Jubilees

### NIKOLAY V. BELOV, AN OUTSTANDING CRYSTALLOGRAPHER AND CRYSTAL CHEMIST OF THE 20<sup>th</sup> CENTURY

#### Vladimir I. Pavlishin,



Nikolay V. Belov (1891–1982).

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ikolay V. Belov, the founder of the Soviet school of structural crystallography, has supervised the refining of the crystal structures of more than five hundred minerals and other compounds and framed the

modern theoretical basis of the crystal chemistry of silicates. Nikolay V. Belov was also the founder of modern structural mineralogy, which considers, from a principally new crystal chemical standpoint, mineral-forming and energy-transfer processes in the Earth's interior and issues concerning isomorphic substitutions. Nikolay V. Belov was a foremost authority in the theory of symmetry, which underlies crystallography. Nikolay V. Belov was also a talented teacher and educationalist, who brought up a number of generations of Soviet scientists. Hundreds of then-young crystallographers were educated and trained under his supervision at respective departments of the Gorky State University (now the N.I. Lobachevsky State University of Nizhny Novgorod) and later at the Lomonosov Moscow State University.

The research heritage of N.V. Belov comprises more than 1500 publications, which were devoted first of all to the theory of symmetry and techniques of structural analysis, determining the crystal structures of minerals, and to structural mineralogy and geochemistry.

Nikolay Belov was born on December 14, 1891, in the town of Yanova, Lyublin gubernia (now in Poland), in a Russian family. His father was a district physician. However, N.V. Belov considered himself a native of the town of Ovruch in the Zhitomir territory, where the Belovs moved in 1900. N.V. Belov graduated as a gold medalist from a grammar school in Warsaw in 1910 and, in 1921, the Petrograd Polytechnical Institute.

A resident of Ovruch town during the years of the October Revolution and ensuing Civil War, N.V. Belov was an active worker at the uezd (district) and gubernia (regional) Councils for Industry and Agriculture as an authorized person appointed by the Revolutionary Committee. In 1924–1933 N.V. Belov studied processing and utilization of natural minerals at laboratories in Leningrad.

Starting in 1933, N.V. Belov worked as a senior researcher at Lomonosov Institute of Geochemistry, Mineralogy, and Crystallography of USSR Academy of Sciences, which was established by Alexander E. Fersman. At A.E. Fersman's suggestion, he was the first to translate into Russian a fundamental crystal chemical monograph by O. Hassel. Doing his creative translation of the monograph, N.V. Belov doubled its original volume and appended it with numerous illustrations, whose number was increased tenfold: from six to sixty. Two years later, N.V. Belov has translated The Structure of Silicates by W.L. Bragg and a later review by E.E. Schiebold, which was also devoted to the crystal chemistry of silicates. At that time, Belov focused mostly on crystal chemical research, and thus was appointed the head of the Structural Department at the Laboratory of Crystallography of the Soviet Academy of Sciences, which was established in 1937–1938 and transformed into the Institute of Crystallography in 1943.

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## NATHAN I. GINZBURG: THE FOUNDER OF MODERN APPLIED MINERALOGY

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Nathan I. Ginzburg (1917–1984).

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fter N.I. Ginzburg's brilliant presentation at a conference devoted to problems of regional and applied mineralogy and held in Transcarpathia in 1982, we left for Kiev. We were then short of time: Nathan II'ich hurried to a meeting in Kiev, and I was going to a meeting of the International Mineralogical Association in Varna, Bulgaria Nevertheless he found a few hours to stroll together down Kreshchatic to show me through "his" places in the city: until 1917, the large Ginzburg family has been one of the dozen richest families in Little Russia (as Ukraine was often referred to at that time). During this excursion, Nathan II'ich told me that his interest in mineralogy and geochemistry was awaken by nobody else but Alexander E. Fersman himself, to whom Nathan as a boy was brought by his father, II'ya Isaakovich. This meeting turned to be momentous and predestining, and Nathan eventually became a mineralogist.

Nathan II'ich (also known as Anatoly II'ich in the Soviet scientific community) was born in Petrograd (former St. Petersburg) on March 1, 1917. His father was a prominent geologist and one of the establisher of the Geological Committee of Ukraine in 1918. As a 15-year-old boy, N.I. Ginzburg was hired at the Institute of Applied Mineralogy (now Fedorovsky Institute of Mineral Resources) in Moscow. He returned to the Institute in 1956 to organize and head a large research team of applied mineralogists. Being a student at the Moscow Geological Exploration Institute (MGRI), from which he graduated in 1940, Nathan II'ich launched his fist research at the Mineralogical Museum of the Soviet Academy of Sciences under the supervision of V.I. Kryzhanovsky.

N.I. Ginzburg saw action during the Great Patriotic War and was decorated with battle honors. After a heavy wound, he was mustered out of service and returned to scientific work at the Mineralogical Museum (1942–1956).

This period of Nathan Il'ich's life was marked by very important results of his mineralogical and geochemical studies of rare-metal granite pegmatites. He then defended first a candidate (junior PhD, 1945) and then doctorate (full PhD, 1955) dissertations, which highlighted his talent to organically synthesize academic science and applied geology. He was one of the discoverers of a large group of rare-metal pegmatite deposits, took part in preparing them for development, and was awarded for this with the State Prize of the USSR in 1948.

In 1956, N.I. Ginzburg was invited to the Institute of Mineral Resources of the Ministry of Geology of the USSR to organize Depatment of Geology and Minerology of rare metals and establishing a sound scientific foundation for exploring for rare-metal mineral resources. The solution of this problem was associated with the discovery of mineral deposits, and the scientist was awarded with the second State Prize of the USSR in 1972.

### Jubilees

# OUR FRIEND RICHARD GAINES

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1. Richard Venable Gaines (1917–1999). Photo: John White, 1998.

n 2017 the mineral Community will celebrate the 100<sup>th</sup> -anniversary of Richard Gaine's birth, an outstanding U.S. mineralogist and collector. We got acquainted with this wonderful man by correspondence in 1993 thanks to a letter that he sent to our editors. Having received a black-and-while photocopy (!!!) of pages of our first issue from his friends, Richard expressed his approval of the undertaking. The letter was short but he succeeded in writing all of the very important words of support that we needed so much, encouraging us in every way to continue publishing. It was he, Richard Gains, who helped us first participate in the Tucson Show by calling Marie Huizing, editor-in-chief of *Rocks & Minerals*, and offering recommendations that opened the door to the mineral collector community for us.

Starting with 1993 and to the very last days of his life Richard constantly followed our publications. During the Tucson Show he invariably visited our stand, conducted long conversations with us and made very thoughtful remarks concerning the contents of articles. Often he gave us wonderful ideas that directed our energy toward the development of interesting and important subjects. At times one question from him was enough to spark a whole bunch of ideas. Such was his idea of a publication about Dalnegorsk, which in 2001 materialized into a special edition.

Richard generously shared his precious time, knowledge and talent with us. It is no exaggeration to say that he was among the main starter engines like on a spaceship thanks to whose powerful energy our magazine reached the orbit of the international collecting movement.

Gaines was in touch with colleagues and collectors throughout the world. There are traces of these contacts in Russia too. For instance, the collection of a renowned mineralogist and outstanding collector, Victor I. Stepanov, that is now at the Fersman Mineralogical Museum (Moscow) contains specimens with his original labels (Fig. 3, 4). Some specimens has original labels from Richard.



2. Richard Gaines always found time to discuss publishing plans: Richard and Michael Leybov in the lobby of Executive Inn hotel. Photo: Ludmila Cheshko, February, 1996.

**Richard Venable «Dick» Gaines** was born January 25, 1917 in Poughkeepsie, New York, the son of Elizabeth Castle and Clement Carrington Gaines, President of the New York Business Institute. He grew up in the town of Beacon, New York, and while attending a summer school in Maine in 1926 he found specimens of mica and garnet that kindled a life-long interest in minerals. He attended the Massachusetts Institute of Technology, then transferred to the Colorado School of Mines where he received his degree in Mining Engineering in 1940.

His work as an engineer had allowed too little involvement in geology and mineralogy, so upon his discharge in 1945 he enrolled as a graduate student at Harvard University, where he worked as a museum assistant under Clifford Frondel. He received his Master's Degree in 1949 and his PhD in Mineralogy in 1951. He took a job as mineralogist for the famous lead-zinc mines at Joplin, Missouri, then moved on to uranium exploration in Colorado. From 1959 to 1966 he lived in Mexico, where he explored for ore deposits in Sonora, Veracruz, Sinaloa and Guerrero, and described seven new mineral species from the Moctezuma mine. He also served as a research mineralogist at the Universidad Nacional Autonoma de Mexico.

In 1966 Richard moved to Pottstown, Pennsylvania to work on pegmatites for the Kawecki Chemical Company, focusing on tantalum and beryllium deposits. His studies soon expanded to deposits of these elements worldwide, and he traveled extensively in North America, Europe, Australia, Brazil, French Guiana, China and Madagascar to examine deposits. He built a fine personal mineral collection heavy in rare and attractive pegmatite minerals which he displayed in his home. In 1987 he retired and moved to Earlysville, Virginia where he financed the construction of a new home through the sale of some (but not all) of his mineral collection.

Richard served as an Associate Editor of the Mineralogical Record (1975–1983), as Senior Author of Dana's New Mineralogy (1997), and was honored by the naming of the new mineral species gainesite in 1983. He died January 21, 1999.

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3. (a-e) Ludlamite pseudomorph on triphylite with vivianite plates and siderite grains. 5 x 4 cm. Boa Vista, Galileia, Minas Gerais, Brazil.
FMM #ST7397. (a-c) labels: (a) FMM, (b) R. Gaines, (c) V.I. Stepanov (handwritten), (d) and (e) two views of the specimen.
4. (a-c) Guilleminite flakes (bunches of up to 0.1 x 0.2 cm) in malachite. 3 x 2.5 cm. Musonoi Mine, Kolwezi, Katanga, DR Congo. FMM #ST7222. (a-b) labels: (a) FMM, (b) R. Gaines.
Photos 3-4: The Fersman Mineralogical Museum (FMM), collection of Victor I. Stepanov – specimens received by exchange with Richard Gaines.

Photo: Alexander A. Evseev.



Mineral Collection- b No. Have, Name Guilleminite Loc. Musonoi mine Kolwezi Shaba, Zaire Richard V. Gaines-

