



Chemist Dave Wohlers (right) and mentor Melanie Austin (left) offer guidance to Jenny Suchan (second from left), 16, and Crystal Hardy, 13, Marylanders who attended science camp at Johns Hopkins University.

PHOTOS BY KENNETH K. LAM [SUN PHOTOGRAPHER]

Camp inspires students to seek careers once beyond reach

Blind youths see a future in science

BY CHRIS EMERY
[SUN REPORTER]

Dave Wohlers leaned against the cold laboratory bench, gripping a white cane. He listened as the three blind girls across the bench struggled with their experiment.

"Oh, I dropped the wire," one girl said.

"I'll get it," replied another.

Her stool screeched across the tile floor of the Johns Hopkins University chemistry lab as she climbed down to grope for the wire.

The girls were building an electrolytic cell, a power source of the sort that might one day fuel ultra-green cars. Such technical projects are difficult, even for students with good eyes. But Wohlers showed no pity for the 20 or so blind students under his tutelage that morning.

His role as an instructor was to guide and inspire — not to coddle.

The experiment was part of Youth Slam 2007, a science camp sponsored this month by the Baltimore-based National Federation of the Blind that attracted about 200 blind students from around the country. It grew out of a larger initiative by the Jernigan Institute, a NFB program launched in 2004 to foster a culture of self-sufficiency in the blind community. Blind children are being pushed to pursue careers that even the most optimistic once thought beyond their grasp.

"The big thing is to inspire them to do more than they previously thought possible," said Mark Riccobono, executive director of the institute.

Bolstering the initiative are new electronic devices that act as a blind



Mentor Heather Oklak (left) works with Colleen McBride, 17, of Madison, N.J., and Courtney Lee, 17, of Seattle on a chemistry experiment during the summer camp that encourages studies in science.

[Please see CAMP, '6B]

Camp inspires blind to study science

CAMP [From Page 1B]

person's eyes by turning visual information into sound or Braille text.

iPod-sized translators can take photos of printed documents and read them out loud. Portable computers known as "notetakers" can store reams of information — novels, scientific data and personal reminders — then reproduce it instantly as lines of Braille. And talking instruments can tell blind scientists the color, temperature and weight of chemical compounds.

NFB officials say the combination of technology and hands-on lab experience will boost blind students' confidence. Wohlers hopes that will help them overcome hurdles similar to those that nearly kept him out of science. "If you can feed the thinking by doing it physically," he said, "somehow you have a recognition that 'I can do this.'"

Such surety was hard won for Wohlers, who was completely blind by age 8, the result of a genetic condition that caused cancerous tumors to form on his retinas.

He first developed a keen interest in chemistry while attending a school for the blind in Vinton, Iowa. "I loved the competition in the classroom," he recalled. "And I loved the idea of synthesizing something new that nobody had made before." Aptitude tests also showed he might make a good scientist.

But Wohlers had never heard of a blind chemist and neither, it seemed, had anyone else. Back then, "blind scientist" sounded

like a virtual impossibility.

When his high school guidance counselor told him it was too bad he couldn't go into chemistry, Wohlers didn't think to ask why he couldn't. "I just didn't know anybody who did that," he said. "If you were good, you were a teacher. If you were special good, maybe you were a lawyer. Otherwise, you were a piano tuner or broom maker, or some other manufacturing job."

In 1970, he entered the University of Iowa as an economics and business major, thinking it was a practical field for a blind man.

He soon discovered he had made a mistake. "I just couldn't stand reading that stuff, and I couldn't motivate myself," he said. "I realized that maybe I wasn't following my bliss."

After failing an economics exam, he switched to a double major in chemistry and mathematics despite his misgivings about science as a career. "There were no guarantees I could do the lab work," he said. "We didn't even have microcomputers then. I just had faith that someday there would be a solution, that the technology would catch up."

Other students acted as Wohlers' eyes in the laboratory. They handled the chemicals, mixed the various reagents and measured the products. Wohlers was the brains behind the operation, telling the volunteers what to do at each step.

He learned a lesson about science that would carry him through his career: The lead scientist doesn't have to do the laboratory grunt work. "It quickly became very apparent that chemis-

try is a cerebral sport," he said, "and not hand-to-hand combat."

Wohlers decided he would need to be the boss — managing the ideas, people and data, while delegating the bench work to sighted assistants. He could be intellectually immersed in the work, if not physically connected to research.

But not everyone was convinced a blind man could do science. Wohlers discovered this when he applied to the graduate program at Iowa State University's chemistry department.

Iowa State was the professional home of Henry Gilman, a pioneering organic chemist who had gone blind in 1947, about a third of the way through his career. Known as a stern taskmaster who demanded much of his graduate assistants, Gilman published more than 500 papers after losing his sight. In 1977, he was awarded the Priestley Medal, the American Chemical Society's highest honor.

Despite that precedent, Iowa State turned down Wohlers' application. "They wrote me back a rejection letter saying they didn't think people who are blind can do chemistry," he said. "The recruitment committee must not have known Henry was on their faculty."

The chemistry department at Kansas State University saw things differently and accepted him into their graduate program.

Wohlers' graduate research focused on inorganic synthesis and photochemistry, the study of how light alters a substance's chemical properties. As in his days as an undergraduate science major, he directed the intellectual orchestra while assistants played the laboratory instruments.

"It took longer, no question," he said, "and I didn't produce as much work as the next guy, but I did enough to get the job done for a Ph.D."

He parlayed his doctorate into a faculty position in the chemistry department at Truman State University in Missouri, where he still teaches.

"I'm not the first blind chemist and I'm not the only blind chemist," said Wohlers, 55, "but I'm one of the few blind chemists."

He hopes programs such as the Youth Slam will help increase those numbers by raising blind students' expectations for themselves and giving them hands-on lab experience.

The students in the Johns Hopkins lab that muggy morning were working mostly on their own to construct the fuel cells. The three girls across the bench from him were making steady progress despite their early difficulties.

Two were high school students, both 17 and considering science careers. Courtney Lee, from Seattle, wanted to be a chemist, and Colleen McBride, from Madison, N.J., thought she would make a good biologist, or maybe a doctor.

The third member of the group was Heather Oklak, 20, a blind business major at Indiana University who volunteered to act as the younger girls' mentor. They found the dropped wiring and combined it with a battery and salt-water solution to simulate the storage of energy in a hydrogen fuel cell car.

"It's going to smell like chlorine and it's going to bubble," said Oklak as they applied electric current to the salt water.

"Oh, yeah, it's working,"



Student Jenny Suchan gets advice from Cary Supalo, a blind doctoral candidate who is co-teaching chemistry at the camp.

KENNETH K. LAM [SUN PHOTOGRAPHER]

McBride said. "It smells like a pool"

"It's sodium chloride," Lee said, "so that makes sense."

After a minute of charging their fuel cell, they hooked it up to a talking voltmeter, a device that measures the energy stored in the cell.

"Zero point zero nine four," the machine said in a computer

voice.

"What'd it say — 0.049?" McBride asked.

"No, I think it was 0.480," Lee replied.

Standing farther away now, Wohlers remained silent, letting the young scientists learn their lessons the hard way.

.....
chris.emery@baltsun.com