



Arthur C. Stern

1909-1992

By Merrill Eisenbud

ARTHUR CECIL STERN earned a worldwide reputation for his contributions to air pollution control during a career that spanned sixty years. He conducted important research, was a respected teacher, and organized important elements of the U.S. government programs in air pollution research and control. Above all, he possessed extraordinary abilities as a writer and editor.

Arthur was born in Petersburg, Virginia, but moved to Yonkers, New York, while he was still a child. He chose engineering as his profession and matriculated on full scholarship at Stevens Institute of Technology, from which he received his B.S. in mechanical engineering in 1930 and an M.S. in 1933. After a lapse of many years, in 1975 Stevens awarded him the doctor of engineering (*honoris causa*) in recognition of his accomplishments to air pollution control.

During the depression years it was not an easy matter for a young graduate to match his professional aspirations with the opportunities for employment that then existed. Stern was fortunate in this respect because a research assistantship to study methods of smoke abatement became available at Stevens. His first-of-a-kind studies of the quantities of particulates emitted from obvious sources of pollution, such as locomotives, ships, and electric utilities, gave him the raw material for the first of his many research papers, "Abating the Smoke Nuisance," which was published in *Mechanical Engineering* in 1932.

A major opportunity developed in 1935 when he began a two year study of smoke pollution in New York City. This investigation emphasized particulate pollution, and it provided the first systematic information about the quantities of airborne and settled soot. His studies were at that time supported by the Works Progress Administration, the agency created in the depths of the depression mainly to provide jobs for the needy but also to provide career opportunities for young people. The investment made by the federal government in this way was returned many times over during subsequent decades when Stern became a major force in development and implementation of the Clean Air Act.

In the early 1940s there was essentially no federal or state involvement in air pollution control, but Stern was fortunate to find himself in a good position to advance professionally while continuing his interest in the subject. He was appointed chief engineer with the New York State Department of Labor, Division of Industrial Hygiene and Labor Standards, a position that permitted him to develop new methods of treating waste-air before its discharge to the general atmosphere by industrial ventilation systems. He served in this capacity from 1943 to 1955 and had a major influence on the newly developing field of "air cleaning," including important improvements in bag-houses, cyclones, and electrostatic precipitators.

By 1947 Arthur Stern recognized the need for New York City to adopt legislation to control air pollution and wrote a letter to the *New York Times* in which he suggested that there should be a study of the political mechanisms by which air pollution in the city could be brought under control. This initiative resulted in passage of the first air pollution control laws by city council in 1949.

Stern moved into the center arena in the early 1950s when the U.S. Public Health Service was given the responsibility by Congress for organizing a national effort to control air pollution. Stern was called to Cincinnati to assume a major role in the recently established Robert A. Taft Laboratory, where he was charged with developing training, research, and technical assistance programs. It was intended by the Congress that responsi

bility for air pollution control should remain with the states but that the federal government should provide research support and technical assistance. It was when he was in this post that the landmark 1963 Clean Air Act was proposed to Congress.

In 1968 Stern accepted an appointment as professor of air hygiene in the Department of Environmental Sciences and Engineering at the University of North Carolina in Chapel Hill. Although he retired from that position in 1978, he remained active until the day of his death. From his hospital bed, with full knowledge that his long battle with cardiovascular disease was about to end, he spent part of his last afternoon working with his secretary on the final preparations for his last book, *A History of Air Pollution and its Control*.

It was his writing and editing, always on the subject of air pollution, that gave him his greatest satisfaction. In 1962 Academic Press published his two-volume reference book, *Air Pollution*, which was an immediate success. It has been revised and expanded and is now published as an eight-volume set, which is used worldwide as the reference of choice for knowledge about the sources of air pollution, its physical and chemical characteristics, how it is transported through the atmosphere, and how it exerts its damaging effects on materials and health. That eight-volume magnum opus has been accompanied by a more manageable *Fundamentals of Air Pollution*, which is widely used for teaching purposes.

Arthur Stern was blessed by the many honors he received. These included chairmanship of the Electric Power Research Institute Advisory Committee and of the U.S. Environmental Protection Agency's National Air Quality Criteria Advisory Committee, and presidency of the International Unions of Air Pollution Prevention Associations. In 1976 he was elected to the National Academy of Engineering, which culminated a long list of honors received from the professional engineering societies.

Arthur was married for many years to the former Dorothy Anspacher, with whom he raised their three children, Richard, Elizabeth, and Robert. Dorothy died in 1975, and he was later remarried to Katherine Barbour Perlman.