IVAN B. AUERBACH'S MINERALS COLLECTION IN THE MOSCOW TIMIRYAZEV ACADEMY

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1. The logo of Russian State Agrarian University – K.A. Timiryazev MSKhA (RGAU-MSKhA).

The article is devoted to the historical mineralogical collection from the Geological and mineralogical museum of the Russian State Agrarian University (Timiryazev Agricultural Academy). It is the collection of Ivan Bogdanovich Auerbach – a renowned Russian scientist, disciple of Gustav Rose, a prominent representative of the German geological and mineralogical school. Originally created by its author to give an opportunity to students for better understanding and research in mineralogy, it has grown up to be a first-grade scientific collection. Fortunately, it has kept its original structure and fascinating contents until now, despite the Russian history's turbulence in the century that followed its creation. By virtue of this fact the collection is now-a-days a priceless treasure, a kind of *"time capsule"*, which preservation in its original state and introduction into the modern scientific and learning process is an imperative of our time.

General Information and History of the Ivan B. Auerbach's Collection

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Specimens:
Geological and Mineralogical Museum of the Russian State Agrarian University – Timiryazev Agricultural Academy, Moscow.

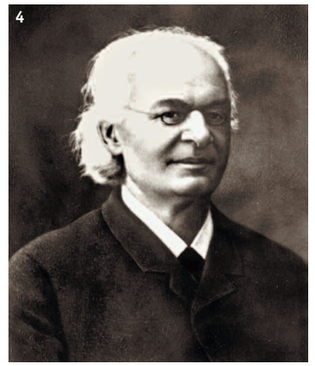
Photo: Michael B. Leybov.

The Russia's oldest agricultural university, founded 150 years ago by the order of Emperor Alexander II as the Petrovskaya Academy of Agronomy and Forestry is rightly proud of its glorious history, the names of its scientific founders and its museums, among which is the geological and mineralogical museum, particularly interesting for mineral amateurs and collectors, mineralogists and crystallographers.

The museum is based on the historical private collection of Ivan B. Auerbach, one of the first geologists in Moscow (Starodubtseva, 2009). Being a Muscovite and holding a degree in pharmaceuticals, he subsequently studied chemistry and mineralogy at the

2. Mineralogical Museum of Russian State Agrarian University named after K.A. Timiryazev – MSKhA.
Photo: Martin Scherer, from the family archive of Stanislav Gennadievich Velichko.

3. Ivan B. Auerbach (1815–1867).
Photo provided by the Funds section of Vernadsky State Geological Museum RAS.



4. German A. Trautschold (1817–1902).
Photo provided by the Funds section of Vernadsky State Geological Museum RAS.

5. Evgraf S. Fedorov (1853–1919).

University of Berlin under the auspices of the famous mineralogist Gustav Rose, travelled a lot across Europe and participated in the expeditions (which he used to call *"excursions"*) in the Russian Empire and has significantly contributed to the geological exploration of the Moscow and the Caspian regions. This man who was so much devoted to the science that he even has sold the drugstore inherited from his father to resource his studies, succeeded in various domains: he was a proficient stratigraphist, great expert in paleontology able to determine the age of the fossils by examination of floral and zoic residues, carried out mineralogical studies (including those of asteroliths) and has gathered a large mineral collection. For more than 15 years I.B. Auerbach had been holding the office of the Second Secretary at the Imperial Moscow Society of Natural Scientists (MSNS), taught mineralogy and geognosy at the Konstantinovsky Institute of Land Surveying, worked as the Mineralogical museum's curator at the Moscow Imperial Universitywhere he also delivered lectures on mineralogy and was granted the 3rd class Order of Saint Stanislaus.

In 1865, I.B. Auerbach was appointed as extraordinary professor of the newly founded Petrovskaya Academy of Agronomy and Forestry where he became head of the chair of mineralogy and geognosy until his last days.

According to the testament of I.B Auerbach, his library, as well as his mineralogical and paleontological collections, the approximate estimated price of which amounted to 8000 roubles, have been handed over to the Academy as a donation. This is the way the Academy's Mineralogical cabinet has emerged. As judged by the inventory, the collections were impressively large: the specimens of minerals, for instance, numbered 4415, asteroliths – 90, crystal models – 500, books on mineralogy, geognosy and paleontology – 600 titles in 800 volumes (Moscow Central Historical Archive, archive 228, inventory 2, file 3, page 30).

Afterwards, the destiny of the Academy's collection is connected with the name of Hermann Adolfovich Trautschold (1817–1902), who has also made a significant contribution to the geological exploration of Russia (Starodubtseva, Mitta, 2002). During his geological and paleontological researches he has kept close contact with I.B. Auerbach, while being also one of the most active members of the Imperial Moscow society of natural scientists, and later on – its secretary as well as the curator of the society's geological and mineralogical collections. In 1868, G.A. Trautschold was offered a job at the chair of mineralogy and geognosy of the Petrovskaya Academy of Agronomy and Forestry and had worked there intermittently until 1888, teaching and managing the mineralogical cabinet. Professor

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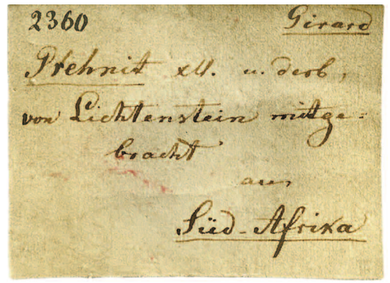
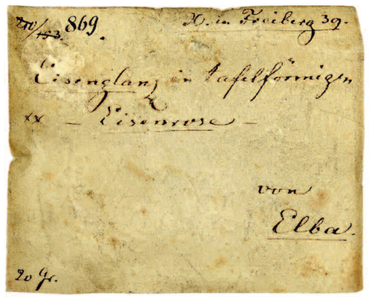


13. **Prehnite**. 4.5 x 3 cm. South Africa.
Geological and Mineralogical Museum of RGAU-MSKhA,
I.B. Auerbach's collection (via Girard), MM # 4029.



14. **Hematite**. 6.5 x 3.5 cm.
Elba Island, Tuscany, Italy.
Geological and Mineralogical Museum of RGAU-MSKhA,
I.B. Auerbach's collection, MM #869.

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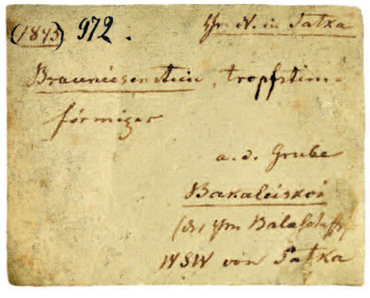

15. **Goethite**. 6.5 x 5 cm.
Bakal, Southern Urals, Russia.
Geological and Mineralogical Museum of RGAU-MSKhA,
I.B. Auerbach's collection, MM #972.

16. **Autunite**. 2.5 x 1.5 cm.
Autun, France. Geological and Mineralogical
Museum of RGAU-MSKhA,
I.B. Auerbach's collection, MM # 1946.

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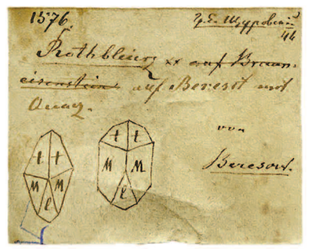
17. **Crocoite** crystals with quartz on beresite.
2.6 x 2.2 cm.
Berezovskoe, Central Urals, Russia.
Geological and Mineralogical Museum of
RGAU-MSKhA, I.B. Auerbach's collection
(via G.E. Shchurovsky #44), MM # 1576.



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18. **Titanite** (twin). 2.5 x 1.5 cm.
Alps, Switzerland. Geological and
Mineralogical Museum of RGAU-MSKhA,
I.B. Auerbach's collection, MM # 4017.

19. **Scheelite** crystals on **quartz**. 5.5 x 2.5 cm.
Zinnwald, Erzgebirge, Germany.
Geological and Mineralogical Museum of
RGAU-MSKhA, I.B. Auerbach's collection
(via Tamnau), MM # 1595.

20. **Topaz**. 1.5 x 1.0 cm.
Urulga, Eastern Transbaikalia. Siberia, Russia.
Geological and Mineralogical Museum of RGAU-
MSKhA, I.B. Auerbach's collection, MM # 2000.

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Ivan B. Auerbach's Collection for the Purposes of Mineralogical Science

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The mineralogical collection of Ivan Bogdanovich Auerbach (1815–1867) is a classic example of the scientific approach to the collecting that puts the sense-bearing aspect of the exhibits at the top of priorities. Such approach was common and remains so until now in the countries with a strong school of classic mineralogy and a well-developed mining industry (for example, in Austria, Germany, Sweden, Switzerland etc.). Unfortunately, this line of collecting in Russia has experienced both upswings and periods of oblivion.

Several remarkable mineralogical collections that have been preserved until now are originating from the 19th century and in particular from its second half. These are first of all the collection of Prince Peter A. Kochubey (1825–1892) and Prince Nikolay (Nicholas) M. Romanovsky (1843–1891), the 4th Duke of Leuchtenberg. The Ivan B. Auerbach's collection's purpose is rather educational and this is the reason why it cannot keep up with the exhibits rarity and quality of the outstanding collections of that time; however, the systematic approach to the selection of the specimens and the author's high level of expertise have made it possible to render it very interesting and provided for its great historical and cultural importance.

All the specimens are selected in accordance with a circumspect and well-structured system. This collection is an example of systematic ones as it is based on the chemical classification of minerals. But the increase of the species diversity is by far not the only purpose of collecting, and the strictly scientific approach was also implemented in order to demonstrate the geographic, morphologic and genetic diversity within their species.

One of the most striking examples of the masterful implementation of such approach is the selection of various feldspar specimens that excellently shows their intraspecific diversity; the esthetic aspect of those specimens is not neglected either. Over 50 compact-size specimens of feldspars (8 cm at most) are grouped according to the geographic principle: first the Russian specimens and then those from other countries. The selection separate crystals and intergrowth of feldspars from the Alabashka and Murzinka pegmatite fields in the Central Urals (Russia) and the aventurine from the Utochkina Pad in the Transbaikal area (Russia). There are also many specimens from the classic European sites, including several twin crystals of Karlsbad orthoclase (up to 7.5 cm long) from the surroundings of Karlovy Vary in Bohemia (Czech Republic) and from St. Just in Cornwall (UK); a small intergrowth of orthoclase crystals from the Elba island and the Baveno law twins from Baveno (Italy). A particular attention should be paid to the magnificent adularia selection from the Alpine veins of St. Gotthard (Ticino, Switzerland), represented by several Baveno law twins and a Baveno-Manebach fourling. Another highlight of the collection of this selection is a Baveno law twin of orthoclase from Jelenia Gòra (formerly named Hirschberg) in Silesia (Poland) with crystals of adularia epitaxially growing on it and keeping the crystallographic orientation of twinning individual crystals. Some specimens come from very far abroad, for example, a small intergrowth of feldspar from Diana in the New York state (USA).

The importance of the labels in the Ivan B. Auerbach's collection should be extra emphasized. Appropriate labelling is a very important aspect of any collection intended to preserve the information about the specimen and its history. Many labels in the Auerbach's collection contain not only the information about the mineral's name, its locality and source of delivery (that is usually written on the labels both in museums and private collections) but also additional data about the specimen's peculiarities. For example, the labels of Saint Gothard feldspars has schematic hand-made drawings by Ivan Bogdanovich, indicating the facets of the individual crystals and their interrelationships; the aventurine specimens are accompanied with the detailed description of this sort of quartz explaining the origin of their colour, while the label of the Jelenia Gòra orthoclase twin mentioned above illustrates the auto-epitaxial growth of the adularia on the orthoclase. Detailed description on the labels which are often complemented by nuanced drawings explaining the specimen's meaning individuate the Ivan B. Auerbach's collection among its contemporaries with distinctive *"personality"*.

Responsible approach to the collecting and deep knowledge of mineralogy enabled I.B. Auerbach to create an extraordinary collection which legitimately holds a place of honour among the mineralogical collection of the respective age.


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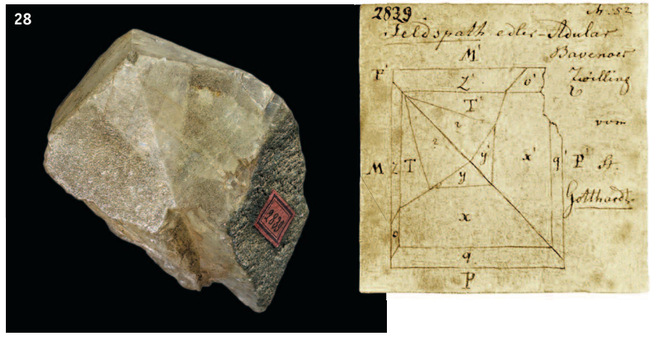

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27. **Adularia** fourling. 3 x 3 cm.
St. Gotthard, Tessin, Switzerland. MM # 2844.
28. **Adularia**, Baveno law twin. 3.5 x 4 cm.
St. Gotthard, Tessin, Switzerland. MM # 2839.
29. **Orthoclase** Carlsbad law twin. 0.5 x 1 x 3 cm.
St Just, Cornwall, England. MM # 2897.
30. **Adularia** Baveno law twin. 2 x 3 cm. St. Gotthard, Tessin, Switzerland. MM # 2837.
31. **Adularia**, Baveno law twin. 2.5 x 3 cm.
St. Gotthard, Tessin, Switzerland. MM # 2840.
32. **Adularia** (crystals up to 1 cm) epitaxial on **orthoclase** Baveno law twin. 2.5 x 6 cm. Jelenia Gòra (former Hirschberg), Silesia, Poland. MM # 2880.

Specimens: Geological and Mineralogical Museum of RGAU-MSKhA, I.B. Auerbach's collection.


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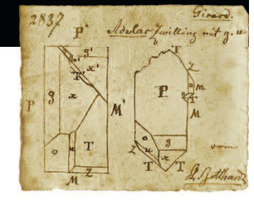


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