

IN MEMORY OF PROFESSOR K. I. STRAKHOVICH

(1894-1968)

The pedagogical and scientific activity of Konstantin Ivanovich Strakhovich started even before he graduated from the university. The first began at the end of 1921 when he started to teach mathematics, physics, and the fundamentals of electronics at a school of radio mechanics and in radio listener courses and the second began in 1923 when he became occupied in organizing the books of the physics and mathematics series as a scientific worker in the natural sciences branch of the State Public Library.

However, his systematic fruitful scientific activity began in 1924 after he graduated from the mathematics and mechanics branch of the Physical Mathematics Department of Leningrad University.

From 1925 Konstantin Ivanovich worked as a scientist in the hydraulic-mathematics department of the State Hydraulics Institute (SHI). He generalized the results of his studies in the period of work at the SHI (1925-1932) in more than 25 reports which he made at meetings in the department and at different conferences. Some of the material presented in these reports was published in the "News" and "Proceedings" of the SHI. These were the first scientific works of K. I. Strakhovich, devoted to various problems of hydromechanics, gasdynamics, and the hydraulics of pipelines.

In 1928 after successfully defending a report on the subject "The fundamental problem of hydro-mechanics and the motion of a solid in a liquid," K. I. Strakhovich was awarded the academic title of hydrologist.

Concurrently with work at the SHI, Konstantin Ivanovich began work at the Main Bureau of Weights and Measures, where he successively occupied posts of metrologist, scientific secretary of the Metrological Society, and head of one of the laboratories.

In 1929 in connection with his selection through a competition for the post of senior assistant on thermodynamics and hydraulics K. I. Strakhovich came to work at the Lensovet Leningrad Technological Institute.

Following the reorganization of the Leningrad Polytechnic Institute (LPI) K. I. Strakhovich in 1930 became Professor and Assistant Director of the All-Union Boiler-Turbine Institute. Together with a group of leading scientists he organized for the first time in the Soviet Union the training of engineers for the incipient native power industry. Konstantin Ivanovich organized the specialty of compressor machines and became the first director of the department on this specialty. At the same time he headed the Department of Hydraulics and Pumps of the Leningrad Mechanical Engineering Institute which he also created after the reorganization of the Polytechnic Institute.

During these years K. I. Strakhovich's circle of scientific interests considerably widened. He began to work intensively in the field of applied gasdynamics in general and the theory of turbine machines in particular. During these very years he created the first courses on compressor machines. On the basis of theoretical studies and the results of experimental work he developed a method of calculating turbine machines and introduced a series of fundamental theorems which have determined the path of development of native compressor construction. For example, in 1932-1933 he demonstrated the possibility and advisability of creating multistage axial compressors based on the general hydrodynamic theory of networks. The results based on this theory have been confirmed by all the experience of modern compressor construction and are now universally recognized.

These studies lay at the basis of the first course of lectures which he read (1937-1938 on axial compressors for graduate students at Leningrad University and then at the Polytechnic Institute) and

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served as the material for a series of reports at a continuous seminar on problems of gas turbine construction for factory engineers in 1937-1941 and for many articles and books [47, 74, 75, and others].

The works of Konstantin Ivanovich played a large role in the preparation of engineering personnel and exerted an important influence on the development of native compressor construction. Many of his students successfully defended candidate's and doctoral dissertations and became prominent engineers and scientists. The views of the school, which reflect the leading trends of compressor construction, were systematized in the handbook Compressor Machines [88] written in collaboration with I. K. Kondryakov, V. P. Ris, and M. F. Frenkel'.

During these years K. I. Strakhovich continued the work begun earlier on the general theory of continuous media. The properties of flows with internal heat exchange and heat release were examined, applications of the general equations of the theory of continuous media to particular cases were developed, studies were made of exact and approximate equations of hydrodynamics and gasdynamics with allowance for viscous forces for several particular cases, and other problems of the theory of continuous media were solved. In a number of cases the solutions of K. I. Strakhovich preceded the working out of these problems, which are important for modern thermoenergetics, which have been given by native and foreign scientists only in the post-war years.

Konstantin Ivanovich's work in this direction was expounded in a series of articles and books, including The Mechanics of Viscous Liquid [73], Applied Gas Dynamics [62], The Mechanics of Continuous Media [34], and others.

Simultaneously he performed work in which problems of related areas of science and technology were solved. Wide recognition was attained by a book devoted to the theory and calculation of pneumatic transport devices [35] which has not lost its value to this time.

After the institutes were united in 1934 into the single Leningrad Industrial Institute (LII) K. I. Strakhovich was confirmed as an instructor in the department of chemical-mechanical engineering and as the chief specialist on compressor machines of this Institute and he worked in this capacity to the end of 1941. At the same time he was an instructor in the specialty of hydroaeromechanics (from 1931 to 1942) on the mechanics faculty of Leningrad University.

During the period from 1941 to 1954 Konstantin Ivanovich directed workers in the field of aviation gas-turbine devices, gas turbines for locomotives, transport machines, and ventilation devices.

In 1955 K. I. Strakhovich was selected in a competition as the head of the department of theoretical bases of thermotechnology of the LPI, which he directed until his death on November 21, 1968. Simultaneously he became a professor of the department of deep cooling of the Leningrad Technological Institute of the Refrigeration Industry.

A new period of intense scientific activity started for K. I. Strakhovich. As before in the prewar years he devoted great strength and energy to the preparation of engineering and scientific personnel. The circle of problems which he solved widened. He conducted a number of original theoretical studies, including an analytical study of the process of expansion of a moist stream in an expansion turbine [83, 87] and others. Several problems of thermal conduction in solids [81] were solved. The results of an analysis of flow stability in long gas mains and several other works were published.

Naturally, as in former years, among those published were many works devoted to compressor construction [79, 80, 85, 86, 88, 106, and others].

Finally, in connection with the rapid development of a new field of gasdynamic (so-called magnetic gasdynamics) yet another scientific trend began to develop under the guidance of K. I. Strakhovich. A series of articles of K. I. Strakhovich himself and his students [91, 102, 104, 107, 112, and others] was published in which some results of the studies in this direction were laid out. In these studies principal attention was paid to the derivation of the relationships of magnetic thermogasdynamics from a phenomenological point of view and the solution of a number of problems of the flow of conducting liquids in electric and magnetic fields using these equations.

The works of K. I. Strakhovich have repeatedly received a positive evaluation in the works of other scientists, in various types of surveys, reviews, etc. [137, 139] published in the native and foreign press.

Even before the Patriotic War, while carrying out great scientific and pedagogical work, K. I. Strakhovich continually participated in the work of Leningrad factories (the NMCP and others) and scientific research institutes (the Polzunov TsKTI, the All-Union Institute of Hydromachinery Construction, and others) in the field of compressor machines and gas turbines. He was involved in these works either as a consultant or he was an instructor in different subjects connected with the calculation, planning, production, and utilization of these turbine machines. These creative relationships of Konstantin Ivanovich were retained after the war. During his last 10 years K. I. Strakhovich was a scientific consultant of the V. I. Lenin Nevskii Machine Construction Plant (NMCP) and a member of its technical council. At the NMCP he helped solve several problems of the creation and perfection of axial compressors; problems of the durability of individual details of pressure gas mains and many others were solved with his participation. In addition, K. I. Strakhovich was a consultant at the Scientific Research Institute of Chemical Machinery, the TsKTI, and other centers of scientific research. Under his leadership a collective of a number of departments of the M. I. Kalinin LPI together with the Economizer Factory developed gas turbine forming motors of low power, etc.

The constant uninterrupted creative relationship with industry, with design organizations and scientific research institutes was a characteristic and very important aspect of the activity of K. I. Strakhovich.

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