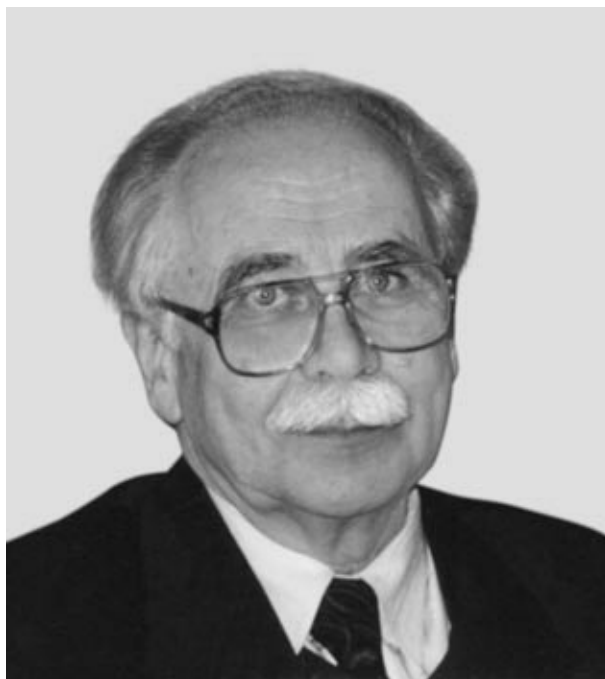

CHRONICLE

In Memory of a Friend

DOI: 10.1134/S0026261707010183



Grigori Ivanovich Karavaiko (1936–2006) was one of those true scientists who regard academic titles as merely additional decorations that could be helpful. Why did he not become an academician? In any case, not because his contribution to science and industry was not significant enough. Biohydrometallurgy requires not only vast competence in this very special field of microbiology but also a deep understanding of technological processes. Grigori Ivanovich had all this and there is hardly anyone to fully substitute him in this field of utmost importance both for the country and science. The combination of theoretical and practical knowledge that he had is not at all common. The irreplaceability of each outstanding specialist has become evident with tragic clarity in our country today. Being second in the Institute's official hierarchy, Grigori Ivanovich had to bear the burden of attending to heaps of pointless documents and papers, instead of fully concentrating on his work as a unique expert in a vast field of science truly important for his country.

Karavaiko was a totally self-made man. He progressed a long way from entering the University as a boy from a rural area to eventually reach the higher levels of the academic hierarchy. It should be mentioned

that the very qualities of his character, his abilities, and his tireless diligence encouraged others to meet him half-way, not without occasional grumbling at his stubbornness, which, on the other hand, helped him in attaining his objectives.

Grigori Ivanovich belonged to the school of Soviet microbiologists shaped by students of S.I. Kuznetsov with a clear understanding of the role of microbial processes in nature and influenced by A.A. Imshenetskii, who strongly insisted on understanding the nature of the organism studied. The workers of his, and our, generation were, above all, naturalists and shared the view that the goal of microbiology consists in revealing the activities of microorganisms in nature. Working in different branches of microbiology, we supplemented each other as well as we could, and were, in this sense, associates. The authority of Grigori Ivanovich in his branch was indisputable and his passing away leaves a large gap in this actively developing field of science, which has lost its leader.

Remembering Grigori Ivanovich, he first of all emerges as a toiler, a toiler like no one else. He never wasted a minute, and it is regrettable that he was always burdened with a host of minor things that needed doing.

Fortunately, he was not so much involved in the everyday running of the Institute, but the endless coordinating work he had to do for production units took its toll. For decades, the Institute's annual reports were compiled and edited by Grigorii Ivanovich, and so he was the person best informed on the state of all sorts of research done at the Institute. This would have been impossible without his broad scope and large erudition in widely different fields. Consider his work on the encyclopedia, where no faulty data should be allowed to pass.

Parallel to the superficial bureaucratic work imposed on him, which, knowing well its futility, he had to do out of a sense of common responsibility, Grigorii Ivanovich was engaged in large-scale research in an important field of science where he was an indisputable expert. In effect, we owe to studies done in his laboratory all of our knowledge about the activities of microorganisms in acidic environments and about their role in producing sulfate waters that leach widely different metals, from commonplace iron to valuable trace elements, from sulfide-containing ores. Karavaiko was the first to investigate a whole range of activities of microorganisms under conditions most close to those in natural geologic processes. He was a founding father of biohydrometallurgy, an important branch of bioengineering. There is hardly any need to mention the tons of gold that were produced and will be produced as a result of his work.

This tribute arises from deep respect for the selfless work of an outstanding scientist, a genuine patriot, and a true toiler, as well as sincere love for a worthy man with whom I happened to live and work side by side.

Grigorii Ivanovich will be always commemorated in the microorganisms that he first discovered and that came to be recognized and studied worldwide. Among these are representatives of the genus *Sulfobacillus* and the acidophilic archaea *Ferroplasma*. These names gradually phased out from reference lists the names of those first species (like *Thiobacillus ferrooxidans*, whatever its current name is) that Karavaiko, then a shy graduate student, started his work with under S.I. Kuznetsov. Microbes are to be loved. Immersed in bioengineering problems, Grigorii Ivanovich never stopped thinking about microorganisms because all his life he

was devoted to the concept of the activities of microorganisms as a geological factor in the most direct sense of the word.

Grigorii Ivanovich was a prominent scientist and such people are so often too self-assertive and not very nice to deal with. This does not apply in the least to Karavaiko. He made his way from a rural boy to one of the most erudite and best-known scientists; despite his usual conviction in his rightness, Grigorii Ivanovich retained his original shyness, a trait so uncommon for someone in his position. Throughout our semi-centennial friendship, I could see that he never stopped learning, as if recalling his first steps in science and aware of the boundless road ahead. His very attractive and fascinating personality opened up in relations with his friends, the people he trusted. As for me, I felt about him like I did about very few people. If we failed to see eye to eye, which happened fairly often, there was no falling-out or resentment. Each one had a right to stick to his opinion because we both knew something that went beyond our dispute and was a reflection of our mutual respect and sympathy. Every time I met Grigorii Ivanovich, I felt warmth and good feelings arising in my heart; he was able to inspire such emotions in people he respected.

It should be mentioned that Grigorii Ivanovich, in his soul, was a Soviet man, identifying with the collective of fellow researchers and the society at large, rather than an individualist, striving only for his own good. He grew up in the postwar years, which called for mutual assistance. In most cases he was friendly and kind-hearted to other people, but there were also very natural outbreaks, explained by his candid character. He had a strong sense of responsibility and was never content to rest on his laurels, a trait shared by all creative people.

The death of Grigorii Ivanovich was quite unexpected: he had never confided his serious illness. We were not prepared for his departure and it fills us with sadness and confusion. One cannot but feel that a whole epoch is passing away with Grigorii Ivanovich Karavaiko. A bitter loss for those whom he has left behind.

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