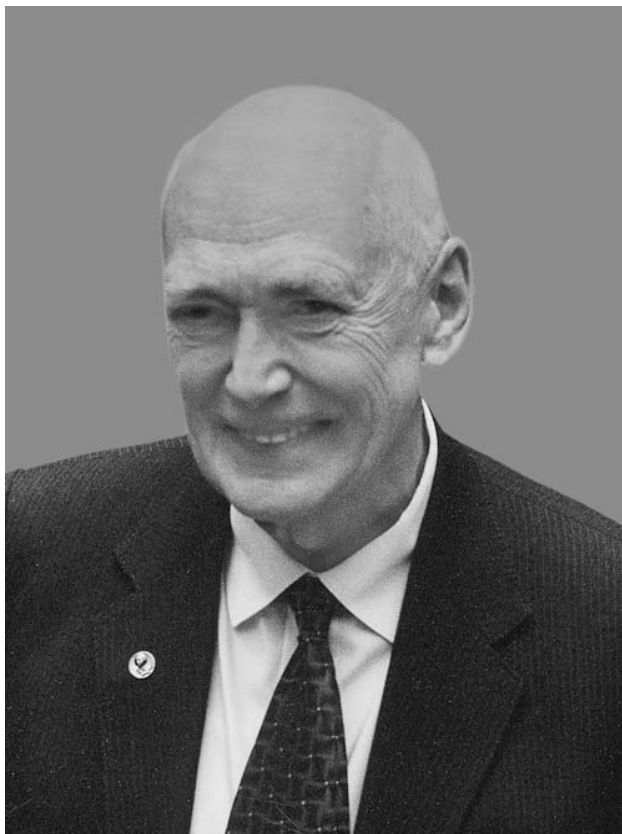


The 75th Birthday of Academician Georgii Aleksandrovich Zavarzin

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On January 28, 2008, Georgii Aleksandrovich Zavarzin, Academician of the Russian Academy of Sciences and a famous Russian microbiologist, celebrates his 75th birthday.

The entire scientific career of G.A. Zavarzin is indissolubly associated with the Institute of Microbiology (which now bears the name of S.N. Winogradsky), Russian Academy of Sciences. After graduating from the Department of Microbiology of Moscow State University in 1955, Zavarzin commenced his scientific activities at the Institute as a post-graduate student. In 1959, he defended his candidate of sciences dissertation and, a year later, became the head of a laboratory at the Institute. The singularity of his scientific career is highlighted by the fact that he was awarded his doctoral degree very early, in 1966. In 1976, G.A. Zavarzin was elected to the Russian Academy of Sciences as a corresponding member and, in 1997, as a full member. Since

1991, Georgii Aleksandrovich has been in charge of one of the Institute's departments, and he has been a professor at Moscow State University since 1996.

Georgii Aleksandrovich Zavarzin is a world-famous scientist, an indisputable authority in the field of general microbiology. He has made invaluable contributions to our understanding of the functional diversity of the microbial world. Zavarzin pioneered the study of a wide variety of novel, difficult-to-cultivate groups of microorganisms, including budding and lithoautotrophic bacteria, obligate anaerobes, organisms with the gas type of nutrition, and various groups of extremophilic microorganisms (thermo-, halo-, alkali-, psychro-, and acidophiles). These studies have resulted not only in the description and validation of dozens of novel microbial taxa and in the discovery of new types of metabolism, but, no less important, in strengthening the world-wide reputation of Russian microbiologists as experts in cul-

tivation of unique microorganisms. In 1973, his works on chemolithotrophic microorganisms, summarized in the monograph *Litotrofnye mikroorganizmy* (Lithotrophic Microorganisms), earned G.A. Zavarzin the Winogradsky Prize of the Presidium of the USSR Academy of Sciences. In 1997, he was awarded the Bergey Medal as one of the worldwide-recognized leading specialists in the field of microbial diversity. A genus of carboxydophilic bacteria, *Zavarzinia*, as well as a number of microbial species, were named in honor of G.A. Zavarzin.

In many respects, Zavarzin's works have determined the main trends of development of Russian microbiology. He introduced a novel, systems approach to the study of microbial communities, which focuses on the study of microorganism–microorganism and microorganism–environment interactions and makes it possible to assess the effects of the processes driven by microbial communities on the functioning of natural ecosystems. According to Zavarzin, a microbial community is a single whole whose stability is determined by the relationships between various physiological groups of microorganisms. Analysis of metabolic pathways in the microbial community provides predictive information. The work by Zavarzin and his disciples on microbial communities inhabiting various extreme ecosystems, from soda lakes to ombrotrophic bogs, have illustrated the great potential of this approach. Zavarzin's works on the role of microbial communities in the formation of the chemical composition of the Earth's atmosphere are particularly important. He also reconstructed the role of microbial communities in the biosphere of the Early Precambrian, when most important mineral deposits were formed.

The uniqueness of Georgii Aleksandrovich's creative potential consists in the interdisciplinary nature of his interests and in the wide scope of his expertise, which includes not only microbiology, but also ecosystem biology, geology, and paleontology. The philosophy of his scientific investigations involves cognition of the relations of various levels of complexity existing in nature and tracing their development across time. As a result, Zavarzin's works on the evolution of the biosphere and on the role of microbial communities in its formation are recognized worldwide. As a confirmation of this, G.A. Zavarzin was invited in 2003 to the FEMS Congress in Ljubljana to deliver a Leeuwenhoek Lecture entitled "Functional Microbial Diversity and the Rise of the Biosphere."

G.A. Zavarzin is the author or coauthor of more than 280 scientific publications, including such widely known monographs as *Litotrofnye mikroorganizmy* (Lithotrophic Microorganisms) (1972), *Fenotipicheskaya sistematika mikroorganizmov: prostranstvo logicheskikh vozmozhnostei* (Phenotypic Systematics of Bacteria: The Space of Logical Possibilities) (1974), *Vodorodnye bakterii i karboksidobakterii* (Hydrogen Bacteria and Carboxydobacteria) (1978), *Bakterii i sos-*

tav atmosfery (Bacteria and the Composition of the Atmosphere) (1984), *Kal'dernye mikroorganizmy* (Caldera Microorganisms) (1989, with coauthors), *Vvedenie v prirodovedcheskuyu mikrobiologiyu* (Introduction to Natural History Based Microbiology) (2001, with N.N. Kolotilova), and *Lektsii po prirodovedcheskoi mikrobiologii* (Lectures on Natural History Based Microbiology) (2003). These works have become handbooks for several generations of microbiologists.

Academician Zavarzin is the founder of a leading scientific school. He supervised 20 candidate of sciences dissertations and 7 doctoral dissertations. His large range of thought and practice, his great erudition, endless interest in the mysteries of the microbial world, and passion for research have attracted many disciples and followers. The laboratory which he headed from 1960 through 1990 has evolved into a department that now consists of the Laboratory of Relict Microbial Communities, the Laboratory of Hyperthermophilic Microbial Communities, and the recently founded group of Microbiology of Oligotrophic Wetland Ecosystems. For many years, he has been lecturing in the Biological Faculty of the Moscow State University. In 1999, G. A. Zavarzin was awarded the title of Honored Professor of the Moscow State University. In 2003, he received commendation from the head of the Moscow State University and a diploma from the Russian Federation Ministry of Science, Industry, and Technology.

As an indisputable authority in the field of the functional role that microorganisms play in the biosphere, G.A. Zavarzin has been engaged in the solution of most important issues of global ecology as a council member of many international programs. From 1978 through 1984, he was Vice President of the Scientific Committee on Problems of the Environment (SCOPE), and in 1990–1992, Vice President of the Preparatory Committee for the UNEP Convention on Biological Diversity. He was a member of the International Council of the Geosphere–Biosphere Program (IGBP) from 1993 through 1999, and a member of the Juridical Commission of the International Union of Microbiological Societies (IUMS) from 1979 through 2001. From 1996 through 2003, he was a member of the Executive Council of the International Institute for Applied Systems Analysis (IIASA).

Apart from his activities as a scientist and an expert, G.A. Zavarzin is actively involved in organizational activity. In 1990–1991, he served as Deputy Chairman of the State Committee of Nature Protection and Deputy Minister of Nature Management and Protection of the USSR. He has been invited to head many scientific programs, in particular, the biospheric direction of the Federal Special Purpose Scientific and Technical Program "Global Changes of Natural Environment and Climate," including the program aimed at estimation of the carbon balance for Russia in order to fulfill Russia's

obligations under the Convention on Climate Change. Until recently, G.A. Zavarzin was Chairman of the Committee for Systems Analysis of the Russian Academy of Sciences. G.A. Zavarzin is currently one of the Chairmen of the Fundamental Research Program of the Presidium of the Russian Academy of Sciences "Origin and Evolution of the Biosphere." He is a member of the Editorial Board of the journal *Mikrobiologiya* and other Russian and international journals.

The 75th birthday of Georgii Aleksandrovich Zavarzin coincides with the 50th anniversary of his career at the Winogradsky Institute of Microbiology, Russian Academy of Sciences. Colleagues of G.A. Zavarzin and members of the Editorial Board of the journal *Mikrobiologiya* wish him health, many years of happiness and successful research activity, further achievements in science, and further increase in the number of his disciples and followers.