

## ROBERT PERCY BARNES: FROM HARVARD TO HOWARD UNIVERSITY

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Born in Shiloh, Maryland, on February 26, 1898, Robert Percy Barnes was the first African American to earn a Ph.D. in chemistry from Harvard University (Cambridge, MA) (1). As professor and head of the chemistry department at Howard University, he mentored several African American chemistry students and was a prolific scientific researcher with approximately 40 papers in high-impact journals from 1934 through 1963.

Robert was the second oldest child of Mary Jane Thomas and Reverend William Humphrey Barnes. Robert had one older brother William, and two younger brothers, Clifford and Kenneth. Barnes earned his B.S. degree in 1921 from Amherst College located in Amherst, MA (1, 2, 3). After completing his undergraduate degree, he joined the faculty at Amherst becoming the first African American appointed to the faculty. In 1922, he accepted a faculty position at Howard University, an HBCU (Historically Black College or University) located in Washington, DC. In 1922, he married Ethel E. Hasbrook and the couple resided in Washington, DC. The couple later divorced. Barnes married his second wife, Florence Abram Barnes on November 28, 1933. They were married 48 years until her death in 1981.

While teaching at Howard University, Barnes obtained a Fellowship (1928-1931) from the General Education Board (GEB) (4) to continue his education. The GEB was a philanthropy founded by John D. Rockefeller. Barnes earned his M.S. and Ph.D. from Harvard University in 1931 and 1933, respectively. Barnes

earned his Ph.D. under the direction of well-respected organic chemist Professor Elmer P. Kohler (5). In 1934, Barnes and Kohler published a peer-reviewed article in the prestigious *Journal of American Chemical Society (JACS)* (6).

Interestingly, Kohler had also worked with eminent steroid chemist Percy L. Julian, who earned his Master of Arts degree in chemistry from Harvard University in 1923. Unlike Barnes, Julian could not pursue his Ph.D. at Harvard University due to institutional racism. Julian was denied a teaching assistantship he needed to finance his education. He was not allowed to teach white students. In fact, Julian left the country and earned his PhD from the University of Vienna in 1931 (1). Furthermore, Kohler had also mentored renowned organometallic chemist, Henry Gilman, who went on to become a professor at Iowa State University (Ames, IA) (7,8). Gilman earned his Ph.D. in 1918 from Harvard under the direction of Kohler. Gilman mentored several African American chemistry students at Iowa State including, Nathaniel O. Calloway (Ph.D., 1933) and Samuel P. Massie (Ph.D., 1946). Massie would later become the first African American faculty member at the US Naval Academy (7). Calloway responded (9) to a letter from Gilman discussing the dismal statistics of African Americans earning doctoral degrees in science and mentions Kohler and Julian:

At the time I graduated from Iowa State I am quite certain that no one [that is, no African American] had

earlier obtained any sort of Ph.D. degree west of the Mississippi. In the East the story would have been different, although there had been a few. In chemistry, for example, your old professor Kohler, as you know, turned down Percy Julian flatly telling him that there was no place for him in the field of chemistry.

It is interesting (and ironic) that Kohler told Julian there was no place for him in chemistry considering Kohler served as the adviser for Barnes a decade after Julian earned his M.A. degree from Harvard. Why did Kohler change his perspective? Did Kohler finally believe that African Americans had a place in chemistry? Did Gilman influence Kohler's changing perspective? Calloway and Barnes earned doctoral degrees in chemistry in the same year (1933) becoming the first African Americans from their institutions to reach this achievement.

During his tenure at Howard University, Barnes focused his research efforts on the chemistry of diketone molecules, which are often used as starting materials to prepare other important organic molecules. Diketones have many applications in the health and beauty industry (e.g., cosmetics) and as food additives.

Barnes mentored several African American chemistry graduate students including Lewis A. Gist Jr., Harold Delaney and George W. Reed. Gist earned his M.S. degree from Howard University in 1949 and co-authored a *JACS* paper with Barnes (10) in 1950. Gist later earned his doctoral degree with Gilman at Iowa State in 1956 (8). Delaney earned his M.S. (1943) and his Ph.D. (1958) from Howard University, becoming one of the first three students to earn doctorates in chemistry at Howard. The Howard University chemistry department first offered the M.S. degree in 1923, just one year prior to Barnes joining the faculty there. Howard was the first HBCU to offer the doctoral degree in chemistry.

Reed earned his M.S. degree from Howard University in 1944 and later earned his Ph.D. from the University of Chicago in 1952. Both Delaney (11) and Reed (12) published their research efforts with Barnes in *JACS*. Delaney also published a paper with Barnes (13) in the *Journal of Organic Chemistry* in 1943. Furthermore, Delaney (14) and Reed (15) worked on the Manhattan Project during World War II at University of Chicago's Metallurgical Laboratory. The Project led to the development of the atomic bomb, which ended the war.

Barnes also mentored African American women chemistry graduate students at Howard University. Barnes published an article in *JACS* with Leila S. Green

(16) in 1938 and published three articles in the journal with Gladys E. Pickney (17) in 1947, 1953, and 1954. This is very significant because the opportunities for African American women in the chemical sciences were very limited during this time period (18). Green earned her M.S. degree from Howard in 1937. Pickney also earned her M.S. from Howard in 1946 and was employed as a chemistry associate in the Department of Chemistry at Howard in the 1950s.

In 1950, President Harry Truman appointed the initial Board of the National Science Foundation (NSF), an independent federal agency newly established, "to develop and encourage the formation of national policy for the promotion of basic research and education in the sciences." (At the time, NSF had an operating budget of \$225,000.) Barnes was selected as one of the 24 scientists (not just chemists) appointed to the Board (19) in 1950, holding the position for 8 years. Barnes was chair of the Department of Chemistry at Howard during the time he served on the board.

Barnes retired from Howard University in 1967. He mentored several African American chemistry students earning advanced degrees and was a prolific scientific researcher publishing in high-impact journals. Barnes is the first African American to earn a PhD in chemistry from Harvard University, and he had a stellar career before the landmarks of the modern Civil Rights Movement. His achievements in academia are truly remarkable given the limited resources available for his research efforts. He died of cardiopulmonary arrest on March 18, 1990 at his home (3) in Washington, DC at the age of 92.

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