ON THE OCCASION OF THE FIFTIETH BIRTHDAY OF
ACADEMICIAN NIKOLAI NIKOLAEVICH YANENKO

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May 22, 1971, was the fiftieth anniversary of Academician Nikolai Nikolaevich Yanenko, a scholar, well-known in the fields of mathematics and mechanics.

Yanenko's scientific interests span areas of fundamental research in multidimensional differential geometry, mathematical physics, gas dynamics, and the theory of difference schemes.

A student of P. K. Rashevskii, Yanenko began his scientific activity with investigations in multi-dimensional differential geometry dealing with the problem of a class of Riemannian metric and comprising the content of his candidacy (1949) and doctoral (1954) dissertation.

From the roll of Yanenko's works in mathematical physics and gas dynamics, we cite the following basic results.

1) He proposed the method of differential connections whose use enabled the obtaining of a broad class of analytic solutions of equations of gas dynamics.

2) He conducted researches into asymptotic properties and approximate solutions of the generalized Thomas−Fermi model, an actual first in the work, laying a basis for constructing interpolating formulas for the state equation for matter over a broad range of pressures and temperatures. In the course of the researches, done in a group headed by A. N. Tikhonov, Yanenko was awarded a State Prize.

3) Investigation of a weakly nonlinear system of differential equations.

More recently, the central spot in Yanenko's scientific activity has been occupied by questions of computer mathematics and its application. He worked out a method of fundamental importance, involving

fractional increments, which is a powerful universal means of solving multidimensional problems of mathematical physics.

Among the most significant results obtained by N. N. Yanenko in the theory of difference methods, the following can be mentioned.

1) He worked out the general theory of a decomposition method which is the theoretical foundation for obtaining economic differencing schemes for problems of very great complexity.

2) He gave very important applications of the decomposition method to the numerical solution of urgent problems in the mechanics of continuous media.

3) He worked out a method of weak approximation.

Yanenko has written around a hundred scientific works, among them four monographs one of which, "The Fractional Increments Method of Solution of Multidimensional Problems of Mathematical Physics," has been translated into German, French, and English.

Yanenko is a great enthusiast for introduction of numerical methods in all branches of science and especially in mechanics. He directs the work of three continuously functioning all-union Seminars on numerical and analytic methods in the mechanics of continuous media and is the principal editor of the scientific information bulletin "Numerical methods in the mechanics of continuous media."

Yanenko is the director of a large group of scientific workers who, in the Computer Center of the Siberian Division of the Academy of Sciences of the USSR, are doing research toward the numerical solution of mechanics problems of outstanding practical importance and are obtaining a whole series of results of interest in this field. Among this group have been fifteen who defended candidacy and doctoral dissertations. Eleven of Yanenko's students are heading laboratories in various scientific research institutes of the Academy of Sciences of the USSR as well as in applied institutes. Yanenko is conducting outstanding pedagogical work at Novosibirsk State University and the Physicomathematical School there.

A participant in the Great Patriotic War, Yanenko received the Order of the Red Star and the medal "For Bravery." His work activities have also received high distinction; he received three Orders of the Red Banner of Labor and medals of the Soviet Union.

Yanenko comes into his fiftieth year in fullness of his powers and with new creative ideas. We wish him good health and further successes in his work.