

In Memoriam—Hans R. van den Berg (1939–1998)

Dr. Hans Rudolf van den Berg died suddenly and unexpectedly on April 2, 1998. Hans van den Berg was an active member of the thermophysical-properties community as illustrated by his involvement in the European Conferences on Thermophysical Properties, his regular participation in the Triennial Symposia on Thermophysical Properties in the United States, and his activities as a corresponding member of the Subcommittee of IUPAC Commission I.2 on the Transport Properties of Fluids.

Hans was born on May 8, 1939, in Amsterdam as the only child of his parents. He attended Montessori schools at the elementary and high-school level. In 1957 he entered the University of Amsterdam to embark on a study in physics and mathematics and he received his candidate (bachelors) degree cum laude in the spring of 1961.

In the fall of 1961 Hans joined the van der Waals Laboratory of the University of Amsterdam, where N. J. Trappeniers had just succeeded A. M. J. F. Michels as director of this laboratory. His graduate research was concerned with the further development of a special capillary viscometer for highly accurate measurements of the viscosity of compressed fluids. He received his doctorandus (masters) degree cum laude in 1966.

His Ph.D. thesis research was a veritable tour de force in which he investigated the viscosity of krypton as a function of density with unprecedented accuracy. The goal was to verify the presence of a logarithmic term in the density expansion of the viscosity predicted by theory. During part of this period Hans was employed as a teacher at the Montessori Lyceum, which he had attended earlier, and only in 1969 did he become a full-time research associate at the van der Waals laboratory. In 1979 he successfully defended his Ph.D. thesis on the density expansion of the viscosity of krypton, for which he again received a cum laude award as he had received for his earlier academic degrees. The Ph.D. thesis work represents the most ambitious effort ever undertaken to investigate the nature of the density expansion of the viscosity of a moderately dense gas. The work showed that it is extremely difficult to determine the analytic or nonanalytic character of the density expansion of the transport properties from experimental

data. The best one can do is to check whether the experimental data are consistent with the theoretical prediction.

The thesis research laid the foundation for the type of research characteristic of Hans van den Berg: developing experimental methods to perfection. For several years Hans continued to work on the viscosity of dense gases while establishing an active collaboration with P. S. van der Gulik and C. A. ten Seldam leading to publications on the working equation for a capillary viscometer with nonsteady compressible flow, on compressible laminar flow in a capillary, and on thermal effects in compressible viscous flow in a capillary. Hans van den Berg was also involved in the organization of the AIRAPT International High Pressure Conference which was held at the van der Waals laboratory in July 1985, an event he clearly enjoyed.

The retirement of N. J. Trappeniers in 1987 as Director of the van der Waals Laboratory led to some changes in the direction of the laboratory. It was at this time that Hans became more involved in international research collaborations, specifically with research groups at Imperial College in the United Kingdom, at the University of Lisbon in Portugal, at the University of Thessaloniki in Greece, and at the University of Maryland in the United States.

The collaboration with the University of Maryland provided Hans with the motivation to use his extraordinary experimental talents to investigate the behavior of the thermal conductivity of fluids and fluid mixtures in the critical region. This research led to two Ph.D. projects involving R. Mostert and E. P. Sakonidou; the work with E. P. Sakonidou provided the most accurate thermal-conductivity measurements of fluids in the vicinity of the critical point ever obtained, including the first experimental evidence that the thermal conductivity of fluid mixtures, unlike that of one-component fluids, remains finite at the vapor-liquid critical point. During this period Hans also became involved in microgravity experiments in collaboration with A. C. Michels culminating in his participation in the operation at the Marshall Space Flight Center in Huntsville, Alabama of a critical-phenomena experiment in the International Microgravity Laboratory in the space shuttle in January 1992.

I had an opportunity to collaborate closely with Hans van den Berg during the past 10 years. I have greatly appreciated this fruitful collaboration, and I know that this appreciation was mutual. During this period I became intimately acquainted with Hans as a researcher and as a personal friend. His demands for scientific quality and accuracy were extremely high, and he challenged his collaborators accordingly.

Hans pursued near-perfection in his work and, as such, put high demands on himself. The research was his love, which also would sustain

him when facing some disappointments in his life. With the thermophysics community, I am grateful for having had Hans van den Berg as a valuable colleague. And I hope that this tribute will bring consolation to his sons Marco and Carlos.

Jan V. Sengers

Associate Editor Emeritus

P.S. I am indebted to P. S. van der Gulik for his help in collecting information concerning Hans van den Berg.