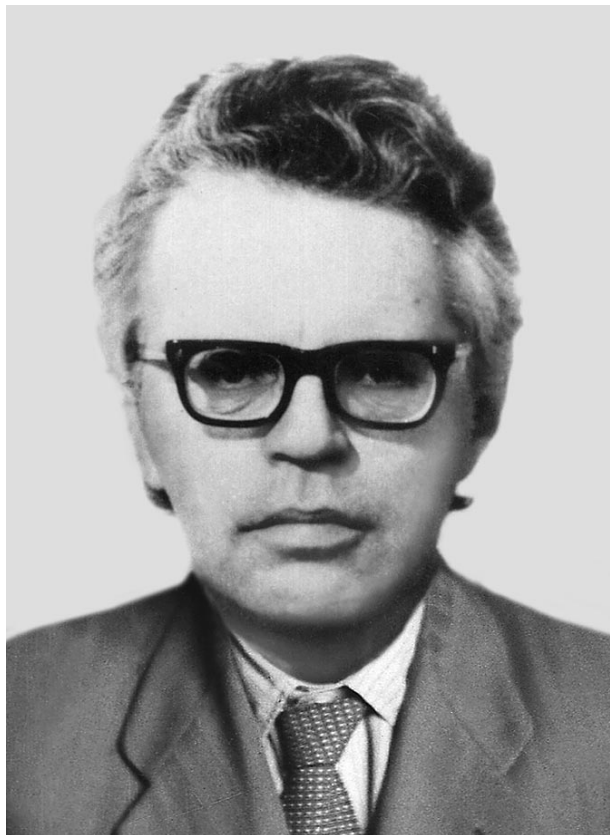

CHRONICLE

Mikhail Vladimirovich Ivanov Turns 70



Mikhail Ivanov, an outstanding microbiologist and biogeochemist, the Head of the Department of Microbial Biogeochemistry and Biogeotechnology, the Acting Director of the Institute of Microbiology, Russian Academy of Sciences (RAS), and an Academician of RAS, turns 70 on December 6, 2000.

Mikhail Ivanov has been with the Academy of Sciences since 1954. His research has been mostly focussed on the fundamentals of physiology, ecology, and the geochemical activities of microorganisms that play a key role in global sulfur and carbon cycles and in the formation and degradation of mineral deposits.

In his research, in addition to microbiological methods, Ivanov widely employs methods derived from related sciences, such as geochemistry, hydrobiology, limnology, and oceanology. The methods he has developed to quantitatively estimate the geochemical activities of bacteria, which are based on the use of radioactive and stable isotopes of sulfur and carbon, are widely employed by scientists both in Russia and abroad. His studies on the role of microorganisms in the global sul-

fur cycle are recognized worldwide. The quantitative characteristics of the activity of sulfate-reducing bacteria in different ecosystems and the evidence Ivanov obtained on the participation of bacteria in the formation and degradation of native sulfur are well-known both to microbiologists and geochemists. For more than 15 years, Ivanov was at the head of the international research program “The Global Biogeochemical Sulfur Cycle and the Human Impact” supported by SCOPE and UNEP; the results were reported in five volumes of collected papers.

A most important area of basic research conducted by Ivanov and his team is the microflora of seafloor deposits and deep-sea hot vents of the World Ocean. The data he obtained on the distribution and geochemical activities of methane-producing, sulfate-reducing, methane-oxidizing, and saprophytic bacteria, and the experimental evidence he presented on the impact of these organisms on the isotopic composition of carbon and sulfur compounds, brought about a revision of the models of the carbon and sulfur cycles in the oceans. In 1985, these works earned Ivanov the S.N. Winogradsky Prize of the USSR Academy of Sciences.

Another important line of research conducted by Mikhail Ivanov is concerned with the geochemical activities of microorganisms in oil, coal, and natural gas deposits. Ivanov and his colleagues formulated the concept and laid down the foundations a new branch of science, biogeotechnology, and also invented new approaches to using microorganisms in mining operations, which have been tested on an industrial scale in the coal mines of the Donetsk and Kuznetsk basins and in oil fields of Tatarstan and western Siberia. In 1995, Ivanov as the head of a research team, was awarded the Prize of the Russian Government for a series of works on the development and wide industrial application of biogeotechnology methods to increase oil recovery.

Over the last decade, Ivanov has put much effort into the development of a new strategy for the search of live organisms (anaerobic chemolithoautotrophic bacteria) on Mars. Ivanov and his collaborators have organized several Antarctic and Arctic expeditions to work out and test the methodology of future astrobiological expeditions using earth models of possible Martian ecosystems as examples. Ivanov is noted for his insatiable interest in new scientific explorations and strong optimism, which he is always eager to share with his colleagues and friends.

Mikhail Ivanov is the author of more than 250 research papers and inventions, including four mono-

graphs. Three of his monographs, *Vvedenie v geologicheskuyu mikrobiologiyu* (Introduction to Geological Microbiology, Moscow: Nauka, 1962), *Rol' mikroorganizmov v genezise samorodnoi sery* (The Role of Microorganisms in the Genesis of Native Sulfur, Moscow: Nauka, 1964), and *Global'nyi biogeokhimicheskii tsikl sery i vliyaniye na nego deyatel'nosti cheloveka* (Human Influence on the Global Biogeochemical Sulfur Cycle, Moscow: Nauka, 1983) have been translated and published in Japan, the United States, the United Kingdom, Israel, and China.

Ivanov had and has numerous administrative obligations in the field of science. From 1971 to 1984, he was the Deputy Director of the Institute of Biochemistry and Physiology of Microorganisms, RAS. Since May 1984, he has been the Director of the Institute of Microbiology, RAS. In April 1993, he became a Deputy Secretary of the Physicochemical Biology Division of RAS. He is also the Editor-in-Chief of the journal *Mikrobiologiya* (Microbiology), and is on the editorial

board of several international journals. In 1992, Ivanov was elected the President of the Russian Microbiological Society. He is the scientific coordinator of the "Biogeotechnology" priority research direction under the "Novel Bioengineering Methods" program.

Academician Ivanov is the founder of a strong and active research school. Under his guidance, more than 20 Candidate of Science dissertations have been prepared and defended, and he has been an advisor to seven doctoral dissertations that have been successfully defended. Ivanov lectures to fourth and fifth year students at the Biological Faculty of the Moscow State University.

Mikhail Ivanov was awarded the orders of *Znak pocheta, Oktyabr'skoi revolyutsii*, the IV degree order of *Za zaslugi pered Otechestvom*, and several medals.

We all wish Mikhail Vladimirovich good health and many years of fruitful scientific activities.

Editorial Board of Mikrobiologiya