



Dr. Wilfred Foster Denetclaw, Jr. – Zoologist

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The fairly traditional Navajo lifestyle I was raised in taught me to be responsible and respectful. My family members are livestock ranchers and farmers in Shiprock, New Mexico, on the Navajo Nation (www.americanwest.com/pages/navajo2.htm). I was responsible for herding our sheep (which at one time reached 1,000 head) to areas with plenty of grass. When lambing season arrived, I had to check the sheep all night long to see that the newborns were being cared for by their mothers (otherwise I took care of them). In the summer, I worked on our farm to raise hay for our livestock, and in the winter, I hauled this hay to our cattle to help them survive on our range.

I attended schools in Shiprock from kindergarten to twelfth grade. When I was eight years old, I used to watch a cartoon about a boy whose father was a research chemist. I was captivated because the father used to travel all over the world to solve chemistry problems. I asked my parents to buy me a chemistry set. After a lot of thinking, they decided it would further my education, and they bought it for me. I was thrilled! In the seventh grade, I first learned about the cell being the basic unit of life. I was fascinated to learn that each person is made up of trillions of tiny cells that can only be seen through a microscope. In high school I used to go to the library, look at pictures of different types of cells, and draw them out. After graduating from Shiprock High School in 1977, I knew that I wanted to study biology, but I did not know how to use it to get a job.

I did not do well my first time in college. I had done well in high school, but I was not prepared for course work at a major university. I had not learned how to write well and I did not understand mathematics or science as well as other students. I started over at Navajo Community College (NCC, crystal.ncc.cc.nm.us) in Shiprock. At NCC, I worked as a student researcher in the laboratory of Dr. Lora M. Shields. She was a great teacher and mentor. She gave me the opportunity to work with microscopes, grow bacteria, stain cells, and much more. I helped Dr. Shields investigate a disease affecting the Navajo Nation. I am grateful for this opportunity because it showed me the relevance of research to medicine. After one year at NCC, I moved on to Fort Lewis College (www.fortlewis.edu) in Colorado where I received my Bachelor of Science degree in biology. I chose to attend graduate school at the University of California at Berkeley (www.berkeley.edu) where I earned a doctorate in zoology in 1991.

As a zoologist, I have been studying chicken embryos inside eggs to help answer questions about humans. Amazingly, each person starts out as one cell. This cell contains the characteristics of their mother and father. This one cell divides into more cells that split into more cells until the body is formed. Some of these cells contain directions on how to form bones, other cells are instructed to become part of the stomach, and other cells have information on becoming part of the spinal chord and nervous system. I study the cells that become muscles in the body, arms, and legs. By peeling away layers of cells in chicken embryos, I have found the exact location of these muscle cells. This is important because scientists now have a model about how our muscles are formed which will help them develop new medicines and cures.