



C. A. Amann

CHARLES A. AMANN

1926–2015

Elected in 1989

“For contributions to the technical advancement of heat engines of all types and leadership in furthering the understanding of such engines.”

BY JOSEPH M. COLUCCI

When his son Rick was in kindergarten, he was asked what his dad did. He replied, “He walks and he talks and he thinks a lot.”

CHARLES A. AMANN, or Chuck as he preferred to be called, was a leading force in General Motors’ and the automotive industry’s efforts to improve engine efficiency, reduce emissions, and evaluate numerous alternative power plants. He died on March 10, 2015, at age 88, leaving a legacy not only of outstanding technical contributions but also as a loving husband, father, grandparent, great grandparent, coach, educator, friend, and all-around good guy.

Chuck was born on April 21, 1926, in Thief River Falls, Minnesota (in the upper northwest corner of the state), and grew up in St. Paul, where he played trumpet and piano and was in a dance band. He obtained a BS in aeronautical engineering and an MS in mechanical engineering from the University of Minnesota in 1946 and 1948 respectively.

He joined General Motors Research Laboratories (GMR) in 1949 and got involved in design, analysis, simulation, and experimental research on a broad range of engines and devices. These included automotive and aircraft gas turbine engines, reciprocating internal combustion engines (Otto and diesel cycle), Rankine and Stirling cycle engines, various

supercharging techniques, and air-cushion vehicles. The main focus of his research was to understand how the combustion process and thermodynamic and fluid mechanic principles could be utilized to improve engine efficiency and reduce engine emissions.

His skill as a research engineer led to supervisory and managerial positions at GMR. He was assistant head of the Gas Turbines Department, and then head of the Engineering Research and Engine Research Departments from 1973 to 1989. In 1989 he was appointed a research fellow and director of GMR's Engineering Research Council.

Chuck was a prolific writer. While at GMR he authored more than 50 technical papers, mainly for the Society of Automotive Engineers (SAE). He also coauthored two books: *Combustion Modeling in Reciprocating Engines* (with James N. Mattavi; Plenum Press, 1980) and *Passenger Car Diesels* (SAE, 1982). He received 18 patents. In addition, he was an exemplary speaker and gave invited lectures in Europe and Asia as well as North America.

Chuck was recognized for his contributions in many ways. In addition to his election to the NAE in 1989, he was elected as a fellow of the SAE in 1984, served on numerous committees, and received the society's Arch T. Colwell Merit Award for technical papers in 1972 and 1984 as well as the Lloyd L. Withrow Distinguished Speaker Award in 1986 and 1992. He also received the American Society of Mechanical Engineers (ASME) Internal Combustion Engine Division's Internal Combustion Engine Award in 2000. In 1991 he was selected for the University of Minnesota's Outstanding Achievement award.

In addition to the SAE, Chuck was a member of ASME, the Combustion Institute, Tau Beta Pi, and Sigma Xi.

When he "retired" from GM in 1991, he formed a consulting company called KAB Engineering. The name stood for "keeping Amann busy," and is a small exposition of Chuck's wry wit. In retirement he maintained his strong interest in engines, their emissions and fuel economy, automotive propulsion alternatives, alternative fuels, energy resources and their supporting

infrastructures, and the threat of global warming. He continued to write, and provided numerous technical papers and lectures for the SAE's Historical Committee. By the time of his last lecture, Chuck was confined to a wheelchair. But his determination was still strong. He was wheeled to the stage by his son Rick and gave another outstanding Amann talk.

Chuck served on technical advisory committees for the Gas Research Institute and Oak Ridge National Laboratory, and on National Research Council study committees. He taught engineering courses at Minnesota, Arizona, and Wayne State Universities, and was a guest lecturer at Michigan State University for over 15 years. He was a firm believer in the importance of education, and he was a strong supporter of the SAE's "A World in Motion" program to teach STEM skills in primary schools.

Chuck believed that there was more to education than classroom learning. He and Marilyn took their four children on motor trips around the country. He believed that an information center a day made it a good trip.

Throughout his career, and with his family, he stressed, "To your own self be true." He was not afraid to take contrarian positions in discussions, whether at work regarding technical issues or at home with his family discussing life.

Chuck and his wife of 64 years, Marilyn, were founding members of the Northminster Presbyterian Church in Troy, Michigan. He sang in their choir for 55 years. He wrote music and coached the Birmingham, Michigan, YMCA swim team for years. He is survived by Marilyn; children Richard, Nancy, Barbara, and Julie; 10 grandchildren; and six great-grandchildren.

It was my honor to have known Chuck for 55 years. He was a respected technical associate and a true friend. He will be missed.