

Toasting Alice Ball

(Martin Adams)



Alice Ball photo: Univ. Hawaii, Archive and Manuscripts Dept.

The dramatic toppling of a statue of the slave owner Edward Colston into Bristol Docks and removal of one of Robert Milligan, a prominent West Indies merchant and plantation owner, from outside London's Museum of Docklands have highlighted a debate about the public commemoration of historical figures. Changing attitudes are also evident in new memorials celebrating people and events previously marginalized in the historical record; one such example, which should be of interest to microbiologists, is in Bloomsbury.

Bloomsbury is an area liberally sprinkled with memorials to notable figures, ranging from the economist J.M. Keynes and Russian revolutionary Lenin to the Pre-Raphaelite Brotherhood and 'Carry On...' actor Kenneth Williams. With some notable exceptions, those honoured tend to be white and male and the stone frieze surrounding the London School of Hygiene and Tropical Medicine (LSHTM) bearing the names of 23 eminent medical scientists faithfully followed that convention until recently.

The LSHTM was founded in 1899 by Sir Patrick Manton, remembered particularly for his work on filariasis, with funding from the Indian Parsi philanthropist B.D. Petit and political support from Joseph Chamberlain, the Colonial Secretary. Originally sited at Albert Dock Seamen's Hospital, it moved in 1920 to Endsleigh Gardens near Euston and three years later to its present site in Keppel Street, previously acquired by the National Theatre Company, whose plan to build a Shakespeare memorial theatre to mark the tercentenary of the Bard's death in 1916 had been thwarted by World War I. The foundation stone was laid in July 1926 by Minister of Health, Neville Chamberlain, son of Joseph Chamberlain, who prudently used the occasion to send a celebratory telegram to the trustees of the Rockefeller Foundation in New York which had generously funded the project to the tune of US\$2 million.

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The completed building, opened three years later by the Prince of Wales and, now Grade II listed, is in a stripped Classical style relatively devoid of decoration beyond the frieze of names and a number of gilded bronze representations of tropical disease vectors gracing first floor balconies. A dramatic, symbolic, sculpted frieze intended for the entrance was moved inside the building to protect public sensibilities when the sculptor, Eric Kennington, refused to provide a loin cloth for the knife-wielding man depicted defending his family from a fanged serpent. The entrance now carries the School's logo based on a 2,500 year old Sicilian coin showing two Greek gods associated with health, Apollo and his sister Artemis riding in a chariot (Artemis is the one driving).



It is not known how the names gracing the original frieze were arrived at, but in 2019, to mark the School's 120th anniversary, it was decided to rectify its white male exclusivity by adding a further three names, appropriate to the era of the building and nominated by LSHTM staff. The three chosen were Florence Nightingale, Marie Skłodowska Curie and Alice Ball.



The least well known of these, Alice Augusta Ball, was born into a middle class African-American family in Seattle in 1892 and took Bachelor's degrees in Pharmaceutical Chemistry and Pharmacy at the University of Washington in 1912 and 1914 respectively. After graduation she moved to what is now the University of Hawaii where she became both the first African-

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American and the first woman to be awarded a Master's degree in chemistry in 1915. Her studies on the chemistry of the kava plant (*Piper methysticum*) brought her to the attention of Harry T. Hollman, Acting Assistant Surgeon at the Leprosy Investigation Station of the U.S. Public Health Service in Hawaii.

Hollman was interested in the treatment of leprosy with a traditional Chinese and Indian remedy, Chaulmoogra oil, expressed from the seeds of *Hydnocarpus kurzii* and *H. wightianus*, which had had attracted the attention of Western medicine. However, in its native state the oil is a thick brownish-yellow oil or soft fat, topical application gave unreliable results and it caused vomiting when ingested and painful abscesses under the skin when injected. It comprises mainly glycerides of chaulmoogric and hydnocarpic acids - novel fatty acids which terminate with a cyclopentenyl rather than a methyl group - a structural feature thought to confer activity by interfering with biotin metabolism in mycobacteria. In less than a year Ball had resolved the problem, producing an injectable form by saponifying the oil and separating the acids as their ethyl esters.

Tragically Alice Ball died in 1916, aged 24, before she could publish her results. Her work was taken up by the College President Arthur L. Dean who distributed samples, produced by what he described as Dean's method giving no credit to Ball. This shameful omission was not remedied until 1922 when Hollman published his own clinical work and, commenting on Dean's method, wrote, 'I cannot see that there is any improvement whatsoever over the original technic *sic* worked out by Miss Ball.'

Even so, further significant recognition of Alice Ball was longer in coming. It wasn't until 2000 that the Governor of Hawaii unveiled a plaque to her under the only Chaulmoogra tree on the University of Hawaii campus and declared Alice Ball Day to be celebrated every four years on February 29th. Then in 2006 she was posthumously awarded a medal of distinction by the University and a University scholarship was created in her name for students of chemistry, biology or microbiology. Chaulmoogra oil treated by Ball's method was manufactured by Burroughs Wellcome in the 1920s and remained in use until the 1940s when it was superseded by the sulfone, Dapsone.

When the LSHTM building was officially opened in 1929 it was recorded that the Prince of Wales and 200 construction workers toasted each other with beer. I do not know whether anything similar occurred when the additions to the frieze were unveiled, but when I visited to view them after the easing of Covid restrictions I felt compelled to honour the tradition, marking the occasion and the memory of Alice Ball, in a nearby pub.