

American National Biography

Fisk, James Brown (30 Aug. 1910–10 Aug. 1981), physicist and science administrator, was born in West Warwick, Rhode Island, the son of Henry James Fisk, a businessman, and Bertha Brown. Fisk's childhood was spent at various places. When he was several years old, the family moved to Tacoma, Washington, and later to Long Beach, California. The early death of his mother sent Fisk and his siblings to their maternal grandparents in Providence, Rhode Island. Fisk went to the Providence Technical High School before enrolling in the Massachusetts Institute of Technology (MIT) in 1927.

Fisk received a broad education in science and engineering at MIT, majoring in aeronautical engineering, a field made popular by Charles Lindbergh's recent solo flight across the Atlantic. After graduation in 1931, he remained at MIT as a research assistant for Charles Stark Draper, the rising aeronautic engineer. Then, in 1932, encouraged by Draper and supported by a Proctor Travelling Fellowship, Fisk sailed for England to study nuclear physics at Cambridge University, with residence at Trinity College. While there, he worked in the famed Cavendish Laboratory and published two papers (one with a coauthor) on gamma rays. In 1934 he returned to MIT to complete his dissertation, "The Scattering of Electrons from Molecules," which extended the quantum theory of electron-scattering from that involving monatomic to diatomic molecules. He received his Ph.D. in theoretical physics in 1935.

During 1935–1936 Fisk taught physics at MIT. Then he moved to Harvard University as a junior fellow in its Society of Fellows. There he investigated the disintegration of nuclei by high-energy radiation and built, with a colleague, a Van de Graaff electrostatic accelerator for nuclear research. An associate professorship in physics brought Fisk to the University of North Carolina, Chapel Hill, in 1938, the same year he married Cynthia Hoar of Concord, Massachusetts; they would have three children. They did not stay long in North Carolina because in 1939 Mervin J. Kelly, then director of research at the AT&T Bell Telephone Laboratories in New Jersey, recruited Fisk for its electronics research department. William Shockley, Fisk's former colleague at MIT and now at Bell Labs, had recommended Fisk to Kelly.

World War II transformed Fisk from a promising young physicist into a distinguished scientist and scientific organizer. During the war he headed a group at Bell Labs to reproduce and improve a powerful microwave generator called the magnetron. Invented in Britain, the device later became the heart of radar, which contributed so much to the Allied victory. To perfect radar, Fisk's group cooperated closely with the radiation laboratories at both MIT and Columbia University. Fisk's knowledge of nuclear physics also found use when a comprehensive report on nuclear fission that he coauthored with Shockley, in August 1940, alerted the British to the plutonium route to an atomic bomb. At the end of the war, Fisk was appointed assistant director of physical research in charge of electronics and solid-state research at Bell Labs. He organized the superb team of scientists who two years later invented the transistor.

Fisk's career took unexpected turns in the postwar period. In late 1946 he was offered a professorship at Harvard. Before he could accept it, however, Carroll L. Wilson, a former classmate at MIT and now general manager of the newly established Atomic

director of research in January 1947. In this position, Fisk helped revitalize the national laboratories the AEC inherited from the wartime Manhattan Project and further their research and development of nuclear weapons. Concerned about the shortage of scientific manpower in the field of nuclear weapons research, Fisk at first resisted calls by scientists to expand the AEC's support of basic research at universities. But later he did bring the AEC into a joint program with the navy to sponsor high-energy physics and expand AEC support of science at universities.

In August 1948 Fisk left the AEC for the Gordon McKay Professorship in Applied Physics at Harvard. This second academic job did not last long either. Kelly won Fisk back with an offer of director of physical research at Bell Labs in June 1949. Because of his broad understanding in science and engineering and his quietly effective leadership, Fisk advanced rapidly within Bell Labs to become vice president for research in 1954, executive vice president in 1955, and finally president in 1959. In these positions, Fisk gave scientists and engineers the freedom to do research and publish their findings. During his tenure, Bell Labs, the premier industrial laboratory in the world, continued to play a leading role in communication technology, which was revolutionized by the use of satellites, and in military research and development, such as on the controversial antiballistic missile system (ABM).

Fisk himself remained a major adviser to the U.S. government, with membership on the AEC's General Advisory Committee, the Science Advisory Committee of the Office of Defense Mobilization (ODM-SAC), and its successor, the President's Science Advisory Committee. In 1954-1955 Fisk was associate director of the ODM-SAC's Technological Capability Panel, which, under the direction of James R. Killian, president of MIT, produced a report to the National Security Council that decisively accelerated the U.S. missile and other defense programs.

Fisk rose to national prominence in 1958 when President Dwight D. Eisenhower appointed him head of the U.S. (and western) delegation to the Geneva conference of experts on a nuclear test ban. From 1 July to 21 August, western and eastern experts sought to devise ways to detect clandestine nuclear tests in preparation for a possible test-ban treaty to control the arms race and to allay fears of radioactive fallout from nuclear tests. The resulting agreement, which included proposals for control stations on both U.S. and Soviet territories, was hailed as a major breakthrough in the Cold War. Although subsequent technical developments proved the Geneva system to be inadequate, it nevertheless began the process that eventually led to the Limited Test Ban Treaty in 1963.

Fisk retired from the presidency of Bell Labs in 1973 and remained chairman of its board for another year. He died in Elizabethtown, New York.

A major player in the American military-industrial complex, Fisk had a life and a career that reflected the increasing interdependence of science, technology, and society in the twentieth century. His scientific, engineering, and organizational talents enabled him to cross between basic and applied research and move easily among academe, industry, and government. In each, he was recognized as a versatile physicist and outstanding scientific organizer.

Bibliography

file:///Volun There is no known collection of Fisk's papers nor a full-length biography of him. Richard G. Hewlett and Francis Duncan, Atomic

vol. 2: 1947-1952 (1969), provides information on Fisk's service in the AEC. James R. Killian, Jr., *Sputnik, Scientists, and Eisenhower: A Memoir of the First Special Assistant to the President for Science and Technology* (1977), describes Fisk's role as a science adviser to the U.S. government. On the Geneva conference of experts on a test ban in 1958 and Fisk's performance as chairman of the western delegation, see Harold Karan Jacobson and Eric Stein, *Diplomats, Scientists, and Politicians: The United States and the Nuclear Test Ban Negotiations* (1966). The best obituary is by his Bell Labs colleague William H. Doherty, "James Brown Fisk," *National Academy of Sciences, Biographical Memoirs* 56 (1987): 91-116, which includes a selected bibliography of Fisk's publications.

Zuoyue Wang

[Back to the top](#)

Citation:

Zuoyue Wang. "Fisk, James Brown";
<http://www.anb.org/articles/13/13-02075.html>;
American National Biography Online Feb. 2000.
Access Date: Tue Feb 18 16:03:28 2003

Copyright (c) 2000 American Council of Learned Societies. Published by Oxford University Press. All rights reserved.