IVAN LUKICH POVKH

(ON HIS SEVENTIETH BIRTHDAY)

The chairman of the physical hydrodynamics faculty of Donets State University, Corresponding Member of the Academy of Sciences of the Ukrainian SSR, eminent scholar in the field of hydrodynamics and aerodynamics, Ivan Lukich Povkh recently observed his 70th birthday.

Povkh was born Nov. 11, 1909, in Donbas in a working-class family. In 1928 he commenced studies in Leningrad, and after completing the physical mechanics course of Leningrad Polytechnic Institute he joined the hydroaerodynamics faculty of that institution. In 1929 he entered the Communist Party of the Soviet Union.

During World War II Povkh worked in Leningrad. He participated in battles on the Finnis front, in Kolpino, and in Nevskaya Dubrovka. In recognition of military feats during the siege of Leningrad Povkh was awarded the Order of the Red Star.

In the postwar years this future professor of the Leningrad Polytechnic Institute performed scientific work for various industrial concerns. During this period his scientific interests were centered in studies of hydraulic and steam turbines. In 1955 his monograph *Simulation of Hydraulic Turbines in Air* appeared, which played a major role in the field of Soviet turbine design. Povkh also dealt with the fields of measurement of aerodynamic characteristics of flow and the study of individual elements of aerodynamic devices. The results of these studies were presented in the monograph *Aerodynamic Experiment in Machine Design*, which has become a reference book for aerodynamics experimenters.

In 1961 Povkh joined the Donets Scientific Center of the Academy of Sciences of the Ukrainian SSR, commencing the development of a Donets school of physical hydrodynamics. During his time at Donets Povkh developed a number of new directions in applied aerohydrodynamics: magnetohydrodynamic separation of valuable minerals, magnetohydrodynamic transpiration and dispensing of liquid metals, etc. The results of his studies were correlated in three monographs: *Magnetic Hydrodynamics in Metallurgy*, *Theory of Steel Bath Blasting*, and *Magnetohydrodynamic Separation*.

In 1964 Povkh founded the physical hydrodynamics faculty at Donets State University, which prepares specialists in the field of physical hydrodynamics, needed so urgently in the Donbas region. In 1974 the faculty organized a problem laboratory for physical methods of turbulence study, of which Povkh became the scientific leader. Under his direction methods have been developed for measurement of turbulent flow characteristics, the final goal of which is the creation of automated measurement complexes.

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Under Povkh's guidance, studies have been performed of the effect of polymer additives on reducing the hydrodynamic resistance of liquids. It was established that micelle-forming surface-active agents MSAA are effective in reducing turbulent friction of liquids. These materials, in contrast to polymers, manifest a reversible mechanical destruction, i.e., their hydrodynamic effectiveness is reestablished after passage through pumps and localized resistances. This opened prospects for practical applications of MSAA in transportation of various liquids (industrial water, heating and cooling agents, etc.). In 1977-1978 his department performed experiments in one of the deep shafts of the Donbas region, testing an industrial application of a new MSAA-based cooling agent. In a system of cooling-agent pipes from 100 to 300 mm in diameter and 13.5 km long, a reduction in friction resistance of 50% was achieved. The MSAA addition also reduced tube corrosion.

Povkh values highly his scientific contacts with scholars in various fields, and has devoted much effort to the organization and conduct of scientific forums. In recent years three conferences on the application of magnetohydrodynamic methods in metallurgy have been held in the Donbas region: The All-Union Conference on Problems of Turbulence, the All-Union Conference on Application of Aerodynamic Achievements in Technological Processes, and the All-Union Seminar on Reduction of Turbulent Friction with Additives.

Povkh's fruitful scientific efforts have been combined with pedagogical work and activity for the benefit of society as a whole. He is a member of the scientific soviets of the Academy of Sciences of both the USSR and the Ukrainian SSR, and of a number of scientific soviets for dissertation defense. He devotes much effort to popularizing scientific knowledge, often presenting lectures to students and industrial workers, and has written books about N. E. Zhukovskii and L. I. Lutugina. Of great importance is his textbook *Technical Hydromechanics*, which has been reprinted several times both here and abroad.

It is in the Donbas region that Povkh's talent as a scholar and efficient scientific administrator, making every possible effort to increase the effectiveness of scientific achievements and introduce them into production as rapidly as possible, has shown itself most clearly.

The editorial borard of this journal heartily congratulates Ivan Lukich Povkh on this festive occation and wishes him good health and new creative successes.