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THE ADVENTURES IN BLACKNESS AND BELONGING

Februrary 2020 Vol. 1

# BLACK HER STORIES in SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

## ALICE BALL
### CHEMIST
JULY 24, 1892 - DECEMBER 31, 1916

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develop a method to isolate the active chemical compounds in chaulmoogra oil and reached out to Ball who was working on her thesis "The Chemical Constituents of Piper Methysticum." The challenge was to come up with an extract of the oil's active ingredients that could be mixed in water and injected without pain. The year was 1915, and there were no modern tools such as centrifuges or gas chromatography.

Nevertheless, Ball developed a technique described as the 'Ball method' that isolated the chemical compounds from the fatty acids of the chaulmoogra oil. This meant that for the first time in human history, there was a dependable, effective treatment for the ancient disease. In 1915, she became the first woman, and the first African American to graduate with a master's degree from the University of Hawaii. Alice Ball was also the first African American and woman chemistry professor at the University of Hawaii's chemistry department.

Alice Augusta Ball died on December 31, 1916, at the age of 24. She had become ill during her research and returned to Seattle for treatment a few months before her death. A 1917 newspaper article from the Pacific Commercial Advertiser suggested that the cause may have been chlorine poisoning due to exposure that occurred while teaching a laboratory.

It was reported that Ball was giving a demonstration on how to properly use a gas mask in preparation for an attack since World War I was raging in Europe. However, the cause of her death is unknown as her original death certificate was altered,

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# BLACK HER STORIES

*in*

## SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

Throughout U.S. history, black women scientists and inventors have made monumental discoveries and created tools that have shaped the fabric of American culture. While the role of history is to be an accurate portrayal of a diverse society, libraries and textbooks reveal very little information about their contributions. These women become hidden figures.

Often denied equal opportunities in education and employment, these black women found strength in the struggle and set out to solve big problems in the fields of science, technology, engineering and mathematics. Too often the names of black women are forgotten by our collective consciousness, too often their stories of grit, perseverance and achievement are left untold - until now.

Black Her Stories is a celebration of the culture blackness and the power of black female leadership throughout history and in modern times. Come hear her stories.

# ALICE BALL

## CHEMIST

### JULY 24, 1892 - DECEMBER 31, 1916

Alice Augusta Ball was born in Seattle, Washington to James Presley and Laura Louise Ball. Her family was considered middle to upper-middle class, as Ball's father was a newspaper editor, photographer, and a lawyer. Her grandfather, James Ball Sr., was a famous photographer. He was one of the few black experts at a technique called daguerreotype, which is a process of printing photographs onto metal plates.

Ball attended Seattle High School and received top grades in the sciences, graduating in 1910. She studied at the University of Washington and earned a bachelor's degree in pharmaceutical chemistry. Two years later Ball received a second degree in pharmacy. With her pharmacy instructor, she published a 10-page article in the prestigious Journal of the American Chemical Society titled "Benzoylations in Ether Solution."

This kind of accomplishment was rare not only for an African American woman, but woman of any race. Following her graduation, Ball was offered many scholarships. She had offers to attend both the University of California Berkeley and the University of Hawaii. She decided to return to Hawaii, where she lived briefly as a child, to pursue a master's degree in chemistry.

While at the University of Hawaii she studied the chaulmoogra tree and its chemical properties as a remedy for leprosy. For most of history, this disease was considered a death sentence where people with leprosy were removed from their families, isolated, and left to die. From 1866 to 1942 whenever a patient was diagnosed with leprosy they were arrested and sent to the Hawaiian island of Molokai. Chaulmoogra oil, a eastern medicinal remedy dating back in the 1300s, was administered topically or was an extremely painful injection.

Dr. Harry T. Hollmann was a practicing doctor treating leprosy at Kalihi Hospital in Hawaii. He needed an assistant to help develop a method to isolate the active chemical compounds in chaulmoogra oil and reached out to Ball who was working on her thesis "The Chemical Constituents of Piper Methysticum." The challenge was to come up with an extract of the oil's active ingredients that could be mixed in water and injected without pain. The year was 1915, and there were no modern tools such as centrifuges or gas chromatography.

Nevertheless, Ball developed a technique described as the 'Ball method' that isolated the chemical compounds from the fatty acids of the chaulmoogra oil. This meant that for the first time in human history, there was a dependable, effective treatment for the ancient disease. In 1915, she became the first woman, and the first African American to graduate with a master's degree from the University of Hawaii. Alice Ball was also the first African American and woman chemistry professor at the University of Hawaii's chemistry department.

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It was reported that Ball was giving a demonstration on how to properly use a gas mask in preparation for an attack since World War I was raging in Europe. However, the cause of her death is unknown as her original death certificate was altered, giving the cause of death as tuberculosis.

Unfortunately, due to her untimely death, Alice was unable to publish her revolutionary findings. Arthur L. Dean, a chemist and the president of the University of Hawaii, continued her work, published the findings, and began producing large quantities of the injectable chaulmoogra extract. Dean published the findings without giving credit to Ball, and renamed the technique the Dean Method, until Dr. Hollmann, Ball's research partner, spoke out about this.

In the early 20th century, it was commonplace for men to take the credit for women's discoveries and Ball fell victim to this practice. She was all but forgotten from scientific history for more than 80 years. Then, in 2000, the University of Hawaii-Manoa honored Ball by placing a bronze plaque in front of a chaulmoogra tree on campus, and former Lieutenant Governor of Hawaii, Mazie Hirono, declared February 29 "Alice Ball Day." In 2007, the University of Hawaii posthumously awarded her with the Regents' Medal of Distinction.