



*Norman K. Gostern*

# NORMAN A. GJOSTEIN

1931–2006

Elected in 1990

*“For original contributions to the technology of surfaces and interfaces and for technological leadership in the application of advanced materials to ground vehicles.”*

BY W. DALE COMPTON

**N**ORMAN A. GJOSTEIN, a leader in materials science research and applications of new materials in the automotive industry, died on April 5, 2006, at the age of 74.

Norm, as he was called, was born in Chicago on May 26, 1931. He was always fascinated by mathematics and was encouraged by his electrician father to apply it to engineering. He received his BS and MS from the Illinois Institute of Technology (IIT) in 1953 and 1954, respectively, and his PhD from Carnegie Mellon University in 1958, all in metallurgical engineering. He attended IIT as an Evans Scholar and was awarded the Standard Oil Fellowship while at IIT and the Alcoa Fellowship while at Carnegie Mellon.

After two years as a research engineer at Thompson Ramo-Wooldridge he joined Ford Motor Company as a research scientist. Over the next 14 years (1960–1974) he engaged in research on the physics and chemistry of surfaces and the development and application of new analytical tools for surface analysis, including LEED/Auger surface studies of reconstructed surfaces and mechanisms of particle growth in catalyst systems. He also led teams to develop lightweight composite automotive components, silicon micromachining

facilities for smart sensors, fiber optic multiplex wiring systems, and sodium-sulphur batteries. Of the 60 or so publications that resulted from his research, five were cited between 100 and 200 times.

A need for strong technical leadership led Ford management to encourage Norm to turn from active research to the management of research programs. He was manager of the metallurgy research department in 1974–1976, and was then asked to establish a new liaison office to foster closer cooperation between the US research and the Ford of Europe organization. Over the next two years Ford research broadened its program to encompass the interests of Ford of Europe, much to the delight of the company's management. Upon his return from Europe, Norm became the program planning manager for Ford research. From 1979 until his retirement in 1996, he served as director of various research groups, the last being the Powertrain and Materials Research Laboratory. Upon retirement from Ford he accepted a position as clinical professor of engineering at the University of Michigan, Dearborn, in the Department of Electrical and Computer Engineering.

Norm was active in the National Research Council (NRC). He served on the committee that reviewed the Research Program of the Partnership for a New Generation of Vehicles and contributed importantly to the first published *Review of the Research Program of the FreedomCAR and Fuel Partnership*. He was also a member of the committees that produced *Industrial Technology Assessments: An Evaluation of the Research Program of the Office of Industrial Technologies* and *Engineering Education: Designing an Adaptive System*.

In addition to his election to the NAE in 1990, Norm was honored by many colleagues. He was a fellow of ASM International and a member of its board of trustees. He was a fellow of the Engineering Society of Detroit (ESD) and served on its board of directors. As a member of the ESD Strategic Planning Committee, he also chaired the Strategic Planning Implementation Task Force. He received ASM's John H. Shoemaker Award and ESD's Gold Award. He was active in the

American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME), SAE, and IEEE. In 1995 he was elected to the board of directors of Ceradyne, a Salt Lake City ceramics company that had licensed some of Ford's ceramic technology. He served on advisory boards at Princeton University, Brown University, Carnegie Mellon University, University of Pennsylvania, and California Institute of Technology. He established the Michigan Industry Initiatives for Math and Science Education, a program to give high school science and math teachers an industrial experience.

Norman was a close friend, a valued associate, and a steadfast contributor to his profession, his company, and many community causes. He is survived by daughter Joan G. Daye of Wexford, PA; son Thomas A. Gjostein of Columbus, OH; and four grandchildren.

His son wrote:

Of all of the privileges that could be granted to me in my life, participating in this memorial about my father, Norman A. Gjostein, may be one of the greatest. I wish to thank, foremost, Mr. Dale Compton for his synopsis of the career and life of my father, as well as for his friendship and guidance through much of my father's career in research and development at Ford Motor Company. My mind is flooded with many memories of a lifetime with the man that I knew as my dad, a scientist and a friend. Although brevity is important here, it is also difficult, given the sheer volume of memories that I could share about him.

When I think of my father the scientist, my earliest memories involve riding with him over to the lab at Ford Motor Company in his red Mustang and how he would make science understandable to me along the way through visual examples either natural or man-made, such as bridges, buildings, and cars.

At the lab itself, I remember his sitting in a white coat with his glasses in hand, showing me how a laser worked. This image of him resonates in my memory, glasses in hand while listening to another person, since he often was known for this posture as listener and thinker. His ability to think matters through in silence is, truly, the greatest skill that I was able to learn from him. Integral to that ability

was his capacity to listen intently to the person with whom he was speaking, so that person always felt that they were the only one in the room.

The first cause for my father to be drawn to math, science, and engineering must have come from his own father, Nils Gjostein, who immigrated with his new wife, Amalia, in 1926. My grandfather taught his son, a first-generation American, a great deal about electrical and carpentry work, which became the seed for his future interests, professionally and personally. There was nothing my dad could not fix or build.

Throughout his life, my father had a thirst to learn and a love for math and science, which influenced our whole family, especially my mother, as she listened to him talk about his projects at the lab every evening before dinner. Their marriage of 47 years is a testament to Catholic faith and the complementarity of husband and wife—a role model for me with my own wife, Rebecca. For my sister, Joanie Daye, his love of math and science fostered her interest in studying chemistry in college and drew her to the automotive field as well. For my brother-in-law Ken and nephew Jeff, his fascination for detail in automotive engineering led him to send a ten-page letter with diagrams on making the best pinewood derby car when Jeff was in scouting. Both Ken and Jeff always enjoyed sharing their interests with him.

For me, his love to learn has instilled a fascination for math and science as well as a love for automobile technology. Although my career has been different, his support of me was profound. When I was in college, I remember a dinner between just the two of us, where he sat across the table from me and beamed about how he enjoyed watching my mind blossom and develop. He discussed his interest in returning to the academic world and teaching after retirement from Ford—he wanted to watch the same growth in his students. During my career as a trial lawyer, he never lost interest in learning and always asked about my work or some high-profile case in the media. It is no coincidence that I can see many of his qualities in my children, Luke, Julia, and Joseph.

His greatest example to me is in his being a whole person. He was so successful in research and in management at Ford, but was always there for his family. Shortly after his death, an engineer friend of mine did a Google search of his name and told me that I needed to see it because of all the references to his work, associations, and publications. I was amazed at the amount of links associated with his name. That was just one facet of the greatest man I ever personally knew. All of his family and friends knew him as a humble yet great golfer who wanted to hear all about the person he was with that day.