



*Thomas B. Drew*

## Thomas Bradford Drew

1902–1985

By Sheldon Isakoff

Thomas Bradford Drew, professor emeritus at the Massachusetts Institute of Technology (MIT) and former head of the Department of Chemical Engineering at Columbia University, died on May 5, 1985, at the age of eighty-three.

Professor Drew was born on February 9, 1902, in Medford, Massachusetts. He attended the Massachusetts Institute of Technology, from which he received his B.S. and M.S. in chemical engineering in 1923 and 1924, respectively.

Professor Drew began his long and distinguished academic career in 1924 as a teaching assistant at MIT. After he obtained his master's degree, he joined the faculty of Drexel Institute in Philadelphia and taught both chemistry and chemical engineering. After three years, he returned to MIT as an instructor in chemical engineering and initiated research in the fundamentals of heat transfer, a field that continued to occupy his attention throughout his lifetime and to which he made many creative and outstanding contributions.

During a six-year period at MIT, Professor Drew joined with W. H. McAdams and H. C. Hottel in pioneering efforts in heat transfer and fluid flow research. Their work culminated in their coauthorship of one of the first reviews on mathematical approaches to convective heat transfer ("Heat Transmission," *Transactions of the American Institute of Chemical Engineers* 32[1936]: 271–305).

In 1934 Professor Drew left the academic community for a six-year sojourn with E. I. Du Pont de Nemours and Company in Wilmington, Delaware, where he joined a small group of chemical engineers conducting research in the area of unit operations under the direction of T. H. Chilton. Their work at Du Pont proved to be quite significant: Apparently, Du Pont was the country's first industrial organization to carry out fundamental research in chemical engineering.

For Du Pont, Drew supervised research in heat, mass, and momentum transfer. In addition, he developed rational procedures for the design of chemical process equipment and manufacturing systems. Much of the data that Drew and his Du Pont colleagues generated were made available on a broad basis to chemical engineers by Drew's authoring of important segments of J. H. Perry's *Chemical Engineer's Handbook* (New York: McGraw-Hill, 1934).

Moreover, a second paper published with his coworker A. P. Colburn, "The Condensation of Mixed Vapors" (*Transactions of the American Institute of Chemical Engineers* 33[1937]: 197–215), remains one of the most incisive papers written about this highly technical area. It clarified a number of confusing misunderstandings about the subject that were prevalent at the time and is still referred to today, almost fifty years later, as a means to a better understanding of mixed vapors.

Drew left Du Pont in 1940 to begin a twenty-five-year association with Columbia University, first as a professor and then as head of the Department of Chemical Engineering, a position he held for ten years. During World War II, Professor Drew led the Columbia University research efforts associated with the Manhattan District Project.

On leave to Du Pont for two years, he was a major contributor to the design of the gaseous diffusion technique for isotope separation of the Hanford Plutonium Plant, as well as a contributor to other critical plant aspects. As the chemical engineering department head at Columbia University, he introduced some of the country's earliest courses in nuclear

engineering and established a major heat transfer research facility that operated for many years under the sponsorship of the U.S. Atomic Energy Commission.

After the war, Professor Drew was a consultant to the Brookhaven National Laboratory, an association he maintained for fifteen years. During this period, he helped guide the laboratory's research program in the physical sciences; he also served as chairman of the Brookhaven Engineering Advisory Committee for eight years. During the early 1960s, he was a consultant to the Ford Foundation and worked in India to improve the quality of engineering instruction at the Birla Institute of Technology and Science. In 1965 Professor Drew returned to his first love, MIT, where he held an emeritus professorship until his death.

Drew's dedication to research and progress in the field of chemical engineering never waned. For almost thirty years (from 1954 to 1981), until shortly before his death, he served as editor of *Advances in Chemical Engineering* (New York: Academic Press), a series of volumes that featured comprehensive reviews of the many new, evolving aspects of chemical engineering during that period.

Professor Drew received many awards and honors during his long, illustrious career. He was one of the earliest recipients (1937) of the William H. Walker Award, which is presented annually by the American Institute of Chemical Engineers (AIChE) to recognize excellence in contributions to chemical engineering literature. Professor Drew was also selected by AIChE to be its Annual Institute Lecturer in 1951. His lecture, "Diffusion, What We Know and What We Don't," demonstrated his remarkable ability to apply advanced mathematics to complex physical problems and thereby derive practical engineering utility results.

In 1967 Drew was the recipient of the Max Jakob Memorial Award in Heat Transfer, given jointly by AIChE and the American Society of Mechanical Engineers. In 1983 he was designated by AIChE as one of the nation's eminent chemical engineers. Drew was also a member of Sigma Xi, Tau Beta

Pi, and Phi Lambda Upsilon honorary societies, and a fellow of AIChE, the American Association for the Advancement of Science, and the New York Academy of Sciences. He was elected to the National Academy of Engineering in 1983.

Yet Thomas Drew was far more than a remarkably talented researcher, engineer, and academician. He was a great source of advice and inspiration for his students and colleagues. He combined extraordinary technical talents with a profound sense of fairness, sincerity, personal warmth, and friendship. He had a strong sense of history, placing current events into a sound framework. He was a proud member of the Society of Cincinnati, an organization of direct male descendants of the officers who served with George Washington during the Revolutionary War.

Thomas Drew was thoroughly devoted to his wife Alice and to his three daughters, Mary Drew of Cambridge, Massachusetts; Sally Cokelet of Rochester, New York; and Wendy Cavanaugh of Manlius, New York. He will be missed very much by the many people whose lives he touched.

