Foreword

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This collection of papers combines the materials from the conference “Evolution of the biosphere from ancient times to the present day,” dedicated to Georgy Aleksandrovich Zavarzin, who was 85 years old in 2018. The conference was held at the Borissiak Paleontological Institute of the Russian Academy of Sciences, where many of the scientists had close working relationships with Georgy Aleksandrovich. The topics of the conference and the materials published in this collection reflect only a few aspects of its multifaceted scientific activity. Among them, one of the most important is the biosphere carbon balance problem, on which Georgy Aleksandrovich spent a lot of time and effort organizing and developing. V.N. Kudeyarov wrote in detail about this problem, and Zavarzin’s associated activity, in the opening article of the collection. The carbon cycle is closely related to soils and many reports have been made about the problems of studying soils, both modern and fossil. The reef ecosystem also attracted Georgy Aleksandrovich’s attention from this point of view. An article by Prof. A. N. Ostrovsky from St. Petersburg discusses the current state of coral reefs. The biosphere directions of permafrost and bacterial paleontology did not escape the attention of Georgy Aleksandrovich, and therefore are also well reflected in the articles in this collection. The reports are gratefully dedicated to Georgy Aleksandrovich by his students and colleagues, because he had a great influence on the development of many aspects of the problems considered, primarily the methodological ones.

This influence was based on his vast experience of work in the ecological and historical microbiology and his desire to share it, on a deep interest in all the problems he encountered, and in the people who were involved. He infected students and colleagues with his sincere interest in all aspects, ordinary and unusual, big and small, in his favorite science, and his deep

knowledge and broad approach allowed him to see deep biosphere-related questions in any specialized research task. Georgy Aleksandrovich possessed a unique sense of the scale of processes, and he was able to combine very different processes together into a single biosphere cycle of matter and energy. He actively instilled such an approach into the researchers surrounding him, leading by his own example in research work, lectures and talks at conferences, and books, as well as, very importantly for our time, one-sided highly specialized approaches to the state of the biosphere and its changes.

Microbiologists could add a lot about his narrower, but equally significant, microbiological studies, but I will only mention here his small book, which has recently been reprinted, on a combinatorial model for the systematics of bacteria. As Georgy Aleksandrovich told me, the bacterial system has changed completely a long time ago. However, his combinatorial approach, the study and filling of the space of logical possibilities, which put an ecological-functional biogeochemical approach to the possibilities of the existence of bacteria in the biosphere at the forefront, rather than an evolutionary-morphological approach, has been very productive and has influenced a wide circle of researchers, not just microbiologists.

I especially want to remark on Georgy Aleksandrovich’s organizational talents. He found scientists working on similar problems in various parts of Russia and the Soviet Union, and enthused them with his ideas, helped them fit their own case studies into the general stream of problems in the study of the biosphere, and thereby helped raise science even in very remote corners of our country, to a high modern level.

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