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IN MEMORIAM

**ALEXANDER SILBERBERG**

1923-1993

Alexander Silberberg, Chemical Engineer, Physical Chemist, Biorheologist, passed away after a long lasting cardiovascular disease in Rehovot, Israel on September 12, 1993. Many of his personal and scientific friends who saw him as active as ever at the 3rd International Symposium on Hemorheology and Red Cell Aggregation in Versailles, France, in November 1992, trusted in the stabilisation of his health, but their hopes proved fruitless. Together with his wife Leah and his children a worldwide circle of friends and scientists comprising many special fields are mourning the loss of a great personality.

Alex Silberberg was born in Vienna, Austria, on February 24th, 1923. He settled in Johannesburg, South Africa in 1935, graduating in 1944 at the University of Witwatersrand, Johannesburg with a B.Sc. (Eng.) degree in Chemical Engineering. After the war he entered the University of Basel, Switzerland to study under Professor W. Kuhn. In 1952 he received the Ph.D. degree "Summa cum laude" for his thesis in Physical Chemistry entitled "Interfacial Tension and Phase Separation in Two Polymer-Solvent Systems". Working as special assistant to Professor W. Kuhn he published with him several papers on polymer solutions. During those years he met for the first time A.L. Copley, and this was the beginning of a lifetime's friendship and most fruitful scientific collaboration.

In 1953 he was appointed to the Weizmann Institute of Science, Rehovot, Israel and worked with Professor A. Katchalski on Thixotropy and Viscoelasticity. In this in many respects unique environment his further scientific career developed: Senior Scientist (1959), Associate Professor (1963), in 1970 Professor and in 1981 the Marian and Joseph Robbins Professor of Biorheology.

Characteristics of Alex Silberberg's career were his many visiting professorships around the globe such as: Unilever Visiting Professor, Chemistry Department, University of Bristol in 1975; Fairchild Distinguished Scholar, California Institute of Technology, Pasadena in 1977; Royal Society Visiting Professor, Imperial College, London in 1983; Visiting Professor, University of Washington, Seattle, in 1986; Visiting Professor and Series Lecturer, Collège de France, Paris, in 1988.

Alex Silberberg was the president of the European Microcirculation Society, organizing its 3rd conference in Jerusalem in 1964 at which hemorheological topics already occupied an important position, and that was also where he completed a symposium on microvascular methodology with a general review of hemorheology. The 12th Conference of this society took place again in Jerusalem, presided over by him. In his capacity as president of the International Society of Biorheology 1972-1978 he arranged its 2nd congress in Jerusalem in 1975. As a chairman of this society he was active for many years as Liaison Representative and Ordinary Member, Divisional Committee, International Union of Pure and Applied Biophysics. Last but not least he was the president of the Israel Microcirculation Society.

Through his comprehensive knowledge of physical and polymer chemistry he has enriched the science of Biorheology with manifold important works, in which the relations to hemorheology often were featured. Among other things he described the viscoelastic properties of whole blood at the 2nd International Congress of Hemorheology in Heidelberg in 1969. Furthermore, he carried out the mathematical analysis of capillary-tissue fluid exchange (Biorheology 11, 1-49, 1974, with A. Apelblat, A. Katzir-Katchalsky); the physiochemical characterization of loose connective tissue in microcirculation (Microvasc. Res. 8, 263-273, 1974, with F.A. Meyer); the interstitial-lymphatic flow system (Intern. Rev. Physiol., Cardiovasc. Physiol. III, Univ. Park Press, Baltimore, 215-260,

1979, with B.M. Zweifach); biophysical aspects of connective tissue (Clin. Hemorheol. 2, 497-508, 1982); kinetorheological aspects of biorheology (Biorheology 21, 437-443, 1984, with M. Henneberg); structure of the interendothelial Cell Cleft (Biorheology 25, 303-318, 1989); Polyelectrolytes at the endothelial cell surface (Biophys. Chem. 41, 9-14, 1991).

His close scientific and personal relationship with A.L. COPLEY he expressed in the commemorative publication on the occasion of his 70th birthday: "Perspective in Biorheology", Pergamon Press 1982, which he published as Compiling Editor "as a labor of love". Alex Silberberg initiated and completed, compiled, assembled and arranged all the various contributions to a unique memorial "ONE MAN - TWO VISIONS, L. Alpcopley - A. L. Copley, Artist and Scientist", Pergamon Press 1993.

Alex Silberberg was Editor of BIORHEOLOGY from its beginning, its Editor-in-Chief from 1980, and co-edited the New Scope of this journal in 1986. For various other journals he served on the editorial advisory board: J. Rheology, J. biophys. Chem., J. Polymer Sci., Biomaterials, Medical Devices and Artificial Organs, Physico-Chemical Hydrodynamics, Internat. Agrophysics, and Polymer Contents.

Alex Silberberg became the sixth recipient of the Poiseuille Gold Medal Award of the International Society of Biorheology, bestowed upon him at the Fourth International Congress of Biorheology, held at Jikei University School of Medicine, Tokyo, Japan in 1981. The proceedings of this congress, printed in Biorheology 19, 1-383 (1982), included the publication of the Introductory Remarks to this ceremony by Harold Wayland and the Poiseuille Lecture "The mechanics and thermodynamics of separate flow through porous, molecular disperse, solid media" by A. Silberberg.

Looking back over the course of life of Alex Silberberg, I see him governed by his personal relations with Israel, his cosmopolitanism, by his comprehensive and admirable devotion as physical chemist to the potentials and processes of bio- and hemorheology comprising all life, and by his friendship to A.L. Copley.

Alex Silberberg was analyst and unionist in many respects. Without him, our science of bio- and hemorheology is the poorer, for its community of researchers has lost one of its foundation pillars.

Siegfried Witte