Al'bert L'vovich Lapidus (On the Occasion of His 85th Birthday)

DOI: 10.3103/S0361521918060113

On November 30, 2018, Al'bert L'vovich Lapidus, the editor-in-chief of this journal, a leading scientist in the field of catalysis, the processes of organic chemistry, and the chemistry of solid fuels, oil, gas, and biomass, celebrated his 85th birthday.

In 1957, Lapidus graduated from the Department of Basic Organic Synthesis of the Lomonosov Institute of Fine Chemical Technology (MITKhT) in Moscow with a degree in the chemical technology of fuels. From 1957 to 1959, he worked as a supervisor at the Moscow Electrolysis Plant. In 1959, on the recommendation of Corresponding Member A.N. Bashkurov and Professor N.S. Pechuro, Lapidus became a graduate student at MITKhT, and he successfully defended his candidate's dissertation in 1963. Since 1963 up to now, Lapidus has been affiliated with the Zelinsky Institute of Organic Chemistry of the USSR Academy of Sciences (now of the Russian Academy of Sciences). In 1975, he defended his doctoral dissertation "Synthesis and Transformations of Olefin and Paraffin Hydrocarbons on Catalysts Containing Crystalline and Amorphous Aluminosilicates" and received the academic title of professor in 1982. In 1997, Lapidus was elected a corresponding member of the Russian Academy of Sciences. In 1999, he organized and headed the first in Russia Department of Gas Chemistry at the Gubkin State University of Oil and Gas for training specialists in the chemical processing of natural gas and solving scientific problems in this area.

The main areas in the scientific activity of Lapidus include the studies of the catalytic processes of organic chemistry and the conversion of solid fuels, oil, natural and technological hydrocarbon gases, and biomass for the manufacture of valuable chemical products. He proposed effective catalysts for the synthesis of lower alkanes, high-molecular-weight paraffins, branched alkanes, and aromatic compounds and a mechanism of the production of aliphatic hydrocarbons on heterogeneous catalysts and synthesized them from a mixture of carbon oxides and hydrogen on cobalt systems. He performed for the first time a series of works to reveal the mechanisms of olefin isomerization and oligomerization on zeolites and the effects of CO₂ and CO on the conversion of olefins in the presence of heterogeneous catalysts in the carbonylation reactions of olefins on catalysts based on Group VIII metals, developed scientific fundamentals for the synthesis of

hydrocarbons from CO and H₂ initiated by acetylene, found the mechanisms of reactions initiated by small amounts of CO on heterogeneous cobalt catalysts, discovered a reaction of reductive acetylene oligomerization, and developed new methods for the synthesis of valuable organic products based on CO₂.

Lapidus pioneered the use of zeolite-containing catalysts for the hydropolymerization reactions of unsaturated compounds with the participation of carbon oxides and discovered a hydropolymerization reaction of acetylene. He studied the carbonylation reactions of organic compounds (olefins, alcohols, and nitro compounds) with the participation of carbon oxides and proposed convenient methods for the synthesis of polymers for medical, agricultural, and industrial applications. Lapidus proposed a two-center model for the structure of active sites on the surface of Co systems, developed fundamentally new cobalt catalysts for the synthesis of hydrocarbons from CO and H₂, and proposed new cobalt–zirconium catalysts for hydrocarbon synthesis from CO and H₂. In cooperation with scientists from Kazakhstan, he developed a process for the catalytic hydrogenation of coal under the action of a mixture of carbon monoxide and water.

The works of Lapidus are practically oriented: three catalysts for the synthesis of hydrocarbons from CO and H₂ were introduced into industrial production, a number of new modified catalysts were tested on a pilot-plant scale, and the large-scale production of acetic acid by the carbonylation of methanol was initiated.

Lapidus is a member of a number of scientific and dissertation councils and the organizing committees of symposia and conferences, the editor-in-chief of the journal *Khimiya Tverdogo Topliva* (*Solid Fuel Chemistry*), and an editorial board member of several Russian and international scientific journals. Among his pupils, there are 9 doctors of sciences and more than 80 candidates of sciences in chemistry and engineering.

He was awarded an Order of Friendship and medals. He is a laureate of the Prize of the USSR Council of Ministers and the Government of the Russian Federation Prize and a winner of the Zelinsky Prize of the USSR Academy of Sciences and the Ipatiev and Balandin Prizes of the Russian Academy of Sciences.

The editorial board of the journal wishes Lapidus good health and continued success in the development of domestic catalysis and coal chemistry.