

# DEI: The Life and Scientific Legacy of Alice Ball

Brown Lab Group Meeting

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Source information: <https://www.smithsonianmag.com/history/the-trailblazing-black-woman-chemist-who-discovered-a-treatment-for-leprosy-180979772/>



# Biographical Information



**Alice Ball, M.S.**

Born in Seattle, WA in 1892

Father (James Presley Ball Jr.) was a newspaper editor, photographer and lawyer  
and mother (Laura Louise Howard Ball) was a photographer

Grandfather was a famous photographer that photographed Frederick Douglass (and others)



# Education



**Alice Ball, M.S.**

Earned two bachelor's degrees in 4 years from the University of Washington (1914):

- pharmaceutical chemistry, science of pharmacy
- published in JACS as an undergraduate!

Earned masters degree in chemistry from University of Hawai'i at Mānoa (1915):

- first black and first female student to earn a masters degree at this institution!
- studied the chemical makeup of Hawaiian 'awa root and medicinal applications
  - became the university's first black, female chemistry instructor



# Context of Ball's Work on a Treatment for Hansen's Disease



In the 1860s- mid 1900s Hawaiians were facing a pandemic of Hansen's Disease (leprosy)

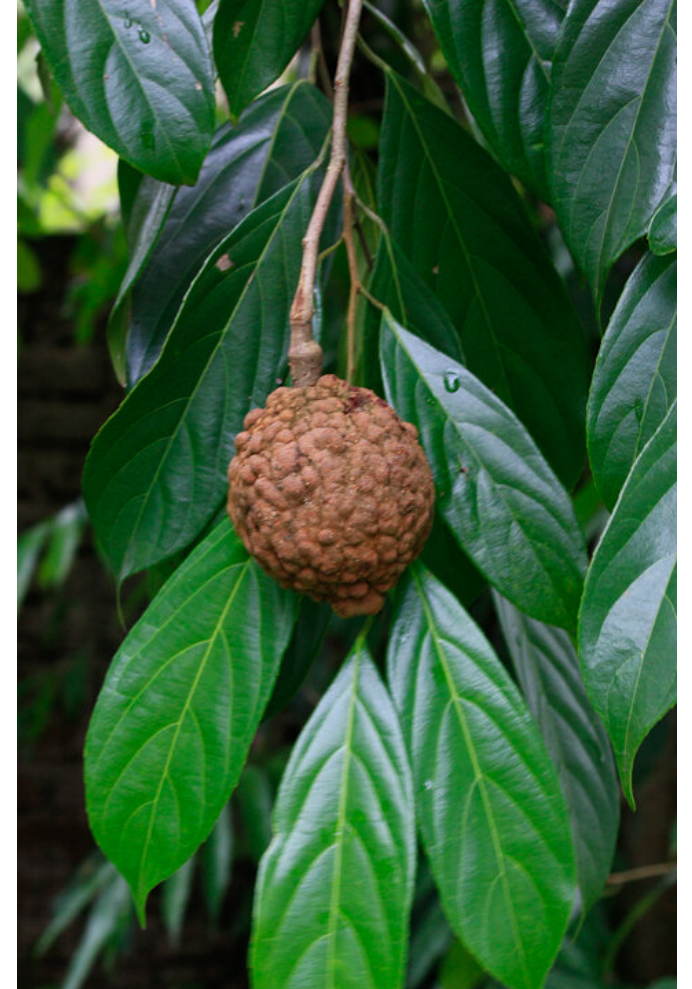
- Leprosy is a bacterial disease that affects the skin and nerves, was extremely stigmatized, and believed to be very contagious
  - The native Hawaiian population had already been devastated by other diseases brought by colonizers and immigrants
- At this time, Hawaii was governed by a unified kingdom of native monarchs, but was under pressure from colonizing forces



In 1865 the kingdom established a leprosarium on the Kalaupapa Peninsula (island of Molokai) where native patients with advanced disease were exiled for life, separated from family and community (including children)

# Ball's contribution to Treatment for Hansen's Disease

- Dr. Harry Hollmann (U.S. Public Health Officer) was using chaulmoogra tree oil to treat leprosy
- Hollmann recruited Ball because of her expertise with medicinal plants
- Problems with chaulmoogra oil treatments at the time:
  - the oil was poorly absorbed when injected, and caused blisters
  - oral treatments were ineffective because patients couldn't keep the oil down
- Ball established a method to extract bioactive esters from the oil, which were water soluble and effective as an injection for treating leprosy
  - she did this work in addition to her instructor duties, without pay
- In 1916, Ball passed away at age 24 either from exposure to chlorine gas, or tuberculosis, and was unable to publish her findings.



# Ball's Legacy

Arthur Dean (then a chemistry professor at U.H. Mānoa, later university president) had worked with Ball on the treatment, and continued the work after her untimely death.

Dean published the findings in 1919(?) and did not credit Ball – He called it the "Dean Method". Hollmann tried to correct this, calling the work the "Ball Method" in a later publication (1922)

Between 1919-1923, leprosy patients were treated by the Ball Method and released, rather than sent to Kalaupapa

Sulfone antibiotics were discovered in the 1940s and displaced use of chaulmoogra extracts

In 2000 a researcher uncovered the truth about Ball's contributions and legacy, which was suppressed due to sexism and racism

- then the university installed a commemorative plaque, established Alice Ball Day (February 29<sup>th</sup> – Leap Day), awarded her it's Regent's Medal of Distinction, and established a scholarship in her name to aid students from minority backgrounds
- Work to rename Dean Hall after Ball is ongoing

The Kalaupapa Peninsula is now a National Historic Site  
Hawaii stopped forced quarantine for leprosy in 1969

