

## MEMORIAL RESOLUTION

### CHARLES LOEWNER (1893 – 1968)

Professor Emeritus Charles Loewner died January 8, 1968, after a brief illness.

Loewner was a mathematician of world renown, whose contributions have become a classical part of mathematical literature. He was gifted also with a personal warmth and deep human sensitivity, which brought to him the love and enduring loyalty of all those with whom he came in contact.

Loewner was born on May 29, 1893, in Czechoslovakia, and received his Ph.D. in Mathematics at the Prague University. In 1922 he became Privatdozent at the Friedrich Wilhelm University in Berlin, where he taught until 1928. Following a brief lectureship at Cologne, he was appointed to a chair in Mathematics at the Charles University in Prague. The occupation of Czechoslovakia in 1939 caused him to immigrate to the United States, where he since naturalized. He taught at Louisville, Brown, and Syracuse University prior to his appointment in 1951 as Professor of Mathematics at Stanford University, where he remained until his death. Following his formal retirement in 1963, he continued research work and guidance of doctoral candidates as Professor Emeritus. His mathematical activity continued unabated until his last days.

His success as a teacher was outstanding. He initiated at Stanford University a Problem Seminar for first year graduate students, which introduced them to the joys of mathematical discovery, and which flowered under his guidance. At the same time he was in constant demand as a "doctor-father," as he liked to call himself. Even during his last years, he guided more doctoral dissertations than any other member of the mathematics department.

Loewner's work covers wide areas of complex analysis and differential geometry. His papers are notable for their elegance, penetration, and lasting value. He began his research with a profound and original study of various problems in the theory of conformal mapping. His most significant contribution in this field was the introduction of infinitesimal and variational methods for univalent functions. The Loewner differential equation for such functions is now a classical tool of complex analysis.

Loewner's basic idea to consider the semi-groups connected with conformal mappings and their iterations led him to the general study of semi-groups of transformations. In this vein he has axiomatized and characterized monotone matrix transformations, sets of projective mappings and similar geometric transformation classes.

Another outcome of his early interest in conformal mappings was his research in problems of fluid mechanics. Starting with some unusual applications of the theory of univalent functions to the flow of incompressible fluids, he later applied his methods to the difficult

problems of the compressible case. This led him naturally to the study of partial differential equations in which he obtained significant differential inequalities and theorems regarding general conservation laws.

There is a large body of Loewner's work which will not be found in his formal publications. His door was always open to those who wished to talk with him, and he gave his time freely in informal discussions. In this way his knowledge and insight have found a place in the scientific work of many students and colleagues whose activities in turn are carrying his spirit into the life stream of modern mathematics.

Those who have known Loewner have gained a feeling for science, a taste for mathematical elegance, and a sense of human compassion. The loss of a great scientist, respected colleague, and beloved teacher will be deeply felt in our department, in this University, and throughout the world.

Menahem Schiffer, Chairman  
Robert Finn  
Samuel Karlin