Coming Full Circle

It may sound clichéd, but it bears repeating: A good teacher can make all the difference.

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A quiet night, with shivering, whispering students all around me in the dark — this was my first taste of real passion for science. There was a telescope looming over my head and a step-stool on the floor... It was my turn to peer through the eyepiece to witness what not many people have seen: the universe in all its splendor, through a powerful structure of steel and glass. The moment I saw my first nebula, I knew there could be nothing better in the world, nothing more exciting. And when I was shown Saturn and finally realized it wasn't a sticker on the end of the eyepiece, I knew that the experience had forever changed the way I would look at the world.

At a young age, I'd read voraciously. Science fiction and fantasy captured my imagination, although print on any subject could keep me busy. In elementary school, I started to devour books on astronomy, found out that you could actually earn a living as an astronomer, and started dreaming of becoming an astronaut.

All through my K–12 schooling, I learned the most when teachers gave us hands-on activities and challenged us to think creatively. My sixth-grade teacher taught us about engineering by jumping from a two-foot wall onto structures we had made from paper and straws. We competed eagerly to have our structures be the ones that withstood those plummeting 180 pounds!

In junior high, teachers were able to engage our waning adolescent attention with creative projects, ones in which we were allowed free reign, even to watch movies such as *Shogun* to learn about other societies. I do believe that conventional ways of teaching the basics are necessary. But they should be augmented by unusual, mind-stimulating projects to make sure that students' natural creativity is not squeezed out of them. Cooperative lab groups and activities such as the ever-popular "egg drop" can take the ever-present monotony out of schoolwork.

In high school, I was lucky enough to have a physics teacher who also taught astronomy classes and astronomical research. I enrolled in his "zero-hour" research class early in the morning [see Black Holes to Blackboards, September/October 1995, p. 8]. Peering at a sheet of vellum over a map of the martian surface, circling and measuring craters for hours, I learned that science isn't all fun and games. Writing a research paper on a variable star showed me the value of language skills in science. My astronomy teacher, who at first had seemed intimidating, helped me to see the reality of my chosen profession and prepared me for the struggles of college.

Before entering the University of Arizona, I found out that Don McCarthy, an astronomer our high-school class had worked with, ran summer astronomy camps for teens in Tucson [see "The Children of the Blue Marble," p. 10]. Excited, I wrote the required essay, and was accepted. It was a dream come true: to be surrounded by other young people who were interested in astronomy, to be taught by professional astronomers, and best of all, to use large telescopes. As I left the camp, McCarthy asked if I'd be interested in becoming a counselor. Of course, I agreed. I returned for four summers to teach and counsel young people on the wonders of science.

College was a big change. No longer one of the top students, I struggled in calculus. Introductory mechanics raced through all my high-school physics in a few weeks. I'd chosen a double major in physics and astronomy, but without the help, support, and inspiration of many people, especially McCarthy, I might have quit on numerous occasions.

College classes were not as exciting as I'd hoped they'd be. It seemed that a lot of professors would rather have been elsewhere. It is difficult to want to succeed when the teacher himself (almost all of my instructors were he's) appears bored. Every so often I had a dedicated teacher, and that restored my faith. The classes with labs were my favorites, because the hands-on instruction helped my comprehension. A trip to the Johnson Space Center in Houston to present a research paper inspired me to continue studying astronomy, while several summer research assistantships taught me the economic reality of a researcher's life. It wasn't all glamour and paper-publication, but a lot of very hard and lonely work.

Soon a new desire took root. I had always wanted to teach, but with a Ph.D. in astronomy, I realized I'd only be teaching college students. That idea was rapidly losing its appeal. The camps had shown me how much I enjoyed working with children, and as I watched them work, I saw that some of them had lost their love for science at an early age. Only a few were still enjoying its wonders. I dreamt about having the power to engage listeners and spread excitement about science. As a researcher, I feared that it would be too late to spread much of anything.

I graduated in 1996 very proud of my physics-and-astronomy degree, but immediately applied to a teacher certification program. I'm currently in a high-school chemistry class for observation, while taking other courses in secondary education.

My teachers have always had a large hand in my development as a person, and I'll soon be in exactly that position for other young people. I feel there are many things I can do for students, since I have so many examples from my own schooling of what worked and what was exciting for me. I look forward to beginning an astronomy program wherever I teach — to open the eyes of other young people to the glittering beauty of the cosmos. If I can inspire just a few of my students the way I was inspired, then I will have a very rewarding career. *m*

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