

MOSAICS IN THE COLLECTION OF THE FERSMAN MINERALOGICAL MUSEUM RAS

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The Fersman Mineralogical Museum RAS possesses a collection of mosaics of different styles dated from the 18th to the 20th century. A description of the exhibits and information on the history of the creation and the artists of some of them is provided.

22 photos and 15 references.

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Mosaic is one of the most common examples of ornamental arts and crafts. They are usually made from multi-colored pieces of a hard material placed to form a design, tightly matching each others outlines and fixed with an adhesive to the common base.

Mosaic can be made out of various materials: wood, leather and so on. Most people think of them as a flat image made of stone or colored opaque glass. There are two types of mosaics according to their method of assembly *composite* and *tabular or opus sectile* type.

The first is called *composite* and is assembled from tesserae cubes or short columns of similar size and mostly square in cross-section. This kind of mosaic can be of Roman (or classic) and Byzantine style. The first (Roman) style was used during the time of the rise of the Roman Empire and was usually made with natural stone. The Byzantine style is younger and was usually composed of pieces of colored glass. There are also two basic techniques for the setting of the composite mosaic: direct, and indirect (or Venetian). The direct setting is done by placing tesserae into the cement or putty while the indirect technique is done by gluing the faces of the mosaic onto a paper or a cloth base, then transferring it onto the surface of the piece of art covered with cement and removing the paper or cloth after the cement has set.

The second type of mosaic is the *tabular or opus sectile* type. It is assembled from stone plates of different color, and/or texture, that are cut according to the design. This is also called Florentine for the place where it was the most popular.

There is also a *Russian* sub-type which is found in the *opus sectile* category. Its charac-

teristic feature is the stressing of the natural pattern of the stone rather than having an artistic design. Sometimes general view made more sophisticated due duplication of existing natural stone patterns. The artistic aim of this mosaic is to mimic the texture of a massive natural stone. Flat surfaces are covered with this type of mosaic as well as complex three dimensional shapes. The bases for such complex art forms were made from a soft stone carved with a lathe. They used Pudozh or Putilov limestone for the bases of large carved malachite pieces like vases at the Peterhof Lapidary Factory, where, for the most part, the big malachite masterpieces were made (Fersman, 1961, vol. 2, p. 208). Very big art forms could have a metal base. This type of mosaic was developed to its apex in Russia in the 19th century, therefore it is called Russian mosaic. This technique was also used to make objects from lapis lazuli, banded jasper, agate.

There are also objets d'art made of combined pieces of small sculptures carved from different colored stones. This type of mosaic is called relief or three-dimensional mosaic. This technique was developed and was popular among artists from the Urals in the middle of the 19th century and it was also applied later at Emperor Lapidary Factories.

Mosaic is an ancient art form that was developed during the last several thousands of years. It is possible that this art form could have been invented in prehistoric times, when primitive men attracted to the beauty of colored pebbles made simple ornaments with them.

The Mosaic column from Ur dated 2600 – 2400 BC was discovered during archaeological excavations in Mesopotamia (now at

the British museum in London). It is decorated with mosaic of shells and lapis lazuli. Also, they discovered mosaic floors at Ur decorated with terracotta wedges made of clays of different colors.

Small household goods from ancient Egypt were decorated with pieces of colored stones. The throne and the wooden table decorated with mosaic of precious colored stones dated 1355–1337 BC were found in the Tutankhamen's tomb.

Supposedly mosaic was mentioned in the Bible in the book of Esther. The feast in the gardens of the Persian king Artaxerxes, who ruled in the period 465–424 BC, was held on a deck paved with green stones, marble, mother of the pearl and black stones.

This form of decorative art migrated from the countries of the Middle East to Greece and developed into a very complex art. The most ancient classic mosaics, dated from the 7–6th centuries BC, were pavements made with river and sea pebbles, so called *opus barbaricum (latin)* and were found in the temples of Artemis in Sparta and the sanctuary of Athena Pronaia in Delphi. Attempts to imitate paintings with mosaic took place starting from the 6th century BC. Existing techniques were not good for that purpose. So, *opus tessellatum (latin)*, a technique that used rectangular pieces of broken pebble, occurred all over the Mediterranean from the 3rd century BC and then throughout all the Greco-Roman territories. Soon tesserae decreased significantly in size and their shapes became more complex, which allowed enhanced artistic effect in the *opus vermiculatum (latin)*. It is believed that then artists started to use pieces of colored glass-like slag along with colored stones.

Opus sectile was another type of mosaic technique which used thin plates of stone cut to a certain shape to fit into the ornament to decorate walls. It was widely used in Alexandria and thus has the name Alexandrian mosaic. It was the most expensive technique. It developed into what now is known as Florentine mosaic widely used in the Renaissance Italy.

The Romans inherited Greek culture and used mosaics widely in the decoration of

floors and walls in secular buildings, palaces and houses of the rich. This art also appears in all conquered territories of the Roman time. Beautiful masterpieces were preserved in Pompeii and Herculaneum, Italy from the 4th century BC to the 1st century AD, in Atania, Syria from the 3rd and the 4th centuries, in Madaba, Jordan from the 4th century AD, and in other territories of the Empire.

Christianity followed paganism but used mosaics for different purposes. It was used to depict religious scenes on the walls of churches. The content of mosaic used on walls and apses of churches were determined (established) by the 5th century.

Direct tesserae mosaic and *opus sectile* were both used in the Eastern parts of the Roman Empire. Natural stone tesserae mosaic was used both for walls and floors. For face images on the walls, they used indirect *opus sectile* made of glass cubes and sometimes natural stone. Complex ornaments and scenes were made this way.

Masters of Roman and Byzantine Christian mosaic art used different methods of gaining expression. Mosaic was used in place of fresco and mural paintings in the Medieval West. Artists were forced to increase the color palette of the glass to match mosaics to paintings. Byzantine mosaic, to the contrary, used fewer colors and had contrasting colors close together. Because the pictures were observed from a distance, the contrast was hidden and it created more vivid impression. For the same reason, images usually had golden and less frequently blue background on Byzantine mosaic.

Roman mosaic art was in its decline while the Byzantine flourished in the 6th and 7th century. Greek masters of the art traveled to Italy in the 10th century and restored mosaic culture which had almost been lost in the country. Mosaics were used in the decoration of Italian cathedrals until the end of the 14th century.

Paintings replaced mosaics in the building decoration of the Renaissance. Mosaicists, who used to copy fresco brushwork, were forced to mimic paintings in their work and copy masterpieces. Some painters started to make mosaics to completely mimic paintings with it.

A mosaic workshop was established at the Vatican in Rome as early as the beginning of the 17th century. Its main aim was solely the copying of the painting works of the great masters. They developed a palette of 28,000 colors of glass to render painting colors more precisely. Smaller studios worked along with individual mosaicists in that time.

Mosaic art was cultivated in Venice and Florence as well as in Rome. It was in Florence that *opus sectile* was developed in the 16th century and that is why the technique was named after the city. Front panels of cathedrals, tabletops and small artifacts with floral ornaments, and images of flowers and animals made of soft and hard natural stones were produced there.

Mosaic art had no such wide development in other European countries. Workshops appeared in various countries from time to time but they did not leave a significant impact in the history of the art.

Mosaics came to Russia from Byzantine following the acceptance of Christianity. The magnificent monument of that time was St. Sophia Cathedral in Kiev built in the 11th century by Yaroslav the Wise. The giant image of Theotokos on a golden background and some smaller fragments of ancient mosaic are preserved in the cathedral.

Production of colored glass was unknown in Russia and it was imported from overseas. Mosaics were not common because the materials and the work of foreign masters were very expensive. It was a forgotten art until the 18th century when Mikhail V. Lomonosov revealed an interest in it. He developed methods of casting and polishing colored glass and created his own technique of assembly. There was a special factory built on the outskirts of Saint Petersburg and they started to train specialists. The first works had been made by M.V. Lomonosov himself. "Poltava battle", the only monumental mosaic of the 18th century, started a whole new genre of historical imaging in Russian art. These works did not find support and monumental *opus sectile* (indirect mosaic) was forgotten for a century after Lomonosov's death in 1765.

Interest in the Roman mosaics revived in Russia at the beginning of the 19th century. It

was driven by the desire to use lasting mosaics in the decoration of St. Isaac's cathedral instead of paintings that would easily deteriorate in the humid climate of Saint Petersburg. The Emperor Mosaic Institution was established especially for this purpose in Saint Petersburg in 1847. Professor V. Raffaely and his brother Pietro came from Italy to supervise development of the colored glass manufacture the following year. Because there were no mosaicists of adequate standards, a temporary mosaic workshop under the lead of master Professor M. Barbery was established in Rome to educate and train Russian artists. Four Russian scholarship artist students of The Emperor Academy of Arts: E.V. Rayev, I.S. Shapovalov, S.T. Fedorov and landscape artist E.G. Solntsev were commissioned to the workshop. They had to master the direct mosaic technique that allowed making the closest match of the original painting. They returned to Saint Petersburg upon finishing their study in 1851. The Emperor Mosaic Institution had been established and there were trained mosaicists by that time (Kuteynikova, 2005, p. 400).

The scholarship students came back to Saint Petersburg accompanied by their teachers J. and L. Bonafede. Their work on mosaics boosted development of Russian direct mosaic which was noted at international art exhibitions starting from the 1860s.

Outstanding mosaic images were also made by masters from the A.A. Frolov private workshop for the cathedral of the Ascension of Christ (Saviour on the Blood) in Saint Petersburg at the end of the 19th century. Frolovs' workshop also decorated civil buildings as well as churches. It was a new step monumental ornamental art in Russian. While the development monumental ornamental art in Russian had its ups and downs, the Florentine mosaic had very gradual and continuous growth. Florentine mosaics started to be made in the time of Empress Elisabeth under the guidance of Italian artist Jacob Martini (Mavrodina, 2007, p. 28). The first Florentine mosaic works produced at Peterhof Lapidary Factory were dated to the 1750s and continued being made until the end of the 19th century.

Mosaic tables and columns made of agate, lapis lazuli and other stones were known from the 1760–1770s. Those rare pieces preserved from that time (dated 1763) were decorated only with carved ornaments, and are not perfectly mastered (Mavrodina, 2007).

The Florentine mosaic in Russia had a big boost in the middle of the 19th century after lapidary master I.V. Sokolov was commissioned to the workshop of Gaetano Biankin in Florence, Italy at the same time as the above mentioned artists. He was sent to master skills in different mosaic technique including glued (lapis lazuli and malachite) and Florentine mosaics, to study how Italian mosaic manufactures were equipped; and what tools and materials were used for mosaic manufacturing and get “the newest” mosaic patterns (Mavrodina, 2007, p. 36, 37).

After I.V. Sokolov returned to Russia, Peterhof Lapidary Factory began to produce mosaic art of very high quality, which attracted attention at international exhibitions.

Emperor Ekaterinburg Lapidary Factory produced pieces of art of high standard. The mosaic map of France was made of various ornamental, precious stones and metals at the factory and had great success at the exhibition in Paris in 1900. This map was a gift to France and was placed in the Louvre after the exhibition (Mostovenko, 2001, pp. 51–54).

The most famous of the Russian mosaicists works are ones of malachite and lapis lazuli. Malachite was used in various ways. At first, it was used as a bright mineral for the Florentine mosaic (*opus sectile*). Secondly, it was used as a mineral with unique texture to cover big surfaces with small plates of it to obtain the illusion of a massive material. This technique was called the Russian mosaic.

Malachite was first introduced for the interior decoration of the Mikhailovskiy Palace in the late 18th and the beginning of the 19th century. It was used as individual slabs embedded in marble.

Russia became the world center for malachite lapidary processing in the 1820s. This type of mosaic art had its peak in the 1830–1850s. Many workshops produced boxes, snuffboxes, candle holders, and other small items. However, only the work of

Ekaterinburg and Peterhof Lapidary Factories brought international fame to Russian malachite items. Giant columns, vases, tables, chandeliers, fireplaces and clocks were manufactured there along with the items mentioned above. It was in those items that the difference between Russian and European masters was clearly shown. It was not only in the size of the things but mainly in the complexity of their shapes and ornament that was much more intricate than natural.

The natural variety of the material textures allowed artists to develop several techniques of assembling malachite slabs on the base in order to form different patterns from simple banded to complex scalloped. These were the five most common assembly methods: 1) “crumpled velvet” assembly with adjacent plates of different in color or palette made an illusion of crumpled cloth of deep green color. The ornament of the stone pieces did not matter; 2) “banded” or “striated” using pieces with parallel banding and different colors; 3) “radial” or “oculate”, sometimes such buds were placed in banded pattern; 4) “on two sides”; and 5) “on four sides”. The last two types were made by placing plates with repetitive ornament symmetrically to one or several crossed planes.

Big lapidary items cost immense sums and their production ceased by the end of the 19th century first with Ekaterinburg Lapidary Factory in 1858 and followed by Peterhof Lapidary Factory.

Popularity of malachite was replaced by lapis lazuli in the 1860s. Lapis lazuli came from Badakhshan deposits and the Baikal region. Items of various sizes from miniature to gigantic were made in glued technique of the Russian mosaic at Peterhof Lapidary Factory. Jasper and rhodonite were also used in items created with such a technique but in much smaller quantities.

The Mosaic workshop at the Academy of Arts was closed in 1918 due to the reorganization of the Academy. The unique world-known collection of smalt containing up to 17,000 shades of colors was destroyed in the process of closing the workshop. Nevertheless, soon it became clear that monumental ornamental art could not fully achieve its de-

corative aim without using mosaics. The project of creating The Russian Institute of Mosaic, Enamel, Decorative Window Panes and Glass was developed at the Academy of Arts in the 1920s. Soon after, mosaics reappeared in the decoration of public buildings: subway stations, conference halls, theaters and so on.

The unique 25 square meter map of the Soviet Union was created at Ekaterinburg Lapidary Factory in 1937 in the Florentine mosaic technique. It was introduced at the Paris and the New York Art Exhibitions in 1937 and 1939.

Russian mosaic art is undergoing a period of transformation at the break of the 21st century. The significance of mosaics in the restoration and construction of churches as well as in the decoration of private houses continues to grow. It is used in the decoration of facades as well as the interior. Private workshops have appeared to satisfy the expectations of amateurs as well as experts. They make monumental works for state projects (subway stations) and churches as well as small items like tabletops, portraits, icons, panels and other. They have started to use ceramics and glass tile along with traditional glass and natural stone.

The Fersman Mineralogical Museum RAS has a small but peculiar collection of mosaic art dated from the 18th to the 20th century. There are some exceptional items among common ones in the collection which were made in Russia and abroad.

The oldest item in the Museum is a pyramidal obelisk decorated with *Roman style* mosaic. It is a collection of all known colored stones from the Urals and made at Ekaterinburg Lapidary Factory. The stone slabs of agate, chalcedony, quartz, amazonite and various jaspers are placed onto the sides of the tall four-sided pyramid. The pyramid rests on four chalcedony spheres and a base. The sides and the top of the base are decorated by the same stones and the bottom part is made of coarse-grained granite. The base and pyramid are gilded in some parts. It was initially supposed been made at the Peterhof Lapidary Factory dated back to 1725, according to the inventory of the Museum.

Nevertheless, it was found later that there are numbers engraved on the gilded plates on each stone, which correspond to the numbers of deposits of colored stones in the Urals written in the "General Description of Minerals" of the Urals from 1792 – 1796 (Semenov, 2001, p. 44). So, according to the investigation of V.B. Semenov and N.I. Timofeyev, the pyramid can be dated to the same period from 1794 to 1799.

Collections of polished colored stones became popular in Russia starting in the 1780s when the popularity of mineralogy was highly recognized at the Court. Such a collection was made for Katherine the Second in 1786 and already had a pyramidal shape. There were other popular shapes along with a pyramidal obelisk: grottoes, fountains, and other intricate compositions. There are only a few collections that have survived and they have immense historical value (Chistyakova, 2007, p. 102).

The small panel of 21x14 cm depicting a white cross on a black background framed with ornament is a more recent item, but is also of high historical value. The panel is not skillfully made: the pieces are not placed evenly to each other and the seams are filled with mastic. It is not the skill of the artist, but the text that is engraved on the back of its copper base that makes it valuable. The text says: "*By the will of the Prince Emperor Nikolay Pavlovich and by the petition of the Prince Grigoriy Petrovich Volkonskiy the Russian Mosaic School was found in Rome. Vasilij Rayev and Ivan Shipovalov were its first students. This Cross was their first work and had been started by Rayev on June 6, 1847*". Vasilij Egorovich Rayev was a well known landscape and historical painter, who, with other scholarship students of the Academy of Arts, was commissioned to Rome.

Such scholars' works rarely survived their artists and can be found in collections. This item came to the Mineralogical Museum from the collection of Gatchina and Stroganov's palaces and was mentioned in the common inventory of the museums (the State Hermitage archives. Fund 4, vol. 2, list 14, file 192). It is difficult to say where it was stored. Nevertheless, although it has no artistic value, it tells us about important

efforts made in the training of Russian mosaicists who later decorated St. Isaac's cathedral (Chistyakova, 2005, p. 144).

The Museum has a paperweight with mosaics from Stroganov's heritage collection. It represents an original collection of the most common hard ornamental stones from the Urals. The mosaic was made in the technique of the Roman mosaic with triangular and rhomboidal tesserae that emphasize its beauty. There is eight-point star made of rhomboidal pieces of grayish-green Kalkan jasper with a bright pink rhodonite outline. The background is made with rectangular pieces of various jaspers, jasper agate, aventurine and quartz. This multicolored composition has a frame of malachite, the only soft stone from the Urals presented in the item. The press came to the Museum in 1919 with a big collection from the Stroganov's palace. The name of the workshop where it was made is unknown. Based on the stones used, we suppose, that it was a one from the Urals (Chistyakova, 2007, p. 107).

There is a bigger item, a tabletop of white and patchy marble with a black frame, in the Museum that also represents the Roman technique (photo 1). The origin of it is unknown. It appeared in the Museum in the 1920s at the time when the property of many prominent Russian families was nationalized. The method of assembly and possibly Italian marble used for the tabletop do not help to determine the place where it was made. Italian marble was widely used by Russian mosaicists. The Peterhof Lapidary Factory produced simi-

lar tabletops starting from the beginning of the 1800s.

The same technique was used in the very beautiful chess board made of black and patchy Mexican marble (photo 2). The use of the stone from overseas makes us suggest that the board was made in Europe, possibly in a private workshop. Chess boards were not on the list of items produced at the Peterhof Lapidary Factory, and the manufacture in Ekaterinburg used only marble from the Urals.

Another item made in the manner of the Roman mosaic is an Italian clock made in the early 19th century (photo 3). It represents a triumphal arch assembled from various colored stones: marble, lapis lazuli, malachite, labradorite and porphyry. The round clock is at its top along with the bronze decoration. The precise description of the clock and theories of how it ended up in Russia were published in this magazine in 2005 (Chistyakova, 2005, p. 142). Here we direct your attention to two small mosaic panels and the columns of the arch. The panels were made by outstanding Italian mosaicist Giacomo Raffaelli (1753 – 1836), who was invited by Alexander the First to Russia to organize production of colored glass and a mosaic workshop in the early 1800s. The visit did not take place then because the conditions set by the artist were considered immoderate (Mavrodina, 1999). Nevertheless, he was not forgotten in Russia and became a counselor of the Russian Emperor abroad in 1815. G. Raffaelli invented a method of production and shaping of very small pieces of colored smalt by stretching



Photo 1. Tabletop (marble), 100x60 cm. Inventory from 1927, FMM No PDK-2717, the source is unknown. Photo: from Fersman Mineralogical Museum RAS archive.



Photo 2. Chess board (Mexican and possibly Italian marble), 40x40 cm. Came from the KEPS um 1925, FMM No PDK-2593. Photo: from Fersman Mineralogical Museum RAS archive.



Photo 3. Clock (marble, malachite, lapis lazuli, labradorite, porphyry, colored glass, gilded bronze), height is 83 cm. Mosaicist G. Raffaelli, Milan, 1814. Came from the State Hermitage in 1926. FMM No PDK-1712. Photo: Michael Leybov.

them in fire. It allowed making very detailed mosaics that simulated painting.

This method of miniature mosaic was used in the decoration of the small mosaic panels on the walls of the arch. They depict suits of armor with a shield featuring the Medusa Gorgon's head the symbol of invincibility. Another agate shield with the Gorgon's head is placed on the top of the clock among with other decoration. Small colored glass tesserae are arranged so artistically that the image looks three dimensional.

The clock of this particular style was so popular that the item from the Museum appeared to be a third copy of the original clock made by G. Raffaelli in 1801, part of which is preserved in the Hermitage. The second copy of the clock was made by Raffaelli in 1804 and was presented by the Pope Pius VII to Napoleon for his coronation. The third copy of the clock has an inscription on the reverse side of the clock says "*Raffaelli Fece Milano 1814*" suggesting that it was made in Milan in 1814, while the first and the second were made in the Vatican workshop.

It is important to note that Raffaelli used the facing technique in the decoration of the columns supporting the entablature of the arch. He artistically glued thin slabs of malachite, rare in Europe then, in the way that later started to be called "the Russian mosaic".

In spite of the fame of Raffaelli, there is no information in the Museum on the owner of this item or its location from 1814 to 1926. We managed to learn that after the item was finished in 1814 it was shown at the annual exhibition in the Palace of Arts and Science in Palazzo Brera in Milan (M. Alfieri, 2000, p. 263). There is a note that the columns of the clock were made of malachite which confirms that it was the item from our Museum. The clock made in 1801 had jasper and agate columns and the one made in 1804 had amethyst columns.

The Florentine mosaic style is better represented in the Museum than the Roman one. There are small marble plaques that are the earliest items of this type in the collection. We omit their description here because a special article is going to be published.



Photo 4. Cabinet (amboyna wood) with the mosaic panels (marble, lazuli, jasper, labradorite, amazonite, tigers eye, cacholong, pink opal and other stones), height is 160 cm. Peterhof Lapidary Factory, 1885–1888. Came to the Museum from the Laboratory of Stone of the Ministry of Building Materials of the USSR in 1962. FMM No PDK-5381. Photo: Michael Kalamkarov.

There is a unique cabinet in the Museum made at the Emperor Peterhof Lapidary Factory. It came to the Museum from the Laboratory of Stone at the Ministry of Building Materials of the USSR in 1962. The item is a double door cabinet on top of a table with a small drawer and four legs with a board for the feet (photo 4).

The cabinet was made of the precious unique amboyna wood from Indonesia or, the other source, from the rain forest of South America, and is decorated with gilded bronze. There are panels of Florentine mosaic made of colored stones on its doors and the drawer. The upper board is made from griot, a red marble.

The history of the creation of the cabinet is related to one of the other two similar items placed in the State Hermitage. The research on the subject had been carried out recently

and revealed the following history (Mavrodina, 2007, p. 141 – 157).

Emperor Peterhof Lapidary Factory purchased a single-door red wood cabinet with bronze decoration from Henry Dasson, a Parisian industrialist (Henry Dasson & Co). Dasson supplied the drawings of mosaics that were to be put on the door and the side walls of the cupboard. They planned to decorate the door with the mosaic "Tropical forest on white background" and the walls with the mosaic "Tropical forest with parrots on blue background". In the course of intermittent work from 1885 to 1893, they decided to use the mosaics with blue background in the double-door sycamore cabinet made for the order of Empress Maria Fedorovna in 1887. That cabinet and a similar one of amboyna were made by Saint Petersburg cabinet maker A.V. Shutov. Gold and brass master A.Ya. Sokolov did the

metal work for the cabinet in "all the details matching the sample characters but with the new models and of finer work" (Mavrodina, 2007, p. 157). The architect N.V. Nabokov who was the supervisor of the order wrote to A.L. Huhn, the director of the manufacture: "The gilding came out magnificently, but it was a troublesome work" (Mavrodina, 2007, p. 157). The mosaic panel "Arabesque" was designed by artist Lerish for the amboyna cabinet. Both cabinets, sycamore and amboyna, were finished and sent to an exhibition in Copenhagen in 1889.

All three cabinets were shown on the World's Columbian Exhibition in Chicago in 1893, dedicated to the 400th anniversary of the discovery of the Americas. The Emperor Peterhof Lapidary Factory was awarded a bronze medal and the honorary diploma for the masterpieces.

It is known that the cabinets had appeared as described above in 1910: the amboyna cabinet had "Arabesque" mosaics designed for it and the one of sycamore had the mosaic with parrots on blue background (Mavrodina, 2007, pp. 156 – 157). It is a mystery when and why the panels were swapped between the cabinets. Obviously, the amboyna cabinet from the Mineralogical Museum has panels "Tropical forest with parrots on blue background" drawn by H. Dasso, which were made for the sycamore cabinet of Maria Fedorovna.

Baron M.P. Klod made watercolor sketches for the mosaics from Dasso's drawings and divided them into separate parts (Mavrodina, 2007, p. 148). This fact was mistakenly taken as if M.P. Klod was the author of the design. The parts were given to several mosaicists and then the completed pieces of the mosaic were assembled on the one panel. The names of the mosaicists are unknown.

The list of the colored stones used in the panels was published by A.E. Fersman (Fersman, 1922, pp. 91 – 92). He wrote: "The excellent mosaic was assembled from the following stones: the sky was made from Badakhshan lapis lazuli, water from Siberian lapis lazuli and prasem; flowers were done of quincite (pink opal), cacholong, Orsk variegated jasper, red jasper, and Samara agate; tree

trunks were made of petrified wood; leaves and plants of breccia, petrified wood, Kalkan, Italian, banded and dendrite jasper, and Koktebel (Crimea) seabeach pebbles; the butterfly was made of labradorite and tiger's eye; parrots were made of Orsk jasper, Crimean pebbles, head – of glaucolite; whiskers and the beak of jaspers, eye – brick jasper; the tail – petrified wood and jasper". In addition, Ural amazonite was used for the plants in the center of the picture and famous Italian marble was used in the unevenly colored leaves. Boulders and pebbles of this marble have been collected for centuries on the Mediterranean coast and the banks of Po River.

There is a note by I.P. Andreyev, a fine-art restorer, who worked on stone items at the Hermitage, which states that all three cabinets were sent by the trade company "Russkiye Samotsvety" to Moscow after liquidation of the private collection of Alexander III in Anichkov Palace. Also the note told about stories that were going around at the Peterhof Lapidary Factory in 1919 about Americans who desired to purchase the cabinets and pay with 25 steam engines for each one of them, and about Lenin who banned the deal after looking at the cabinets in Moscow (Mavrodina, 2007, p. 154). There is no information about how and when the cabinet came to the Laboratory of Stone from whence it was given to the Mineralogical Museum.

The amboyna cabinet with "tropical forest on blue background" mosaic was shown at the exhibition in Helsinki in 1989.

There are two tabletops in the Museum with the Florentine mosaics made by a foreign master. One of them is rectangular and represents a massive limestone slab decorated with black marble, possibly Italian, judging by the uneven coloration. Floral ornament and bunches of flowers are placed along the perimeter on a black background with fruits and hummingbirds above them at the corners. The center of the tabletop has a bunch of flowers, bunches of grapes, and butterflies (photo 5). Various ornamental stones are used in the mosaic, the majority of them being soft stones: lapis lazuli, malachite, and turquoise. There are some harder stones as well: cacholong in white flowers, chalcedony, rock crys-



Photo 5. Tabletop (marble, rock crystal, amethyst, cacholong, chalcedony, lazuli, malachite, turquoise and other stones), 120x70 cm. Mosaicist Francesco Belloni, 1851. Came from the Laboratory of Stone of the Ministry of Building Materials of the USSR in 1962. FMM No PDK-5382. Photo: from Fersman Mineralogical Museum RAS Archive.

tal and amethyst in the grapes, and some types of jasper may be present in the birds feathers and the butterflies wings. The most impressive part of the mosaic is the bunch of grapes made of rock crystal, pale and very bright amethyst. Contrary to the common thin slabs of stone used for the mosaic, the grapes are made of hemispheres sunk into the cement with their round sides down. Underlying foil creates reflection that makes the perfect illusion of three-dimensional grapes.

The tabletop came to the Museum with the cabinet described above from the Laboratory of Stone in 1962. It is possible that it ended up in the laboratory in 1920s before it was moved from Leningrad to Moscow in 1930s. There are Russian malachites of various shades and Baikals lapis lazuli with white spots used in the

tabletop. On the reverse side of the board there is harrowed "*Francesko Bello...*" (then illegible) 1851. Obviously, this is the masterpiece by Francesco Belloni (1772–1853), who worked for the Vatican mosaic workshop at the beginning, then from the late 18th century – for the workshop in Paris, patronised by Napoleon, and later – for the French Emperor Court.

The second tabletop is also supposedly of Italian production (photo 6). It is a round polished black thin slab of black Belgian marble fixed on a wood frame. Graceful wreaths of pink, grayish blue and yellow roses are encrusted in the black marble. The leaves and petals are made of multi-colored marble and other carbonates of different origins. The pink petals are most likely made of shell: one can see the characteristic layered structure. Leaves and roses of other colors are carved from unevenly colored marble as in the previous item. Some of the grayish-blue rose petals have a layered structure as in organic matter. At the same time, adjacent details of the same color have large translucent areas of crystalline structure. They are so transparent that we can see the black base through them. It gives the flowers an elegant look. It is possible that an organic material that has suffered partial crystallization was used. The inventory has no information on from where and when it entered the Museum.

The oval carved plate of white marble is among the foreign origin mosaic items in the Museum. Its center is decorated with the blossom of a red poppy surrounded with green leaves (photo 7). The plate came to the Museum in 1926 from the items selected for the Leningrad collection from the collection of either the Gatchina or Stroganov's Palace and was described as a piece of Italian work.

It was a certain mistake because there is a paper sticker on the back of the plate with the printed text "First Class. Price Rs12" and with a pencil inscription "As. Nuthoo Ramsculptor Agra". It is clear even without the inscription that the plate was made in India and resembles widely known items of this kind made by Indian craftsmen. The encrusted parts are made not of softer stones which would polish as well as the marble, but of hard carnelian,



Photo 6. Tabletop (marble, shells on the wood base), diameter is 50 cm. There is no information on the item in the inventory, probably it came in the beginning of 1920s. FMM No PDK-2623. Photo from Fersman Mineralogical Museum RAS Archive.
Photo 7. Carved plate (marble, chalcedony of various colors), 24 x21 cm. Agra, India. Received from the State Museum collection fund in 1925. FMM No PDK-1604. Photo: Michael Leybov.

sard and other colored chalcedony which is characteristic of Indian art.

Florentine mosaic is used in three modern pictures that are on permanent exhibit in the Museum: "Kolomenskoye" made by the mosaicist S.V. Volkov, "The Birds on the Wild Ash Branch" and "Sword Lilies" donated by N.I. Morozov.

"Kolomenskoye" is made of marble of soothing colors, jasper and rhodonite (photo 8). The materials for the different parts of the picture were chosen well. S.V. Volkov used a low quality rhodonite with plenty of manganese oxide dendrites for depicting bushes. Lightcolored rhodonite matches with the soothing shades of the marble. The picture is framed with a thin, almost invisible, aluminum frame.

Multicolored jasper is used for the birds and in the ash berry tree along with coarse-grained marble in the background of the panel "The Birds on the Wild Ash Branch" (photo 9). Translucent aragonite and onyx of mixed colors of white and yellow are used along with marble in the background and jaspers in the leaves and the red flowers on the panel "Sword Lilies". These items feature



Photo 8. Panel "Kolomenskoye" (marble, rhodonite), 33.6 x25.5 cm. Mosaicist S.V. Volkov. Came to the Museum in 1961, written to the inventory in 1997. FMM No PDK-7828. Photo: Michael Leybov.

deep bright colors that make them very spectacular (photo 10).

There is not much information on the artists of these works. It is known that they worked in the mosaic workshop of the Moscow Metrostroy factory (the company that builds subway – translators note) and participated in the creation of mosaics in the halls of the Moscow subway.

S.V. Volkov was one of the artists, who created and restored mosaics in the old halls of



Photo 9. Panel "The Birds on the Wild Ash Branch" (marble, jasper), 56x39 cm. The present of mosaicist N.I. Morozov, 1962. FMM No PDK-5380. Photo: Michael Leybov.

Photo 10. Panel "The Sword Lilies" (marble, jasper, aragonite onyx), 62x27 cm. The present of mosaicist N.I. Morozov, 1962. FMM No PDK-5379. Photo: Michael Leybov.

"Park Kulturi" and "Novokuznetskaya" subway stations and in the hotel "Russia".

N.I. Morozov (1922 – 1997) was a master of decorative works at the beginning of work for Metrostroy. He worked on the decoration of the halls and stations "Park Kulturi", "Belorusskaya", "Kiyevskaya", "Okhotniy Ryad" and others. As an artist, he decorated administrative and cultural buildings in Moscow and other cities of the Soviet Union. He was awarded with the Order of People's Friendship in the early 1980s. He taught for several years in the Stroganov Moscow State University of Industrial Arts.

The large portrait of Vladimir I. Lenin is among other items of the Florentine mosaic in the Museum. It is made of marble of warm tints (FMM No PDK 6373). The portrait was purchased from the author, L.G. Shteyman, in 1972. The Museum does not have any information on the artist.

Russian mosaic technique is represented in the Museum mostly with items made in Russia of lapis lazuli and malachite and there is also work of the Italian mosaicist in the above mentioned clock.

The small round lapis lazuli column on a rectangular base is probably one of the oldest items decorated with glued on stone slabs in the possession the Mineralogical Museum (photo 11). Baikal lapis lazuli plates are glued in the traditional method of Russian mosaic technique. The whole item is decorated with gilded cast bronze figures. There is a winged female figure on the column's cap. Her left foot rests on a sphere. She has an open book in her left hand and a stylus in her right hand, with which she writes a text starting with the date "December 5th, 1783". We try to find out who is She.

Many of the classic muses and goddesses were depicted with their attributes, such as the muse Calliope, the patron of epic poetry, who was depicted with a writing board and a stylus. Clio, the muse of history, possessed similar objects. Nike, the goddess of victory, was depicted with wings, as well as Fortune, who also had a sphere. It is possible, that the artist had some specific mythological character in his mind, but we cannot distinguish for sure which one. The date written in her book appears to be even more mysterious. We tried to find any significant event in the Russian history on that date as the item was supposedly made in Russia. The only event on the date was the launching of the first hot air balloon but apparently the event had nothing to do with our case.

The date engraved on the item seems to be even stranger in the light of the fact that the Baikal lapis lazuli from which it is made of was discovered only in 1784. Academician E.G. Laksman was the first to discover it on the Sludyanka river and described it in his letter to academician P.S. Pallas, the famous naturalist of that time, in 1784. The first note



Photo 11. Column (Baikal lapis lazuli, gilded bronze; mosaic, casting), height is 84 cm. Entered from the State Museum fund in 1926. FMM No PDK-1620. Photo: Michael Leybov.



Photo 12. The desk set (Badakhshan lapis lazuli, gold; mosaic, casting), 47x32 cm. The present from the Afghan King Mohammed Zahir Shah to N.S. Khrushchev. Entered the Museum from the Kremlin Armory Chambers in 1985. FMM No PDK-7247-7250. Photo: Michael Leybov.

about the item at the Peterhof Lapidary Factory appeared in 1785 and stated: "the column with pedestal assembled from lapis lazuli on Pudozh stone and decorated with gilded copper figures". The locality of the stone was not mentioned. Only rare things were made of lapis lazuli at the factory starting from the middle of the 1750s and certainly from the stone from Badakhshan. The other six columns "of lazuli stone with bronze bases and capitals" were made in 1800 (Mavrodina, 2007, p. 410) but there is no information on the origin of the ornamental stone that was used. Nevertheless, the description of the items are very similar to the one from the Mineralogical Museum, such an early dating of it seems to be unrealistic. The sufficient exploitation of the Baikal lapis lazuli started only in 1850s. So, the date on the figure most likely corresponds to an event which happened much earlier than its creation. It is also possible that the bronze statue was cast earlier than it was placed on the column and the date can refer to a private family event.

The column came from the State Museum collection fund which does not give any clue to find who the previous owner was. Everything about this item is a mystery.

Another lapis lazuli mosaic piece of art has an exact date. It is a desk set made of Badakhshan lapis lazuli, gold, and leather which was presented by Afghan King Mohammed Zahir Shah to N.S. Khrushchev (photo 12). The set contains six pieces which golden parts have the 375 gold purity identification and brand stamps of the "Garrard & Co Ltd 112 Regent Street London W.1", the English company which manufactured the items. One of the ink-pots has the Afghan emblem and another carries initials HCX (*Cyrillic letters means NSK for Nikita Sergeevich Khrushchev – translator note*). The desk set came to the Museum from the Kremlin Museums in 1985. Colleagues of Armory Chambers informed us that the item was made in 1955 – 1956.

Several items manufactured using the glue-on technique were made of malachite. The most significant of them is a big malachite vase. It consists of the round bowl with elaborate and progeoesthetic edge which set on the round neck extending to the bottom and the square base. The outline of the upper part of the neck is decorated with a wreath and belts. Several malachite assembling techniques are used in the vase: "crumpled velvet", "on two sides" and other methods.

The vase came to the Museum from Abamelek-Lazarevs in 1920. Abamelek-Lazarevs is a noble family name which appeared with the union of the two famous Russian families in the 1700s. The last member



Photo 13. Vase (malachite), height is 85 cm. Came from Abamelek-Lazarevs in 1920. FMM No PDK-1713. Photo: Michael Kalamkarov.



Photo 14. Vase (malachite, gilded bronze), height is 51 cm. Came in 1920, the note in the inventory from 1972. FMM No PDK-6372. Photo: Michael Leybov

of the princely family was S.S. Abamelek-Lazarev, an oriental scientist, who was married to M.P. Demidova, the daughter of P.P. Demidov San Donato, the owner of a unique collection of malachite items known in Russia, and Italy as well. It seems that this Museum vase once was one of the prince's family home decoration.

Authentication of malachite items is a difficult issue even for the bigger ones. Multiple private lapidary workshops appeared in the beginning of the 19th century along with Ekaterinburg and Peterhof Lapidary Factory to process malachite. There were rather big companies that supplied works to the Emperor Court (Semenov, 1987, vol. 1, p. 38). The Demidovs had their own lapidary workshop that produced outstanding malachite masterpieces in Petersburg in 1847–1853 (Semenov, 1987, vol. 2, p. 82–84). It is possible that the vase was manufactured in that very workshop. If so, it can be dated between 1847 and 1853. The Demidovs also had Italian mosaicists working for them in the beginning of the 19th century. It is unknown if they produced big items in the workshop.

There are three smaller vases in the Museum. The biggest one is a square vase with progeoesthetic edges and a round neck decorated with a wreath on a square plinth. The base is quite tall and is surrounded with a massive gilded bronze ornamental rim (photo 14). This assemblage of malachite and gold was widely used and added attractiveness to the items.



Photo 14 a. Detail of vase (malachite), shown the way of mosaic assemblage on the plinth of the vase with FMM No PDK-6372. Photo: Michael Leybov.

Different types of mosaic assembling were used in the vase. Malachite was very beautifully assembled on the base with the methods on two and four sides. The neck and the bowl itself have no arranged design assembly. Filling paste is easily noticed in the seams on the bowl which reduces the value of the item.

There is no information on the date and the source of entry of the vase into the Museum. The earliest date that it was recorded in the inventory was 1972. It likely entered the Museum in the 1920s among other stone works and was accidentally missed from the inventory. The very different quality of malachite assembly of the different parts of the item suggests that it was either made in a private workshop or, that the base and the bowl originally belonged to different items.

Another smaller vase made definitely in the 19th century is generously decorated with gilded bronze (photo 15). A gilded bronze rim with egg-shaped bulges intermittent with arrows (egg-and-dart style) decorates the edge of the flattened malachite vase. The plinth, the neck and wreath are made of the gilded bronze and there is a malachite belt between them. The neck widens towards the bottom and is decorated with matted fluting. The ridges between them are polished and shiny. The wide bronze bottom of the neck is covered with floral ornaments and tangled bands. The plinth is the only completely smooth and shiny piece. Judging by the unseen bottom part of the plinth we can assume that there had been a base that is now missing.

The vase entered the Museum from the State Museum Collection Fund. There is no documentation about its previous owners. Judging by the plentiful bronze it could have been made in a private workshop in St. Petersburg, possibly for a private customer.

The Museum has on exhibit a rare malachite vase from the Soviet period. It represents a tall lidded cup (photo 16). Its mosaic is elaborately made with high grade malachite. The banded pattern created using the small slabs of malachite subtly and naturally blends into a radial pattern and a more complex arrangement unfolding onto two or more sides. The gilded bronze or brass plays a big role in the



Photo 15. Vase (malachite, gilded bronze), height is 20 cm. Entered the Museum from the State Museum fund in 1927. FMM No PDK-1623. Photo: Michael Leybov.

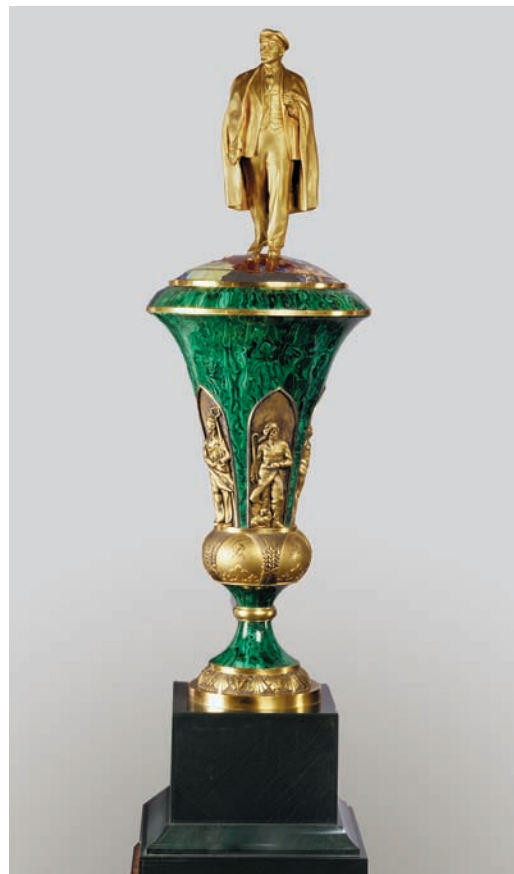


Photo 16. Vase (malachite, lapis lazuli, jasper, gilded bronze), height is 130 cm. Made at the Manufacture of Plastic and Carved Stone items in Alma-Ata in 1960. Entered the Museum from the Kremlin Armory Chambers in 1985. FMM No PDK-7246. Photo from Fersman Mineralogical Museum RAS Archive.



Photo 17. Box (malachite), size is 12x7.2x6.3 cm. The item was given by the State. 1983. FMM No PDK-7217. Photo: Michael Kalamkarov.

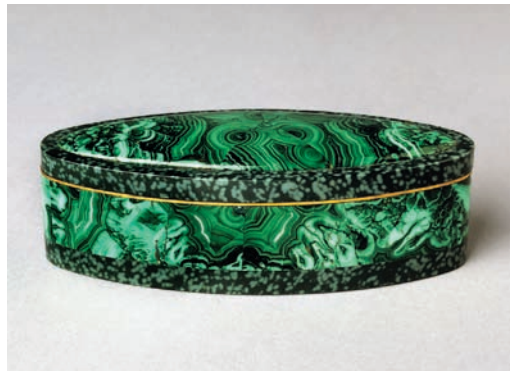


Photo 18. Oval box (malachite, porphyry), length is 13.8 cm. Acquired by the Museum in 1985. FMM No PDK-7270. Photo: Michael Kalamkarov.

decoration emphasizing the velvet tones of the malachite. While the malachite plays a decorative role, the brass carries the meaning. Besides the smooth decorative rims in the deflected upper ridge and in the middle of the item, there are four figures of young builders of socialism: a worker and kolkhoznica (collective farmer), a shepherd, and a folk dancer, each with their own attributes (sheaf, lamb and others). The figures are placed in the steep-roofed arches incorporated into the lower part of the body of the vase. The cup body ends in a bronze sphere with the classic soviet symbols of hammer and sickle, alternating with characteristic Kazakh ornamentation... The malachite neck rests on the base of smooth and decorated bronze. The foundation of the whole structure is placed on the pedestal made of greenish-gray Kalkan jasper. The lid symbolized the northern hemisphere of the Earth. The Florentine mosaic of lapis lazuli depicts the ocean, the map outlines of the Soviet Union is made of bright red jasper, and other countries are shown with different colors. The bronze figure of Vladimir I. Lenin is placed on the North pole.

This vase was made according to the rules of Socialist realism (art tendency of Soviet time) in September of 1960 at the Manufacture of Plastic and Carved Stone items in Alma-Ata and was presented to Nikita S. Khrushchev the same year. A. Shkergin was the author of the design, and he and V.P. Poddubskiy created the metal work, M.S. Shelepov assembled the mosaics. It is

possible that the vase was stored among the presents to the government officials in the Kremlin museums. It was sent to the Mineralogical Museum with the desk set in 1985.

Besides the vases, the Museum possesses small malachite boxes decorated with the same facing mosaic technique (photo 17). They all are artworks of a very high standard representing excellent employment and sophistication of the natural stone texture. The most curious is an oval box which has complex blending malachite patterns and is decorated with porphyry along the edge (photo 18).

A shaped stand or, possibly a screen, is another item of malachite in the Museum (photo 19). A thick shaped marble slab acts as its base. The surface is faced with flat malachite slabs assembled in the order of "on four sides" method. "Banded" malachite pattern is used on the sides and carved into the base.

There are several items made with relief (prominent) mosaics. This type of mosaic was developed in Russia in the middle of 1800s. Masters from the Urals were the first to employ the technique. It was utilized at the Emperors Lapidary Factory and private workshops later.

Masters from the Fabergé lapidary workshops made two figures of this type that are well known to the lovers of carved stone: "Ice Carrier" and "Soldier in the reserve regiments uniform of 1914" (photo 20). These items are mentioned by F.P. Birbaum, the main artist of

the company, as the most successful items made with such a technique (Birbaum, 1997, p. 74). Another masterpiece of this type is a snail leaving its shell (photo 21). These items were thoroughly described in an earlier publication (Chistyakova, 2004, p. 130) and were shown in many International Exhibitions besides being on permanent exhibit in the Mineralogical Museum.

There are three paperweights (paper presses) among the decorative objects made with relief mosaic in the Museum. These items were used widely for a long time. The two with berries sculpted of colored stones were most likely made in Ekaterinburg. The third one originates possibly from the Peterhof Lapidary Factory. These desk items were produced by private craftsmen as well as by the state workshops. They were made more than a hundred years ago. The first paper press made at the Peterhof Lapidary Factory was dated by 1805 in the list of the items produced at the factory (Mavrodina, 2007, p. 415). By the middle of the 19th century, they were manufactured in large volumes and from various materials. There is no information as to the time of the appearance of these objects in Ekaterinburg lapidary workshops. A.I. Golomzic states that a private production of paper presses in the Urals appeared also in the beginning of the 19th century (Golomzic, 1983, pp. 114 – 115). The Emperors Lapidary Factory in Ekaterinburg started to make them later (Pavlovskiy, 1976, p. 90; Semenov, 2003, p. 720).

A paperweight with various berries was donated to the Museum by Moscovite A.N. Kupriyanov in 1959. He stated that the object had been a gift to his grandfather from the Siberian businessman Mikhail Petrov in the 1860s. The other two presses with amethyst bunches of grapes were transferred to the Museum from the Stroganov's Heritage Fund.

Another item is peculiar because its design contains berries and leaves "naturally" placed on the raw intergrowth of morion, albite and microcline. This way of presentation was prompted by V.V. Mostovenko, the director of Ekaterinburg factory. It allowed the reduction of production costs and increased the popularity of the items (Mostovenko, 1919, p. 78, Chistyakova, 2007, p. 106). There are only few items of this kind

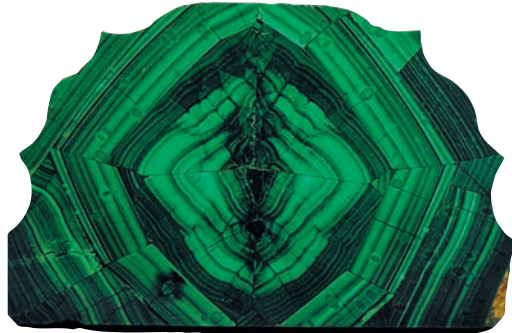


Photo 19. Mosaic fragment (malachite), 21x13 cm. Gumeshevsky mine, Sverdlovsk region, Urals. Acquired by the Museum in 1925. FMM No PDK-1898. Photo: Michael Leybov.



Photo 20. Soldier of the reserve regiment of 1914 (multicolored jasper, ophiocalcite, graphic granite, silver), height is 15 cm. Fabergé lapidary workshop. 1915. The design by G.K. Savitskiy, lapidary master P.M. Kremlev. The items were given by the KEPS (Commission for the Studies of the Natural Productive Sources of Russia). 1925. FMM No PDK-2571. Photo: Michael Kalamkarov.



Photo 21. Snail (nephrite, obsidian), 5x3.5 cm. Fabergé lapidary workshop. Entered the Museum from Gatchina Palace, 1926. FMM No PDK-1748. Photo: Michael Kalamkarov.



Photo 22.
Paperweight (serpentine, rock crystal, sard, gypsum selenite, rhodonite, jet coal, coral, marble, jasper), 17x11 cm. Ekaterinburg, earlier than 1860. Donated by A.N. Kupriyanov, 1959. FMM No PDK-4816. Photo: Michael Kalamkarov.

which have survived to the present because of their fragility.

The small collection of the items described here at the Mineralogical Museum contains all types of mosaic art. The collection gives visitors a good chance to see almost full set of mosaic techniques.

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