

Jubilee:
a 200th Anniversary

NIKOLAY I. KOKSHAROV: THE FOUNDER OF THE RUSSIAN SCHOOL OF MINERALOGICAL CRYSTALLOGRAPHY

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Nikolay Ivanovich
Koksharov
(1818–1892)

Nikolay Ivanovich Koksharov is an outstanding Russian mineralogist and crystallographer who has enriched science in extensive crystallographic data on minerals from Russia and who compiled the first comprehensive dataset on these minerals.

The traditional method of qualitative descriptions of minerals, which was widespread – and actually dominant – until the latest first half of the 19th century, gradually gave way to mathematically accurate crystallographic studies of minerals, their quantitative chemical analysis, and measurements of their physical properties. This eventually resulted in new descriptive mineralogy in the modern understanding of this science, which was founded, in Russia, by N.I. Koksharov.

N.I. Koksharov was born on November 23, 1818, near Ust-Kamenogorsk, Tomsk guberniya (currently an Eastern Kazakhstan oblast of the Republic of Kazakhstan), to the family of I.K. Koksharov, a mining engineer, who later was appointed the head manager of the Berezovsk gold mines in the Central Urals. Following his father, the naturally talented boy was quick to learn how to identify Ural minerals and started to collect them. As a son of a mining engineer, Nikolay Koksharov was accepted in 1830 as a student to the Mining Cadet Corps (nowadays the St. Petersburg Mining University) in St. Petersburg, with his education financed by the government. As a student, N.I. Koksharov became even more interested in mineralogy and crystallography, partly under the influence of R.J. Häuy's works. N.I. Koksharov completed the full course of education and graduated from the Mining Cadet Corps in 1840 as an engineer-lieutenant. On the recommendation of K.V. Chevkin,

then the Chief of Staff of the Mining Engineer Corps, he was attached to an expedition headed by the famous English geologist R. Murchison (the expedition mapped the territory of Russia), in K.V. Chevkin's attempt to train N.I. Koksharov as a paleontologist. Although the young scientist learned much from the expedition work, it did not weaken his ardent wish to fully devote himself to mineralogical and crystallographic studies. To do this, N.I. Koksharov had passed through the courses of two famous crystallography-oriented mineralogists, Ch.S. Weiss and G. Rose, in Germany. In spite of his low income upon his return to Russia in 1846, N.I. Koksharov began studying Russian minerals. As early as 1847, he published papers on bagrationite, a variety of orthite (allanite), and magnetite from the Urals. These papers attracted then keen interest of western scientists and were the second ones (after A.-Th. Kupffer's publications) to present high-precision crystallographic measurements. Along with N.I. Koksharov, such measurements were then carried out in Russia only by R.I. German (1805–1879) in Moscow, but R.I. German's data were "*much inferior to N.K. Koksharov's in terms of accuracy*" (V.I. Vernadsky, 1915). It was no earlier than 1851 that N.I. Koksharov started to lecture on mineralogy at the Mining Institute. He was elected an adjunct of the Russian Academy of Sciences in 1855, an extraordinary academician in 1858, and an ordinary one (on *mineralogy*) in 1866. From 1872 to 1881, N.I. Koksharov worked as the Director of the Mining Institute, and in 1865–1891 was first the director and then director emeritus of the Mineralogical Society. At that time (and when the Society was presided by Duke N.M. Leuchtenbergsky), the Society received funds for geological studies in Russia and started to publish "*Notes of the St. Petersburg Mineralogical Society*" (1866) and "*Materials on the Mineralogy of Russia*" (1869).

N.I. Koksharov's educational activities were marked by publishing a course on crystallography (under the name of *Lectures on Mineralogy*, 1863; it was translated and published in German in 1865). According to V.I. Vernadsky, this was an outstanding work of that time and has long been used in the academic activities. N.I. Koksharov wrote: "...I have learned the value of Nauman's manuals <...> and I will expound the crystallographic part of our course according to the writing style of this crystallographer" (N.I. Koksharov, *Lectures on Mineralogy*, St. Petersburg, 1863, p. 3). However, E.S. Fedorov considered N.I. Koksharov's viewpoints obsolete for science of that time and severely criticized the *Lectures* for their outdated *Nauman's diclinohedral systems*

Jubilee

ASSIDUOUS SCIENTIST 80 years of birth of Oleg K. Ivanov

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1. Oleg Konstantinovich Ivanov, July 2014.
Photo: Alexander A. Evseev.

2. Left to right:
A.A. Marakushev, O.K. Ivanov,
E.M. Spiridonov, and M.A. Bogomolov
at the Sarany chromite deposit, Central Urals,
2000s. Photo: Mikhail A. Bogomolov.

¹ Ivanov O.K. (1999) Bibliography of scientific works / Ural Union of Scientists, Ural Institute of mineral resources, Ural Branch of RMS. – Ekaterinburg, 56 p.

² Ivanov O.K. (2016) Mineralogy of Saranovskoe Chromite Deposit (Middle Urals) //Mineralogical Almanac, vol. 21, iss. 2, 128 p.

Oleg Konstantinovich Ivanov was born on November 25, 1938, in the town of Magnitogorsk in the Southern Urals, where another outstanding Soviet and Russian mineralogist Arkadii G. Zhabin (1934–2007) was also born. The two researchers were not only fellow-countrymen but also shared the all-absorbing intention to explore the world of minerals. They met for the first time when Oleg was 13 years old, while Arkadii was already a student at the Moscow Geological Prospecting Institute, and memory of this encounter was then cherished by Oleg Konstantinovich as his first ever mineralogical encounter. The pathways of scientific searches later led Oleg Konstantinovich to meet and communicate with many of his interesting colleagues: V.P. Shuiskii, P.V. Pokrovskii, A.S. Talantsev, B.V. Chesnokov, N.P. Yushkin, and many others. Emotional impressions of these encounters were described by Oleg K. Ivanov in his essays¹.

Oleg Konstantinovich Ivanov's research activities imprinted his whole lifestyle and were reflected in the multiple changes of his workplaces. Oleg K. Ivanov studied at an evening faculty of the Sverdlovsk Mining Institute, learned much of the science by himself, and had his own opinion about quite many "truths of science". He finished a postgraduate course at the Institute of Geology and Geochemistry, Ural Branch of the Academy of Sciences of the USSR, under the tutorship of P.V. Pokrovskii, and defended his 1st Ph.D. (candidate of science in the Soviet and then Russian ranking system) thesis "*Mineralogy of the Sarany Chromite Deposit*" in 1971. Much later Oleg K. Ivanov published his brilliant monograph *The Mineralogy of the Sarany Chromite Deposit*². At this deposit, Oleg Konstantinovich discovered a new mineral shuiskite.

