabilities.

Like many engineers, Hotchkiss found himself drawn to technology even as a child. "I started by making some wings and jumping off a fence," he admits. "Needless to say they didn't work too well," but nevertheless, he was hooked. Now a MacArthur fellow and a teacher at San Francisco State University, Hotchkiss oversees the construction of ultra-light sports wheelchairs in shops located in 20 countries worldwide.

Such success stories can "show industries that they will be able to hire engineers with disabilities," says Stern. When provided with the proper technology and equal opportunity, she says, people with disabilities—whether visual, hearing, mobility, or learning—will be able to "enter competitive employment situations and contribute to the technical enterprise of the nation.

"Engineering is not just for super-people, like the ones who climb Mount McKinley in a wheelchair," adds Stern. People with different disabilities are currently making their mark in accredited programs in electrical, mechanical, chemical, and civil engineering, proving, according to Stern, that "engineering is a viable career option for students with disabilities and that it's not too hard." She says that *Problem Solvers* will be a useful tool for high school and college teachers and counselors who wish to encourage students with disabilities to pursue careers in science, mathematics, and technology.

VIRGINIA STERN

University of New Mexico engineering student Michael Perez with his wife, Antoinette.

Funded by NEC Foundation of America and NASA, the video debuts on Capitol Hill on 1 June 1993. Co-sponsored by AAAS and the American Society for Engineering Education, the reception's congressional sponsors include Senators Robert Dole, Tom Harkin, Orrin Hatch, and Edward Kennedy and Representatives Sherwood Boehlert, James Clyburn, and Major Owens. These legislators share a "commitment to people with disabilities that is both real and continuing," says Stern.

NEC Foundation supports science and math education and the development and use of technologies for people with disabilities—avenues that are essential for creating a level playing field and providing equal opportunity for people with disabilities, says Stern.

AAAS Science, Technology, and Disability project was founded in 1975 to improve the entry and advancement of people with disabilities in science, mathematics, and engineering. In 1991, the National Science Foundation provided funding for the Access to Engineering project—a 5-year effort focused on increasing the recruitment and retention of engineering faculty and students with disabilities.

Through these programs, AAAS has "alerted the engineering education community that there is a significant pool of talent in persons with disabilities that has not yet been tapped," says Stern. According to demographics compiled by the Engineering Workforce Commission, persons with disabilities are underrepresented at many schools, comprising less than 1 percent of the students and faculty.

The Access to Engineering project is working with several schools to establish viable programs that will encourage people with disabilities to pursue careers in science and engineering. The project provides technical assistance and the resources that allow universities to write proposals for their own funding. For example, Stern serves on the advisory board for the "DO-IT" program at the University of Washington, which will link high school students with disabilities with role models via Internet—the interactive electronic computer network. This project will serve as an example for designing future programs.

People with disabilities make excellent engineers because, from the onset of their disability, they have been developing creative ways to solve problems.

–from *The Problem Solvers: People with Disabilities in Engineering Careers*

With the expansion of such programs, the implementation of the Americans with Disabilities Act, and the widespread introduction of assistive technologies, Stern says that people may soon realize that persons with disabilities are really not handicapped at all.

Problem Solvers, a video with open captions, can be purchased from AAAS Books for $20 plus $4 postage and handling. Write to P.O. Box 753, Waldorf, MD 20604 or call 301-645-5643 and ask for AAAS. Please request order number 93-15S.

For more information, write to the AAAS Science, Technology, and Disability Project, 1333 H Street, NW, Washington, DC 20005 or call 202-326-6630 (voice/TDD).

Sending Journals to the FSU

As any scientist can tell you, keeping up with the literature is a prerequisite for making significant contributions in any field of research. But consider the plight of scientists in the former Soviet Union (FSU). With the recent upheavals in the Soviet political, economic, and social structure, hard currency is scarce and many journal subscriptions have lapsed, making it increasingly difficult for these scientists to keep abreast of the latest research.

To help bridge this communications gap, a new AAAS program will be shipping a dozen copies of 135 key scientific and technical journals primarily to major public or science and technology libraries in Russia, Ukraine, and Belarus. This effort significantly augments the association's 1992 initiative to reinstate several lapsed *Science* subscriptions throughout the FSU.

Funded by a $275,000 grant from the MacArthur Foundation, the 2-year Journals Distribution Project will coordinate the shipping of more than 34,000 journal copies provided by scientific and engineering societies affiliated with AAAS.

"We began receiving requests from scientists and librarians for journals about 2 years ago," says Project Coordinator Beth Boswell. Since 1990, the number of subscriptions to scientific journals in the FSU has decreased drastically. At the Library of Natural Sciences of the Russian Academy of Sciences in Moscow—one of the libraries targeted by the AAAS program—75% of journal subscriptions have not been renewed.

While Soviet scientists have contributed significantly to the well-being of the country in the past, Boswell says that "FSU scientists are now in a situation where they have little money, and they are not on their republics' priority list for short-term assistance."

"The scientists are worse off than the subway drivers," agrees John Malin, the administrator for Awards and International Initiatives at the American Chemical Society (ACS). While their salaries may be equally meager, at least the subway drivers can draw attention to their plight by going out on strike, he says. But scientists don't have the same leverage.

ACS initiated its own journal distribution program through the Russian Embassy and the Russian Academy of Sciences late last year. In addition, they will be contributing 200 journal subscriptions, valued at over $500,000 per year, to the AAAS coordinated effort. "For ACS, it is very important to help chemists in the FSU," says Malin, as they constitute "a group of brother and sister scientists."

The AAAS project was going to begin shipping in April but has been delayed by problems with Moscow officials trying to impose excessive duties on the journals. "Our challenge is to find the right people in Moscow to declare that because the journals will not be sold for profit, they are essentially for humanitarian purposes and will be exempt from taxes," says Boswell. Once these customs problems are solved, most of the journals will be air-lifted to Russia and distributed to a dozen libraries in Moscow, St. Petersburg, Kiev, and Minsk. A few of the titles will go to central medical libraries in 11 FSU republics.

But more important than the monetary value of the donations is the strong commitment to help. Malin has heard that Russian physicists find it "emotionally very moving to know that somebody cares enough to help them."

While no one knows what the next 2 years will bring for the Russian economy, Malin says that the current goal should be "to let people know we're trying to help, so they have the courage to help themselves."

To learn more about this project or other AAAS programs to aid the FSU, contact Associate Program Director Sandra Burns Thomson or Project Coordinator Beth Boswell at 202-326-6427.

Board Cancels Denver Meeting Plans

The AAAS Board of Directors has decided not to hold the association's 1999 Annual Meeting in Denver because of Colorado's passage of Amendment 2. This state-wide legislation prohibits the enactment of civil rights protection for homosexuals, lesbians, and bisexuals.

During its April meeting in Washington, D.C., the Board of Directors decided that no AAAS meetings will be held in Colorado while language similar to that of Amendment 2 remains in the state's constitution.

According to AAAS Scientific Freedom, Responsibility, and Law program director Mark Frankel, "the board felt that it was important to maintain a position consistent with the 1975 council resolution [on discrimination against sexual minorities] and to make a public statement that on principle, and in good conscience, AAAS could not hold a meeting in a state which could maintain such a position." The text of the earlier AAAS council resolution appears in the accompanying sidebar.

"AAAS is in the vanguard of science and engineering societies that are taking a position on this issue," says Frankel. "Working in parallel, we're taking aim at the language of Amendment 2, and others are doing the same."

At the end of January, the American Mathematical Society and the Mathematical Association of America canceled plans to hold their joint meeting in Denver in 1995. Frankel says that other groups, such as the American Physical Society and the New York Academy of Sciences, are at various stages of drafting similar statements in opposition to discriminatory measures affecting gays, lesbians, and bisexuals.

The association's 1993 Annual Meeting, held in Boston, attracted some 5900 scientists, educators, and students with broad scientific interests. Denver convention officials estimate that cancellation of the AAAS meeting will result in a revenue loss of approximately $2.3 million for Colorado. AAAS has held its annual meeting in Denver four times in the past and will reconsider meetings in Colorado if Amendment 2 is repealed or declared invalid by the courts.

1975 Resolution on Discrimination Against Sexual Minorities

Whereas some American scientists are members of sexual minorities (homosexuals, transvestites, transsexuals, etc.), and

Whereas these persons may be valued members of their professions, capable of making great contributions to the progress of science and to the national welfare, and

Whereas there still exist many forms of discrimination against these scientists because of their sexual orientation, without regard to their professional qualifications, and

Whereas because of this discrimination some scientists are denied an opportunity to practice their professions and others are treated inequitably in terms of salary, promotion, or assigned duties, and

Whereas such discrimination constitutes a loss to science and an injustice to these individuals,

Therefore be it resolved that the American Association for the Advancement of Science deplores any form of discrimination on the basis of sexual behavior between consenting adults in private, and

Be it further resolved that the Board of Directors be requested to charge its Committee on Opportunities in Science to take due cognizance of this resolution in its work.