DANIEL LAUDER GERLOUGH
1916-1977

Daniel Lauder Gerlough was born in San Diego, California, the son of Margaret Lauder Gerlough and Ludwig Sherman Gerlough. He prepared for university work in the public schools of Palo Alto. He received his baccalaureate degree from the California Institute of Technology, his master's degree in electrical engineering from the University of California, Berkeley, and, after a variety of industrial jobs that took him from California to Texas and Cuba, he was awarded the doctorate in philosophy by the University of California, Los Angeles. He was then invited to join the faculty of the University of California as associate professor of engineering and research engineer in the Institute of Traffic and Transportation Engineering.

It was during this period that Dr. Gerlough conceived the idea that the modern high-speed digital computer could be programmed to simulate and to predict traffic flow patterns at intersections. This theory made it possible for engineers to predict, well in advance of construction, the major effects on transportation of changes in highway and street systems and the development of new public transport. This technique, which is today studied by every graduate student in transportation engineering, has been of inestimable value in planning public transportation projects. The subject remained an abiding interest throughout Daniel Gerlough's career. In many publications, beginning with his 1955 paper, *Study of Traffic by Flow Simulation*, to his recent publication, *Refinement and Testing of Urban Arterial and Network Simulation*, he, together with colleagues and students who benefited from his generous collaboration, helped develop this field. From California to the District of Columbia, he led studies of the proper control of traffic signals and systems.

The adaptation of the large-scale computer to operations research entailed a deep understanding of the branch of mathematics known as probability theory, in particular the theory of extreme distributions that is known by the name of the early 19th century French mathematician Poisson. Dr. Gerlough wrote the first monograph

on the use of Poisson distributions in highway traffic analysis. Twenty years later this material has been republished in amplified form — a testimonial to its enduring value. *Poisson and Traffic* remains the standard text in its field. No wonder Dan was known affectionately throughout the world of transportation engineers as "Mr. Poisson."

Dr. Gerlough became nationally known for his paper on the operation of the volume-density traffic signal controller. This device will be familiar to all who encounter a traffic signal that controls entrance to a freeway, smoothing the flow of traffic and reducing the number of accidents. It represents a synthesis of electronic instrumentation, probability theory, and computer application — three topics that were Daniel Gerlough's lifelong professional interests.

In 1959 Dr. Gerlough left the University of California to head the Traffic Systems Section at the Thompson Ramo Woolridge Corporation. He served this well-known firm of engineering consultants for 4 years and then for 4 more years was manager of the Traffic Systems Section of the Planning Research Corporation, where he had charge of many traffic engineering studies. In carrying out these responsibilities he served with distinction as a practicing professional engineer. But in 1967 he turned again, at some personal financial sacrifice, to his first professional love of teaching and research. He became a professor of transportation engineering at the University of Minnesota. He also served as coordinator of the University's program in urban transportation, a joint program in engineering and the social sciences. During the past decade hundreds of students have had the benefit of his experience and instruction, freely imparted.

Dr. Gerlough assumed in all his students and colleagues the same deep interest and profound technical background that infused his own work. His door was always open, and in many a lengthy face-to-face discussion he was able to help students and fellow engineers. Sustained by the abiding love of his family, he worked until nearly the end of his life on the problems he loved. His career may be described in the words with which the poet Chaucer described the ideal scholar: "Souning in moral vertu was his speche/And gladly did he lerne, and gladly teche."