Following her Own Path

By John Rendahl

Interviewee: Dr. Odile Claiver

Dr. Odile Clavier grew up in Saint-Maur-des-Fosses, a suburb of Paris. The youngest of seven children, she always had a knack for math. She grew up surrounded by math, as her dad, uncles and many relatives were engineers. Her older sister – by 15 years - was different, though. She became a long-haul truck driver in the 1980s to see the world. Her sister drove from France to the far reaches of Europe and later became one of the first female truck drivers to drive from southern France to Iraq. A single woman at the time, she drove by herself through the Middle East. Through this experience, she learned Farsi, Turkish, and Arabic. Her sister followed her own path.

Dr. Clavier went on a study abroad program to Miami, Florida, for her junior year of high school to become fluent in English. She made many friends and the US education system impressed her greatly. She missed her family a lot, and her only form of communication with them was one letter a week that had to cross the Atlantic Ocean to get to her. But whenever things got hard, she had her sister's example for inspiration.

When she arrived back in France, Dr. Clavier had to repeat 11th grade, as the French system of education was too different from the American form. She then had to choose a track of education for her remaining high school year and into college. When Dr. Clavier reached this point, it wasn't really a decision. She already had chosen the math and science track.

In her time in the US, she had begun to understand that the French system of education taught the basic theory well, but the US system better taught how to apply that knowledge. Dr. Clavier wanted to go to college in the US. Now as previously mentioned, the US and French systems of education are vastly different, so she ran into a brick wall. It was extremely hard - almost impossible - to go straight from a French high school to an American university.

Thankfully, a new program had just been created in which students would spend their first two years of college in France and their final two years at the Florida Institute of Technology. This was a big risk though, as the program had never been tested and could be a complete flop. But after careful consideration, she applied for it and got in. She graduated in 1994 with a BS in Aerospace Engineering.

Following college, Dr. Clavier went on to get her M.S. and Ph.D. at Standard University in Aeronautics and Astronautics while working at the Stanford Hansen Experimental Physics Lab as a research assistant.

She always loved the idea of studying space using instruments and technology with math, although she got sea sick easily and didn't want to be an astronaut. As she said, "I was interested in the ability to send robots out into space to tell us about our world."

After graduate school Dr. Clavier decided to work in the private sector. In 2003 she got a job at a company called CREARE in Hanover, NH, and she works there to this day. At CREARE she has worked on a plethora of different projects; her company makes prototypes of technologies sometimes to be manufactured on a larger scale.

Her work involved CubeSats, which are nanosatellites. They are only four inches long, weigh only three pounds, and are able to do everything a satellite can, but they are cheaper to build and send into space. One CubeSat she helped work on measured the earth's electromagnetic field, which is extremely hard to do. As Dr. Clavier put it "[You have to] Try to measure the magnetic field around the spacecraft knowing that the spacecraft itself produce its own magnetic field."

Another project was to create a hearing kit to do tests in remote places without needing to travel to a hospital with sound-proof rooms, which is particularly important for member of the military in war zones. "If you want to know if [soldiers] have been injured because of a blast, up until our device, they had to be flown to somewhere with a sound-proof room to be tested," Dr. Clavier said. She and her partners developed WAHTS, a headset that can block all but an infinitesimally small amount of sound. Dr. Clavier said about the headset "We took the soundproof room and put it on their heads. The room comes to you with this headset."

This headset is already being used in active-duty combat zones around the world, and 600 have been sold. In 2021 Dr. Clavier's team, working with a team from the UK's Ministry of Defense, was awarded the UK's Cutler Surgical Prize.

When asked about her job, she responded "It's a lot like being in a toy store because I can choose what I can work on."

As an inventor, scientist, wife, and mother of three daughters - all of whom also study math and science – Dr. Clavier stresses the importance of getting there by following her own path.

My name is John Rendahl and I am a seventh grader at Plainfield Elementary School, where I am on our school's math team. I also compete in rowing, soccer, and Nordic ski teams and play the trombone in my school's concert and jazz band.