

## AUGUST HENNIG†

The late first generation stereologist Dr. Ing. August Hennig was born in Bavaria on the 12th of October 1903. He finished school with the final examination and then commenced his studies at the Institute of Technology in Munich. His university studies ended with the degree of Dr. of Engineering. His thesis was on photoelasticity. He continued his studies in the direction of higher mathematics and specialized in biomathematical problems in subsequent years.

After world war II he took a position as biomathematician in the Anatomical Institute of the University of Munich. He was confronted with problems regarding the morphometric measurement of microscopical cellular structures in sectioned material. He developed — independently of the worldwide morphometric evolution — a series of formulas concerning the estimation of volume-fraction, surfaces of cut bodies and lengths of cut fibres, mainly based on point-counting. His results were published in German journals, but were noticed by only a few people. Yet, H. Elias came across his publications and in this way A. Hennig came into a productive dialogue with Elias. This connection proved a very great stimulus for his further work. He was, consequently, one of the founders of the ISS in 1961. During this time, cooperation with Elias led to a personal friendship. A. Hennig has made a lot of suggestions for the practical use of stereological methods, furthermore he estimated the sources of errors due to certain point arrangements in the grid. As far as I know, Elias and Hennig wrote about 8 papers together.

After Hennig's retirement in 1969 and the death of his wife, he lived secludedly in Munich and had only contacts by letter to a few scientists like H. Elias and myself. He died of a stroke on 26th July 1986.

(H. Haug)

## FREDERICK NIMS RHINES†

Dr. F.N. Rhines, Distinguished Service Professor Emeritus in the Department of Materials Science and Engineering at the University of Florida, died on April 10th 1986.

Frederick Nims Rhines was born in Toledo, Ohio in 1907. After studying chemical engineering at the University of Michigan, he received his Ph.D. degree in metallurgy at Yale in 1933. He joined the faculty in Metallurgy at the Carnegie Institute of Technology and was instrumental in the development of the first undergraduate curriculum in physical metallurgy. He became the Alcoa Professor of Light Metals in 1946. After a teaching and research career that spanned 25 years at Carnegie, he moved to the University of Florida in 1959 to establish an activity in metallurgy which evolved into a world-class department in materials science and engineering.

His research interests spanned much of the field of physical metallurgy, with significant publications in such diverse areas as diffusion, hot working, oxidation, coarsening processes, creep, powder processing, plastic deformation, grain growth, ultrasonic welding, and internal oxidation. The centre of focus of his work was microstructure. Accordingly his most widely known contributions are in the area of phase diagrams and stereology. His classic book, *Phase Diagrams*, published in 1956, was well ahead of its time and remains the most widely used textbook in the field. He pioneered the resurgence of the quantitative analysis of the geometry of microstructures, organising the first conference on the subject in Florida in 1961; this meeting resulted in his text, *Quantitative Microscopy* (with R.T. DeHoff), which served to focus the development of stereology in materials science.

His conviction that a truly scientific basis for materials science required rigorous application of geometrically general and realistic concepts to the study of the behaviour of microstructures culminated in the definition of a new branch of science which he termed *microstructology*. A small but very intensive and successful first Conference on Microstructology took place within one month after his death; the enthusiasm of its participants makes the continued pursuit of the rigorous concepts he developed virtually certain. A review of these ideas, carefully crafted by Dr. Rhines during the past year is available in the monograph *Microstructology — The Behavior and Properties of Materials*, Dr. Reiderer-Verlag GmbH, Stuttgart (1986).

In his long list of awards, perhaps the most prized are two Howe Medals conferred by the American Society of Metals, one for work on diffusion in multicomponent, multiphase systems, and the other for studies of grain boundary shearing in bicrystals. He has also been widely recognised for his teaching acumen, occupying the Alcoa Chair for Light Metals at the Carnegie Institute of Technology, and been designated Teacher-Scholar of the Year at the University of Florida. His acceptance into the Legion of Honor at the American Institute of Metallurgical Engineers is a fitting recognition of his position as one of the outstanding metallurgists of our time.

(R.T. DeHoff)