My Dad, the Scientist

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My father, Robert E. L. Gould (1890-1974), was born on a small farm near the tiny village of Corinth, in Southampton County, Virginia. This is maybe 20 miles west of Portsmouth, Va. Corinth was the site of Corinth Meeting House (Quakers) and not much else. Dad was the fourth of nine children. There were no real schools near there. Well, he did tell me he went to the "Round Hill School" for a while. But this must have been a tiny one-room school and did not take the children very far. He learned some reading, writing and arithmetic from parents, relatives, church people (Quakers), and neighboring farmers. I found from topographic maps that "Round Hill" was indeed a hill, some 30 feet above sea level. The average elevation around there was roughly 3 feet above sea level.

As will be made clear later, my father had the abundant curiosity about the world around him that could have set him off to be a scientist if he had had only had formal education.

Dad’s grandfather Charles George Gould(1794-1860) had been a teacher in his native Rhode Island. He moved south to Southampton County around 1825, settled and married, and had five children. He was a farmer but also made hats, an occupation he had learned in Rhode Island. He taught his daughter Henrietta Catherine Gould to write poetry and some of her work survives. There have been several published poets in our family, this writer included. Charles was also an expert ice skater and could skate his name on the ice.

Dad’s father James (1834-1902) was 56 when Dad was born. James died in 1902, at age 68, when his youngest daughter, my Aunt Sallie, was one year old. My grandmother Martha Ann Norsworthy Gould (1862-1934) was, as you can see, some 28 years younger than James. I remember her; she died at our home. Grandfather’s first wife Sallie Barham (1816-1885) was born during the War of 1812. James married Sallie around 1860. He was called up for service in the Confederate army in 1861, but being a Quaker he was released from service and stayed home to care for the farm. James’s brother William Henry Gould (1827-1865) served in the Confederate army and wrote to James in early 1865 that they were surrounded by thousands of Yankees and would have to surrender. He told James to give regards to his wife and children. But Sallie was
When she and James were married and too old to have children. So when Sallie died in 1885, James shortly married Martha and they had nine children. It is generally believed he was trying to show his brothers that he could indeed have children!

When James died in 1902, the older children got my grandmother Martha Ann to sell the farm and they all moved to Portsmouth, where the four boys took up odd jobs. Dad worked for a while in the old Portsmouth Hosiery Mill. There he worked with some Syrians who taught him to count in Arabic, which Dad taught me later when I was small. Later Dad and his three brothers worked as molders in local foundries. This was an early and lasting experience, learning to count in Arabic. I was told that they sold the timber on the farm to what became the Union Camp family paper mill that had been started in 1887 at Franklin, Va. I should add that my mother got me curious about languages and as a child I started learning German, Latin, Chinese characters, the Greek alphabet, the Hebrew alphabet, and invented my own alphabet for secret messages when I was in elementary school. Mom taught me some etymology of the English language based on Latin, Greek and Anglo-Saxon.

Although Dad had little formal education he was a voracious reader and read books about ancient Greece and Rome. He enjoyed reading the National Geographic Magazine. Dad had a good singing voice, but never had formal training. One of his younger brothers, my Uncle Bill, left Portsmouth and went to Toronto after serving in the army in the First World War and studied voice at the Toronto Conservatory (later called the Royal Conservatory) for seven years and became an opera singer, singing in Italy, France and even in Moscow, Russia, where he sang in the opera Boris Gudanov. Uncle Bill probably had the best education because of his seven years study in Canada. I am sure Dad could have had a career in voice if he had had the voice training Uncle Bill had. Uncle Bill would often teach me what he claimed was Chinese, but I called his bluff by finding inconsistencies in his symbols and words. This was again curiosity in action, and set me about trying to learn real Chinese.

My father, however, learned many other things; in particular he was an excellent carpenter and mechanic. He could carve anything from wood and make anything from metal. He learned mechanics and how to take a car apart, repair it and put it back together again. He could repair just about any appliance. As a molder he learned and understood the properties of metals of all kinds and was always curious about their compositions. He was quick to see the value of soybean products in the 1940’s, and was alert to the discovery and uses of new ideas, inventions and products. He was fascinated by geology. He liked to tinker with clocks, watches, motors, or any appliance and find out how they worked. He taught me how to take clocks apart, how to take the temper out of a broken clock spring and then repair and re-temper it. Because of his teaching I was able to take my Mickey Mouse watch completely apart and then put it back together again without even using a magnifying glass. It was all about CURIOSITY. Curiosity is the essential ingredient to science, and if you do not have curiosity you do not go very far in science. When asked why he flew kites and drew electricity from the clouds, Benjamin Franklin is said to have answered “because I have a curious mind.” This is the reason that I like to think of my father as a scientist. He had the enquiring mind necessary for scientific thinking and exploration. I also feel
that his natural curiosity about things, how and why they work, had a definite influence on my own curiosity that led to my own desire to study physics, chemistry, astronomy and mathematics.

Ron Cowen [1] in an interview with Charles Townes, who shared the 1964 Nobel Prize in physics for his role in the invention of the laser, and who is still active in research at age 94 at the University of California at Berkeley, quotes Townes about his experiences as a youth: "We lived on a small farm in Greenville, S.C., and we had to do our own chores and make things work and that was a hands-on experience that [later] was quite important for experimental physics, I was interested in anything and everything, especially natural history and the outside world, and that’s thanks to my father. He would bring home clocks and other gadgets for us to take apart and see how they worked." This matches my own experience with my father. When Mom’s new electric iron wouldn’t work, we took it apart and found that the iron plate under the electric heating wires was defective and we figured out how to rearrange the wires so they would avoid a hole in the plate and cease burning out.

Dad was always interested in new things. As a molder in the Norfolk Naval Shipyard he was always looking for better ways to make alloys for casting metal objects. He became intensely interested in the use of vanadium, titanium, silicon, molybdenum, and other metals for hardening steel. He learned about various other alloys, brass, bronze, gun metal, etc. In the shop he cast me an iron ladle and taught me how to make sand molds and cast my own little lead soldiers. Together we made lead bullets and other objects. Dad’s experience with metals widened his curiosity. He also became an excellent mechanic and was able to take apart the engine in our 1939 Chevrolet and repair just about anything. He showed me how to repair our push lawnmower. Curiosity ruled his thinking. He was fascinated when I figured out how to devise a barometer using mercury I retrieved from hundreds of old batteries from his hearing aids. This was when I learned glass blowing around 1945 and made neon sign items and Geissler tubes, a Geiger counter tube, x-ray tube, etc. Dad learned how the barometer worked and took daily readings of the barometric pressure, learning how to predict rainy weather. Dad helped me build several huge Tesla coils. He figured out how to set up the huge copper tubing coil frames and together we used parts from my old Erector sets to devise apparatus for winding thousands of feet of 30 gauge wire onto seven foot long cardboard tubes we first soaked with shellac for insulation. I can safely say that we learned a lot together on a voyage of curiosity that has lasted throughout own lifetime. This intense curiosity bequeathed to me by my father has been the guiding influence in my own scientific research. My father’s curiosity was of the kind that led him to make experiments to test his ideas. That is the germ of the scientific method.

Though my Dad had no training in mathematics, yet he could solve simple mathematical problems mentally by reasoning them out. He seemed to be capable of doing what is called rhetorical algebra. Here is an example. He would pose the following problem to me: "We both have some money in our pockets. If I gave you a dollar then we'd have an equal amount. But if you gave me a dollar then I'd have twice as much money as you.” If you know symbolic algebra then you know to set up two simultaneous equations, using x for Dad’s money and y for my money: So we have \[ x - 1 = y + 1, \text{ and } x + 1 = 2(y - 1). \]
We rewrite these equations as

\[ x + 1 = 2y - 2 \]  \hspace{1cm} (0.1)

and

\[ x - 1 = y + 1. \]  \hspace{1cm} (0.2)

Then, subtracting (0.2) from (0.1) we have \( 2 = y - 3 \), so that \( y = 5 \). Then, since we know that \( x = y + 2 \), it follows that \( x = 7 \). Thus my Dad had 7 dollars and I had 5 dollars. So if he gave me a dollar we’d both have 6 dollars, whereas if I gave him a dollar, then he would have 8 dollars against my 4 dollars, and he’d have twice as much as I have. My father could not set down the algebraic equations, but knew how to solve them.

References