TO THE 100TH BIRTHDAY OF VLADIMIR VASILIEVICH STRUMINSKII

S. L. Chernyshev

Central Aerohydrodynamic Institute (TsAGI), 1 Zhukovsky str.,
Zhukovsky, 140180, Moscow Region, Russia; E-mail: uzts@tsagi.ru

April 29, 2014, marked the 100th birthday of the great scientist and manager, Member of the Russian Academy of Sciences, Vladimir Vasilievich Struminskii. In 1941, having received his Ph.D. from the Physics Department of Moscow State University, Struminskii came to work at TsAGI, where he rose through the ranks from an engineer to the head of the leading department and became the first deputy director of TsAGI in the area of aerodynamics. His research was aimed at developing the wings and airframe design of modern and advanced aircraft meant for transonic and supersonic speeds. The theoretical and experimental results obtained in the department under Struminskii’s guidance have become fundamental to the understanding of the aerodynamics of swept wings and the theory of three-dimensional (3D) boundary layers. These results are directly related to the development of the MiG-15, MiG-17, MiG-19, and MiG-21 fighter jets, as well as to heavy long-range aircraft with swept wings. Struminskii proposed using longitudinal partition plates on the swept wing surface, which allowed eliminating the air flow along the span toward the wing tips and improved the controllability. The high-aspect-ratio wings designed by Struminskii are still the basis for long-range aircraft configurations.

Vladimir Vasilievich Struminskii’s academic interests were quite broad; they covered the theory of the 3D boundary layer, laminar/turbulent transition, kinetic gas theory, theory of motion of disperse media, and quantum mechanics. A broad research program was started at TsAGI under Struminskii’s supervision in order to examine ways of reducing drag by shifting the laminar/turbulent transition using air suction or surface cooling. This research program included the creation of low-turbulent and low-noise wind tunnels, special experimental plants, and model testing both in wind tunnels and under real flight conditions. The possibility of applying infrared imaging in the wind tunnels was studied, and multiple experimental plants for hypersonic speeds were developed with strong support from Struminskii.

From 1966 to 1971, Vladimir Vasilievich Struminskii chaired the Institute of Theoretical and Applied Mechanics of the Siberian Branch of the Russian Academy of Sciences. During that period of time, he initiated theoretical and experimental research on advanced problems of aviation and oversaw the development of a complex of experimental plants. The scientific school dedicated to studying the problems of aerodynamics and laminar/turbulent
transition that Struminskii created at the Institute of Theoretical and Applied Mechanics is still one of the leading scientific schools in the world. Later, in addition to aerodynamics, Struminskii studied the possibility of increasing the efficiency of manufacturing processes in chemical, oil and gas, and microbiological engineering. He was enthusiastic about the use of atomic energy and pollution-free fuel (liquid hydrogen) in aviation.

Vladimir Vasilievich Struminskii always paid attention to the education of young scientists. For many years, he was a professor and the Department Chairman at the Moscow Institute of Physics and Technology. Many of his students have become great scientists, holding key positions at TsAGI, the Institute of Theoretical and Applied Mechanics, and the Russian Academy of Sciences.