

# Memorial Tributes



NATIONAL ACADEMY OF ENGINEERING





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# **Memorial Tributes**

NATIONAL ACADEMY OF ENGINEERING



# **National Academy Of Engineering Of The United States Of America**

**Memorial Tributes  
Volume 2**



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## Foreword

THIS SECOND VOLUME OF *Memorial Tributes* issued by the National Academy of Engineering covers the period from January 1979 through April 1984. It is the second in what is expected to be a series of such volumes, to be published periodically, honoring the deceased members and foreign associates of the Academy. Publication of this second volume of NAE *Memorial Tributes* contributes to the observance of the twentieth anniversary of the founding of the NAE. It is intended that this and succeeding volumes will stand as an enduring record of the many contributions of engineering to the benefit of mankind. In all cases, the authors of the tributes had personal knowledge of the interests and engineering accomplishments of the deceased members and foreign associates.

The National Academy of Engineering is a private organization established in 1964 to share in the responsibility given the National Academy of Sciences under its congressional charter signed by President Lincoln in 1863 to examine and report on questions of science and engineering at the request of the federal government. Individuals are elected to the National Academy of Engineering on the basis of significant contributions to engineering theory and practice and to the literature of engineering or demonstrated unusual accomplishments in the pioneering of new and developing fields of technology.

ALEXANDER H. FLAX  
HOME SECRETARY



# Memorial Tributes



*Turner Alfrey Jr*



## Turner Alfrey, Jr.

1918-1981

By Alfred E. Brown

TURNER ALFREY, JR., a giant of a man, died in Midland Hospital Center on August 10, 1981. Dr. Alfrey joined Dow Chemical Company in 1950 and continued an active scientific research program until the last few weeks before his death. He held Dow's highest research position, Research Fellow, and was one of only five people so honored. Turner Alfrey's contributions to polymer science and engineering were many, and it is no overstatement to say that he contributed greatly to the scientific underpinnings of industrial polymer technology as it is being practiced today.

Dr. Alfrey was more than a great scientist and engineer. He was also a great teacher. His unique teaching style, his quiet enthusiasm, and his humility, along with his ability to simplify and model the most complex problems, never failed to impress visitors to his laboratory and always left him in great demand. Yet he found the time to assist anyone who needed help, and his door was never closed. His patience seemed to be inexhaustible with young scientists and students.

Turner Alfrey, Jr., was born in Siloam Springs, Arkansas, on May 7, 1918. He was the first of three children born to Cleo Ellen and Turner Alfrey. The young Alfrey grew up in Muskogee, Oklahoma, and graduated from Muskogee High School in 1934. From these beginnings he attended Washington University in St. Louis, Missouri, where he received a B.S. in chemical engineering in 1938 and an M.S. in physical chemistry in 1940. His Ph.D. degree in

polymer chemistry was granted by Polytechnic Institute of Brooklyn, New York, in 1943.

After working for two years as a research chemist for Monsanto Chemical Company, Dr. Alfrey returned to the Polytechnic Institute of Brooklyn as a member of the faculty in the Polymer Institute. His perhaps best-known work, the classical reference volume *Mechanical Behavior of High Polymers*, was completed while he was at the Polymer Institute. He joined the technical staff of the Dow Chemical Company in 1950 and quickly made his mark with co-workers. He rose rapidly through the organization and was the first individual named to the then highest research title, Research Scientist.

Throughout his career Dr. Alfrey received a number of awards and honors. These included the A. Cressy Morrison Award by the New York Academy of Sciences, the Bingham Medal by the Society of Rheology, the International Award in Polymer Chemistry from the Society of Plastics Engineers, the Witco Award in Polymer Chemistry by the American Chemical Society, and the H. H. Dow Medal by the Dow Chemical Company.

Dr. Alfrey was elected to the National Academy of Engineering in 1977. In addition, he was a visiting professor at several universities. He served on a number of advisory boards and committees, including a term as a member of the Committee of Macromolecular Chemistry of the National Research Council. He was a member of a number of scientific and professional societies, which included the American Chemical Society, the Society of Rheology, the New York Academy of Sciences, the Society of Plastics Engineers, the Society of Chemical Industry, and Sigma Xi, and he was a Fellow of the American Physical Society.

Throughout his career Turner Alfrey, Jr., was author or coauthor of about 100 technical publications and was inventor or coinventor of 24 U.S. patents. As mentioned above, he wrote the classical treatise *Mechanical Behavior of High Polymers* and, with Mark and Bohrer, published *Copolymerization*, which was the first comprehensive treatment of the subject. In addition, he was coauthor of a text for polymer engineers and he wrote several other chapters on a variety of subjects. And, of course, he wrote countless internal com

pany reports, which to a large degree remain proprietary information of the Dow Chemical Company.

Dr. Alfrey's fertile and active mind led him scientifically in many directions, and he seemed to pursue each new endeavor with vigor and dedication. Polymerization kinetics, organic polymer chemistry, reactions on polymers, swelling and diffusion behavior, colloid chemistry, mechanics, property-structure relationships, rheology, and fabrication technology were all investigated and researched in depth. At times he seemed to be thoroughly absorbed by his science, and rarely did he take more than a day or two of vacation a year. To Turner Alfrey, science was more than a job—it was his life, and perhaps his greatest pleasure was in exposing others to this wonderful world. His laboratory technique was as unique as his approach to science, and he often fashioned his apparatuses from the simplest of equipment. In fact, there were those who considered these measurements to be crude; however, they always seemed to have just the right level of sophistication to unravel the problem without complications, and he could just as quickly turn to the sophisticated methods when the occasion required exactness.

There was another side to this man: he was a welcome addition to any social affair. In his younger days he delighted in outwitting his co-workers in various contrived mental games. Seemingly always in good humor, he found just the right degree of eloquence for any occasion. In writing any tribute to Turner Alfrey, Jr., one would be remiss in not mentioning his wife, Jeannette, who provided continual support throughout his career.

Turner Alfrey, Jr., the man, the scientist-engineer, demanding of himself, tolerant of others, left only friends and admirers. His contributions remain as a living memorial to his life.



*Benjamin B. Bauer*