

Virginia Coleman: A “Girl of Atomic City” and a Chemist

(As published in The Oak Ridger’s Historically Speaking column on June 21, 2017)

Thanks to Susan Fredrick for suggesting she would like to help create input for Historically Speaking column or series on Virginia Coleman, one of the “Girls of Atomic City” that Denise Kiernan included in her book by that name. I agreed with Susan and she contacted Carolyn Krause and what you are about to read resulted.

When told about the project, Virginia was at first reluctant. If you know Virginia, you understand and can’t you just hear her say, “Oh, I did not do anything much so there is not much to tell.” Sure, Virginia! You were a Chemist! Come on now!

Finally, Virginia agreed to let us publish her story. I should also tell you that Denise Kiernan and her husband Joe D’Agnese have become fast friends with Virginia. She has welcomed them into her home and they delight in staying with her when they visit Oak Ridge.

So, what you are about to read was created by Susan Fredrick and edited by Carolyn Krause.

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Virginia Spivey Coleman, 94, of Oak Ridge has her own special memory of Clarence Larson. Many older Oak Ridgers remember him as manager of the Oak Ridge Y-12 Plant, then as director of Oak Ridge National Laboratory and finally as one of the last commissioners on the U.S. Atomic Energy Commission.

In the spring of 1944, Virginia Spivey was a chemist in the Y-12 lab managed by Larson. She had obtained this job with the Manhattan Project after earning a B.S. degree in chemistry in March, 1944, from the University of North Carolina at Chapel Hill.

“I was analyzing samples of uranium chloride to see how completely each uranium sample had been chlorinated,” she said. Of course, she and the other chemists followed orders and referred to uranium as “tubealloy” or “yellow cake” or “green cake.” She was just told to analyze the sample for chloride, not how the compound was to be used.

Occasionally, she said, “Dr. Larson would come by in the afternoon and ask me the results of my analysis. Once I told him, ‘Ninety-nine point two percent. Do you want me to write down my results?’ ‘No,’ he replied. ‘I’ll call you tomorrow and you tell me this result.’”

Virginia liked Larson, and sometimes he asked her to babysit for him and his wife. She considered him very smart and kind. The next morning he called her and asked about her latest results. She told him. “He pretended to be surprised,” she said. She heard him say over the phone to people at a meeting with him, “Woohoo! Ninety-nine point two percent!” That was so much better than the results of the previous year.

Virginia later found out that Larson was meeting with “the bigwigs,” his superiors who would eventually promote him, as he had hoped. Did the bigwigs know she was doing the analysis of all the uranium samples? “No,” she said. “I was just a chemist in Larson’s lab.”

Later, the chlorinated uranium was heated in the calutron. The charged particles were magnetically separated into U-235 and U-238. In these electromagnetic separators, atoms of the lighter isotope U-235 would be deflected more by the magnetic field than those of the heavier and much more abundant isotope U-238, resulting in two streams that were collected by different receivers. The “product” was uranium enriched in fissionable U-235 for use in the first atomic bomb that helped end World War II in 1945.

Virginia Coleman is one of the original women featured in “The Girls of Atomic City.” Denise Kiernan’s best-selling book, published in 2013, was inspired by the famous “Calutron Girls”

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photograph by Manhattan Project photographer Ed Westcott. However, Virginia was not one of the Calutron Girls. Rather, Virginia arrived in Oak Ridge in 1944 with a college degree in chemistry.

Kiernan’s book introduced Virginia as a newly minted chemist by describing her encounter with a male chauvinist lab coworker who had “infuriated her” with a sexist comment about women in college that “got the soft-spoken Virginia riled.”

I first crossed paths with the sweet but assertive Virginia when I joined two book groups she was in at the Oak Ridge Institute for Continued Learning. However, I probably really learned to appreciate Virginia’s special personality when I noticed that she was also in ORICL’s movie class dubbed “Hollywood Does Satire.”

In “The Girls of Atomic City,” the author states that although Virginia’s parents had themselves been educated only through the eighth grade, they encouraged all six of their children, including Virginia and her three sisters, to pursue a higher education. Her father was an entrepreneur. He had the first taxi cab in Louisburg, N.C., and then he opened a men’s clothing store. He was a well-liked member of the community. So, when he ran for sheriff, he was elected.

In 1935, all of the family except for Wilson, the oldest son, went to Virginia Beach to celebrate their father’s birthday. On their way home, a drunk driver drove into their car, killing her father and critically injuring her mother and other siblings.

After her father’s death, the court’s master clerk, who had shared an office with her father, taught Virginia’s mom how to write checks. Her mother became a single parent, solely responsible for the support of her young children, including Virginia, who was only 12.

Fortunately, Virginia’s father had the foresight to purchase a \$10,000 life insurance policy that enabled his family to continue to live in their three-year-old, seven-bedroom house on a 32-acre farm in the eastern region of North Carolina known as the Sandhills. Mrs. Spivey was able to support the family thereafter by selling the tobacco, corn and other produce that grew on the farm and by charging for her work as a seamstress.

Virginia grew up in a family of determined, intelligent, inquisitive, prescient and prudent individuals. Although North Carolina had the best roads and the poorest schools, Virginia became well-read because a neighbor in Louisburg had a fine library. She attended Louisburg College, the oldest two-year coeducational college in the United States.

Virginia pursued a degree in English grammar and literature as a day student at the junior college. She also held an on-campus job as a lab assistant in chemistry classes, sparking her interest in science.

She then was accepted at the University of North Carolina at Chapel Hill, which was the first public university chartered under the U.S. Constitution and the oldest public university in the United States. That’s when she first encountered gender segregation.

UNC did not allow women to attend the university (unless they were planning to be nurses) until they were juniors. Back then, a student did not have to declare a major until the student was a junior. At Chapel Hill after one quarter of taking a course to become a teacher, Virginia found the course so boring she changed her major to science.

So, following in the footsteps of her sister Sophia (who died in April 2017 at age 97), Virginia earned a scholarship to study chemistry at UNC Chapel Hill. Having earned her B.S. degree in the subject four years before, Sophie had returned to campus to work on her master’s degree.

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Sophie’s presence was a big help to Virginia because some of her new classes were extra challenging, even to her analytical mind.

At Chapel Hill, Virginia sandwiched in three hours a day as a waitress while attending classes in the mornings and completing experiments in the lab in the afternoons five days a week. This was Virginia’s first experience, though it would not be her last, with dorm living. It was also the first time she had encountered roadblocks on her educational path.

Virginia had some trouble getting through the organic chemistry course she started during her second quarter at UNC. She was not alone; all but eight of her classmates had already failed it in their first attempts.

However, with Sophie as her mentor, Virginia flew over this potential hurdle and, in accordance with the university’s accelerated expectations for science majors, completed her degree and graduated in March 1944. She was qualified just in time to become one of the professional women scientists who made key contributions to the Manhattan Project.

NEXT: How Virginia Spivey got to Oak Ridge, how she heard about the detonation of the first atomic bomb and how she met her future husband Charlie Coleman.

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Thank you, Carolyn, and especially thanks to Susan for pushing to have Virginia’s story published. You will enjoy the upcoming articles in this series as Virginia’s story unfolds.



Virginia Coleman