

IS THIS A REGAL ENGAGEMENT? On the mineral collection of *The Throne Crown Prince*

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The collection which was transferred in 1923 from the Museum of the City (St. Petersburg) to the Fersman Mineralogical Museum was collected in the 1870s, during the reign of Alexander II. Initially, it was created for Alexander Alexandrovich, the Crown Prince (future Tsar Alexander III), then was enlarged and completed for Nikolai Alexandrovich (future Tsar Nikolai II) and likely used in his education.

The contents of the collection, the geographical distribution of its samples, and principles of their systematization enable us to reconstruct the state of mining and the level of Russian mineralogy in the middle of the nineteenth century.

6 photos.

The course of Russian history resulted in the mineral and rock specimens that formerly belonged to the Royal family to land in the ample collection of the Fersman Mineralogical Museum. The handwritten catalogue that was accessioned together with them added substantially to their value; it was titled "*A Catalogue of the Mineral Collection Belonging to the Throne Crown Prince*".

The transfer of these materials to the Mineralogical Museum in 1923 from the Museum of the City was recorded thus by entry No 1682: "*The Museum of the City, former Anichkov Palace. Collected in 1890 by Nefed'ev, mining engineer, in the Mining Institute for Nikolai II, former Crown Prince*".

What was the Museum of the City? It was established on 4 October 1918 by a decree of the People's Commissariat of Education signed by A.V. Lunacharskii, and was based upon the exhibits of the City Board Museum, subsequently incorporating Old Petersburg's Museum as well. The Anichkov Palace's historical interiors, where the main part of exhibition was placed, were of their own special value. The Royal Apartments of Alexander III and Maria Feodorovna were here; they lived in the Anichkov Palace from 1866. Nikolai II spent his childhood and juvenile years here too.

The Museum of the City was an outstanding scientific and educational center devoted not only to the city upon the Neva River but to the way of life and architecture of a "city in general" and its urban culture. The Museum of the City was a place for personal contacts between architects, artists, and scientists. A.M. Gor'kii, A.F.

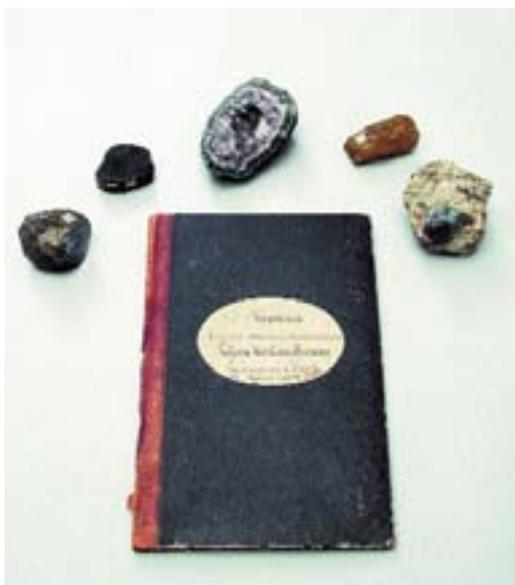
Koni, A.A. Blok, A.V. Lunacharskii delivered lectures here and attended them. The Museum was lead by L.A. Il'in, the Leningrad Chief Architect.

In 1928, the Museum of the City began to be dismembered. The historical interiors of the Royal Apartments were removed. The libraries of Nikolai II and widowed empress were moved to Moscow to the *Lenin Library*. An important part of the collection was sold abroad, including a number of unique exhibits. Eventually, the Museum was closed in 1935 to be replaced by the Leningrad Palace of Pioneers. Some of its exhibits were preserved in the collection of the State Museum of St. Petersburg History.

But who was that mining engineer, Nefed'ev? There is a signature at the end of the Catalogue made by the same hand as the text (likely by the hand of a clerk): "*Full Counselor of State*" and the personal signature "*V. Nefed'ev*". The mention of the Mining Institute in the Entries Book indicates that this would have been Vasilii Vasilievich Nefed'ev.

V.V. Nefed'ev was born in 1796 as elder son of an artisan of the St. Petersburg Mint. He began work at the same mint in 1811 as an assaying apprentice and a year later was shifted to The Mining Cadet Corps (now the St. Petersburg State Mining Institute). Here, he was learning and then teaching mineralogy and petrography. From 1825 to 1849 he was inspector of the museum of the Mining Cadet Corps and Institute of Mining Engineers' Corps (the names of the Mining Institute in 1834–1866).

In 1871, The Concise Catalogue of the Mineralogical Collection of the Mining Institute



Collection handwritten catalogue and some of specimens registered in it.

Museum was published in St. Petersburg; it was compiled by Colonel Nefed'ev. "Colonel" is not astonishing as the Mining Institute is notable for its militarization from 1834 up to this time; the entire mining corps was a paramilitary organization in Russia, and colonelcy (Berghauptman in mining) corresponded to VI Class of the *Table of Ranks* – the title of collegiate councilor. In 1875, Vasilii Vasilievich Nefed'ev (already Professor) became an honorary member of the Imperial Mineralogical Society.

However, he could not, regardless, have made up a collection for Nikolai the Crown Prince in 1890 (as recorded in the book of entries in the Mineralogical Museum). Vasilii Vasilievich past away in 1879, at a declining age of 83.

It is obvious that Nefed'ev has reached the highest class rank of full Councilor of State (Major General in military hierarchy) to the late 70s. It was the highest rank of an official. These officials had to be confirmed by the Emperor personally and occupied important appointments in the State. There was no trace of any other State councilor V. Nefed'ev who could have assembled a collection in 1890.

To determine time of formation of the collection let us scrutinize the structure and contents of the catalogue.

In the Table of Contents, the following sections are mentioned:

"Alphabetical index of minerals",
"Catalogue of mineralogical collection",
"----- crystalline minerals",
"----- rocks",
"the scale to determine mineral hardness",
"the list of minerals for replenishing collection",
(with other handwriting) "*and ores presented to Nikolai Alexandrovich, the Crown Prince and Grand Duke*".

In the Catalogue text, the headline of the sixth section appears as "*The list of minerals for replenishing the collection of His Highness the Crown Prince and Grand Duke Alexander Alexandrovich*".

Therefore, the collection was designated not for Nikolai the Crown Prince at all but for the future Emperor Alexander III at that time when he was the Crown Prince, the heir to the throne (1865 – 1881). Evidently, this collection was also used during the education of his son Nikolai Alexandrovich, future Emperor Nikolai II. The initial eight years of his education were dedicated to the gymnasium courses where the traditional, for gymnasium, ancient languages were replaced with the basics of natural sciences including mineralogy. The collection was surely appropriate, too, in the "*course of higher sciences*" when Academician N.N. Beketov lectured in 1887 – 1889 as a Chemistry course for the Crown Prince.

So the collection began not in the 90s but in the second half of the 1870s. The mineralogical collection was evidently made up not earlier than in 1872, which can be concluded from the presence of nefed'evite in the list. This earthy silicate of pinkish color was described in 1872 by P.A. Puzyrevskii, Prof. of Mineralogy at St. Petersburg University, in the paper "*Nefed'evite, a new mineral from Nerchinskii Krai*" ("Proceedings of the Imperial Mineralogical Society"). It was named in honor of V.V. Nefed'ev. Nefed'evite was later identified as a montmorillonite variety and discredited as a distinct mineral species.

Now let us observe the composition of the collection as reflected in its catalogue. In the mineralogical section, 593 specimens have been recorded divided into 136 "mineral species". Here is the list of these "species" in accordance with modern terminology:

graphite, native sulfur, rock salt, heavy spar (barite), celestine, witherite, strontianite, gypsum, limespar (calcite), aragonite, dolomite,



Nefed'evit (montmorillonite). Jar's diameter 7 cm. Transbaikalia. FMM No 14087. Photo: Michael Leybov

apatite, talc-apatite (chlorapatite), fluorspar, boracite, corundum, diaspore, gypsum (hydrargillite), alum, lazulite (blue spar), turquoise (callaite), wavellite, cryolite, monazite, rock crystal, amethyst, chalcedony, carnelian, agate, jasper, opal, apophyllite, talc, soapstone, serpentine, schillerspar (diallage), chlorite (ripidolite), wollastonite, xanthophyllite, pyrophyllite, thermophyllite (antigorite), amphibole (hornblende), nephrite, glinkite (olivine), porcelain clay, stilbite, staurolite, feldspar, Labradorite, perlite, wernerite (scapolite), glaucolite (var. of scapolite), obsidian (volcanic glass), steingelite, garnet (venisa) idocrase, orthite (allanite), mica, tourmaline (schorl), axinite, topaz, sodalite, lazur stone, cancrinite, emerald, aquamarine, phenacite, chrysoberyl, zircon, gadolinite, rutile, sphene, perovskite, tantalite, mengite (monazite or columbite), samarskite, aeschynite, pyrochlore, scheelite, wolfram, molybdenite, volkonscoite, grey antimony ore, native arsenic, magnetic ironstone, iron glance, ilmenite, chrome ironstone, brown ironstone, spar ironstone, vivianite, sulfurkies (pyrite), arsenkies (arsenopyrite), pyrolusite, manganese, rhodonite (orlets), zinc spar, galmei (smithsonite), zinc blende, acicular ore, cobalt, bismuth, nickel, tinstone, red lead, white lead ore, lead vitriol, pyromorphite, red lead ore, lead glance, tellurous lead, native copper, red copper ore, malachite, chessilite, brochantite, libethenite, knufite (volborthite), fisherite, aurichalcite, diopside, copperkies, peacock ore, cinnabar, silver, glass silver ore, hornsilver (silver chloride), altaite, gold, platinum, mellite, anthracite, coal, asphalt, amber.

One can discern in this list some signs of mineral systematization by the main groups of chem-

ical elements in the tradition of the Cronstedt's systematics published in 1758. This form of systematics was applied, in particular, to the "Mineralogy Manual" (1832) by D.I. Sokolov, Prof. of St. Petersburg University and Mining Institute.

At the moment of formation of the collection, this systematization was already outdated after the classification of minerals by the type of anion complexes by J. Berzelius (1816), its improvement by K. Rammelsberg in 1841 – 1847, and taking the latter as a basis, in "The System of Mineralogy" by J. Dana in 1850. Some relics and earlier classifications that had existed until the middle of the eighteenth century being based upon physical properties of minerals can be recognized at places in the register. For example, the minerals of laminar structure (which is reflected in their names) are united: xanthophyllite (brittle mica clintonite), pyrophyllite, and thermophyllite (antigorite).

The minerals are often grouped in the catalogue in the same way as in Sokolov's "Manual"; however, some groups were replaced, which is probably due to the discovery of the Periodic Law by D.I. Mendeleev (late 1868- early 1869). For instance, one can discern the group of minerals of the alkaline earth subgroup of the second main group of the Periodic System (barite, celestine, witherite, strontianite, gypsum, calcite, aragonite, dolomite, apatite...), then the minerals of aluminum (third group), silica, titanium, zirconium (fourth group), niobium and tantalum (fifth group), chrome (volkonscoite), molybdenum and tungsten (sixth group). Having taken this into account, one can identify those minerals that are under outdated names. For example, mengite, as being in one company with tantalite, samarskite, aeschynite and pyrochlore, is evidently a variety of columbite, though the name "mengite" could have referred to monazite too.

The diversity of ore minerals of iron, manganese, lead, zinc, copper, and silver, particularly from Russian deposits, emphasizes the practical selectivity of the entire set. The group of organic substances described as minerals is listed together. Mellite, a salt of an organic acid, is juxtaposed with them. It is clear that solid combustible minerals were at that time an important natural resources of Russia.

It is interesting that about ten specimens of gold were in the collection whereas a single one

of platinum (from Brazil) was available, though Russia was a leader in platinum mining in the nineteenth century.

In the catalogue section "The list of minerals for replenishing collection of His Highness the Crown Prince and Grand Duke Alexander Alexandrovich", 80 specimens are recorded. Their sequence resembles the "species" order in the "Catalogue of the mineralogical collection" (graphite, then Ca and Ba minerals, Al (corundum), Si (quartz and silicates), then ores of iron, manganese, lead, copper, silver, and, nearer to the end, mellite and coals. This confirms the existence of a unified systematics utilized to make up the collection. It is notable that this part of the catalogue was signed not by Nefed'ev but "Vice Director of the Office" Major General Vasil'kovskii. This set was possibly made up after 1879.

It is interesting to trace the relations between "species" and "varieties" in the catalogue. On one side, rock crystal, amethyst, chalcedony, carnelian and agate, identical in composition, as well as emerald and aquamarine, are "species". On the other hand, quite different minerals are often written as one "species". For example, the species "stilbite" included, together with various zeolites (stilbite, laumontite, chabazite, harmotome, heulandite, natrolite etc.), also prehnite, kyanite, and its variety recitite. "Dioptase" included also atacamite, "slaggy copper green", "vitreous copper ore", "copper black", and even planerite.

Some boundary fuzziness between mineral and rocks is seen. Such names as "jasper", "serpentine", "rock salt", "limestone", "opal", "anthracite" etc. are present both in the catalogue of minerals and the catalogue of rocks.

The specimen geography of the "Catalogue of mineralogical collection" is also revealing. Of course, most specimens represent traditional mining regions of Russia — Karelia, the Urals, Altai, Transbaikalia. Some specimens from Kamchatka and Yakutia are found in the collection.

The European localities are widely represented. According to today's political geography, the list of European states represented in the collection appears as Austria, Finland, Great Britain, Hungary, Germany, Italy, Latvia, Norway, Poland, Romania, Ukraine, France, Czech Republic, Switzerland, and Sweden.

As to Asia, it is represented with Iran (Persia). There are specimens from Azerbaijan, Kazakh-

stan, and Turkmenia.

The American continents are only represented with specimens from South America (Brazil, Peru, Chile).

One specimen, topazes from "New Holland", evidently came from Australia, it having borne this name on the maps before 1824.

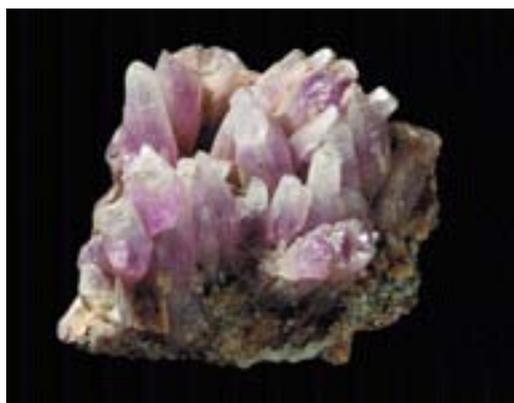
In the collection of the Fersman Mineralogical museum, authors determined 190 specimens from the "*Catalogue of mineralogical collection*". The main part of this collection has been registered in 1925–1934. These years were very difficult in Russian History. During more than forty years between the time of its assembly and the time of its transfer to the Fersman Mineralogical Museum the number of specimens probably diminished appreciably. Besides, several similar specimens from the Crown Prince's collection were often recorded under the same museum number.

The mineralogical specimens (those that are in the Mineralogical Museum collection) are, as a rule, of small sizes, from 5 to 12 cm. Only few of the display specimens exceed 20 cm. Friable minerals are placed into uniform glass jars shut with stiff paper bearing a label written on it. Some substances are stored in small glass test tubes.

In the catalogue of rocks, 200 specimens have been recorded; however, their localities were indicated in some individual cases only.

Locality references are not indicated at all in the section "The catalogue of crystalline minerals" where 134 specimens are recorded. Mostly the same names are present here as in "The catalogue of mineralogical collection". Only "brown

Amethyst with pyrite, 14 cm. Bohemia (Czechia). FMM No 27181. Photo: Michael Leybov





Baryte, 12 cm. England. FMM No 33859. Photo: Michael Leybov

iron ore" looks strange in the list; however, its proximity to "sulfur kies" inspires the supposition that this was a pseudomorph of iron hydroxides after pyrite crystals. In the collection of crystals of the Fersman Mineralogical Museum, 27 specimens were recorded that came from the Museum of the City. Some of them retained sticker numbers that correspond to the numbers of the "Catalogue of crystalline minerals". These stickers are not handwritten unlike the ones of the mineralogical set but made typographically. This set was obviously created independently from the "mineralogical collection". The specimens from the crystal set that are available in the Mineralogical Museum funds are small, some of them less than 5 mm; however, they are often quite regular crystals, such as those of pyrite or galena.

"The scale for determining hardness", the indispensable tool for mineralogical work, corresponds to the scale developed by F. Mohs in 1824. In the sample list for hardness 2, rock salt together with gypsum looks unusual.

At the end of the list of "minerals for replenishing collection...", a postscript was made by a different hand: "Specimens of copper ore taken by Nikolai Serebryakov, the retired sergeant of Siberian Cossack Troops, Omskaya Cossack village, and presented by him on 19 September 1891 to His Imperial Highness the Throne Crown Prince and Grand Duke Nikolai Alexandrovich". Further, the two specimens of copper ore and one of the "silverfish-copper" are specified. The erroneous conclusion as to the formation time and initial owner of collection was made, obviously, from this postscript.

As to the collection of rocks, scale of hardness, and specimens from additional lists, they

1 zolotnik = 4.26 gramm; 1 funt = 409.5 gramm;
1 pud = 16.38 kg;
1 versta = 1.06 km

either did not enter into the Mineralogical Museum or were not recorded for reasons of having no value for the Museum collection.

A sheet of paper is inserted in the catalogue with a detailed description of pieces delivered to the Crown Prince Nikolai. Particularly, there is mentioned: "*By the certification of Managing Director of the, Altaiskii Mining District, 21 May 1891, No. 452, the mentioned three pieces, after testing at the Zmeyerovskii plant assay lab, showed metal content:*

No. 1, found near the land of Siberian Cossack Troops between the Shul'binskii and P'anoyarskii outposts, in 3 versts from the first and 12 versts from the second, in 1 pud ore – 5 funt copper.

No. 2, found near Altaiskii Mining District of administration of His Imperial Majesty Cabinet, in 3 versts to the South from the Verkh-Ubinskii outpost – 3¹/₂ funt copper in a pud of ore.

No. 3, found in the same area, in 3 verst to the South from the Verkh-Fleiskii outpost, in a pud of ore ³/₄ zolotnik silver and 3¹/₂ funt copper".

These materials are obviously connected with the Crown Prince Nikolai's journey in 1890–1891. On his way back to Petersburg, he stayed on 14 to 16 July 1891 at Omsk, where he probably took interest in the new findings of ores in Altai. Without such an interest, the discoverer of new occurrences could hardly go to the Capital to hand the pieces to the Crown Prince.

However, there is no doubt of Nikolai's interest for minerals during this journey. A specimen is preserved in the Mineralogical Museum, which he brought from Japan where he was from 15 April to 11 May 1891. This is a piece of brownish chalcedony with a label applied with the stone name, likely local one,

Crocoite, 6 cm. Urals. FMM No 37313. Photo: Michael Leybov

