

«AMUSING MINERALOGY» IN STONE: THE EXHIBITION DEVOTED TO ALEXANDER E. FERSMAN'S 125th ANNIVERSARY

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The exhibition in the Fersman Mineralogical Museum, devoted to academician A.E. Fersman's anniversary is described.

1 table, 32 photos, 7 references.

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"I will draw separate isolated pictures, like an artist who pulls out certain separate moments from nature and, before painting a great picture, makes dozens and hundreds of sketches and drawings. The reader's imagination should unite them to make up a general picture of nature".

(A.E. Fersman, "Amusing Mineralogy")

Alexander Evgen'evich Fersman is known to the most rock connoisseurs and amateurs as an outstanding writer of books on mineralogy and geochemistry (Perelman, 1968; Pavlova, 2003). He possessed an extraordinary elocutionary talent, he was a brilliant lecturer able to light the listeners' hearts with an ardent passion for "dead" nature, he shared his energy and desire for exploring the country's mineral resources with young scientists and geologists. Alexander Evgen'evich is the author of a number of popular educational books and articles ("Recollections of Stone", "Geochemistry for Everyone", "Stories about the Gem" etc.). However, his "Amusing Mineralogy" is the most famous and readable book up to now. It was published first 80 years ago in 1928 and went through more than 30 editions in various countries (see Table 1). Many present-day scientists, mineralogists, geochemists, petrographers, geologists of other specializations chose their professions thanks to this engrossing book that they read in their childhood. Surely many its points become out of date today. When writing and republishing the book, A.E. Fersman could not know of the discoveries of rich diamond deposits in Russia, of large iron-manganese concretion accumulations on the ocean bed, of ultradeep drilling and of many others. The ideas of the Earth structure and of the "rocks from the sky", meteorites, have changed too. So, the necessary remarks have been included in the last edition published by the Chelyabinsk "Ural Ltd" under the scientific editing by the Doctor

of Geology and Mineralogy, Professor of the St.-Petersburg University Alexander Alexandrovich Kukharenko (Fersman, 2000). They indicate, for example, that some Fersman's data should be referred to the certain years (e.g., the description of Magnitogorsk metallurgical complex is dated 1937 and the data on the radium crop – 1945), and up-to-date calculations are given referring to this or that item. This is surely reasonable and does not diminish the value of the book in any way as its major charm is in the enthrallment and the passion of scientific searching and foresight that always marked Alexander Evgen'evich's talks and popular works.

To demonstrate minerals and rocks, described in this book, to trace some unexpected ways of prominent scientist's thinking, to reflect arising associations in mineralogical and other exhibits – all these have been the aims of this exhibition using the Mineralogical Museum stock. The exhibition opening was appointed on the 11th of November in 2008 to coincide with the beginning, at the Museum, of the "Fersman Days" – International scientific conference devoted to the Fersman's 125th anniversary.

The first chapter of "Amusing Mineralogy", "Stone in Nature and Town", begins, in the section "My Collection", with the famed sentence: "I became an ardent mineralogist when I was only six. We used to spend each summertime in the Crimea...". Unfortunately, the Museum does not have anything of that first Alexander Evgen'evich's collection that was

Table 1. Editions of the «Amusing Mineralogy» book by Alexander E. Fersman

NoNo	Publishing house	City	Language	Circulation	Year
1	Vremya	Leningrad	Russian	5150	1928
2	Vremya	Leningrad	Russian	8070	1929
3*	Vremya	Leningrad	German	5300	1931
4	Unknown	Kiev	Ukrainian	5000	1931
5	Vremya	Leningrad	Russian	10000	1933
6	Molodaya Gvardiya	Leningrad	Russian	25000	1935
7	Molodyi Bolshevik	Kiev	Ukrainian	10000	1935
8	Jugoslovanska Knjigarna	Lyublyana	Slovenian (?)	7000	1935
9	Dzyarzhin. Vyd. Belarusi	Minsk	Byelorussian	5000	1937
10*	Unknown	Tbilisi	Georgian	3000	1937
11*	Detizdat TsK VLKSM	Moscow–Leningrad	Russian	25000	1937
12	Turkmengosizdat	Ashgabad (?)	Turkmen	3000	1938
13	Detgiz	Moscow–Leningrad	Russian	25000	1945
14*	Novo Pokolenye	Belgrad	Serbian	7000	1947
15	Derzhavne Vydavnytstvo Tekhnichnoy Lyteratury Ukrainy	Kiev–Lvov	Ukrainian	25000	1948
16	Editura de stat (?)	Buharest (?)	Romanian	5200	1949
17	Pedagogicheskoe	Tallinn	Estonian	3000	1949
18	Neues Leben (Новая жизнь)	Berlin	German	?	1949
19	Neues Leben	Berlin	German	10000	1949
20*	Neues Leben	Berlin	German	16–27 000	1949
21	Narodnaya Kultura	Sofia	Bulgarian	5000	1950
22	Muewelt nep koenyvkiado	Budapest	Hungarian	4000	1951
23	Czytelnik	Warsaw	Polish	15350	1951
24*	Derskaya Literature	Moscow–Leningrad	Russian	75000	1953
25	Sverdlovskoe Knizhnoye	Sverdlovsk	Russian	75000	1954
26	Aypetrat	Erevan	Armenian	4000	1954
27*	Akademii Nauk SSSR	Moscow	Russian	25000	1959
28	Latgosizdat	Riga	Lettish	10000	1959
29	Chinese Edition of Literature for Children and Young People	Beijing	Chinese	5000	1960
30	Chinese Edition of Literature for Children and Young People (?)	Beijing	Chinese	9000	1960
31	Gosizdat Uzbekskoy SSR	Tashkent	Uzbek	?	1961
32*	Progress	Moscow	Vietnamese	8100	1968
33*	Detskaya Literatura	Leningrad	Russian	100000	1975
34*	Mokslas	Vilnius	Lithuanian	10000	1977
35	?	?	Japanese	?	?
36	Ural LTD (with the participation of Ural-Kniga)	Chelyabinsk	Russian	7000	2000

Notes

Publications from library and Archive of Fersman Mineralogical Museum RAS are marked by *.

Publications represented on the exhibition «Amusing Mineralogy in Stone» are marked by bold.

The «Amusing Mineralogy» of 1937 (No 11 in the table) like A.E. Fersman's favorite edition was the main source of material for the authors of the exhibition. In the introduction to this (5th) edition Fersman states that the 2nd edition was translated to German, Ukrainian (2 editions), Slovenian and Georgian. The first edition on Russian was published in March 1928, the second – in June 1929, the third – in October 1933. Both 5th and 4th editions (1934) contain differences with the 1st one: nine chapters are cut and six new chapters are included. In the text the role of mineralogy in Socialist economy is put in the forefront. There are more pictures and they are renewed. In the end of the book there is the index of scientific terms. The map of USSR with the main mineral deposits is added.

developing, with the years, from a fun to the really scientific collection: a part of it (including Crimea minerals) "was transferred to the Moscow University, another one became a part of the splendid collection of the First Popular University in Moscow" (Fersman, 1959). Therefore, the two Crimea specimens from the Museum Systematic Collection were presented at the exposition: the pinkish-grey chalcedony from the Karadag Mountain, Khoba-Tepe Range, and the cream-colored, radial laumontite aggregate (Kurtsy) as well as the specimens collected by Fersman (Dusmatov, 2003) at various times (Photo 1): in the Elba Island, Italy, – hematite and quartz crystals, in Czechia – pink natrolite (Marianska Hora) and golden carpholite (Slavkov), in the Northern Caucasus – celestine (Kislovodsk), in the Volga Region – quartz (Fomino-Gorodishche village). Besides, there was one of the two minerals named in the Alexander Evgen'evich's honor here – the fersmanite from the Apatitovaya Mountain (collected by A.N. Labuntsov in 1929 on the Kola Peninsula, Russia).

The same showcase mirrored some other sections of the first chapter: "Stone in Caves" (e.g., the gypsum from the famous Kungur Ice Cave on the Ural Western slope mentioned by A.E. Fersman in this chapter), "Stones on Bottoms of Lakes, Bogs and Seas" (the pyrite with the calcite filling the cracks in a phosphorite septarium from the Volga River banks in the Ulyanovsk vicinities, and the calcite from Imatra, Finland), "Into a Desert for the Sake of Stones" (the sulfur from the sulfur hillocks of the Karakumy Desert in Turkmenia – the specimen collected by A.E. Fersman and D.I. Shcherbakov in 1925).

A special showcase was devoted to the Khibiny and Lovozero Massifs. The Alexander Evgen'evich's description of this "mineralogical paradise" ("To the Mountains for Stones") is full with the romanticism of the North. This is, perhaps, the most poetic part of the book: "Here is menacing nature with its wild gorges



Photo 1. The specimen collected by A.E. Fersman:
a – celestine. Kislovodsk, Northern Caucasus, Russia. 3 x 7 cm. 1938. FMM No 39010;
b – hematite. Elba Island, Italy. 1913. FMM No 11425;
c – natrolite. Marianska Hora, Czechia. 1908 (collected by A.E. Fersman and E.M. Rozhanskaya). FMM No 40215;
d – carpholite. Slavkov, Czechia. 1908 (collected by A.E. Fersman and E.M. Rozhanskaya). FMM No 40206.

Photo: Michael Leybov



Photo 2. Bolshoi Vudayvr near Kirovsk in Khibiny. It is good to visit it, isn't it? (Fersman, 1937, p. 22)

and steep hundreds meters high, and bright midnight sun that lightens the snow fields of high uplands with its long rays. Here, in dark autumn night, the enchanting arctic lights shine the polar landscape of forests, lakes, and mountains with their purplish-red curtains". Besides the photographs of those times (Photos 2 and 3), including ones taken by academician Fersman himself, for example: "The team is evacuating the mineral collection by deers from Khibiny Tundras. A Lapp leads the deers, at the right is the Khibiny Tundras explorer, A.N. Labuntsov", 1925 (Fersman, 1937, p. 20), the "rarest minerals: bloody red or cherry-colored eudialites" (Lyavochorr, Khibiny, collected by the Khibiny Expedition in 1925, and other specimens as well), "lamprophyllite spangles sperkling like gold" (Iidichvumchorr, Khibiny, collected by the Khibiny Expedition of 1922, and Sengischorr, Lovozero) (Photo 4), "deep-green aegirines" (radial aggregate 16 cm in diameter from

Photo 3. The first "skyscraper" in Khibiny built by V.I. Vladavets exploration crew (Vortkeuai River valley at the Kukisvumchorr bottom). 1928.



Malyi Punkaruai, Lovozero), "goldish sphe-nes" (stellar, up to 1.5 cm in diameter, Kukisvumchorr, Khibiny, E.M. Bonshtedt collection of 1934) were flashing in the showcase. Another two specimens of this showcase, not very picturesque, though, depict this region history. One of them, ramsayite, is a mineral which can be considered a Lovozero symbol (brown crystals about 1 cm long in albite from the Flora Mountain, collected by A.N. Labuntsov in 1923). Another one is mentioned by Alexander Evgen'evich "dark red like clotted blood, neptunite", the mineral named in modern nomenclature manganneptunite (small, less than 1 cm in length, prismatic crystals of dark brown, nearly black color with analcime from Mannepakhk, Khibiny, collected by the Khibiny Expedition in 1926) – one of first numerous species discovered after that in the Khibiny Massif.

"...I never experienced such an admiration sense for the nature gorgeousness and beauty as at the Amazonite pits of Ilmeny Mountains", in such a way Alexander Evgen'evich Fersman described his feelings during his visit to the like-named mineralogical preserve in the corresponding section of the book. "The beauty of these pits is not only in the amazonite of fine bluish green color but its combinations with light grayish-smoke quartz which penetrates it in certain directions and intergrows into a beautiful pattern" (Fersman, 1937, p. 61). In the Ilmeny showcase, one could see not only "various and unique" "nature's letters" (Photo 5) but also a schorl on amazonite and microcline from the collection of those times prominent Ural prospectors G.A. Kitaev (Lobachevskaya Pit, 1912) and A.S. Yuzhakov (Mokrusha, Murzinka, 1910), tourmaline collected by V.I. Kryzhanovsky and A.E. Fersman (Mokrusha, Murzinka, 1912), phenakite on amazonite from the mentioned in the book Prince's P.A. Kochubei collection, topaz well-shaped crystals intergrowths with quartz and tourmaline (Photos 6 and 7).

"At the Window with Precious Stones" (the headline of another section of the book's first chapter and the corresponding showcase name) the spectator's attention was primarily attracted with "the fine fantastic pictures" on jasper from the famous native deposits – alike motley feathers and a "chaos of red tints" (Orsk, South Urals), foamy surf at a sand beach (Aushkul Lake, South Urals), a greenery "on the waves of a sleeping pond" (Revnevaya



Photo 4. Stellar lamprophyllite. Sengischorr, Lovozero, Russia. 13 x 9 x 6 cm, crystals from 2 to 4 cm. Collected by A.N. Labuntsov and E.E. Kostyleva. 1932. FMM No 44589.
Photo: Michael Leybov
Photo 5. Graphic granite. Shaitanka, Middle Urals, Russia. 7 cm. FMM No PDK 2919.

Mountain, Altai), a cool sunrise above mountains (Sibai, South Urals), a cinereous thunder cloud (Kalkan Lake, South Urals). Among foreign specimens, the so called oceanic jasper from the Madagascar Island should be marked that resembles the underwater iridescent world of Southern seas with its bright lacy pattern (Photo 8).

Besides the jaspers, various agates fascinated with their fine banding (Photo 9): the delicate whitish-grey one from the Chayachy Cape (North Timan), the chiselled red-grey one from Gusinoe Lake (Transbaikalia), the elegant greenish-white and the transparent honey-yellow ones from the Zeya River banks (Amur oblast'), the patterned pinkish-brown one from Chihuahua (Mexico). Among other decorative and precious stones, malachite, especially the specimen with the beautiful banding on its polished section from A.E. Fersman's collection (Photo 10), rhodonite (Sedel'nokovo Village, Middle Urals), the two labradorite specimens with well visible color reflexes (Volyn', Ukraine, and Karelia, Russia), the "bright blue, glowing with that blue fire that burns your eyes" lazurite (Badakhshan, Afghanistan), the magnificent, large topaz crystals (brown one – 7 cm,

bluish one – 11 cm high) from Ukraine (Volyn') and Transbaikalia (Urulga River, P.A. Kochubei collection, crystal 7 cm high) should be marked. "The lump of precious nephrite" (19 x 13 x 6 cm in size) from the banks of "famous Onot River in Eastern Siberia" and articles made of dark and light varieties of this stone stood out in the showcase bottom. Large amethyst crystals should be mentioned (Adui River, Middle Urals, the specimen 9 x 13 cm in size) as well as the photograph of some Ural prospectors with the freshly extracted amethysts from the Adui mine, which has been published in the A.E. Fersman's book (Photo 13). Like in the Alexander Evgen'evich's book, the section "At the Window with Precious Stones" was crowned with the "Marvelous Map of the Socialism Land" (its color photo) – a unique map of the Soviet Union made up of precious and decorative stones at the Ekaterinburg (then Sverdlovsk) plant in the late 1930s; it is now stored in the St.-Petersburg F.N. Chernyshev TsNIGR Museum.

As illustrations to the second and third chapters of "Amusing Mineralogy" – "How the Dead Nature is Built" and "The History of Stone" – there were the gypsum crystals



Photo 6. Topaz with quartz. Murzinka, Middle Urals, Russia. Topaz crystal syze is 1 cm. From V.A. Iossa collection. 1918. FMM No 10729.
Photo 7. Topaz on tourmaline. Murzinka, Sverdlovskaya oblast', Urals, Russia. Topaz crystal 3 cm. From L.I. Kryzhanovskiy's collection. 1937. FMM No 36197.
Photo: Michael Leybov



Photo 8. The jaspers from various localities:
 a – Aushkul Lake, South Urals, Russia. 18.5 x 12 cm. From V.I. Kryzhanovsky's collection. 1926. FMM No PDK 2812;
 b – Polkovnik Mountain, Orsk, Southern Urals, Russia. Stroganovs' heritage. 1919. 16 x 5.5 cm. FMM No PDK 926;
 c – "oceanic jasper". Madagascar. 17.5 x 10.5 cm. FMM No PDK 7977.

Photo 9. Agates: a – Chaichy Cape. North Timan, Russia. 13.5 x 9 cm. Collected by T.M. Pavlova. 1970.

FMM No PDK 6972;

b – Gusinoye Lake, Transbaikalia, Russia. 6 x 5 cm.

Stroganovs' heritage. 1919. FMM No PDK 952; c – Zeya River, Amur Region, Russia. 6.5 x 4 cm. FMM No PDK 6886.

Photo 10. Malachite. Nizhny Tagil, Middle Urals, Russia.

9.5 x 6 cm. From A.E. Fersman's collection. 1920.

FMM No PDK 1317.

Photo 11. Amethyst. Adui River, Middle Urals, Russia. 10 cm.

From I.N. Kryzhanovsky's collection. 1912. FMM No 22185.

Photo 12. Aragonite. Karlsbad (now Karlovy Vary), Czechia.

14 x 9 cm. From A.E. Fersman's collection. 1934.

FMM No 34976.

Photo by the authors





Photo 13. The Ural "gorshchiks" (prospectors) have discovered a giant hollow on the Adui River with amethyst crystals which were transferred afterwards to the Mineralogical Museum of the Academy of Sciences. 1926. (Fersman, 1937, p. 109).

Photo 14. A.N. Labuntsov and A.E. Fersman in Khibiny in 1920s.

(from Polivy Village, Central Volga Region) similar to the ones used by Fersman for the photograph in the section "A Crystal and its Properties", artificial crystals of copper vitriol (having been grown in domestic condition in accordance with the section recommendations) as well as the model of the quartz crystal lattice and splendid crystals of this mineral – the rock crystal druse from Dauphin, France, and the amethyst sceptre from mentioned Adui mine (Photo 11). Another specimen from the Alexander Evgen'evich's collection, aragonite from Czechia (Photo 12), was displayed here too. A few historical photographs from the Mineralogical Museum archive illustrated some of Academician Fersman's expeditions: "Transbaikalia. Waiting for a train. A.E. Fersman is to the right" and others (Photos 14 – 16).

The fourth chapter, "**Precious and Technical Stone**", was presented with quartz in the exhibition: excellent rock crystals to 10 or 13 cm long (Tessin, Switzerland) and specimens of various colored synthetic quartz grown in the All-Russian Research Institute for Synthesis of Mineral Raw Materials (Alexandrov). Another widely used mineral, corundum, was also displayed here: small transparent blue crystals (Sri Lanka, one of the specimens from the G.P. Chernik collection, 1909, see Mokhova and Generalov, 2007), pink and yellow crystals (both Sri Lanka, from P.A. Kochubei collection, 1913) as well as the dark blue, star variety of this mineral from Australia and the bright crimson crystal collected in the South Urals by Academician Fersman (Photo 17). Besides, there were small (up to 1 or 2 mm in size) diamond crystals, which have

Photo 15. Steamer on the Selenga River (Western Transbaikalia, Russia). A.E. Fersman photo (1915–1916).

Photo 16. After the [Karakumy] motor rally of 1929 [in the Charjou airdrome] at the airplane – A.E. Fersman and the rally commodore B.A. Bogushevsky (Fersman, 1959, p. 271).





Photo 17. Corundum. Kamenska River, Southern Urals. 2 cm. Collected by A.E. Fersman in 1926. FMM No 25379. Photo by the authors.

Photo 18. Quartz. Berezovsky Zavod, Middle Urals, Russia. 11.5 cm. From L.I. Kryzhanovsky's collection, 1912. FMM No 21149. Photo: Michael Leybov.



been made on the high pressure device in the Cologne University (Germany).

The showcase "**The Curiosities in the World of Stone**" (the book fifth chapter) was the most saturated with mineralogical rarities and especially engaging. Here, in the section of "*Giant Crystals*", one could see minerals that occur in nature as crystals "of still more colossal sizes" than those that, according A.E. Fersman, impress with their sizes in great museums: the muscovite (Chupa, Karelia, 25 cm crystal), amazonite (Ilmeny Mountains, Urals) and microcline (Klein Spitzkopie, Namibia) as representatives of feldspars which "crystallize from melted masses as homogenous crystals of so big dimensions that entire quarry works for a single crystal (Fersman, 1937, p. 121), aquamarine crystals (Sherlovaya Gora, Transbaikalia, 9–11 cm long), gypsum (Sicily, Italy, 15 cm long). Another mineral that forms giant crystals – quartz, was presented with unusual twisted individuals (Puiva, Subpolar Urals, and Beryozovsky Zavod, Middle Urals), excellently faceted smoky variety (Tavetsch, Switzerland, crystal 8 by 5 cm in size) and the amazing boxy intergrowth of two crystals (Photo 18).

There were two pictures of aquamarine gigantic crystals in this showcase. One of them weighing 100 kg was found in Brazil. Then it was cut into numerous small pieces which saturated the aquamarine market during three years (Fersman, 1937, p. 120, 122). The other crystal, 1.5 m long, was discovered in the pegmatites of Tigeretskie Belki, Altai, and transferred to the St.-Petersburg Mining Museum. The color images of the quartz giant crystals in the "Earth and Men" Museum (Sophia, Bulgaria), the photograph of a large fluorite druse

from Kuli-Kolon in Fanskie Gory (Zeravshan Range, Tadjikistan), which was later placed in the main show-hall of the Fersman Mineralogical Museum, as well as the famous historical photograph, "Transportation of orletz (47 tons rhodonite lump) into the yard of Ekaterinburg lapidary plant from the deposit at the Shabry Village in the Urals" (Fersman, 1937, p. 123), illustrated this section too.

The next section of "Curiosities", "*Stones and Plants*", included magnificent moss agates (Photo 19) with separate "branches" and entire landscape pictures consisting of manganese and iron oxides and hydroxides (Pstan, Kazakhstan) or with pictures resembling thickets of bluish-green seaweeds (Arizona, USA), the small polished plate of Ural rhodonite with a sole black "arboret" (Photo 20), dendritic jasper (Khair-Kumir, Altai) as well as the "genuine petrified plant" – a part of tree trunk replaced with chalcedony (Kamchatka, specimen 14 cm height, 10 cm in diameter) and the amber, petrified resin "from the sands of Baltic coast". One could see, in the same showcase, the stony roses – gypsum (Doskino, Oka River) and hematite (Fibia, Switzerland) and "iron flowers" – "branchy snow white mass of delicate tangles of thin stemlets" (Fersman, 1937, p. 124–125) – aragonite from Austria (Photo 21), and the asteriated quartz alike white daisies (Straznik, Czechia), and the sceptre quartz resembling a mushroom (Borovoye vicinities, Kazakhstan). Among the illustrations, the Alexander Evgen'evich Fersman's photograph should be mentioned: "A gypsum rose of giant size in the quarry near Krasnovodsk, Caspian Sea" (1929) that was also repro-

duced in according section of his book (Fersman, 1937, p. 126).

"About the Color of Stone" (another section of "Curiosities") a variety of brightly colored minerals narrated: the "azure blue" lazurite "with the fine pattern of grey and white spots (Malaya Bystraya River, Baikal Region), emerald-green smithsonite (Tsumeb, S.-W. Africa), crimson rhodochrosite (Argentina), greenish-blue amazonite (Pikes Peak, Colorado, USA) and the wonderful white and foxy chalcedony with black spots from Yakutia (Photo 22).

The two other sections of "Curiosities", "Platy Stones" and "Fibrous Stones" were presented, with the orpiment (Menkyule, Yakutia) and chrysotile asbestos (Tatford Mine, Quebec, Canada) accordingly; next to the latter, an asbestos cord was also placed as well as photograph original "A vein of dark serpentine with the veinlets of fibrous asbestos from Asbestos mines of Middle Urals" from the book corresponding section (Fersman, 1937, p. 138). Another interesting exhibit of this part was the "fine-fibrous gypsum of delicate pink color from the Kungur vicinities in

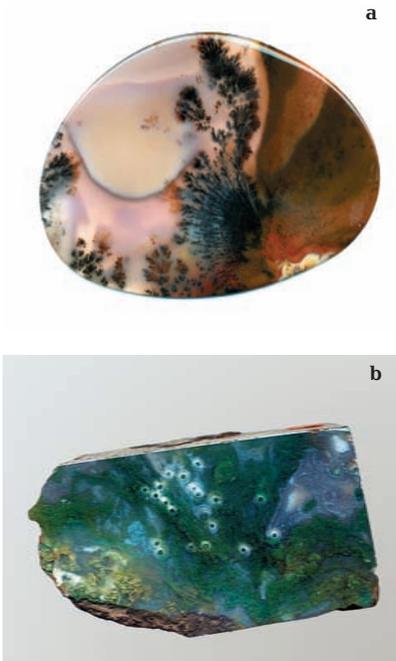


Photo 19. Moss agates:

a – Pstan, Kazakhstan. 10 x 8 cm. FMM No PDK 7968;

b – Arizona, USA. 10 x 5.5 cm. FMM No PDK 4244. Photo by the authors.

Photo 20. Rhodonite. M. Sedel'nikovovo village, Middle Urals, Russia. 4 x 2 cm.

Stroganovs' heritage. 1919. FMM No PDK 1148. Photo by the authors.

Photo 21. Aragonite. Eisenerz, Steiermark, Austria. 9 x 5 cm. From Shenshin's collection. FMM No 6484. Photo: Michael Leybov.

Photo 22. Chalcedony. Muustakh, Yakutia, Russia. 12.5 x 8 cm. FMM No 87926. Photo by the authors.





Photo 23. The mining of rare earth valuable ore [lovchorrite] on the Yukspor slopes in Khibiny. The steep height is 300 m. To get the mine working is only possible from above by the ladder. 1935 (Fersman, 1937, p. 202). [A.E. Fersman is on the ladder top.]

Photo 24. A.E. Fersman. Tyuya-Muyun vicinities, South Kirgizia. 1925.

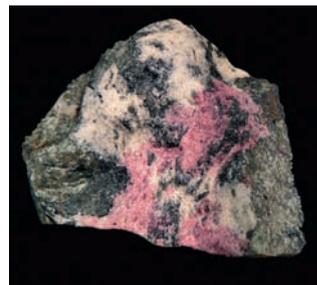
Photo 25. Conglomeratic marble. Knorinskoye Deposit, Primorye. 17 x 13 cm. FMM No PDK 4808. Photo by the authors.

Photo 26. Diorite. Corsica. 13 x 9.5 cm. FMM No 1922. Photo by the authors.

Photo 27. Eudyalite with apatite and nepheline. Kukisvumchorr, Khibiny, Russia. 10 x 9 x 5 cm. FMM No 53292. Photo by the authors.

Photo 28. Barite. Tyuya-Muyun. South Kirghizia. 10 x 9.5 x 4 cm. FMM No 59142. Photo: Michael Leybov.

Photo 29. Magnetite. Kachkanar Mountain, Middle Urals, Russia. 7 x 6 x 5 cm. From I.N. Kryzhanovskiy's collection. 1912. FMM No 23916. Photo: Michael Leybov.



Urals", which was exactly the same specimen that had been photographed as an illustration for the "Amusing Mineralogy" (Fersman, 1937, p. 130) and could be referred both "Fibrous Stones" and the section "About the Color of Stone" (like Alexander Evgen'evich did).

The last section of "Curiosities" at the exhibition (there are more of them in the book), "The Stones in a Living Organism", was presented with the "most remarkable "stone" substance" (Fersman, 1937, p. 142) – a shell with a pearl on its valve and red coral (both from private collections).

"Stone in Human's Service" (the sixth chapter of "Amusing Mineralogy") was shown with a range of historical photographs (including those placed in the book) where various moments of mining, processing and prospection of mineral resources have been imprinted, for instance, "Basalt columns in quarries of N. Bohemia in Czechoslovakia. Photo by acad. A.E. Fersman, 1936" (Fersman, 1937, p. 157), "Granite monoliths processed on the deposit for the columns of St. Isaac Cathedral", "A worker chops up pavement stones from basalt column with a crafty blow of sledge-hammer. Photo by acad. A.E. Fersman, Czechoslovakia, 1936", (Fersman, 1937, p. 158); "Transfer of apatite in Kirovsk (first autotrucks). Winter of 1930", "At the chromite mine of Bol'shoi Boshart during the motor rally in the Southern Urals. August 1935. Above: G.A. Sokolov, A.E. Fers-



Photo 30. The exhibits of showcase "Mineralogist-Amateur": museum labels (upper-wadeite, 1980s, lower – limonite, written by A.E. Fersman in 1908), quartz (Middle Urals, Russia, from I.N. Kryzhanovsky's collection. FMM No 22194). Photo by the authors.

man. Below: V.I. Kryzhanovsky, N.P. Pavlov" etc. (Photos 23, 24).

The color drawing "Moscow Metro. Kom-somol'skaya Station with columns of Crimea and Caucasus mottled marbles", which was in the section "Stone in Big Town" of the book first chapter (Fersman, 1937, p. 58), and the suit of polished plates of marbles from well-known deposits of Italy (in particular, pea green from Verona vicinities and white from Carrara), of Russia (Photo 25), and of China, as well as famous red Altai (Korgon) porphyry and diorite from Corsica with amazing green pattern (Photo 26) were also quite proper in

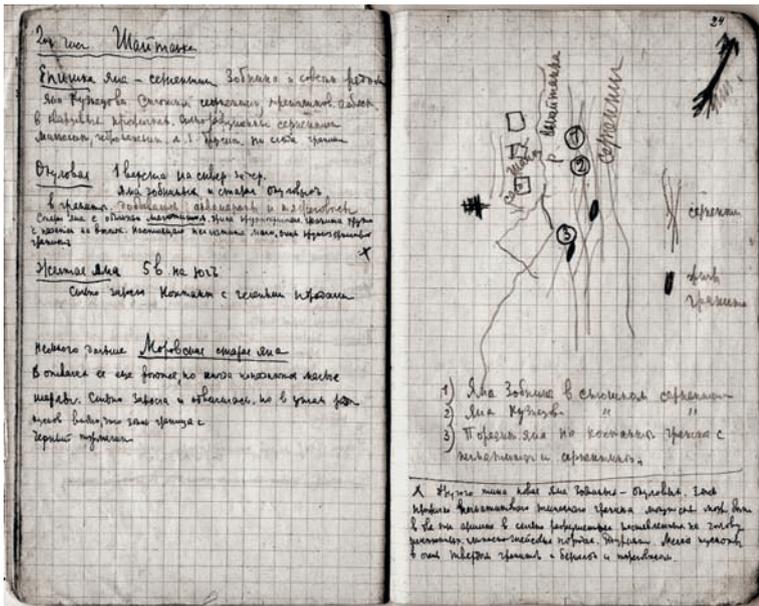


Photo 31. A page from A.E. Fersman's notebook and museum's label of the tourmaline collected by A.E. Fersman and V.I. Kryzhanovsky (right and back sides). Urals, 1912. Photo by the authors.



Photo 32. Different editions of "Amusing Mineralogy".
Photo by the authors.

the showcase "Stone in Human's Service" where they combined with some other minerals of use: Khibiny apatite and eudyalite with nepheline (Photo 27), halite from the Artemovsk Deposit (Ukraine), barite from Tyuya-Muyun (Photo 28), phosphorite from Kamenets-Podol'sky (Ukraine) and magnetite from Kochkanar (Photo 29).

The last showcase was titled, like the book chapter, "**Mineralogist-Amateur**" and included sections "How to collect minerals", "How to identify minerals", "How a mineral collection should be composed and stored". It contained museum labels of various times from the epoch of the Peter the Great Geological Museum of Imperial Academy of Sciences of early 1900s to their contemporary types including ones written with Alexander Evgen'evich Fersman's own hand, his hammer, blowpipe to identify minerals, his log-book and notebook from the Museum archive (Photos 30, 31). Among the specimens there were unusual short-prismatic vesuvianite crystals (Yulia Mine, Khakassia, Siberia, 3–4 cm in size), hematite crystal (Shabry, Middle Urals, 4 cm in size), red with green jasper (Kushkuldinskoye Deposit, South Urals), lilac calcite (Harz, Germany) and perovskite crystals (1–3 cm in size) in valuevite (Yeremeevskaya Pit, South Urals).

The exposition was consummated with "Amusing Mineralogy" different edition (Photo 32) and the two exhibits which photos were in the last chapter of the book. They are the two antipodes: white swan – "Manufactured by the craftsmen of Kungur Region in the Western Urals. Material is massive white, grey or venied gypsum (alabaster) which can be easily processed due to its softness "

(Fersman, 1937, p. 206), and black "Devil of Kasli work in the Urals that decorated automobiles of the first in the Soviet Union scientific motor rally in the Southern Urals in 1935" (ibid, p. 238).

It remains to emphasize that the authors used, to create this exhibition, more than 150 specimens of minerals and decorative stones, more than 50 photographs, drawings, A.E. Fersman's personal items etc.). So, we believe, the described jubilee exhibition for the first time amply demonstrated in stone the contents and basic ideas of academician A.E. Fersman presented in his book "Amusing Mineralogy". This is surely interesting not only for specialists but also to wide range of stone amateurs, students, schoolchildren and other visitors to the Mineralogical Museum.

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