

ON THE 70-TH BIRTHDAY OF ALEKSANDR ADOL'FOVICH GUKHMAN

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February 5, 1967 marked the 70-th birthday of one of the leading figures of Soviet science, Aleksandr Adol'fovich Gukhman, doctor of physicomathematical sciences and professor at the Moscow Institute of Chemical Machine Construction. Gukhman is a scientist who combines an extremely wide circle of scientific interests with a penetrating mind and an urge to understand the physical mechanisms of phenomena and uncover the logical structure of theories old and new.

It is impossible in such a brief review to do justice to so important and prolific a scientist, the author of 79 papers and 5 monographs.

An important place in his theoretical research is occupied by the analysis of the logical structure of thermodynamics, one result of which is his original ordered synthesis of thermodynamics first published in 1947 in the book "Foundations of Thermodynamics."

Gukhman's work on the theory of similarity, which in its modern form is to a great extent his own creation, is particularly well known. Even in his first book "The Physical Basis of Heat Transfer" (1934) he gave a systematic account of the theory of similarity and its applications to heat transfer problems.

This book aroused considerable interest and still retains its value. In 1963 there appeared the monograph "Introduction to the Theory of Similarity," the mature product of many years of research. This book is a profound exploration of the internal logical relations of the method and theory of similarity. It has been translated into English and published in America by Academic Press. Its reception among foreign scientists has been uniformly favorable.

In the area of thermophysics Gukhman's research on the problem of heat transfer and hydrodynamic resistance in high-speed gas flows is especially well known. This research, extending over a thirteen-year period, has produced some very important results, in particular, the development of a generalized form of the hydrodynamic theory of heat transfer, an entropy method of calculating hydrodynamic resistance in the transonic region, and an investigation of the decay of turbulence observed on passing through the speed of sound.

In recent years Gukhman has been deeply interested in problems of vacuum sublimation. His ideas on the physical mechanism of sublimation and the effect of the process on rates of heat and mass transfer have received wide acceptance among specialists.

In honor of Gukhman's work in heat and mass transfer the so-called Gukhman number has been named after him. This number enters into the expression relating the numbers Nu , Re , and Pr . It character-

izes the specific properties of heat and mass transfer associated with processes of the evaporation of liquids from free surfaces and capillary-porous bodies. The Gukhman number, first introduced about 15 years ago, has been widely recognized in the Soviet Union and abroad.

Gukhman's work is typified by two things. Firstly, he not only responds to existing engineering problems but foresees the development of technical ideas; secondly, and perhaps most characteristically, he aims at broad generalizations and the construction of serious scientific analogies and abstractions.

Gukhman's research is organically related to his teaching activities. Since graduating from the Petrograd Polytechnic Institute in 1921, he has worked continuously in the universities, where he has earned the reputation of being a brilliant lecturer.

Gukhman's ideas are being developed by his numerous students and followers in various institutions all over the USSR. He has prepared 50 candidates and 15 doctors of science.

Gukhman has demonstrated considerable organizing powers as the founder and head of various research organizations and laboratories. He was one of the founders of the Polzunov Central Scientific Research Boiler-Turbine Institute, with which he still remains closely associated. He participated in the organization of the Institute of Astronomy and Physics and the Institute of Power Engineering of the Academy of Sciences of the Kazak SSR and was the scientific director of the latter.

Gukhman also devotes much time to various government committees, on several of which he acts as chairman.

In 1954 the state recognized Gukhman's achievements by awarding him the Order of Lenin.

His extensive knowledge, profound ideas, wide circle of intellectual interests, and personal charm have deservedly won him the respect of students and scientists.

On his 70-th birthday Gukhman is full of creative projects and energy, communicating his enthusiasm to all those who work with him.

We join in wishing Aleksandr Adol'fovich Gukhman every success in his many creative activities.

Academician AS BSSR A. V. Lukov, Prof. P. D. Lebedev, Prof. A. V. Nesterenko, Prof. A. S. Ginzburg, Prof. B. M. Smol'skii, Doctor (Tech. Sci.) N. B. Kondukov