

Elbert Frank Cox 1895-1969

In American history, Thomas Jefferson will always be remembered as a very instrumental figure, to some extent, the brain child, for the movement that led to the abolishment of slavery. Back then, his ideals and beliefs on the question of equality and freedom were questioned by many individuals. However, in hindsight, one would definitely admire his ingenious vision and the courage to stand up for his beliefs.

In the world of mathematics, William Lloyd Garrison Williams can be likened to Thomas Jefferson because both had strong convictions and beliefs that the coloration of the skin pigments of an individual bears no effect on the level of the intellect. Lloyd Williams broke the color barrier in the field of mathematics that had plagued the nation for years by allowing the first black student to complete a doctorate degree in mathematics under him. Williams saw Elbert Frank Cox not as black man, but rather as a mathematician with a tremendous amount of understanding of mathematics in that time period.

Elbert Frank Cox was born to Johnson D. Cox and Eugenia Talbot on December 5, 1895, in Evansville, Indiana. His father, who fled economic and other forms of oppression in Kentucky, fought very hard to instill in his sons—Elbert and Alvalon—the value of education. As a teacher at the same elementary school his children attended, Governor Street School, Cox's father made sure they escaped the realities of a racially charged city in which everything was segregated. After graduating from high school, Elbert enrolled at the Indiana University in September 1913 to study mathematics, physics, Latin, and German. His mathematics courses included number theory, projective geometry, and advanced calculus. He was very studious and earned the respect of professors and peers alike. As one would expect, Cox's college years were not easy. Apart from the fact that all college students have to work very hard to earn excellent grades, he had to fight the racial stereotype of professors and colleagues alike. After four grueling years he graduated with an A.B. in mathematics in 1917.

After graduation, Cox enrolled in the military on August 22, 1918, to serve the United States in France during World War I. Two years later, he returned to the United States to begin a career as a teacher. His first teaching job started in the fall of 1919 as a professor of physics, biology, and chemistry at Shaw University in Raleigh, North Carolina, where he also headed the Department of Natural Science. Three years later, by the fall of 1922, when his bid to enroll in the leading universities with graduate programs for mathematics at the time never materialized, Cox left Shaw University and enrolled in the graduate school at Cornell University. All seven universities with graduate programs at the time rejected him admission, including the University of Chicago and Princeton. Some have argued that his choice of Cornell was because Cox saw it as an appropriate place for young African-Americans to study. Its founder, Ezra Cornell, a great public benefactor and early opponent of slavery, was determined to found an institution where any person can find instruction in any study.

At the turn and well into the first quarter of the century, mathematics in the United States even though not on a par with Europe, especially France and Germany, underwent tremendous changes in its infrastructure and setup. Universities, mathematical journals, and even individuals were constantly upgrading and evolving through various means. Among the seven universities in the United States with established graduate programs in mathematics, Cornell University was one of them. Its mathematics faculty was staffed with ten professors and twelve instructors. Among the professors was Virgil Snyder, a mathematician who had earned his Ph.D. under Felix Klein in Göttingen in 1895. His credentials range from being the leading algebraic geometer at

that time to president of the American Mathematics Society. With respect to Cox, among the most important instructors was a young instructor who had arrived at Cornell two years before from William and Mary College—Lloyd Garrison Williams. He earned his Ph.D. under Leonard Dickson at Chicago in 1920 and he was also the founder of the Canadian Mathematical Society.

Lloyd Garrison was the best thing that happened to Cox in his Cornell years. As his thesis advisor, Williams realized that Cox had the chance to be recognized not only as the first Black in the United States, but as the first Black in the world to receive a Ph.D. in mathematics. He urged his student to send his thesis to a university in another country so that Cox's status in this regard would not be disputed. Universities in England and Germany rejected Cox, possibly for reasons of race, but Japan's Imperial University of San Dei accepted his dissertation on “Polynomial solutions of difference equations.” Hence, he became the first Black to earn a Ph.D. in mathematics at Cornell University in 1925.

Elbert Frank Cox’s career reflects the difficulties faced by all African-American scholars during that time period. Even when the formidable obstacles to adequate education and training had been overcome, the fact of the matter was there was very limited opportunity for employment. Before his death on November 28, 1969, the 73-year-old Cox was happily married to Beulah P. Kaufman, an elementary school teacher. His three children—James, Eugene, and Elbert, all males—were very fortunate to have a father who is the first black Ph.D. in mathematics not only in the United States but the world at large. He died at the Cafritz Memorial Hospital after a brief illness.

Sources:

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3. James A. Donaldson and Richard J. Fleming, Elbert F. Cox: An early pioneer, *Amer. Math. Monthly* **107** (2000), 105-128.

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