

OBITUARIES

ALEKSEI VASIL'EVICH LYKOV

The Director of the Order of the Red Banner of Labor Institute of Heat and Mass Exchange of the Academy of Sciences of the Belorussian SSR, Editor in Chief of the Journal of Engineering Physics, Candidate and Member of the Central Committee of the Communist Party of Belorussia, Doctor of Technical Sciences, Professor, Honored Scientist and Technician of the Russian Soviet of Federative Socialist Republics, Laureate of the State Prize of the USSR, Academician of the Academy of Sciences of the Belorussian SSR Aleksei Vasil'evich Lykov died suddenly on June 28, 1974.



Life was suddenly ended for an outstanding Soviet scientist, a true son of the Communist Party, who devoted all his strength, knowledge, and organizational ability to the development of science, the preparation of specialists in the field of thermotechnology and thermophysics, and the introduction of scientific advances into production.

Aleksei Vasil'evich Lykov was born in 1910 in the city of Kostroma. After graduating from the Mathematical Physics Department of Yaroslavl Pedagogical Institute in 1930 he worked in Yaroslavl as an instructor at an energy worker's high school and then as a scientist in the drying laboratory of the F. É. Dzerzhinskii All-Union Thermal Engineering Institute. Here he conducted his first studies on the kinetics of drying and on the development of methods of determining the thermophysical characteristics of moist materials. After the completion of work on the dehydration of moist porous materials at variable vapor pressure in 1931 he obtained the first author's certificate on the invention of a "Variable-Pressure Drier."

In 1932 Aleksei Vasil'evich published the theory of the deepening of the surface of evaporation during the drying of solids which brought him recognition. In this year he became a graduate student in the Scientific Research Institute of Physics of Moscow University where prominent scientists were working during this period: A. P. Mlodzeevskii, I. V. Luzin, A. S. Predvoditelev, I. E. Tamm, and others who had great influence on the formation of his creative capacities and future activity.

During 1932-1935 A. V. Lykov worked hard and fruitfully on the problem of transfer in colloidal capillary-porous solids. He developed a new method of determining the thermophysical characteristics of moist materials. In 1935 he discovered a new phenomenon, the thermal diffusion of moisture in capillary-porous solids, on the basis of which the mechanism of the cracking of moist materials and the transfer of materials in aqueous solution during the drying process could be revealed. This fundamental work of the young scientist received wide recognition in the USSR and abroad. It was presented at a session of the Royal Society of London and published in its Proceedings. In the literature the phenomenon of thermal moisture conduction is known as the Lykov effect. He successfully defended his candidate's dissertation on this subject.

In working on the problem of heat and mass transfer Aleksei Vasil'evich was occupied in particular with the development of effective procedures for the solution of problems of nonstationary thermal conduction by the Heaviside-Bromwich operational method. One of the first works in this field won the high appraisal of the famous English mathematician Bromwich and on his recommendation it was published in 1936 in an English journal.

A. V. Lykov was elected a member of the International Kolloidgesellschaft Society on the introduction of Professor W. Ostwald.

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In 1936 Aleksei Vasil'evich became seriously ill. Confined to bed but maintaining a firm spirit, he wrote two monographs, one on the kinetics and dynamics of drying processes (40 printed pages long) and the other on thermal conduction and diffusion.

Following his recovery in 1939 A. V. Lykov defended his doctoral dissertation at the Moscow Power Institute. The rank of professor was conferred on him in 1940. From 1942 he headed the Department of Physics of the Moscow Technological Institute of the Food Industry (MTIFI). Here and at the Department of Physics of the Moscow Institute of Chemical Mechanical Engineering (MICME), which A. V. Lykov also directed, research laboratories on molecular physics and heat theory were created and broad and widely recognized studies were conducted on heat and mass transfer in disperse and capillary-porous substances during phase and chemical transitions, as well as work on radiation transfer and transfer phenomena in a high vacuum.

New drying instruments for the drying of photographic emulsions and for nuclear research were created under the guidance of A. V. Lykov. A model of such an instrument was demonstrated in exhibits at Brussels and Geneva (1958). On the basis of his deep theoretical research on sublimation drying a plant for sublimation drying, with a capacity unequalled in the world, was designed, constructed, and put into operation in 1955.

A characteristic feature present in the work of Aleksei Vasil'evich and his students is the combination of deep physical research with the technical engineering solution of the problems set and their extensive introduction into practice.

In 1951 A. V. Lykov was awarded the State Prize of First Order for the monograph *The Theory of Drying* (1950) and in 1957 he was honored with the title of Honored Scientist and Technician of the Russian Soviet of Federative Socialist Republics for his great service in the area of science and technology.

Work on heat and mass exchange, on the study of the thermophysical characteristics of nonmetallic materials, and the creation of new methods of determining transfer coefficients began to be developed especially intensively after Aleksei Vasil'evich Lykov came to work in 1954 at the Power Institute of the Academy of Sciences of the USSR, where he directed the Laboratory of Molecular Physics and Mass Exchange.

In December 1956 A. V. Lykov was elected Academician of the Academy of Sciences of the Belorussian SSR and named Director of the Institute of Power of the Academy of Sciences of the Belorussian SSR (now the Institute of Heat and Mass Exchange). In April 1957 he was elected an active member of the Academy of Construction and Architecture of the USSR on the specialty of structural thermophysics. Possessing a highly developed sensitivity for the modern, an exceptional capacity for work, and self-discipline, Aleksei Vasil'evich valued these qualities in his colleagues and students. He enlisted talented young people for the solution of complex and urgent problems, promoting in every way their creative growth; trusted them, and boldly advanced to the leadership in important areas of scientific work. The Department of Thermophysics created by him at the V. I. Lenin Belorussian State University in a short time prepared many highly qualified research specialists in different areas of the science of heat and mass exchange.

The scientific activity of A. V. Lykov was extremely broad, multifaceted, and rich in great creative achievements. His main work was devoted to the urgent problems of modern thermophysics: the theory of heat and mass exchange, the theory of heat conduction, transfer phenomena in capillary-porous solids and disperse systems, the thermodynamics of irreversible processes, experimental methods of determining thermophysical characteristics, drying technology.

A. V. Lykov was a world-renowned scientist, the author of about 250 works including 18 monographs. For work in the field of the theory of heat and mass transfer he was awarded the I. I. Polzunov Prize and gold medals of scientific organizations of a number of foreign countries.

In the course of more than 40 years Aleksei Vasil'evich taught in institutions of higher education and guided the work of scientific workers. He prepared 131 Candidates of Science and 27 of his students became Doctors of Science.

Exceptionally fruitful was the scientific organizational activity of A. V. Lykov in the post of Director of the Institute of Heat and Mass Exchange of the Academy of Sciences of the Belorussian SSR, which in a short time grew into a widely known thermophysics scientific center. For the great scientific achievements and successes in the preparation of scientific workers the collective of the Institute in 1969 was honored with a high government award, the Order of the Red Banner of Labor.

The structure of the Institute of Heat and Mass Exchange (IHME) created on his initiative and including a special design office with an experimental works made it possible to accelerate the introduction of scientific developments into practice in the national economy.

During this time the Institute of Nuclear Energy, the Institute of Water Problems, and the Belorussian Branch of the G. M. Krzhizhanovskii Power Institute evolved from the IHME. The authority and services of the IHME were manifested especially clearly in the organization and conducting in Minsk of four All-Union Conferences on Heat and Mass Exchange (1961, 1964, 1968, 1972) in which Soviet and foreign scientists representing all the trends of modern thermophysics participated.

A. V. Lykov was able to combine great scientific and scientific-organizational work with active public work. He was elected to membership in the Central Committee of the Communist Party of Belorussia, as a Deputy of the Supreme Soviet of the Belorussian SSR, was President of the Council on Scientific Problems of the State Committee, Council of Ministers of the USSR on science and technology, headed the Committee on Drying of the All-Union Council of Scientific and Technical Societies, he was an organizer and Editor in Chief of the Journal of Engineering Physics, the editor from the USSR for the international journal Heat and Mass Transfer, Vice President of the Soviet National Committee on Heat and Mass Exchange, and honorary member of a number of foreign scientific societies.

For his great service in the development of Soviet science A. V. Lykov was awarded with the Order of Lenin, the Order of the Red Banner of Labor, the "Medal of Honor," and other medals.

The glowing memory of Aleksei Vasil'evich Lykov, true son of the Communist Party and the Nation, outstanding scientist and organizer of science, and a man of great spirit, will always be kept in the hearts of all who knew him and worked with him.