

OBITUARIES

B. V. ÉRSHLER

On June 22, 1978, Professor Boris Vul'fovich Érshler, a well-known Soviet scientist, Doctor of Chemical Sciences, recipient of the USSR State Prize, and member of the Communist Party of the Soviet Union, died in his seventieth year. Physical chemistry suffered a great loss - a talented researcher and individual with rare spiritual qualities has departed.

Prof. Érshler was born on September 4, 1908 into the family of a physician. In 1919, he graduated from the Chemistry Department of the Moscow High Technical Institute. He continued his work at the Food Products Institute until 1935 and from 1935 to 1945, he worked at the L. Ya. Karpov Institute of Physical Chemistry as senior scientific associate, directed a group, and was the head of a laboratory. Prof. Érshler served in the Soviet Army from 1941 to 1944. In 1948, he moved to the Institute of Theoretical and Experimental Physics, where he organized a physical chemistry laboratory and continued his scientific career until the last days of his life.

Prof. Érshler was a scientist who combined a very broad profile of scientific interests with exceptionally deep penetration into the essence of scientific problems. His pioneering work, which achieved international recognition, was in various areas of physical chemistry and engineering physics. Many of his works have found practical application and are used in industry. He had already at the beginning of his scientific career carried out original studies on ultrafiltration which have had continuing great importance in theory and practice.

Prof. Érshler's work in some areas of electrochemistry today after 30 years are so fundamental that the presentation of modern electrochemistry would be impossible without reference to it. As one of the closest students of Academician A. N. Frumkin, Prof. Érshler first studied the kinetics of electrode processes by the application of low-amplitude alternating current on an electrode. He developed the quantitative theory of the processes which occur in this case in general form. This work was widely acknowledged and was further developed both in the Soviet Union and other countries. The impedance of a very common type of electrochemical system is named for Prof. Érshler. He was the first to produce and experimentally verify the theory of adsorption passivation in the case of platinum, which is commonly used today. He developed a theory of the double layer accounting for the discrete structure of the electrical charge, which enables explanation of a series of features of the double layer at the boundary between two phases. Prof. Érshler produced important work on chemical batteries. He was the first to prove the important role of electron conductivity and also of cation adsorption in the operation of nickel oxide and magnesium dioxide cells.

In his work, Prof. Érshler introduced clarity into many discussions on aspects of electrochemistry such as the problem of absolute potentials.

The variety of the directions of the works carried out by Prof. Érshler with his co-workers during his tenure at the Institute of Theoretical and Experimental Physics is remarkable. In nuclear chemistry, Prof. Érshler observed local melts generated by temperature surges along fission recoil tracks and determined the average number of atoms evaporating from a track. He measured the yields of uranium fission recoils, investigated the valence states of uranium in aqueous solutions under the action of ionizing radiation, studied diffusion in irradiated metals, and was the first to carry out theoretical and experimental studies of the boiling of liquids under conditions of bulk heating. With A. I. Alikhan, Prof. Érshler was the author for a plan for a boiling water nuclear reactor which was presented at the First Geneva Conference on the Peaceful Uses of Atomic Energy. He was awarded the USSR State Prize for solving important industrial problems.

In 1959, Prof. Érshler theoretically predicted and then experimentally confirmed the relationships between changes in yield and the steady-state concentration of radiolysis products with the dose magnitude which are now very widely recognized. These relationships have importance not only for explaining concrete radiation chemistry transformations in various media, but also are of great practical interest.

Prof. Érshler made a significant contribution to the theory of the radiation chemistry of condensed media in his series of articles on the development of the mechanism of the radiolysis of water and providing a basis for the diffusion-recombination model of radiolysis. This model permitted a quantitative relationship between

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the experimentally measured radiolysis products, and their diffusion and kinetic characteristics with ionizing particle track parameters. He also directed the organization of work on the chemistry of one-electron hydrogen-like atoms (muonium and positronium).

Prof. Érszler devoted a great amount of time to the education of young scientists. Eight candidate's and one doctoral dissertation were completed under his direction.

As an outstanding scientist and man of crystal-pure spirit and high moral principles, Prof. Érszler was a true patriot of the Soviet Union, his native land. Uncompromising service to scientific truth was the highest essence and aim of his life.

Prof. Érszler will always remain in the memories of his many colleagues and students as a very gentle, refined, sensitive, demanding yet patient, and highly principled man.