OBITUARY

NIKOLAI NIKOLAEVICH BOGOLYUBOV

On February 13, 1992 there passed away a great scholar, a classicist of world science, Nikolai Nikolaevich Bogolyubov.

One of the leading figures of contemporary natural science, a brilliant mathematician, theoretical physicist and mechanist. This is an unfulfillable loss for world culture. With the name of Nikolai Nikolaevich is connected a whole epoch in the development of mathematics, mechanics and physics in the XX Century.

N. N. Bogolyubov was born August 21, 1909 in Nizhnii Novgorod, then at seven he moved to Kiev. From the age of 13 he began to work in a seminar conducted by Academician N. M. Krylov, and revealed not only exceptional mathematical abilities and receptivity to theoretical questions of mathematics, but also ability to grasp subtle physical phenomena.

In 1924 N. N. Bogolyubov wrote the first scientific paper devoted to the behavior of solutions of linear differential equations at infinity, and in 1925 was accepted in an exceptional procedure as a postgraduate of the All-Ukranian Academy of Sciences (AUAS), in 1928 he defended the candidate dissertation, and in 1930 the Presidium of the AUAS awarded him the scholarly degree of doctor of mathematics honoris causa. In that same year the 21-year old Nikolai Nikolaevich was honored for original papers on variational calculus with a prize of the Bologne Academy of Sciences (A. Merlani Prize). In 1939 N. N. Bogolyubov was elected a Correspondent-Member of the Academy of Sciences of the Ukrainian SSR, in 1947, a Correspondent-Member of the Academy of Sciences of the USSR, in 1948 — an actual Member of the Academy of Sciences of the Ukrainian SSR, and in 1953 — an Academician of the Academy of Sciences of the USSR.

By his scientific works N. N. Bogolyubov enriched world science through fundamental achievements in the areas of mathematics, mechanics and theoretical physics. His extraordinarily fruitful scientific activity is characterized by a depth of scientific analyses and a broad creative range. Being a distinguished mathematician, N. N. Bogolyubov possessed considerable physical intuition, allowing him to solve, besides important and difficult mathematical problems, a number of principally new problems of physics and mechanics. N. N. Bogolyubov obtained outstanding results in the areas of the approximate solution of differential equations, variational calculus, probability theory, functional analysis, and almost-periodic functions. Starting in 1932, N. N. Bogolyubov, jointly with N. M. Krylov, created a new area of mathematics — nonlinear mechanics, the basic ideas and results of which comprise the basis of many contemporary investigations in aerodynamics, celestial mechanics, solid mechanics, gyroscopic systems, the theory of accelerators, mechanics of complex flight, control and stabilization theory, mathematical problems of ecology, nonlinear optics and a number of other directions of natural science.

The papers of N. N. Bogolyubov on statistical mechanics constituted an entire epoch. He introduced the concept of the states of infinite systems and derived equations for them, known as the Bogolyubov equations, first found the thermodynamic limit for equilibrium states, and also explained on the microscopic level the phenomenon of superfluidity and proposed a new method in the theory of superconductivity, with the help of which the subsequent theory of this phenomena has been created.

The ideas and methods developed by N. N. Bogolyubov in analyzing superfluidity and superconductivity, aside from a huge influence on the development of contemporary statistical physics, proved extraordinarily fruitful in quantum field theory, in which the foundation was laid by him of a new scientific direction — the study of nuclear interaction processes. N. N. Bogolyubov developed an original method of constructing the scattering matrix, proposed a rigorous theory of dispersion relations, obtained original results in the theory of elementary particles and relativistic quantum field theory, in the theory of plasma and in the theory of kinetic equations. Asymptotic quantum field theory, created by N. N. Bogolyubov, constituted a change in the very style of physical thought and determined for many years the

basic directions of the development of theoretical and experimental high-energy physics. The directions presented above do not by far fully characterize the scientific achievements of N. N. Bogolyubov.

It is difficult to overestimate the significance of the scientific achievements of N. N. Bogolyubov, their influence on the subsequent development of the corresponding directions of mathematics, mechanics and theoretical physics. The name of N. N. Bogolyubov became widely known and honored not only in national, but in world science, and his works have forever entered into the reserve of gold of science, and have become classics of mathematics and physics.

N. N. Bogolyubov always devoted considerable attention to the education of scientific cadres. He headed departments first at Kiev University and then at Moscow University and his illuminating lectures proved to be a substantial influence on the formation of a whole galaxy of scholars.

N. N. Bogolyubov is credited with great service in creating acknowledged scientific schools working productively world-wide — in nonlinear mechanics and mathematical physics in Kiev, in theoretical physics in Moscow and Dubna. He educated an entire generation of mathematicians and theoretical physicists and many recognized esteemed scholars, and they proudly call N. N. Boholyubov their teacher.

N. N. Boholyubov also conducted considerable scientific-organizational work: he organized and headed the Institute of Theoretical Physics of the Academy of Sciences of the Ukrainian SSR, for about 30 years was Academic Secretary of the Mathematics Section of the Academy of Sciences of the USSR, for 25 years headed the largest international scientific center — the Joint Institute of Nuclear Analyses in Dubna, and was the Director of the V. A. Steklov Institute of Mathematics. He performed substantial social activity as a Deputy of the Supreme Soviet of the USSR, and was a member of the Pugwash movement of scholars across the world.

The outstanding scientific, pedagogic and scientific-organizational activity was highly valued by the scientific public. N. N. Bogolyubov was an honored member of many foreign academies, of scientific societies, an honored doctor of a number of foreign universities, a laureate of a number of governmental and inscribed prizes and medals. Nikolai Nikolaevich was twice a Hero of Socialist Labor, and was decorated with many orders and medals, including foreign ones.

From us has departed a great scholar, a great citizen, Nikolai Nikolevich Bogolyubov, the entire life of whom is a high example of selfless service to science, country, and mankind. The memory of him will always live in the hearts and deeds of all who knew him.

Yu. A. Mitropol'skii