

UNIVERSITY OF PUERTO RICO • SCHOOL OF MEDICINE

Biography of

Dr. Bailey K. *Ashford*

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Dr. Francis Asbury Ashford during the American Civil War.



Early Life *and* Family Background

Bailey K. Ashford was born on September 18, 1873, in Washington, D.C. His father was Dr. Francis Asbury Ashford, and his mother was Mrs. Isabella Walker Kelly. Ashford's parents were descendants of the Ashford and Kelleigh families of Devonshire, England, who established themselves in Fairfax County, Virginia, in the seventeenth century. Three of his great-uncles participated in the American Revolution. One of Ashford's great-great-grandfathers, Michael Ashford, and his great-grandfather Francis Ashford, were neighbours of George Washington and are mentioned in Washington's memoirs. Dr. Francis Asbury Ashford was among the most distinguished surgeons in the United States and served as the second dean of Georgetown Medical School.[1] Dr. Ashford's father died of a cardiac condition in 1883 when Bailey K. Ashford was only ten years old.[2]



Ashford and his three brothers followed their father's profession; all graduated from Georgetown Medical School, except the youngest brother, Horace, who died at the age of twenty-one from a heart disease. Ashford and his two other physician brothers joined the Medical Corps of the United States Army. Ashford completed his internship as a resident at Children's Hospital in Washington, graduating in 1896. The following year, while serving at the Georgetown Invalid Hospital, the last direct descendant of George Washington died in his arms.[3] Through successive promotions in the United States Army, Ashford attained the rank of colonel.[4]

According to Ashford's autobiography, his mother's family, the Walker Kellys, were natives of the parish of Kelleigh in Devonshire. Juan Kelly, the founder of that branch of the family, settled in Newbury, Massachusetts, in 1635. By 1783, the family included a Reverend Abner Bailey Kelly, who died the year before Ashford was born and after whom

Ashford was named. His maternal grandmother, Maria Walker, who met her husband Moses (son of Abner Bailey Kelly) in Washington, was a native of Maryland with deep religious convictions. Moses was a New Hampshire Democrat who amassed considerable wealth and served as Secretary of the Interior during the Buchanan administration.[5]

In his autobiography, Ashford recounts that the precise date of his great-great-grandfather Michel Ashford's arrival in Devonshire is unknown, but that the first will recorded in Prince William County, Virginia, was that of his great-great-grandfather. By 1732, the latter was a member of the Vestry of the Pohick and Falls churches in Fairfax County. His estate indicates considerable wealth, and both he and his son Francis were neighbours and friends of George Washington.[6]



From left to right, Juan Jiménez, Mila López Nussa, Dr. Bailey K. Ashford and María Asunción López Nussa, circa 1898.

Dr. Bailey K. Ashford: Soldier in Science

Colonel Ashford participated in the Spanish-American War of 1898 and arrived in Puerto Rico as part of the expeditionary forces under General Miles. When the military occupation of the island was formalized and a territorial government established, he was ordered to remain in Puerto Rico, where his expertise in Tropical Medicine could prove most valuable.[7]

Ashford became closely connected to the island immediately after his arrival in 1898. After the occupation forces landed at Guánica, Ashford proceeded to Ponce and then to Mayagüez. While in Mayagüez, he reported to the War Department that the rural population was "a pale, dropsical, sickly-looking class, evidently suffering from lack of meat, though there must be something more." In 1899, he married María Asunción López Nussa, daughter of a prominent Mayagüez family. Her father, Ramón B. López, was regarded as a radical at the time and owned *La Correspondencia de Puerto Rico*. Her mother, Doña Micaela Nussa y Pascual, was a descendant of a noble family from Barcelona. Later that same year, Ashford received orders to command the General Hospital of Ponce.[8]

The Defeat of Anemia in Puerto Rico

Shortly after Ashford assumed command of the hospital, the island of Puerto Rico was devastated by Hurricane San Ciriaco. In the aftermath, Ashford opened a hospital in Ponce to treat civilians and observed pallor, edema, and anemia among his patients. While examining patients' blood, he detected a marked increase in eosinophils[9] — reaching as high as forty percent. Recalling that eosinophilia was common in certain worm diseases, he examined the feces of these patients and found oval objects with four pale, spongy internal channels. Consulting Manson's[10] textbook *Tropical Diseases*, he found a photograph of a similar egg labeled *Ancylostoma duodenale*, previously described in anemic Italian workers in the St. Gothard Tunnel in Switzerland.[11]



The following telegram, engraved on the base of Ashford's bust now housed in the Conrado F. Asenjo Library at the Medical Sciences Campus of the University of Puerto Rico, announced his discovery: "Ponce, November 24, 1899 — Chief Surgeon, San Juan — Have this day proven the cause of many pernicious, progressive anemias of this Island to be due to *Ancylostoma duodenale* — Ashford." [12] The United States Congress published Document No. 808 in 1900, which contains the clinical description of the disease and has since remained a medical classic.[13]

Ashford bust located inside the Conrado F. Asenjo Library in the Medical Sciences Campus of the University of Puerto Rico.

Ashford assumed the risk of treating patients with the toxic drug thymol, fully aware of its potentially lethal properties. As he later wrote: "And it took a considerable amount of nerve, to say the least, even to apply the remedy which was our only hope, and which expelled the worm." [14] It was subsequently confirmed that the hookworm disease in Puerto Rico and the Western Hemisphere was caused by a distinct species. Ashford joined a young physician from the Public Health Service, Dr. Walter W. King, and together they treated at least ten cases of hookworm anemia at Tricoche Hospital. He and his assistant, Dr. King, soon recognized anemia — commonly dismissed as laziness and indolence — as a genuine disease.

As a result of Ashford's work, the Puerto Rico Legislative Assembly authorized the Governor to adopt measures for the study and treatment of tropical anemia on the island. A medical board was established to address the problem. Three entities appointed

its physicians: the War Department nominated Dr. Bailey K. Ashford; the United States Public Health Service assigned Dr. Walter W. King; and the Insular Service designated Dr. Pedro Gutiérrez Igaravidez, Medical Director of the Hospital in Bayamón. This board became known as the Puerto Rico Anemia Commission.[15]

The Anemia Commission established a small hospital in Bayamón that was attended daily by hundreds of anemia patients. For Ashford and King, local resources proved insufficient, and tents were erected to accommodate a larger number of patients. Patients were transported to Bayamón in hammocks or on stretchers carried by relatives or friends — mostly *jíbaros* (rural farmers) from across the island.[16]



Hospital for patients with anemia in Bayamón, 1904.

The arduous work of Drs. Ashford and King was ultimately recognized, and in 1904 the Puerto Rican government launched a broader campaign against anemia, enlisting some thirty physicians from various municipalities. This expansion yielded even more satisfactory results, and the scientific achievements attained would later serve as the foundation for a similar program in the United States.[17]



Transporting a sick person in a hammock.

Ashford's methods, which received worldwide recognition, paved the way for the Rockefeller Commission's work in 1909 to eradicate hookworm disease in the infested areas of the southern United States. This commission led to the formation of the Rockefeller Foundation in 1913, which subsequently established the International Health Board in 1916 and, finally, the International Health Division in 1927, thereby restoring productive and healthy lives to millions of people afflicted by disease across the globe.[18]



Dr. Ashford and several of the members of the Anemia Commission.

The significance of Ashford's discovery and the subsequent treatment of anemia among Puerto Rican farmworkers lay in its refutation of the prevailing belief that rural anemia was caused by hunger, filth, and racial degeneration. In the early twentieth century, the diagnosis, etiology, and treatment of anemias were subjects of heated debate. For years, Ashford had to withstand criticism from skeptics, as the anemia he described was far more severe than that observed in other countries and the proportion of individuals infected with hookworms was also remarkably high.[19]

Ashford's success in treating anemia was also reflected in the island's economic sphere. According to sources provided by farmers to the magazine *Puerto Rico Ilustrado*, by 1900 approximately seventy-five percent of agricultural workers suffered from anemia. A decade later, only fifteen to twenty percent of workers were affected. This decline, combined with the notion that healthier workers benefited not only the laborers themselves but also landowners, had significant economic implications. At the time of the report, more than 300,000 individuals had already been successfully treated for anemia.[20]

The effectiveness of his medical treatment led people to regard him as capable of working miracles. In *Bailey K. Ashford, Más Allá de Sus Memorias*, the following note from a *jíbaro* requesting his return to the countryside is cited: "Throughout the cemetery they are saying to send word for you to come soon so that you may give life as you have given it to the others you have healed." [21] Ashford also found that the majority of endemic anemia cases among Puerto Ricans were attributable to intestinal parasites. In 1910, Ashford appeared on the list of recommended candidates for the Nobel Prize.[22]

By 1911, owing to his aggressive and effective campaign against anemia, Ashford had attained immense prestige. When the Department of Health was established that same year, Ashford was offered the position of Chief (or Director) of the new department. He declined the appointment, however, considering a civilian post incompatible with his military commission. In 1911, together with Drs. Pedro Gutiérrez Igaravidez and Isaac González Martínez, he founded the Institute of Tropical Medicine, which would later become the School of Medicine of the University of Puerto Rico.[23]

The Institute of Tropical Medicine

During a brief stay in Washington around 1906, Ashford maintained his interest in continuing with a trained group of specialists and harbored the idea of establishing an Institute of Tropical Medicine and Hygiene in Puerto Rico. He wrote a letter to the Governor of Puerto Rico, Beekman Winthrop, proposing the creation of a School of Tropical Medicine under the auspices of a major United States university. In 1911, together with Drs. Pedro Gutiérrez Igaravidez and Isaac González Martínez, he founded the Institute of Tropical Medicine, which would later evolve into the School of Medicine of the University of Puerto Rico.[24]

The Institute of Tropical Medicine had three primary activities from its inception: teaching (including the training of health officers and sanitary inspectors), field work in the mountainous districts of the country, and clinical and laboratory research on infectious diseases. For many years, the Institute of Tropical Medicine and Hygiene invited universities across North America to join in establishing a Pan-American School of Tropical Medicine. Finally, in the summer of 1923, arrangements were concluded with Columbia University stipulating that salaries for a school director and three professors were to be provided and paid. Puerto Rico was to contribute the remainder and construct a new building. This structure was completed and inaugurated on September 22, 1926, and was inspired by the Palace of Monterrey in Salamanca, Spain.[25]

The building is situated on Ponce de León Avenue, east of the capital, overlooking the Atlantic Ocean, adjacent to the Capitol — the seat of the Puerto Rico Legislature. Today the building houses offices of the Legislative Branch of Puerto Rico. The School of Medicine of the University of Puerto Rico is currently located at the Puerto Rico Medical Center in Río Piedras. Over the following twenty years, the School of Tropical Medicine became an institution whose achievements were acclaimed worldwide. A research hospital was subsequently added, and the laboratory facilities were greatly expanded.[26]

Legacy and International Recognition

Ashford's achievements in Puerto Rico were recognized worldwide. During World War I, his concept of bringing medical care closer to the patient was instituted on the European front, with Dr. Ashford in charge of training medical personnel. He visited Brazil and Cuba to provide advisory services, and in Egypt he made notable contributions to medicine.[27]

His participation in World War I earned him decorations from the governments of the United States and Great Britain. Additional distinctions included his election as president of the Puerto Rico Medical Association and his elevation to the presidency of the American Society of Tropical Medicine. He also received honorary degrees from the Universities of Puerto Rico and Columbia. He published research findings in the *Journal of the American Medical Association* and in various other scientific periodicals. On March 26, 1934, he presented a monograph entitled *Algunas modalidades de esprúe en Puerto Rico* (Some Modalities of Sprue in Puerto Rico), co-authored with Dr. Ramón Suárez, at the Fifth Pan-American Medical Congress held in San Juan, generating widespread interest and discussion.[28]

Ashford demonstrated that scientific research directed toward the concrete problems of Puerto Rican reality could be exemplary in quality and beneficial both locally and internationally. He succeeded in reducing the mortality rate among the poorest

sectors of the rural population — achieving that goal through his scientific inquiry, his personal efforts to secure government funding for anemia research, and, above all, his determination to bring the benefits of his discoveries to where they were most urgently needed.[29]

On August 1, 1934, on the occasion of the publication of his autobiographical book *A Soldier in Science*, the Puerto Rico Medical Association organized a ceremony in his honor.[30] Dr. Ashford died three months later, on November 1, 1934.

Notes

The author is member of the Institute for the History of Health Sciences, affiliated with the Office of Academic Affairs, Medical Sciences Campus, University of Puerto Rico.

1. Data provided by the administration of the Casa Dr. Bailey K. Ashford in El Condado. This biography forms part of the nomination document for the Casa Dr. Bailey K. Ashford to the National Register of Historic Places of the United States Department of the Interior, submitted by the State Historic Preservation Office of San Juan, Puerto Rico. An abridged Spanish version was published in "Las Colecciones Especiales de la Biblioteca Conrado F. Asenjo como fuente para la investigación histórica sobre medicina, arquitectura y sociedad en Puerto Rico," *Hereditas*, Vol. 24, No. 2 (2023), pp. 192–218.
2. *Ibid.*
3. Biography provided by the administration of the Casa Dr. Bailey K. Ashford in El Condado.
4. *Ibid.*
5. Ashford, Bailey K. *Un Soldado de la Ciencia: Autobiografía del Coronel de Sanidad Dr. Ashford*. Buenos Aires: Editorial Claridad, 1946, pp. 16–18.
6. *Ibid.*, pp. 16–18.
7. Biography provided by the administration of the Casa Dr. Bailey K. Ashford in El Condado.
8. "A Soldier in Science," *Sunday San Juan Star Magazine*, September 16, 1973, p. 5. Ashford Collection, Dr. Bailey K. Ashford Room, Conrado F. Asenjo Library, University of Puerto Rico, Medical Sciences Campus.
9. A blood cell; a variety of polymorphonuclear granulocytic leukocyte. *Real Academia Nacional de Medicina de España*, "eosinófilo," accessed August 20, 2023, <https://dtme.ranm.es/>.
10. Sir Patrick Manson (1844–1922), British parasitologist who founded the field of tropical medicine. He was the first to discover (1877–1879) that an insect (mosquito) can harbor a developing parasite (the worm *Filaria bancrofti*) responsible for a human disease (filariasis, which occurs when the worms invade body tissues). His research, along with Alphonse Laveran's discovery of the malaria parasite, facilitated Sir Ronald Ross's clarification of malaria transmission by mosquitoes. *Britannica*, "Patrick Manson," accessed August 20, 2023, <https://www.britannica.com/biography/Patrick-Manson>.
11. "A Soldier in Science," *Sunday San Juan Star Magazine*, September 16, 1973, p. 5. Ashford Collection, Dr. Bailey K. Ashford Room, Conrado F. Asenjo Library, University of Puerto Rico, Medical Sciences Campus.
12. E. Maroid Minnun. "The Evolution of the University of Puerto Rico," *El Bohique* (1954), p. 112.
13. George W. Bachman. "Dr. Bailey K. Ashford (1873–1934) As I Knew Him," *Boletín Asociación Médica de Puerto Rico* (February 1963), p. 84.
14. Ashford, Bailey K. *A Soldier in Science: The Autobiography of Bailey K. Ashford*. San Juan: Editorial UPR, 1999, pp. 57–58.
15. E. Maroid Minnun. "The Evolution of the University of Puerto Rico," *El Bohique* (1954), p. 112.
16. "A Soldier in Science," *Sunday San Juan Star Magazine*, September 16, 1973, p. 4. Ashford Collection, Dr. Bailey K. Ashford Room, Conrado F. Asenjo Library, University of Puerto Rico, Medical Sciences Campus.
17. *Ibid.*
18. *El Mundo*, December 18, 1933.
19. Dr. José Rigau Pérez. "Bailey K. Ashford, Más Allá de Sus Memorias," *PRHSJ*, Vol. 19, No. 1 (March 2000), p. 52.
20. *Puerto Rico Ilustrado*, August 31, 1912.
21. Dr. José Rigau Pérez. "Bailey K. Ashford, Más Allá de Sus Memorias," *PRHSJ*, Vol. 19, No. 1 (March 2000), p. 54.
22. Bailey K. Ashford, "Porto Rico: The Seat of the Future Pan-American University," *Comercio* (July 1923).
23. E. Maroid Minnun. "The Evolution of the University of Puerto Rico," *El Bohique* (1954), p. 113.
24. Ashford, Bailey K. *A Soldier in Science: The Autobiography of Bailey K. Ashford*. San Juan: Editorial UPR, 1999, pp. 131–132.
25. E. Maroid Minnun. "The Evolution of the University of Puerto Rico," *El Bohique* (1954), p. 113.
26. *Ibid.*, p. 113.
27. Norman Maldonado. "El Dr. Bailey K. Ashford (1873–1934): Un soldado de la ciencia," *Galenus*, Vol. 42, No. 6 (October 2013), p. 63.
28. *El Mundo*, March 27, 1934.
29. Dr. José Rigau Pérez. "Bailey K. Ashford, Más Allá de Sus Memorias," *PRHSJ*, Vol. 19, No. 1 (March 2000), p. 54.
30. *El Mundo*, August 3, 1934.