A TRUE MINERALOGIST: IN MEMORY OF PROF. ANDREI GLEBOVICH BULAKH

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1. Andrei Glebovich Bulakh March 29, 1933–September 21, 2020.

he distinguished Russian mineralogist Vasily Mikhailovich Severgin (1765–1826) wrote in 1791: "I classify mineralogists into Systematists, Technologists, and Philosophers in the broadest sense of these terms. The former systematize what is extracted from the Earth and teach us to understand it; the latter utilize these materials; and the Philosophers observe their various relationships, properties, and manifestations, seeking to gain insight into the underlying reasons for these phenomena. A true mineralogist is one who skillfully integrates all three types within themselves." (Severgin, 1791). Today, this words aptly describes Andrei Glebovich Bulakh, who was not only a systematist and technologist, but also a philosopher, exceptional pedagogue, and popular science communicator.

Andrei G. Bulakh was an honorary member of both the Russian Mineralogical Society (1999) and the Ukrainian Mineralogical Society (2011), earned his Doctor of Science in Mineralogy in 1979, was recognized as a Merited Laborer of Higher Education in the Russian Federation in 1999, and served as an Honorary Professor at St. Petersburg State University. Although he was well-known among national mineralogists, much of his legacy has been overshadowed by current events. This prompts us to pause and reflect on his contributions to better understand our present and to ensure that the valuable achievements of our predecessors are preserved for future generations.

This article is dedicated to celebrating the diverse activities of Andrei Glebovich as a scientist, educator, mentor, and colleague.

Geologist-Geochemists-Mineralogist

Andrei Glebovich Bulakh was born in Leningrad on March 29, 1933. His remarkable career was inextricably linked to the Department of Mineralogy at Leningrad (St. Petersburg) State University (LSU/StPSU), from which he graduated in 1955 with a Diploma Cum Laude, qualifying as a geologist–geochemist with a specialization in geochemistry and mineral resource exploration.

After graduation, A.G. Bulakh was appointed as a junior researcher at the All-Union Geological Institute (VSEGEI, now the Karpinsky Russian Geological Institute). In his first year he studied the ores and host metasomatic rocks of the Syrygichi deposit in northern Transbaikalia, collaborating with a research team led by Yurii V. Kazitsyn and Georgy V. Aleksandrov. He later transferred to the Laboratory of Mineralogy, directed by Evgenii I. Nefedov under scientific supervision by Alexander A. Kukharenko. In the late 1950s, Kukharenko established a large research team in LSU, VSEGEI, and North-West

2. Andrei G. Bulakh, student of the Leningrad State University, 1953.

3. Andrei G. Bulakh, graduate of Leningrad State University, 1955.



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Geological Survey of the USSR that conducted detailed studies of the geology, petrology, mineralogy, and geochemistry of alkaline ultramafic complexes in the Kola Peninsula and nort part of Karelia.

In 1961, Prof. A.A. Kukharenko was elected head of the Department of Mineralogy at LSU. A.G. Bulakh (2014a) wrote: "*Alexander A. Kukharenko is a true leader of Soviet science, an exceptionally astute geologist, geochemist, mineralogist, deeply devoted to his profession and his country. He is an honest and candid individual, genuinely caring for others, and a steadfast support for his friends and colleagues.*" Shortly after his appointment, A.A. Kukharenko invited A.G. Bulakh to join the University. A.G. Bulakh recalled (2014a): "*Alexander Alexandrovich practically dragged me to the Department
Mineralogy >, despite my attempts to resist*". He dedicated 55 years to the Department, from March 3, 1962, to November 22, 2017, initially serving as the head of an educational laboratory. then as an associated professor, and later as a full professor and department head from 1987 to1992, before returning to a professorship.

At the university, Andrei Glebovich continued his studies under A.A. Kukharenko's supervision, focusing on the mineralogy of alkaline ultramafic rocks and related carbonatites. This line of research became central to his career, forming the foundation for his candidate dissertation in 1961 and his doctorate in 1978, as well as numerous research papers and books.

In 1968, Andrei Glebovich, along with A.A. Kukharenko and fellow researchers (M.P. Orlova, E.A. Bagdasarov, O.M. Rimskaya-Korsakova, E.I. Nefedov, G.L. Il'inskii, A.S. Sergeev, and N.B. Abakumova) received a university prize for the monograph *The Caledonian Complex of Ultramafic Alkaline Rocks and Carbonatites in the Kola Peninsula and northern Karelia* (Kukharenko *et al.*, 1965). The monograph has become an essential resource for anyone studying ultramafic alkaline complexes and continues to provide a theoretical foundation for exploration for deposits of iron, titanium, phlogopite, phosphates, and rare metals associated with these rocks. A.G. Bulakh remarked

A.A. Kukharenko, V.F. Barabanov, V.I. Lebedev, O.M. Rimskaya-Korsakova, and A.S. Ivanov—but also warmly, sometimes with a touch of irony, depicted the character and personal traits of his colleagues and fellow staff members, including V.A. Frank-Kamenetsky, V.V. Gordienko, G.A. Il'inskiy, M.D. Evdokimov, G.F. Anastasenko, L.Ya. Krylova, and N.I. Krasnova. He emphasized that university life encompasses much more than research and teaching; it is a vibrant world of human relationships and diverse perspectives on life. Knowledge is transferred not just through textbooks but "from hand to hand," shaped by individual insights. Yet, he acknowledged that the simplicity of this idea belies its complexity, as even the most stable traditions can be easily disrupted by external forces.

In his later years, Andrei Glebovich contemplated these themes deeply. His significant writings on the history of the Department of Mineralogy are compiled in two volumes: Department of Mineralogy of Leningrad State University (2014) and Essays on the History of the Department of Mineralogy (2019).

His creative, scientific, and pedagogical achievements were greatly supported by his family, which played a crucial role in shaping him into an outstanding scientist, a talented educator, and a joyful individual. His father, Gleb Dmitrievich Bulakh (1900-1981), graduated as an external student from the Petrograd Institute for Railway Transport Engineers at 20 and worked on bridges, tunnels, and reinforced docks while also teaching in St. Petersburg, Alma-Aty, and Odessa. His mother, Lyubov Emilievna Rode (1900-1985), was one of the first women to graduate from the Hydrotechnical Faculty of the Petrograd Polytechnical Institute. She constructed electric power stations, residential buildings, and mines, contributing to research and development projects at various hydroelectric facilities. Andrei Glebovich frequently drew on his older brother Kirill Glebovich's (1929–1999) recollections, a rank-first engineer captain, as well as manuscripts and letters from his aunt Tatiana Bulakh-Gordina's archive, and records by Vasily Shuisky, a historian of Russian architecture. Utilizing this rich tapestry of family history and his own considerable creative talents, he authored the book The World of Art in the House on Potemkinskaya. He devoted much effort to preserving family memories while providing

32. Andrei G. Bulakh with wife Viktoriya V. Kondrat'eva and Senior Teacher (now Ass. Prof.) Oleg S. Vereshchagin, who discovered the new mineral andreybulakhite (2014).

33. Behind his desk at home, 2018.





34. The 80th Anniversary of Andrei Glebovich's Birth, celebrated at the Museum of the Department of Mineralogy, 2013.



35. Andrei G. Bulakh's last photo taken at the Department of Mineralogy of the St. Petersburg State University on November 22, 2017: (left to right) Andrei A. Antonov (headed the Department of Mineralogy from 2012 to 2017), Vladimir G. Krivovichev (headed the Department of Mineralogy from 1992 to 2012), Aleksei I. Brusnitsyn (headed the Department of Mineralogy from 2017), Andrei G. Bulakh (headed the Department of Mineralogy from 1987 to 1992).



his loved ones.

University.

young readers with a realistic portrayal of life in a country building socialism. His devoted wife, Viktoriya Viktorovna Kondratieva, was a constant source of support, deserving special recognition for her role. In his final book, The Mansion of Sergei Sergeevich Botkin in St. Petersburg near the Tauride Garden: People and Fates, 1903–2018 (Bulakh, 2019), Andrei Glebovich sought to honor the memory of

As a distinguished representative of the mineralogical school at St. Petersburg State University, Andrei Glebovich's legacy inspires us, the current faculty of the Department of Mineralogy, to continue and advance the work of our mentors. We are committed to preserving and passing on the rich traditions of the Russian mineralogical school that has been cultivated over decades at Leningrad-St. Petersburg State





36. New mineral andrevbulakhite

Ni(C₂O₂)·2H₂O, discovered by Oleq S. Vereshchagin and his colleagues in 2023 in the oxidation zone of the Nyud II copper-nickel deposit, Monchegorsk area, Kola Peninsula. Left: lichen (green) in which this miner-

al, hydrous nickel oxalate, was found (photo of the specimen). Right: a cluster of minute crystals of andreybulakhite (BSE image).

Post Scriptum

The mineral and reybulak hite, with the formula $Ni(C_2O_4) \cdot 2H_2O_5$ was named in honor of Andrei Glebovich Bulakh. This mineral was discovered by Oleg Sergeevich Vereshchagin, a graduate of the Department, who currently serves as an associate professor there (Vereshchagin et al., 2023).

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