PATRICK F. FLYNN

1937–2008

Elected in 1995

“For advances in diesel engine design utilizing science-based methodology.”

BY RODICA A. BARANESCU
AND COLLEAGUES AT CUMMINS, INC.

PATRICK FRANCIS FLYNN, one of the nation’s foremost engine combustion experts, died on August 19, 2008, at the age of 70.

Born in Kingsley, Iowa, on November 14, 1937, he was the oldest of five children, growing up in Minnesota, where his family operated a farm. With a humble, strong work ethic firmly rooted, he went to college at the University of Minnesota (where he had plumbing for the first time). He was notoriously known for not having to study in college and graduated with a B.S. in agricultural engineering (cum laude) from the university in 1959.

After graduation he joined the John Deere Company in East Moline, Illinois, as a design engineer. From there he moved on to the International Harvester Company, where he was a design and project engineer. It was there where he first developed a special interest in engine combustion and co-authored his first papers for the Society of Automotive Engineers, relating to diesel engine simulation and testing. While at International Harvester Company, Pat also worked on his M.S. degree in agricultural engineering, which he obtained in 1965 from the University of Minnesota.
In January 1967, Pat left International Harvester Company to pursue a Ph.D. in mechanical engineering at the University of Wisconsin. There he met Beverly Collora, and they were married on August 30, 1969. Pat and Bev both earned doctoral degrees.

After being awarded his Ph.D. in 1971, Pat joined Cummins Engine Company in Columbus, Indiana, as a technical specialist in the advanced development area. During his 32 years at Cummins, he held a variety of technical and managerial positions, including manager of advanced development, director of turbo machinery research, director of performance and emissions development, and executive director of design and mechanical analysis.

In addition to his technical education, Pat earned an M.B.A. in administration from Indiana University in 1977 while working at Cummins. During his career at Cummins, he received numerous awards—the Outstanding Achievement Award from the University of Minnesota Board of Regents; the Distinguished Service Citation from the College of Engineering at the University of Wisconsin; and the Engine Manufacturers Association Outstanding Achievement Award.

Pat was elected to the National Academy of Engineering in 1995 and was an active member of the National Research Council’s Board of Army Science and Technology from 1999 to his death. Pat also served as a member of the Combustion Institute and the advisory board of the Combustion Research Facility of the U.S. Department of Energy (DOE), Sandia National Laboratories, and as a member of the Executive Advisory Board of the Department of the Army’s University Research Initiative and DOE’s Office of Heavy Vehicle Technologies. Pat was a registered professional engineer with the State of Indiana and a fellow of the Society of Automotive Engineers and the American Society of Mechanical Engineers (ASME).

In 1981, while Pat was still employed by Cummins, he and Beverly took sabbaticals from their jobs to teach at Churchill College at the University of Cambridge, in Cambridge, England. They were the first husband-and-wife team in the university’s history. In addition to his teaching assignments,
Pat continued his research into new perspectives of diesel engine combustion and performance analysis.

In 1985, Pat was promoted to vice president of design and technology. The final 11 years of his career at Cummins were spent directing corporate efforts in combustion research and development of diesel and alternate-fueled engines as vice president of research. During those years at Cummins, Pat managed and directed the efforts of over 100 scientists and engineers, focusing their work on application of the fundamental sciences to the improvement of engines.

Pat always challenged his organization to base its work on the fundamentals of science and technology. One of his favorite sayings was, “If it does not work on paper, it will not work in hardware.” He led by example, and his research in the area of combustion and exhaust emissions has had a profound impact not only on Cummins but on the entire industry.

On the occasion of Pat’s retirement from Cummins in 2000, Chairman and CEO Tim Solso noted, “In his time at Cummins, Pat has led the development of some of our most significant new platforms. The contribution he has made to our technical organization has been substantial.”

Pat Flynn authored and co-authored many technical papers relating to engine combustion, performance, and exhaust emissions and presented such publications in the United States and abroad. In September 2001, Pat delivered the “Soichiro Honda Lecture” at the annual ASME convention entitled “How Chemistry Controls Engine Design.” During his career, Pat was granted numerous patents ranging from turbo machinery to optimizing combustion control in compression ignition engines.

Like his work, Pat loved his family and life. He and Bev enjoyed their two children and closely followed their academic and sporting achievements. They were able to travel extensively, annually, taking their children along on some of their more exotic international trips.

Pat was a fierce competitor in and outside the intellectual arena. He was intense on the tennis court and played a good game of golf, one of his favorite pastimes. He kept in good shape by riding his bike about 10 miles most days.
Pat dedicated his professional life to improving the understanding of the combustion process in internal combustion engines. Even after his retirement from Cummins, he continued to work diligently on diesel combustion modeling using Second Law of Thermodynamics analysis to demonstrate potential improvements in diesel engine performance. He also continued developing complex simulation methods to further understanding and improvement of the combustion process in both spark-ignited and compression ignition engines.

Pat started a consulting company called KFB Consulting. The KFB stood for “Keep Flynn Busy.” He continued doing research, saying, “I’ll stick my pick in whenever I see an opportunity.” And with this attitude he leaves behind a theory he had not yet verified on how combustion “really works,” which he believed would open many new avenues of research and use. He truly was an excellent role model of the concept of lifelong learning.

Pat used to gently put his hand on your shoulder and say the kind words, “We’ve got to talk!” He was known for regular reality checks, had an infinite ability to see when the ducks were not in a row, and made back-of-the-envelope calculations. But perhaps his ability to focus on the business at hand was only exceeded by his ability to motivate people to work hard. His brilliant career was filled with passionate and caring guidance, great motivation and leadership, and inspirational words.

Pat was preceded in death by his wife on January 19, 2005. They both left a great legacy of education. Pat and Beverly were very interested in giving the opportunity to go to college to first-generation families, just as he had done. Together they quietly created scholarships and continuously were big contributors to the University of Minnesota, University of Wisconsin, and Indiana University.

So at the end of an amazing life’s journey, some Flynn-isms to live by: “There are too many birds that are not in the box yet,” so, “The sooner we pre-think this the better.” We might all do well to look forward and get thinking.