ISSN 1023-1935, Russian Journal of Electrochemistry, 2012, Vol. 48, No. 3, pp. 348–349. © Pleiades Publishing, Ltd., 2012.
Original Russian Text © V.Yu. Baklan, V.S. Kublanovskii, B.M. Grafov, 2012, published in Elektrokhimiya, 2012, Vol. 48, No. 3, pp. 383–384.

CHRONICLE

To the Centenary of O.K. Davtyan (April 15, 1911–December 1, 1990)

DOI: 10.1134/S1023193512660019



April 15, 2011 marked the 100th jubilee of Professor, Doctor of Chemistry Oganes Karapetovich Davtyan whose name is well known to scientists in the field of electrochemistry, physical and quantum chemistry.

Oganes Davtyan was born in Duziend (now, Akuryani) village in Armenia. He had got the higher education at the Moscow State University and started his scientific carrier in 1935 at the Moscow Institute of Oil and Gas. In 1938, he defended his candidate dissertation devoted to association of molecules, which was distinguished by the President of the Academy of Sciences of the USSR V.L. Komarov as one of the best studies. Since 1939 to 1946, Oganez Davtyan worked at the Moscow Power Engineering Institute as the head of a laboratory. In 1944, he defended his doctorate dissertation devoted to fuel cells. For his studies in this field, Davtyan was awarded the Order of the Red Banner of Labor.

His first monograph "The Problem of the Direct Conversion of Fuel Chemical Energy to Electric Energy" was published in 1947 and is now considered as the first book on fuel cells ever published all over the world. It had brought him the world-wide acknowledgement. Oganes Davtyan began his monograph with the following words: "The criterion of the technological progress in country's economy is the economic consumption of raw materials and energy, which means the most efficient and rational use of labor and the increase in its productivity. This is why the most important problem of our industry and power engineering is the better use of fuel. Among the topical problems in the field of power engineering is the elimination of the inefficient use of chemical energy of

fuels and the predatory use of chemical energy of fuels." These words are so important today that this book seems to be written not in 1947 but today or yesterday.

In 1959, after it was reported that a tractor with an electric engine powered by "a battery of Davtyan's cells" had been built in the USA, Oganes Karapetovich appealed to M.V. Keldysh, the President of the Academy of Sciences of the USSR. As the result, it was decided to found the Laboratory of Fuel Cells at the Mechnikov Odessa State University where Davtyan headed the Department of Physical Chemistry. Later, this laboratory was transformed into the Problem-Oriented Research Laboratory of Fuel Cells.

In this laboratory under the supervision of Davtyan, in a relatively short time, several important studies were carried out, which formed the basis of the preparation of different catalysts, the fabrication of fuel and oxygen electrodes, and the development of low-temperature hydrogen-oxygen fuel cells and electrochemical generators with the power up to 1 kW. The one-kilowatt electrochemical generator designed to relieve the "peak" loads on nuclear stations was put through tests at the Moscow Institute of Nuclear Engineering. The aluminum-air battery with the power of 1 kW designed for UAZ cars was tested in Cheboksary, the zinc-air battery was tested at the Lvov Scooter Plant. Moreover, the batteries of chemical cells with the powder of 12 kW, the energy density of 150 W h/kg, and the capacity of 60 kW h were developed for vehicles and also tested.

Davtyan have carried out many important research and theoretical studies. Thus, he put forward the theory of current-forming processes at the electrochemical combustion of gases, which was used in the development of electrodes for fuel cells.

The studies by Oganes Karapetovich gave a strong impact to the development of investigations in the field of fuel cells and electrocatalysis in the USSR. The latter were carried out at the All-Union Scientific-Research Institute of Current Sources (N.S. Lidorenko), the Institute of Electrochemistry of the Ural Division of the Academy of Sciences of the USSR (A.N. Baraboshkin), the Institute of Electrochemistry of the Academy of Sciences of the USSR (V.S. Bagozky), etc.

Oganes Karapetovich had many talents, which is evident from his monographs and numerous publications. In addition to the mentioned book, he published several monographs devoted to quantum chemistry, kinetics and catalysis of chemical and electrode processes, the inertial field and quantum correlation theory. More than 500 studies were published by him in Russian and foreign journals.

Oganes Davtyan died in December, 1990 in Erevan and was buried there. Up to his end, he retained excellent activity, deep knowledge, and the desire to know something new. In the history of electrochemistry, Oganes Davtyan will be remembered as a scientist who had put forward the ideas associated with the practical development of a new power source—the fuel cell.

V.Yu. Baklan, A.D. Vasylyev,
V.S. Kublanovskii, and B.M. Grafov