

A Common Thread

A MOTHER AND CHILD FLEE POSTWAR ITALY, ARRIVING IN Pennsylvania to a home steeped in science where the child finds stability and inspiration. A California teenager socks away money earned mowing lawns to buy a microscope from a local pawnshop. Students from a poverty-ridden Washington, D.C., neighborhood sacrifice their weekends and travel across town to an elite university to study math and science. A physicist tackles biology and, at an age when others might be slowing down, launches himself into a new realm of scientific experiences.

These stories involve some individuals who have achieved great acclaim and others whose life stories are still being written. Yet they share a common thread: the power of passionate interest and the drive to understand the world, the animate and the inanimate. And whether it's through careful planning or happy accident—we're all for serendipity here at HHMI—there are many paths by which scientists find their calling and retain a sense of curiosity about the world, as sampled in this *HHMI Bulletin*.

We begin with Mario Capecchi, an HHMI investigator at the University of Utah since 1988, who shared the 2007 Nobel Prize in Physiology or Medicine with Martin Evans of Cardiff University and Oliver Smithies of the University of North Carolina at Chapel Hill. Together, these scientists made groundbreaking discoveries that led to the development of genetic tools widely used to determine the function of mammalian genes.

For Capecchi—whose early years were marked by great privation—scientific research is all about fun. In an interview for the Nobel Foundation, he likens his experiments to hunting among puzzle pieces for ones that fit together. Capecchi credits his uncle, physicist Edward Ramburg, for creating an environment that prompted his interest in research.

Science found Randy Schekman at an early age—or perhaps it was the other way around. For 16 years an HHMI investigator at the University of California, Berkeley, Schekman became a dedicated experimentalist in the 8th grade—no doubt to the dismay of his mother, who tolerated containers of pond scum in his makeshift bedroom laboratory.

Such early experiences can be pivotal. My father—who might be described as a physicist trapped in a physician's career—injected science and a scientific point of view into virtually every family activity. At the age of 9, I was focused on minerals and fossils, and by the time I hit junior high, I was knocking on doors of geology professors at the University of Iowa asking questions about crystal structures and meteorites. Happily, they opened their doors.

And that brings me to the Ronald H. Brown Middle School students in Washington, D.C., who participate in an HHMI-funded program at Georgetown University called the Institute for College Preparation. These motivated students spend six years of weekends and summers taking classes in math, science, language, and other subjects. Leaders Tom Bullock and Charlene Brown-McKenzie



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provide a family atmosphere—and as a healthy dose of fun—but they have a serious goal in mind: college, perhaps graduate school.

Since the mid-1990s, three groups of students have stuck with it, graduated from high school, and gone on to college—101 students, to be precise. In an area where nearly 30 percent of adults lack a high school diploma, that's a signal achievement. But what's even more compelling about the Georgetown program—which will now expand, thanks to a major gift—is that it enables students to find their voices. Listen to LaToya Walker, a college math major who completed the program in 2005: “I'm good at math. I kind of always knew what I wanted to be. But Mr. Bullock and Dr. Fleming [a Georgetown instructor] helped me realize that I wanted to be it more.” If Walker succeeds in becoming a math teacher, as she hopes, chances are she will do the same for her own students.

That experience—of loving a subject and wanting to spend your time thinking about it—connects LaToya Walker with a scientist she may never meet, Charles Shank. A veteran of the fabled Bell Labs and former director of the Lawrence Berkeley National Laboratory, Shank is now a senior fellow at the Janelia Farm Research Campus, where new challenges overlapping neuroscience and applied physics have him feeling like an eager graduate student.

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