



William Proyer

WILLIAM PRAGER

1903-1980

BY DANIEL C. DRUCKER

WILLIAM PRAGER, University Professor Emeritus of Engineering and Applied Mechanics, Brown University, died on March 16, 1980, in Zurich. He had retired to Savognin, Switzerland, in 1973 with his wife Ann but maintained an extensive research activity in his many complex fields of interest and continued to lecture on the progress he made in his remarkably simple and clearly organized manner. At the same time he served as Editor of *Computer Methods in Applied Mechanics and Engineering*.

Born on May 23, 1903, in Karlsruhe, Germany, Dr. Prager received his Dipl. Ing. degree from the Institute of Technology in Darmstadt in 1925 and his Dr. Ing. the next year. At the age of twenty-six he was appointed Acting Director of the Institute of Applied Mechanics in Göttingen and three years later was made Professor of Technical Mechanics in Karlsruhe. Before leaving Germany in protest in 1934, he had established an international reputation as an engineer and applied mathematician in the statics and dynamics of structures and in the theories of elasticity and plasticity. His subsequent research at the University of Istanbul enhanced his reputation still further, so that on his arrival at Brown University in 1941 he was a key member of the world-famous group that was brought together at that time to place applied mechanics in the United States at a firm high level of applied mathematics. The first issue of the *Quarterly of Applied Mathematics*, which he edited continuously from the time he founded it until 1965, appeared in April 1943.

Dr. Prager established the Division of Applied Mathematics at Brown in 1946, served as its first Chairman, and guided its research and teaching by gathering around him younger people in a wide variety of fields of applied mechanics, applied mathematics, physics, and engineering. His own research during this period covered an enormous diversity of topics in the mechanics of continua of all types, problems of traffic flow, and application of computers to problems in economics and engineering. A small sampling of this pioneering work in applied mechanics includes his illuminating representations in function space developed with Professor Synge, variational principles for stability, stress-strain relations in the plastic range including the effects of temperature, the theorems of limit analysis and design, minimum weight structures, geometric representation of the slip-line field in the stress plane and hodograph plane, solutions with stress discontinuities, dynamic plasticity, and his inventive models of material behavior as kinematic hardening and ideal locking.

Brown University recognized his scientific and administrative abilities by designating him as the first Chairman of the Physical Sciences Council and then as L. Herbert Ballou University Professor. Industrial concerns as well as universities and professional societies valued his advice and counsel. National Academy of Engineering and National Research Council committees and panels were the beneficiaries of his thoughtful input.

Professor Prager's awards and honors predate and postdate his election to the National Academy of Engineering in 1965. They include foreign membership in the Polish Academy of Science, fellowship in the American Academy of Arts and Sciences, and honorary membership in the Groupe Français de Rhéologie, the Groupe pour l'Avancement des Méthodes Numériques de l'Ingénieur, Paris. The American Society of Mechanical Engineers awarded him the Worcester Reed Warner and Timoshenko medals, and the American Society of Civil Engineering presented him with the von Karman Medal. Honorary degrees were bestowed by the University of Liege, Poitiers, the Politecnico di Milano, Case Institute of Technology, Waterloo, Stuttgart, Hannover, Brown, Manchester, and Bruxelles. The Institution of Mechanical Engineers invited him to be

their James Clayton Lecturer. Membership in the National Academy of Sciences came in 1968 and Correspondent, Academie des Sciences de l'Institut de France in 1974.

His almost 20 books and many of his more than 200 papers have appeared or have been translated into several languages. They have had a tremendous worldwide influence on those not fortunate enough to have direct contact with this truly unusual person who was always willing to share ideas and credit. Dr. Prager's many former students and junior colleagues, whom he encouraged so warmly and helped so unselfishly to develop, now occupy key positions in research and teaching in many countries. He could and did converse with them in fluent French or Turkish as well as in German or English. Whenever possible, an hour of classical music very early in the morning began each busy day of his innovative research, teaching, and service to the profession.