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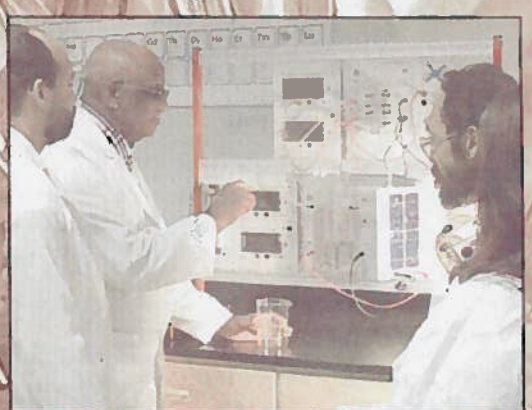
CAREERS
Exploring Your Options



Forging New Connections

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Love of Inquiry, COMMITMENT TO SERVICE

The Remarkable Career Path of William Davis

By Eric R. Stewart

THE NEXT TIME YOU SIT DOWN TO A STEAMing plate of instant mashed potatoes, think about William Davis. A native son of Georgia, Davis' 50-year career has taken him across the country to research in a variety of fields, and ultimately to his current position as chair of the Natural Science Department and professor of chemistry at St. Philip's College, San Antonio, Texas.

As a young man, Davis' career opportunities were limited – as they were for all African Americans. He had been inspired by the work of two men: his father, a self-taught pharmacist, and George Washington Carver. But when he took his orals for his M.S. in organic chemistry at Tuskegee Institute in 1958, he was advised that, if he wanted a scholarship to support his pursuit of a Ph.D., it would have to be a Ph.D. in education with a concentration in chemistry. This meant that if he wanted to earn a doctorate, he would have to go into teaching – regardless of his desire to focus on doing research.

COURTESY OF WILLIAM DAVIS

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COURTESY OF WILLIAM DAVIS

Clearing old obstacles

In fact, for years, African Americans pursuing research careers had been given exactly the same advice. Percy Julian, another acclaimed researcher, even went to the length of attending a university overseas so that he could earn a Ph.D. leading to a career in research. (See "Looking to History for Inspiration: The Achievements of Percy L. Julian" in the April/May 2007 issue of *in Chemistry*.)

Despite advice to the contrary, Davis had his heart set on a career in industrial research. Davis considered numerous Ph.D.-granting institutions before finally finding one offering a scholarship that would allow him to focus his work toward a career in research. It would be a significant change for him, however; the institution was on the other side of the country: the University of Idaho in Moscow.

Davis applied and was accepted. He moved to an unfamiliar world in which he was one of a handful of African Americans. Even so, Davis recalls, he encountered no problems from his new colleagues and neighbors. He quickly became involved in research projects that satisfied his scientific curiosity and his need to be of service.

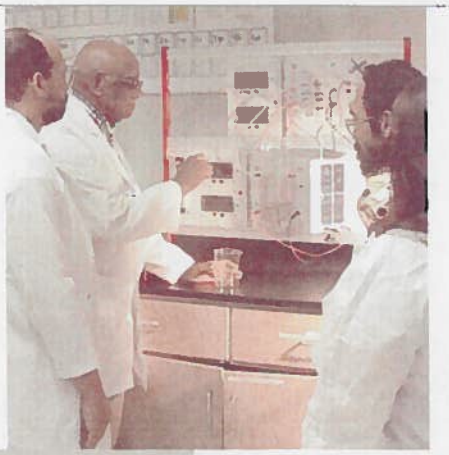
Studying spuds and saw blades

"At the University of Idaho," Davis recalls, "I was studying the rate at which various potatoes sloughed, or broke down. There were two extremes of needs – soup manufacturers wanted potatoes that sloughed at a very slow rate after they had been cooked and canned. Meanwhile, makers of instant mashed potatoes wanted potatoes that sloughed more rapidly. It was fun, and we sometimes worked all night on the problem." However, his research eventually seemed to reach a dead end, and Davis felt frustrated.

At the same time, another challenge caught Davis's attention: a research activity at Washington State University in the nearby town of Pullman. The challenge was to investigate the buildup of a mysterious substance that formed on the saw blades at a lumber mill when cutting larch timber. For the mill operators, the substance was slowing down production and cutting into profits.

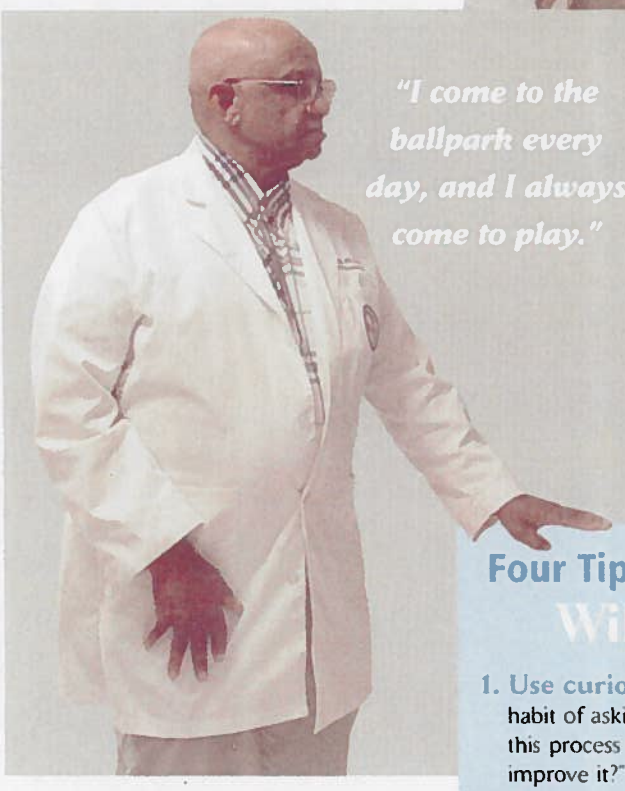
"When the opportunity came up, even though it wasn't my biggest area of interest, it was a good summer activity for me, and I was hired to work on the project. Other departments were involved as well, and it was very exciting." Davis succeeded at isolating a substance – arabinogalactans – as a dry, crystalline powder. Still, there didn't seem to be any useful application for it; adding water to it merely created a sticky paste.

Then, in a combination of frustration and inspiration, Davis decided to converge his two separate lines of inquiry. The surprising result was that by adding the arabinogalactans to the potato mixture, Davis was able to develop properties that allowed for better sloughing and a more appealing consistency to instant mashed potatoes. Davis soon moved on to new areas of inquiry, however, leaving it to others to refine the mixture of arabinogalactans and potato that produced the instant potato mixture we know today.



Exploring new fields

After completing his Ph.D., Davis followed his instincts to create his own unique career path, seeking to solve new problems in a variety of fields, including jet propulsion, nuclear power, pharmaceuticals, food, and manufacturing. His first opportunity was a full-time job with Washington State University's Division of Industrial Research, where he explored the antigen that caused hay fever, among other things.



"I come to the ballpark every day, and I always come to play."

Later, Davis was recruited to work at a corporation's chemical laboratory in Portland, Oregon, which was at the time the largest of its kind. At United Medical Laboratory, Davis explains, "we provided analyses for doctors all over the world, and devised methods for reducing the time and cost of conducting clinical assays to develop detect concentrations of hormones and steroids in the blood such as aldosterone, estrogen, and testosterone."

After becoming certified as a medial technologist, Davis became director of the laboratory. "We made exotic procedures routine and brought their price down. Using autoanalyzers when they had just come out, we could perform tests more quickly than they could be done locally." Davis stayed with the lab for about 15 years.

Making his own path

Davis' curriculum vitae includes a long series of assignments, positions, grants, and papers throughout his mid-career. Asked about the broad diversity of areas in which he has researched, he is philosophical. "My interest has always been to be of service, whether it's improving a clinical process and bringing down the price of tests, or making it easier for people to cook food – making life more livable. I was inspired by Dr. Carver to meet the need, to be of service."

Years later, Davis' career came full circle. "I had promised my father that I would spend the last part of my career teaching," he recalls, and in 1983, he accepted a position at St. Philip's College. Today, at 80 years young, Davis continues to be driven by his sense of curiosity and the need to serve. His work ethic is fairly straightforward: "I come to the ballpark every day, and I always come to play."

Looking ahead

Rather than working in an ivory tower, Davis prefers to be involved in improving everyday tasks and using his sense of scientific curiosity to find answers. Asked about what he believes are the most promising fields for tomorrow's researchers, his response is expansive. "I see things today I could not have dreamed of as a boy. Likewise, in the next 20 years, things will be so revolutionized from where they are today, we'll hardly recognize them." For example, he notes, "we now know the human genome; think about the potential. Will we someday be able to live 500 years? 1,000 years? At the same time, we have a looming crisis of overpopulation. How will we solve it?"

Other fields that strike Davis as highly promising are fuel cells, sustainable systems of transportation, and improving health care. "There's so much to be known about the natural world, but we can do so much with the little we already know. I tell my students to be curious about everything – and ask, 'How can I improve this? How can I be of service?'" ic

Four Tips for Success from William Davis

1. **Use curiosity as a tool** – Get in the habit of asking questions such as, "Why does this process work this way?", and "How can I improve it?"
2. **Pursue service learning** – Be on the lookout for opportunities (formal or informal) to learn about chemistry by giving back to your community.
3. **If you're afraid of math, confront it** – Math is central to success in the sciences, so seek out whatever support or resources you need to overcome your fear.
4. **Get comfortable with writing** – Writing can be even more frightening than math, so talk with your instructors about ways you can improve your ability to synthesize and explain in words.

ERIC R. STEWART is a freelance writer and editor living in Arlington, Virginia.