
American National Biography

Hornig, Donald F. FREE

(17 Mar. 1920–21 Jan. 2013)

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Hornig, Donald F. (17 Mar. 1920–21 Jan. 2013), chemist, presidential advisor, and university president, was born in Milwaukee, Wisconsin, to Chester Arthur Hornig, a carpenter contractor, and Emma Knuth. Hornig graduated from Milwaukee Country Day School in 1936 and won a national scholarship to attend Harvard. There he received his bachelor's degree in chemistry in 1940 and a Ph.D. in the same field in 1943, with a thesis on measuring shock waves produced by large explosions. That same year he married Lilli Schwenk, a fellow chemist, with whom he would have four children.

In spring 1944, while a postdoc at a laboratory at Woods Hole Oceanographic Institution, Hornig was recruited to join the Los Alamos atomic bomb laboratory by George B. Kistiakowsky, one of his professors at Harvard then serving there as a division chief. Lilli Hornig also worked at Los Alamos as a staff scientist. Donald Hornig designed the electronic firing unit of the implosion mechanism of the plutonium bomb. He then helped arm the device and famously stood guard (in effect baby-sat) the bomb atop the tower before the Trinity test on 15 July 1945 to assuage lab director J. Robert Oppenheimer's concern over sabotage. Convinced of its necessity in ending the war, and with a brother serving in the Navy, Hornig endorsed the use of the bombs in Japan. His wife signed a petition proposing only a demonstration.

In 1946 the Hornigs left Los Alamos for Brown University, where Donald began his academic career as an assistant professor of chemistry, while Lilli commuted to Harvard to finish her own Ph.D. in chemistry and later taught at Brown. Donald Hornig quickly moved up the ladder at Brown, becoming not only a full professor but also acting dean of the graduate school by the early 1950s. He organized in 1951 a panel of eminent scientists to investigate the applications of infrared technology for the Navy. In the process he helped save the successful Sidewinder air-to-air missile project from planned cancellation due to general budget cuts, marking the beginning of his service as a science advisor to the government.

Hornig moved to Princeton University in spring 1957, first as a visitor and then, starting in the fall, on a permanent basis, becoming chair of the Chemistry Department in 1958. He also increased his involvement in Washington, where the launch of the Soviet satellite Sputnik in October 1957 had led to further expansion of his

government advising. He was made a member of the Space Science Board of the National Academy of Sciences (to which he was elected in 1957) to help guide the new National Aeronautics and Space Administration (NASA) in 1958. He then served as a member of the space panel of the new President's Science Advisory Committee (PSAC) before becoming a full committee member in 1960. He made his first mark on national space policy when he chaired an ad hoc PSAC panel on space whose report on the high costs of manned space programs shocked President Dwight Eisenhower into considering canceling them.

In November 1963 President John F. Kennedy announced his appointment of Hornig as the successor to Jerome Wiesner as his fulltime science advisor (special assistant to the president for science and technology) and director of the Office of Science and Technology in the Executive Office of the President. Kennedy's assassination soon thereafter left Hornig in limbo, but President Lyndon B. Johnson reaffirmed his appointments, while the PSAC, following tradition, elected him chair.

From his unique perch in the White House Hornig oversaw and witnessed dramatic transformations in American science and technology policy. Tension between scientists and the government rose as the worsening Vietnam War divided the country and as rapid increases in post-Sputnik federal research funding began to level off. Hornig and PSAC were often caught between the anti-elitist Johnson and a scientific and academic community increasingly critical of many of the administration's policies. They did endeavor, to varying degrees of effectiveness, to rationalize the American space program, to stabilize the Cold War nuclear arms race, to shift resources from military to civilian applications, and to expand federal assistance to academic science via programs such as New Centers of Excellence. Passionate about international scientific exchanges, Hornig found success in bringing science and technology to bear on American diplomacy in this period. For example, with the PSAC's assistance, Hornig helped establish a joint American-Japanese medical program to study the diseases of the Pacific Rim, design the Korean Institute of Science and Technology, and guide Taiwan's industrial takeoff with the suggestion that the island devote about 1 percent of its gross national product to its research, development, and education activities.

As presidential science advisor Hornig was most proud of his role in initiating the formulation of a national environmental policy. Recognizing that pollution constituted "one of the 'big problems' of our times" (Wang, p. 232), Hornig successfully made the environment a part of President Johnson's ambitious Great Society program in 1964. He and the PSAC then organized a panel on environment pollution which, under the chairmanship of Princeton statistics professor John W. Tukey, produced the landmark report *Restoring the Quality of Our Environment* in 1965. Comprehensively examining national environmental challenges for the first time at the federal level, it declared that an environment without pollution

should rank with education as a basic human right. Among its most prescient warnings was the one about global warming and climate change arising from the burning of greenhouse gases.

After leaving the White House, Hornig served briefly as vice president of Eastman Kodak in 1969–1970 before assuming the presidency of Brown University from 1970 until 1976. His achievements at Brown included the merger of its male and female colleges into a fully coeducational institution, the development of a medical school, and the stabilization of its financial situation, but the latter came through painful budget cuts which led to campus unrest. After Brown Hornig returned to Harvard and served in its School of Public Health in a variety of roles, including chairman of the Department of Environmental Science and Physiology, before retiring in 1990. Throughout his long and distinguished career, Hornig helped shape American science, technology, education, and environmental policy. He died in Providence.

Bibliography

There are two major collections of Hornig's papers, one at the Lyndon B. Johnson Presidential Library, and another at Brown University Library's Special Collections. Hornig's experiences as presidential science advisor are covered in W. Henry Lambright's *Presidential Management of Science and Technology* (1985) and Zuoyue Wang's *In Sputnik's Shadow* (2008). The Johnson library website also features a lengthy oral history interview with Hornig (http://www.lbjlibrary.net/assets/documents/archives/oral_histories/hornig_d/hornig1.PDF <http://www.lbjlibrary.net/assets/documents/archives/oral_histories/hornig_d/hornig1.PDF>). An obituary appeared in *The New York Times*, 26 Jan. 2013. For a particularly detailed obituary, see BENJAMIN BEDERSON, "Donald Frederick Hornig," *Proceedings of the American Philosophical Society* 158, no. 4 (Dec. 2014): 450–454.

See also

Oppenheimer, J. Robert (1904-1967), theoretical physicist and director of the Los Alamos Laboratory (Manhattan Project) <<http://anb.org/view/10.1093/anb/9780198606697.001.0001/anb-9780198606697-e-1301238>>

Eisenhower, Dwight David (14 October 1890–28 March 1969), U.S. Army general and thirty-fourth president of the United States <http://anb.org/view/10.1093/anb/9780198606697.001.0001/anb-9780198606697-e-0700094>

Kennedy, John F., Jr. (1960-1999), American icon, publisher, and lawyer <http://anb.org/view/10.1093/anb/9780198606697.001.0001/anb-9780198606697-e-1603397>

Wiesner, Jerome Bert (1915-1994), electrical engineer, presidential adviser, and university president <http://anb.org/view/10.1093/anb/9780198606697.001.0001/anb-9780198606697-e-1302557>

Johnson, Lyndon Baines (1908-1973), thirty-sixth president of the United States <http://anb.org/view/10.1093/anb/9780198606697.001.0001/anb-9780198606697-e-0700147>