MASTERPIECES OF THE PETERHOF CUTTING FACTORY IN THE FERSMAN MINERALOGICAL MUSEUM OF THE RUSSIAN ACADEMY OF SCIENCES

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A brief history of the Peterhof Cutting Factory is documented, the art pieces mastered at the factory and kept in the Fersman Mineralogical Museum are described.
30 figures, 8 references.
Key words: Fersman Mineralogical Museum, stone cutting masterpieces, the Peterhof Cutting Factory.

Establishment of a new Russian capital city at the beginning of the 18th century stimulated a great interest in mining and cutting of construction stones and, later, of gems necessary for decoration of Imperial palaces.

Old standards and skills used in stone architecture of tower-chambers and castles made of soft stone became a thing of the past. New cities of European standard demanded huge quantity of various materials, including hard stone and cutting facilities at the local factories. The country had neither this nor that.

In 1719, Tsar Peter the Great set up a special department, Berg-Kollegium, for exploration and mining of deposits in the country. Due to its work, the country started development of its metal, building stone and, later, decorative stone deposits.

Cutting of stone was difficult. At the beginning, the local craftsmen could only roughly cut the stone, whereas the detailed work was entrusted to invited foreign craftsmen. The scale of work was miserable comparing to tremendous demand, and the Emperor started reforming this industry.

In 1721, following the Emperor's decree, a "windmill and barn" were built. Soft stones, mainly marble and alabaster, were sawed and polished there. Soon, a windmill was replaced by a watermill that was also used for glass polishing, which was in demand at that time.

In 1731, the factory was almost burnt down in a fire, and, three years later, the Empress Anna Ioanovna published a decree for construction of a new one. Construction was headed by Isaac Bruckner from Basel, a former craftsman of mathematical instruments in the Imperial Academy of Sciences. At the factory, he started cutting hard stones for building, and, since the late 1740s, he set up an artistic stone workshop. Josef Bottom supervised these works. He was also entrusted to cut precious gems and diamonds and was quite successful in this, even inventing "quite a pleasing machine" for cutting of diamonds (Mavrodina, 2007, p.28). Long time after that, Bottom improved the factory equipment, including necessary machinery and instruments for fine haberdashery works.

In the middle 1750s, during the reign of Elizaveta Petrovna, 87 people were employed at the factory, including craftsmen of agate, diamond, gold and haberdashery. They successfully cut and framed gemstones for decoration of quite diverse items ranging from jewelry masterpieces to parade gears for the horses. Small items like snuffboxes, small glasses, plates, bowls and other masterpieces started to appear (Mavrodina, 2007). During Elizaveta Petrovna's reign, the factory began to manufacture initially quite imperfect pictures, made using the technique of Florentine mosaics (Ibid, p.28).

In 1751, to supply these and other stone-cut works with necessary material, a group of stone cutters and polishers headed by Unterschichtmeister Selezhev was sent to Siberia (to the Urals). Raw materials mined by this expedition were used for manufacturing of large items like table tops, chimneys, and architectural details. Rough cutting of them was fulfilled in Yekaterinburg, and in winter the semi-finished articles were delivered to Peterhof by sledges where they were finished and decorated.

In 1763, in the beginning of the reign of Catherine the Great, Betskiy, the President of the Academy of Sciences, became a manager of the factory. Under his management, assortment of the masterpieces was sufficiently widened. In addition to small things, tables, chimneys, and vases, church utensils and iconostases were manufactured. The largest

and perfectly cut masterpieces were manufactured under personal supervision of Bottom. In his time, a carved relief was introduced. Catherine the Great was a great lover and judge of stone-cutting craft, and she wrote with pride to her foreign correspondents that Russian craftsmen were working better than Italian ones (Mavrodnia, 2007, p. 30).

As the factory still needed plenty of various stone materials, Catherine the Great published in 1765 a Decree about setting up a special department in Yekaterinburg called an "Expedition for Exploration of Different Sorts of Gems".

By the middle of the 18th century, many gems had already been found and mined in Russia. The Urals were the main place for their exploration and mining. Since the times of Alexei Mikhailovich (in 1668), first gemstones, such as rock crystal, amethyst, topaz, tourmaline and beryl, were discovered in the River Neiva area in the Urals. But these were still isolated finds. Exploration efforts and mining of raw materials in the first half of the 18th century were also insufficient to satisfy the demands, although since the times of Elizaveta Petrovna, rock crystals and "tumpases" were found in the Urals. Since 1723, in the remote area to the east of Baikal, in the Sherl Mountain and in Adun-Chilon, topaz, aquamarine and heliodor were discovered. In the first half of the 18th century, the Urals' first marble and jasper deposits were also found (jasper was first mentioned in 1742). But all these discoveries were still insufficient. To improve the situation, according to enactment of Katherine the Great, craftsmen and apprentices of Peterhof Factory accompanied by a group of soldiers had been dispatched to the Urals from "the Expedition". The expedition was headed by Major General Danneberg. The two mosaic specialists from Florence, the brothers Jean-Baptist and Valery Tortora, participated in it.

Two years later, Danneberg presented to the Petersburg Court specimens from more than 300 gem deposits of the Urals and a map with their location. Due to this expedition, marble, jasper and such a famous gem "for haberdashery works" like amethyst appeared in Peterhof. Amethyst was from the Tal'yan Deposit (the name originated from "ital'yanets" — an Italian man, a link to the Tortora brothers, who participated in the exploration and mining of local amethyst) and from mines along the River Ambarka and districts of Yuzhakovo, Alabashka, and Sizikovo. Rock crystals and "tumpases" also supplemented a list of gems which came to Peterhof.

In the second half of the 18th century, in addition to the Urals' deposits, beryl and topaz were mined to the east of Lake Baikal (since the 1770s). In the Baikal area, lazurite was found on the Rivers Slyudyanka (in 1775) and Malaya Bystraya (in 1785). And finally, in the very end of the century (1798), a magnificent rhodonite deposit was discovered near the Maloye Sedel'nikovo Village in the Urals. From then on, intensive exploration and mining works for gems in Russia continued nonstop until the 20th century.

Since the factory could not satisfy enormous appetites of the Imperial Court, a new stone building was promptly built by Felton in 1780. By the end of the reign of Katherine the Great, the factory was able to manufacture plenty of large-scale, voluminous works and individual mosaic masterpieces from hard stone, such as table tops and the like. Besides, craftsmen of the factory participated in the laying out of stone and smalto mosaic floors, as well as decorative panels in the Chinese Palace of Oranienbaum. Having been started during the Empress Elizaveta time, cutting of gems, of which most popular were topaz and aquamarine, was widened sufficiently.

Since 1800 until 1811, Earl Stroganov was in charge of the factory. Prior to this, he was a head of the Yekaterinburg Factory. In his time, mechanical devices were renewed, a sluice was repaired, and many other problems were solved. Josef Bottom approved a staff of 86 employees and divided them according to qualification into craftsmen and apprentices, who fulfilled tasks of variable difficulty. Clear forms of accountability have been introduced.

In addition to the manufacturing of masterpieces for individual purposes and for decoration of the interiors, the factory cut building stone and blocks of hard rock for the Kazan Palace and Bourse (Stock Exchange) in St.-Petersburg.

During this time, the factory manufactured plenty of large objects. To diversify the masterpieces, Bottom requested from Stroganov to obtain the drafts of new items from the Academy of Arts. Since that time, first names of artists-architects, who designed the

masterpieces, were first mentioned, including famous Giacomo Quarenghi (1744–1817) and Andrei Voronikhin (1759–1814). Voronikhin introduced a new, for the factory, technique of combining the gems and voluminous metal plastic in one composition (Mavrodina , 2007, p. 32–33).

Since the beginning of the 19th century, Russian gems and masterpieces gained first recognition in the West. The Factory was now receiving purchase orders from abroad. In spite of that, the enterprise was in a very lamentable state. During that time, after the death of Stroganov, it passed under the curatorship of Earl Guriev, manager of the Cabinet of Her Imperial Majesty. Part of its workshops was transformed to production of surgery instruments and writing paper.

In 1816, Guriev suggested reconstruction of the stone-cutting factory and organised a paper mill, with partial relocation of craftsmen from cutting factory to paper production and to the glass factory. Since that time, a factory was renamed into the Imperial Cutting Factory.

To reinforce the factory with qualified staff, craftsmen were obliged to teach the younger workers. Honoured pupils from the Peterhof Popular College were sent to the Academy of Arts, an internship sponsored by the Cabinet of Her Imperial Majesty. Its graduates were expected to work in all the Russian state cutting factories in Peterhof, Yekaterinburg and Kolyvan.

Nevertheless, all these measures failed to improve the general situation, and, by the end of the 1820s, the factory was in standstill. Very few of the large artistic crafts were manufactured.

Only in 1829, changes started to occur after a factory was transferred to the Ministry of Udels (Regions) under the charge of Earl Perovski. Kazin was appointed a new head manager. A factory was again renovated. Reconstructed workshops were equipped with new machines for sawing of stone blocks, crushing of emery and cut works. Production was classified into "fine and art" crafts for the Imperial House and "ordinary or petty" things ordered by private clients. From 1830 to 1847, a bronze workshop was functioning at the factory. It supplied decoration for the stone crafts.

From 1830, the factory started to work with malachite. Consequently, it earned a title "Russian Mosaic". Malachite cut into thin lamina was glued onto a prepared mould, with preservation or even completion of stone natural pattern. Malachite was used for large vases, pediments, table tops, consoles, standard lamps and the like. Many of them were decorated by gold-plated bronze. After closure of the bronze workshop at the factory, the "English Shop of Nicholls & Plinke" became a supplier of bronze to the enterprise.

Malachite remained popular for several decades. The factory manufactured plenty of malachite works for the Winter Palace which was severely damaged during the 1837 fire. Besides separate objects like vases, bowls, table tops, and others, all part of the project of architect Bryullov, a unique Malachite Hall was created. Its columns, pilasters, and table tops were cut during thirteen months. Among small objects of this time were caskets, blotters, handles, buttons and others.

The factory was also a producer of souvenirs. Replicas of the Alexander Column, built by Montferrand in front of the Winter Palace in 1834, were very popular.

In the 1830–40s, the factory was producing lazurite items. Lazurite was discovered in the southern Baikal area in the 18th century, but its quality was not favoured by the Court. As a result, expensive lazurite was imported from Badakhshan. Lazurite forms relatively small accumulations, and for this reason it was used for mosaics in a similar fashion to malachite.

At the same time, the traditional mosaics became popular, both cut and combined. It was used in production of the mosaic floors. These works were valued high and were very popular. However, there were no skilled mosaic craftsmen in Russia.

In 1847, a temporary workshop was built at the Pope's mosaic workshop in Rome to specifically teach the Russian artists. Professor Barberi taught four students (Raev, Shapovalov, Fedorov, and Solntsev) from the Imperial Academy of Arts. Craftsman Sokolov studied the art of cut mosaics in the workshop of Professor Gitano Bianchini (Chistyakova, 2005, 2009).

Upon return of Sokolov, mosaics started to prosper in Russia. The Peterhof Factory was manufacturing the Florence mosaics for the Royal Court. Simultaneously, large mosaic and stone-cutting works were initiated for the St. Isaac Cathedral, Peterhof Palace, and the New Hermitage.

In 1847, paper manufacturing has been closed at the factory, while stone cutting has

expanded, and demand for raw materials has increased. The factory received a permission to explore and mine decorative stones in the Perm and Orenburg Governorships, and also in Transbaikalia. It also continued to operate in the Altai, where jasper, multi-coloured porphyry, breccias and marbles were discovered in the 1700s. In 1806, an outstanding white-pink quartzite was discovered at Beloretsk on River Belaya. Since 1851, nephrite production began at the River Onot in Eastern Sayan, where it was discovered back in 1824.

Permikin (1813—1879) was one of the suppliers of decorative stones to Peterhof. He was a successful explorer and miner for many years, supplying lazurite from River Malaya Bystraya in Transbaikalia, nephrite from the Sayan, as well as marble and many other stones.

In the middle 19th century, stone-cutting factories prospered in Russia. The Peterhof Factory worked with diverse decorative stones, such as malachite, lazurite, orlets (rhodonoite), porphyry, aventurine, jasper, quartz, nephrite and others. Many large items are now in the Winter Palace, Old and New Hermitage. These are huge malachite vases, malachite and lazurite tables, and chandeliers.

Significant changes took place at the factory with abolishment of the Serfdom in 1861. The workers became free men; they received a right for pension and tax holidays for 12 years, as well as immunity to military service.

There were only 47 craftsmen left. The factory maintained its school where craftsmen's children could study. The study was free of charge, but in the end of education everybody had to work at the factory for at least 10 years.

The Royal Court required many high art stone items. In contrast to the others, the Peterhof Cutting Factory continued to prosper even after abolishment of the Serfdom. The selection of items for manufacturing was very strict. The lazurite items were especially valuable. They were manufactured only for the Royal family, whereas all other material could be used for private orders. This helped the factory to float financially.

In the 1860s, lazurite became more popular than malachite. The large items, such as vases, tables, and standard lamps, made same way as glued malachite items, were used for decoration of the parade interiors of the Royal palaces, as well as for plating many small items. The lazurite items were precious gifts to the rulers of Western Europe. Sometimes they were sold to the European courts.

Mosaics were popular until the end of the 19th century. It was used to decorate tables, cup-boards and fire places. Many items were of similar quality to the Italian products. They were highly prized at the international exhibitions. In addition, the factory continued to process the precious stones.

In 1875, a factory was again rebuilt and received new equipment for its workshops. A museum and a reception hall have been built. These works were conducted by the architects Gun (1841—1925) and Rezanov (1817—1887).

In 1866, Gun became a director of the factory. He was a professor of the St.-Petersburg Academy of Arts and an Academician of Architecture. During almost 40 years of his activity, he created outstanding drafts for the stone products of the factory. At the turn of the centuries, many famous artists participated in such design works. Many famous jewelers contributed to the design of metallic frames for precious stones.

In the end of the 19th century, the factory was producing items of diverse style. The fashion for items, made in national style, became strong. Byzantine and Russian motifs were used as templates. Later, they were successfully used with the arrival of the style Modern.

In addition to the numerous works on decorating the interiors, the factory became involved since 1890 into huge and prestigious works to create Royal coffins in the Petropavlovsk Cathedral. Almost all sarcophaguses were made from white marble. Only Alexander II grave was made from grey-green picturesque jasper from Revnya in Altai. The grave of the Empress Maria Alexandrovna was made from a unique quality and size block of pink orlets from the Urals.

In 1909, a factory was transferred under the jurisdiction of His Imperial Majesty Office. Mostovenko became a director. He was previously a manager of the Yekaterinburg Factory. During these years, electric machines were installed at the factory. Several other innovations were planned, but WWI interrupted all these works.

The orders for large items have completely stopped, and high art items became rare. Since 1914, the main products of the factory were stone details for various tools. These

were agate and jasper pediments for normal and surveying compasses, rock crystal standards for optical devices, marble and slate boards for electric equipment, agate and marble cups for the chemical laboratories.

After the 1917 October Revolution, the factory became part of the People's Commissariat for Education. It became a specialized enterprise for manufacturing precise stones for military purposes. As by-products, it kept producing small retail items from cheap stones. Other special works were now performed at the Russian Gemstone Trust (Fersman, 1961, Vol. 2, p. 132).

In 1930, a factory was renamed to the First State Factory for Precise Stones. During the WWII, it was destroyed. In 1949, the rebuilt factory became specialized in watches. In 1954, it was renamed into the Petrodvorets Watch Factory and was not producing art items anymore.

The precious and decorative stone collection of the Fersman Mineralogical Museum began to form after the Revolution. The museum already had some specimens of coloured stones. These were mostly polished samples, but they were not art items. Therefore, in 1914, Professor Vernadsky, who was a head of the Mineralogical Museum at that time, has reorganized all collected material into thematic collections, and collection of the decorative and precious stones was absent.

After the 1917 October Revolution, the stone items came to the museum from nationalised private collections. This stimulated establishment of the separate collection for demonstration of the application of natural stones in art. The collection also received some natural stones and art items made from it.

At that time, some outstanding scientists of the country, such as Fersman, Vlodavets, and Kryzhanovski, used to work for the museum. Due to their efforts, the museum received items from the Royal palaces, nobility villas and dissolved educational institutions during the 1920s, including many items of art and/or historical importance, such as stone-cut articles produced at the Peterhof Imperial Cutting Factory.

As it was mentioned above, the Peterhof Factory was producing stone items since the middle 18th century until the early 20th century. The Mineralogical Museum has received items produced (with few exceptions) between 1880 and 1919. During these years, the spectrum of coloured stones was not very wide, and there were no many large art objects produced. The museum received mostly small items, predominantly from the Gatchina Palace, which belonged to the Royal family. Several items were received from the Hermitage, whose collection was also originally Royal.

The spectrum of stones, used for the masterpieces of the Peterhof Factory, is not wide: quartzite, agate, orlets, nephrite, and limestone. Some diversity comes only from stones, such as diamond, tiger eye, labradorite, opal, turquoise, and others, which were used to decorate the other materials or were part of mosaic panels.

Below is the description of the stone items kept in the museum, which can be classified with various degree of certainty as products of the Peterhof Cutting Factory.

As it was said above, several items were produced before the turn of the 19—20th centuries. These are five cups cut from varicoloured quartzite. They are all elongated, oval, octahedral or more complex in shape (Fig. 1).

The museum received these cups from the Hermitage in 1926. The Hermitage has received them in 1813. They were part of the collection from the Nieswiez Castle in Belarus, which belonged to Dominic Radziwillowie who was fighting Russia as an ally of the Bonaparte army. They were put into inventory of the Hermitage at the same time as the cups, which were classified by Mavrodina (2007, p. 51—58) as the items of the Peterhof Cutting Factory of 1760—1810. By analogy, the cups from the Mineralogical Museum can be also attributed to this period. Perhaps, before the 1812 War, they could be presented to Dominic, the owner of Nieswiez, or even earlier to his uncle Karl Radziwillowie, with whom the Russian monarchs had very complex and changing relationships (Chistyakova, 2005).

It is important to say that the Russian Supreme Court always paid special attention to the design of parade and private apartments. At the turn of the 19—20th centuries, the Royal family was vividly interested in stone-cutting art. It is well known that members of the Royal family were collectors of the stone items produced by Faberge. They were frequent visitors to the Peterhof Cutting Factory, where they could often select attrac-

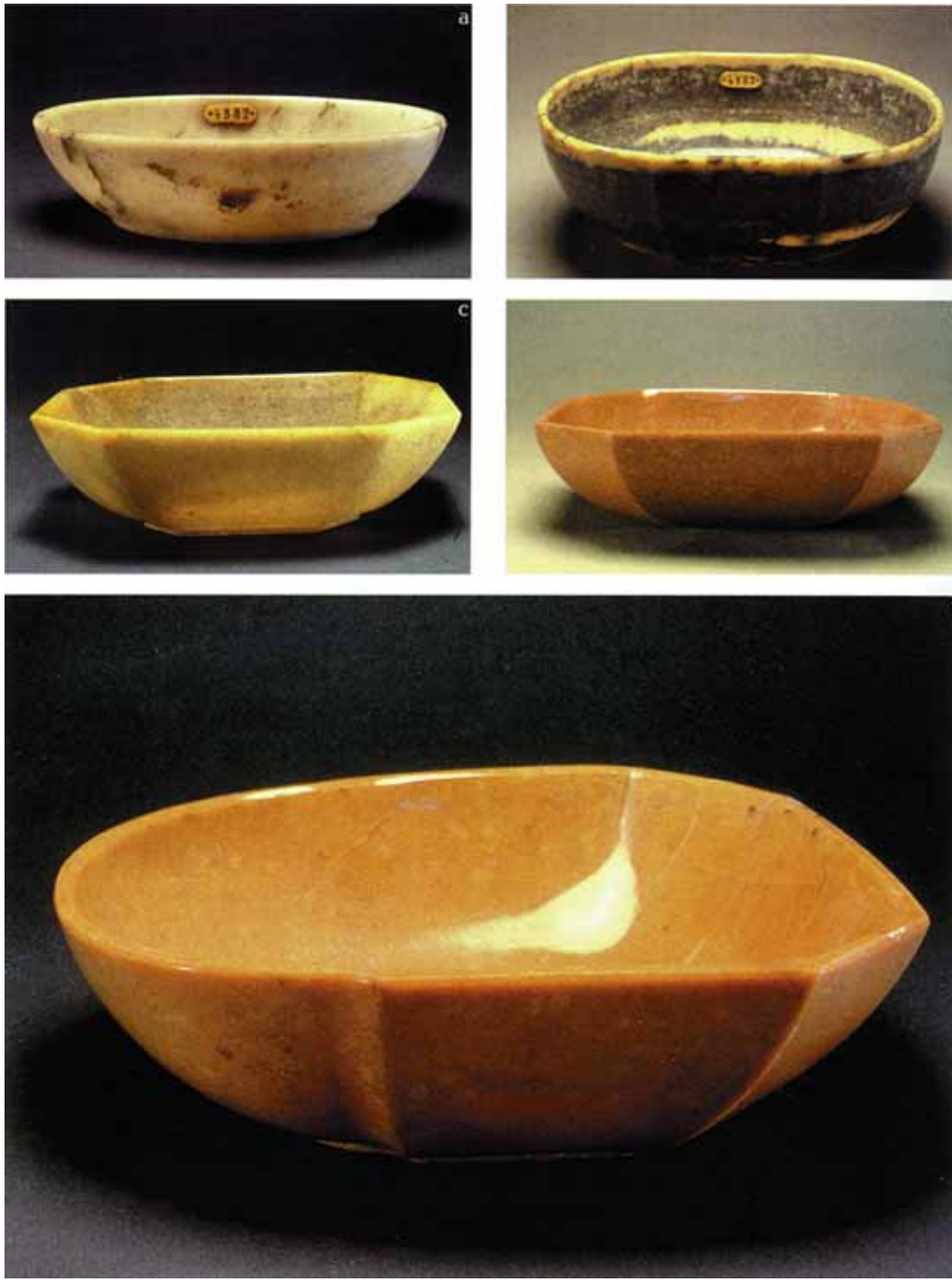

Fig. 1. Cups from the Nieswiez Castle collection of the Princes Radziwillowie. Quartzite. Peterhof Cutting Factory 1760–1810. Received from the State Hermitage in 1926.
a) 14.8 x 10.7 cm. FMM № PDK-1639; b) 18 x 14 cm. FMM № PDK-1634; c) 18 x 12 cm. FMM № PDK-1643; d) 13 x 11 cm. FMM № PDK-1644; e) 17 x 15 cm. FMM № PDK-1645.

tive items and even observe the manufacturing of the most valuable and time-consuming works (see a cabinet description below). In addition, Royal children were taught the basics of mineralogy using specially prepared collections (Generalov, 2007), which were often of art quality (Chistyakova, 2007_1). It is possible that the members of the Royal family were collecting minerals during their trips. For instance, the Great Prince K.N. Romanov brought a piece of basalt from the famous Fingal's Cave on the Stuff Island near the western coast of Scotland after his trip to Europe (Chistyakova, 2007_2).

The documents of the Peterhof Imperial Cutting Factory reveal that His Majesty Alexander III brought some pebbles from Crimea in 1886, which he ordered to use for the manufacturing of cupboards (Mavrodina, 2007, p. 475). Perhaps, the Royals were interested in collecting such items for quite a while. During the following years, these pebbles were used to produce the mosaic tables and about 20 ash trays mentioned among the works of the Peterhof Factory before 1893.

The Mineralogical Museum received four ash trays, previously kept in the Gatchina Palace. Two of them are simple in shape. They are made from limestone, which has remains of ancient corals and shells. The other two are more complex in shape. They are made from patchy pale-brown limestone and grey-black limestone conglomerate (Fig. 2).

These objects are rather of historical importance, but many other items of the Peterhof Factory undoubtedly belong to the high art items.

Quartz constitutes significant part of the museum collection from Peterhof. During the fashion for Old Russian motifs, the factory produced dippers, cups and wine bowls, reminiscent in shape of the old wooden and metallic examples. Since 1866, more than 20 large dippers, as well as approximately 20 small dippers, have been produced. Nephrite was most frequently used for these items. Quartz, belorechite (quartz from River Belaya in the Altai) and rhodonite were rarer.

A dipper, a typical item of such kind, was made from pure rock crystal (Fig. 3). Ideally polished and placed on the three profiled legs, it was decorated on the matt side by the cut ornament, becoming more and more complex at the edge of the item. At its handle, under it and on the opposite side are the circular salient parts, imitating the inserts of precious and coloured stones in the analogous ancient metal vessels. This is a rather rare case when creation of the stone item in the Old Russian style was achieved without metallic frame, but instead by imitating the form of the vessel in stone itself and carvings.

The 1886–1910 Inventory List of the Peterhof Factory contains several such dippers, cut from rock crystal and topaz. It is worth mentioning that a mistaken confusion of topaz with rauchtopaz still persists, and previously colourless rock crystal was also considered as topaz. Fersman (Fersman, Vlodavets, 1922, p. 23) described this dipper as "dipper made from pure rock crystal

Fig. 2. Ash trays from limestone pebbles. Outskirts of Livadia, southern coast of Crimea. Length 9–11 cm. Peterhof Cutting Factory, end of the 1880s to the early 1890s. Received from the Gatchina Palace in 1926. FMM № PDK-1802, PDK-1787.
Fig. 3. A dipper in Old Russian style. Rock crystal. 18 cm. Peterhof Cutting Factory, 1893. Received from the Gatchina Palace in 1926. FMM № PDK-1798.

Fig. 4. A small vase with a handle, cut from the whole piece of rock crystal. Diameter 10 cm, height 11.5 cm. Peterhof Cutting Factory, 1898–1899. Received from the Gatchina Palace in 1926. FMM № PDK-1756.
Fig. 5. A shell. Quartz. Altai. 16 x 11 cm. Received from the Gatchina Palace in 1926. FMM № PDK-1780.

("topaz"), similar to the wooden dipper in the collection of the Karabanov Museum. The 1890 work is kept in the Gatchina Palace Museum".

In the 1741–1916 Inventory List of the Peterhof Cutting Factory (Mavrodina, 2007, p. 397), this masterpiece could not be found among the 1890 works, but it was twice mentioned as N546 among the works of 1889 (first, as a rock crystal dipper; second, as a topaz dipper). In the Inventory List, it is also mentioned that this dipper-like item was placed into the Karabanov Russian Museum (Dept. II, N22). It was valued at 655 Roubles and was presented to the Supreme Court on the 22nd of July, 1889 (Mavrodina, 2007, p. 479). In 1926, this dipper was transferred to the Mineralogical Museum of the Academy of Sciences.

The round vase with a handle (the basket) is a unique article cut from a single piece of rock crystal (Fig. 4). Quartz is a hard mineral. However, the vase's handle can be easily rotated. Such fine work is rare among the cut stones, more so considering that it is made from hard and fragile quartz. We do not know other examples of such craft in Russia. The fine cut items (like a sphere inside a sphere) are typical for Chinese art, but, as far as we know, they used quite a viscous material in China, such as nephrite or bone. The vase is very fine. It is decorated by relief carving in Rococo style, with shells, leaves and flowers. Its handle is covered by a similarly complex carving.

The inventory book of the museum reveals that the vase was made at the Peterhof Cutting Factory in the early 20th century. In the factory's Inventory List for the items made at the turn of the 19–20th centuries (Mavrodina, 2007, p. 487–493), there are only two quartz vases (without description). The vase N561 from topaz is dated to 1898 (again, rock crystal or smoky quartz was sometimes called topaz), valued at 1880 Roubles (p. 490). Another rock crystal vase is dated to 1899 (started in 1898, finished in 1899), valued at 690 Roubles (p. 491). Both of them were presented to the Royal Court. It is possible that the vase from the museum is one of them as it came from the Gatchina Palace.

The other two quartz items are finely cut large shells, made from transparent quartz from River Belaya in the Altai (Fig. 5).

The shells, made from various stones, are characteristic items of the Peterhof Factory during the last two decades of its existence. They were cut from nephrite, chert, quartz, rhodonite, and lazurite between 1891 and 1913. Quartz shells are first mentioned in 1893. Only several of them were made from quartz, whereas many more items were produced from other stones. Perhaps, it was difficult to work with them, because the River Belaya quartz is very fractured and can be easily broken into pieces. Shells were valued between 100 and 176 Roubles in 1913. They were all presented to the Supreme Court. The Mineralogical Museum received two of them from Gatchina in 1926.

Fig. 6. A small plate. Quartz. Altai. Diameter 12 cm. Peterhof Cutting Factory(?). Received from KEPS in 1927. FMM № PDK-2279.
Fig. 7. A tray for small items. Rock crystal, diamonds, enamel. Carving, cast, burelage. Size 7.4 x 5.3 cm. Peterhof Cutting Factory. Received from KEPS in 1927. FMM № PDK-2128.

The museum has a small plate made from similar River Belaya quartz (Fig. 6). Such articles were common for the Peterhof Factory. Some of them were bought by the members of the Royal family. In 1895, a small plate from white quartz was acquired by Great Prince Alexei Alexandrovich (Mavrodina, 2007, p. 488, N672).

It is only possible to infer with great caution that a small plate of the Mineralogical Museum was made at the Peterhof Factory. It was received from the Commission for Studying the Productive Forces (KEPS) in 1927.

The smallest quartz item from the Peterhof Factory in the museum collection is a flat carved crystal tray, whose edges are framed by golden burelaged leaves of the water lilac. Leaves are covered by green enamel, whereas the semi-opened bud with golden stamens is covered by rosettes of diamonds (Fig. 7).

The inventory book reveals that it was produced at the Peterhof Factory in 1889. We do not know the origin of this information. Unfortunately, the Inventory List of the factory for this year does not mention this item (Mavrodina, 2007, p. 474–484). Perhaps, a tray was made for private individuals and is not mentioned in the list for the Royal Court. It was also received from KEPS in 1927.

Supposedly, Peterhof also produced four carved items from smoky quartz and citrine (quartz of golden colour). The museum has two of them in its inventory (Fig. 8) marked as "carved vase, early 20th century" and "ash tray in raw piece". The third item is an "ash tray in raw piece with carved female figure" (Fig. 9), and, finally, the fourth item (Fig. 10) is a "flat vase, China".

Among the mentioned items is the finely cut female figure with wings and a fish tail made from a single piece of citrine. Perhaps, it is a Siren, which was a semi-woman/semi-bird in antique times, later transformed into a woman-fish-bird. The item is finely carved and exploits warm colours of citrine to show a female figure. The possibility of this intricately carved figurine being too a product of the Peterhof Factory cannot be excluded.

The Inventory List of the factory has many items classified as an "ash tray" or a "vase", which may correspond to these quartz figures. Three of them came from the Gatchina Palace.

The fourth item is probably also produced in Peterhof. This is an oval low vase of fractured smoky quartz with numerous thread-shaped gas-liquid inclusions, reminiscent of accumulations of a down. The edge of the vase is decorated with a relief carving in the shape of leaves around the flower rosette. Its dйcor is not at all similar to the Chinese art items, although it is so mentioned in the inventory book of the museum. It was received from the State Hermitage in 1926.

Such items, judging from the Inventory List, were made between the end of the 19th and the early 20th century.

The facet rock crystal glassware with "water" (Fig. 11) can be deemed to originate from the Peterhof Factory as well. Such glass-

Fig. 8. A carved vase. Smoky quartz. Height 15 cm. Peterhof Cutting Factory(?), turn of the 19—20th centuries. Received from the Gatchina Palace in 1926. FMM № PDK-1754.
Fig. 9. A siren (a woman-fish-bird). Citrine. Height 11 cm. Peterhof Cutting Factory, turn of the 19—20th centuries. Received from the Gatchina Palace in 1926. FMM № PDK-1753.

es from colourless and white quartz, nephrite, lazurite and other stones are quite common masterpieces of the factory in 1889 — 1910. It is possible that they were popular, were relatively cheap and could be bought right at the factory by the members of the Royal family. In 1889, the Great Prince Alexei Alexandrovich bought a similar glassware, whereas Vladimir Alexandrovich bought such a glass in 1890. The Inventory List mentioned a topaz glassware "made following a personal draft of the Great Prince Alexei Aleksandrovich" (see Inventory List, 1892, p. 484, N712).

It is worth mentioning that the rock crystal glasses and vases "filled with water" could be made at the other factories, such as Faberge, where the finely carved flowers were inserted into the specially drilled holes. Our assumption that our glassware is made at Peterhof is based purely on its arrival from the Gatchina Palace, where such non-utilitarian items were abundant.

In addition to the high quality quartz crystals, the factory used quartzite and chalcedony.

A flat and sphere-shaped vase (Fig. 12) was made from pink River Belaya quartzite. On three sides, it is decorated with flowers (popper, forget-me-not, etc.) and insects (bees, grasshopper, and dragon-fly). This is a rare

Fig. 10. An oval vase. Smoky quartz. Length 11 cm. Peterhof Cutting Factory, turn of the 19—20th centuries. Received from the State Hermitage in 1926. FMM № PDK-1659.
Fig. 11. A facet glassware "with water". Rock crystal. Height 8 cm. Petehof Cutting Factory. Received from the Gatchina Palace in 1926. FMM № PDK-1758.

Fig. 12. A vase. Belorechite, chalcedony, rhodonite, turquoise, labrodorite, tiger eye, nephrite, lazurite. Height 12.5 cm. Peterhof Cutting Factory, 1900. Received from the Gatchina Palace in 1926. FMM № PDK-1808.

Fig. 13. A vase in Japanese style. Agate. Height 12 cm. Peterhof Cutting Factory, 1889. Received from the Gatchina Palace in 1926. FMM № PDK-1809.

case, with the exception of paper weight (see below), when there are additional relief decorations made from various stones. The stones are vari-coloured chalcedony, rhodonite, turquoise, tiger eye, nephrite, and lazurite. This unusual masterpiece was made in 1900. It is mentioned in the Inventory List as a "vase from Siberian River Belaya quartz with carving (flowers)" valued at 1300 Roubles. The vase has preserved an octahedral wooden box with a factory label on the internal side of the cover and three rounded holes for the legs. As all other mentioned items, it was received by the museum in 1926 from Gatchina.

An outstanding item from agate is the Japanese style vase. It is mentioned in the factory list of 1889 (Fig. 13). The cup of the vase is elongated, ideally following the pattern of stone. It is polished inside, but outside it is decorated with almost invisible edges. The base is a circular pediment with a slithering bi-tailed and bare teethed marine monster. The tails end with clawed dragon laps supporting the vase.

The Inventory List (Mavrodina, 2007, p. 478) classifies this item as a "vase with dolphins from the whole cherty agate preserving the shape of the original stone. The base of the vase reminds of a dragon from the old Japanese vase shown in "L'Art pour tous" magazine. The vase is worth 1360 Roubles. It was manufactured during 1 year and 7

months. The final item is first of its kind ever made by the factory". A unique vase was presented to the Supreme Court on the 26th of February 1889 on birthday occasion of the Emperor Alexander III.

The inventory book of the museum describes this vase as a product of the Yekaterinburg Cutting Factory, but Fersman (Fersman, 1961, Vol. 2, p, 129) attributed it to Peterhof.

Also in 1889, a "cup in Japanese style, cut from single piece of cherty agate, with preservation of the stone shape" (Mavrodina, 2007, p. 479) was made. This small piece of agate somehow managed to attract attention of the craftsman, and he decided to follow its irregular and inconvenient shape. As a result, he produced a pale-grey coffee-coloured cup with bended base surrounded by a white flourishing branch of cherry tree (Fig. 14). The inventory book of the museum says that the cup was made after a drawing by Kudryavtsev. This information is absent in the Inventory List. This tiny item was also presented to the Court together with the above-described rock crystal dipper. The museum received it in 1926 from Gatchina.

Nephrite, discovered in 1824 on the River Onot in the Sayans, was used by the factory since the 1850s based on the Inventory List items. It was more frequently used since the end of the 1880s. The first works mentioned it solely as nephrite, whereas later it was often additionally identified as Siberian or Murgabian (also known as Chinese).

The museum has several nephrite items, which can be classified to originate from Peterhof with various degree of certainty.

The plate on three small elongated legs in the form of loops (Fig. 15) is an outstanding carved article from green Sayan nephrite. Both sides of this thin transparent plate are covered by carving in the form of bended leaves (stylised spoons), spreading from the central five-leave rosette. A pattern of leaves on the front side of the item is complicated at the expense of them having been "curved" in half. One can be sure that this item was made in Peterhof, because it has a leather box. The internal side of the cover has a factory label. The bottom of the box, covered by blue velvet, has circular form matching the distance between the plate legs.

During this period, the Inventory List of Peterhof items mentions several nephrite plates. Many of them were presented to the Supreme Court. The museum received its plate from Gatchina in 1926.

It is possible that paired nephrite vases on rhodonite pediments (Fig. 16) were also produced in Peterhof. We previously conditionally considered them as products of the

Fig. 14. A small cup in Japanese style. Agate. Height 5 cm. Peterhof Cutting Factory, 1889. Received from the Gatchina Palace in 1926. FMM № PDK-1751.
Fig. 15. A carved plate. Nephrite. Sayan. Diameter 20 cm. Peterhof Cutting Factory, end of the 19th century. Received from the Gatchina Palace in 1926. FMM № PDK-1798. Received from the Gatchina Palace in 1926. FMM № PDK-1745.

Fig. 16. A vase on pediment. Nephrite (Sayan), rhodonite (Urals). Height 39 cm. Peterhof Cutting Factory. Received from the State Hermitage in 1926. FMM № PDK-1649, № PDK-1650.

Yekaterinburg Factory (Chistyakova, 2007_1).

The 1867 list of the Peterhof Factory mentioned "nephrite vases on the rhodonite pediments with gold-plated bronze handles – 2 – 316 Roubles" (Mavrodina, 2007, p. 459). They were made for the Supreme Court. It is not possible to trace where exactly they stayed in the Royal apartments, but it is known that they were in the Livadia Royal Palace back in 1902. One of the pediments preserved a label with a two-headed eagle saying "Property of HEM Emperor, Livadia, N (unclear in pencil), 1902".

Such a contrasting combination of bright-coloured nephrite and rhodonite is recorded several times in the Peterhof items. They are also known among the Yekaterinburg items in the middle of the 19th century. It is known that Yekaterinburg did not have its own bronze workshop, and such items were usually produced in Petersburg for them. To some extent, the vases can be considered as products of Peterhof due to their bronze handles mentioned in the Inventory List. However, there is no certainty about the origin of these vases.

A small oval vase from bright-green nephrite with carved handles in the form of leaf bunches, surrounding central flower rosettes at the end of the article, was also possibly made by the Peterhof craftsmen (Fig. 17). The nephrite items of the Peterhof Factory include many vases. However, only in two cases the list mentioned handles: two vases with gold-plated bronze handles (see above) and once again in the 1896 list (Mavrodina, 2007, p. 488, N703), where there is a "vase with nephrite handles". Perhaps, it is this particular vase from the museum, an oval and low (baseless) vase. The Inventory List does not mention for whom it was produced. Once again, to the museum itself it came together with the Royal items from Gatchina.

The circular carved vase in the style of second Rococo, made from beautiful yellow-green Murgab nephrite, is another outstanding masterpiece in the museum collection (Fig. 18). The vase is made in the form of a deep cup on three legs. It is decorated with salient spiral-bended and upward broadening blade turning into twisting endings. The blades are complex

Fig. 17. A small oval vase with carved handles. Nephrite. Sayan. 18 x 8 cm. Peterhof Cutting Factory(?), 1896. Received from the Gatchina Palace in 1926. FMM № PDK-1743.
Fig. 18. A vase. Nephrite. Murgab (China). Height 12 cm. Peterhof Cutting Factory(?), end of the 19th century. Received from the Gatchina Palace in 1926. FMM № PDK-1807.

in shape. They are narrow at the base, becoming wider upwards and transforming into a wavy bended edge of the vase. The repetition of the specking salient details gives an iridescent effect to the vase. The blades are not entirely identical. Some of them are more narrow than the others or bended differently. This deviation from the standard has produced fragmentation of the specks with additional vividness to the vase. Some blades turn into double curls downwards, which form the legs of the vase. The base of the vase is even and salient. The internal walls are with complex surface and deepenings, corresponding to the salient blades outside. Such a complex wavy shape gives an impression that a vase is made from plastic material.

It is possible that this item is made to imitate in stone what could have been made from other raw materials. For instance, stone dippers were made to imitate wooden or metallic ones.

As it was mentioned above, nephrite items were produced in great quantities at the Peterhof Factory in the last decades of the 19th century. Unfortunately, the Inventory List does not often contain a precise description of the items, which would have allowed their confident identification. The described vase is conditionally attributed to Peterhof, because it was received from Gatchina. This Royal residence had the majority of the best Peterhof items. We do not know other Russian stone-carved workshops where such masterpieces could be produced.

The museum has another vase made from a single piece green-grey Murgab nephrite. It has a circular cup on the downward widening base (Fig. 19). Almost all its surface is perfectly polished. The styled carved leaves decorate it. They form a bended edge of the vase. It also has large curls at the base. It is conditionally attributed to Peterhof.

There is no certainty in the origin of the other two exhibits in the collection of the Mineralogical Museum.

It is a vase-chair (open box for papers?) made from green Sayan nephrite with small black spots (Fig. 20). Thin transparent walls of the item are partly covered by a carving in the form of rocailles and curls with through cuts. The uneven edge is a series of carved leaves. It was received from Gatchina.

The second item is a pot on three legs. It is made from pale-green, locally almost white, Sayan nephrite (Fig. 21). The thinnest transparent walls of the circular and slightly flattened article transform upwards into a narrow vertical neck. It was also received from Gatchina.

The list of Gatchina items (Central State Archive of Literature and Arts St.-Petersburg (ЦГАЛИ СПб), f. 309, op. 1, d. 46. l. 24), brought from the mezzanine of the Arsenal square, where Alexander III used to live with his family, has a "polished nephrite pot on three legs" made at the Peterhof Cutting Factory. It is possible that this is the pot currently kept in the Mineralogical Museum. However, it could not be found in the Inventory List.

The beautiful Uralian rhodonite (orlets) was among the favourite stones of the turn of the $19-20^{th}$ centuries. This stone was not known in the other parts of the world. As it

Fig. 19. A vase. Nephrite. Murgab (China). Height 13.5 cm. Peterhof Cutting Factory(?), end of the 19th century. Received from the Gatchina Palace in 1926. FMM № PDK-1806.

Fig. 20. A vase-chair. Nephrite. Sayan. Height 10 cm. Peterhof Cutting Factory(?).Received from the Gatchina Palace in 1926. FMM № PDK-1746.

Fig. 21. A pot. Nephrite. Sayan. Height 5 cm. Peterhof Cutting Factory. Received from the Gatchina Palace in 1926. FMM № PDK-1747.

was already mentioned earlier, it was discovered in the Urals in 1798. Already in 1800, Peterhof produced its first vases. However, the true rhodonite fashion came later, when malachite articles became rare. As well as malachite, it was considered to be a national Russian stone. The Peterhof Factory produced numerous diverse rhodonite items, mainly small in size vases, ash trays, glasses, knives, and dippers. In the Mineralogical Museum are the several items from the Gatchina Palace. Among them are the two carved baskets of different size. They can be certainly attributed to the Peterhof Factory where such items were cut from different stones since the end of the 1820s.

A smaller basket (Fig. 22) is made in the form of a berry basket with a handle of crossing branches. Perhaps, it is mentioned in the 1890 Inventory List of the factory as an "orlets basket made in amateur style". The basket is worth 142 Roubles (Mavrodina, 2007, p. 480).

It looks, as if the item was among the "stone objects" of the Royal Palace in Gatchina Central State Archive of Literature and Arts St.-Petersburg (ЦГАЛИ СПб), f. 309, op. 1, d. 46, list 11, No 40). This item is made in a-la-Russe style (similar to the above described dipper), which was popular in Russia in the second half of the 19th century. The other rhodonite baskets from the Inventory List do not have individual descriptions. Almost all of them were made in 1890 – 1892.

The second basket from the museum collection is of a complex and indefinite shape of the basket itself, with non-standard positioning of the handle, consisting of several finely carved stems (Fig. 23). The fluid shape of the masterpiece, in combination with the plant motifs, is typical for the Modern style, which was very popular at the time. Perhaps, this particular basket is mentioned among the masterpieces from the mezzanine of the Arsenal square in Gatchina, such as an "ash tray of irregular shape with a handle in the form of long leaves" Central State Archive of Literature and Arts St.-Petersburg (ЦГАЛИ СПб), Ibid., No 41).

The small flat cup of irregular shape is an outstanding carved rhodonite masterpiece from Peterhof. It is placed on the complex crossing of branches with the leaves (Fig. 24). The inventory book of the Mineralogical Museum describes it as a "vase in Chinese style designed by Gun and produced by Peterhof Factory in the 1890s". This text is also present in the work by Fersman and Vlodavets about the Peterhof Factory (Fersman, Vlodavets, 1922, p.89, 93). The 1890 works of the factory have only one similar item. It is a "basket made from orlets in Japanese style from publication by Gonze". It is dated to 1890 (Mavrodina, 2007, p. 481). It is very possible that this particular vase is now in the collection of the museum.

The museum received a small egg in a golden frame and a vase-chair along with the above-described rhodonite items from the Gatchina Palace.

This hollow egg was produced from high quality bright-pink rhodonite. Its edges are framed by gold (Fig. 25). Perhaps, it was meant to contain a surprise inside, but it came empty to the museum.

The Peterhof Factory produced numerous Easter eggs during many years. The eggs were both solid and hollow, with and without frame. It is known that eggs with gold were produced by both local craftsmen and "English Shop of Nicholls & Plinke". Gold was not labeled, and, for this reason, the origin of these items is not clear. The egg came from the Gatchina Palace. Perhaps, this "orlets egg (box) with golden frame" belonged to the Great Prince Mikhail Alexandrovich. It was transferred to the Mineralogical Museum of the Academy of Sciences on 16.12.1926, item N414" Central State Archive of Literature and Arts St.-Petersburg (ЦГАЛИ СПб), f. 309, op. 1, d. 39, No 421).

Fig. 22. A basket. Rhodonite. Urals. Length 8 cm. Peterhof Cutting Factory. Received from the Gatchina Palace in 1926. FMM № PDK-1765.
Fig. 23. A basket. Rhodonite. Urals. Length 14 cm. Peterhof Cutting Fcatory. Received from the Gatchina Palace in 1926. FMM № PDK-1766.

Fig. 24. A vase in Japanese style. Rhodonite. Urals. Size 13 x 10 cm. Peterhof Cutting Factory, 1890s. Received from the Gatchina Palace in 1926. FMM № PDK-1764.
Fig. 25. An egg. Rhodonite, gold. Length 3 cm. Peterhof Cutting Factory. Received from the Gatchina Palace in 1926. FMM № PDK-1767.
Fig. 26. A vase-chair. Rhodonite. Urals. Height 9 cm. Peterhof Cutting Fcatory(?). Received from the Gatchina Palace in 1926. FMM № PDK-1768.

The vase-chair made from orlets (Fig. 26) is a vase (or covered box) for small items or paper. Chinese motifs were used for its decoration. Legs and decorations on the sides in the form of curved branches and flowers remind cut details of the above-mentioned rhodonite vase made in Chinese style.

The description of this vase could not be found in the Inventory List of the factory. It is deemed to have been produced at Peterhof because it came to the museum from Gatchina together with the other Peterhof items.

Cover plates, or stone paper-weights, were very popular items of the 19th century. They were manufactured from diverse material in Peterhof and Yekaterinburg. In the Urals, they were produced by amateurs.

As it was mentioned in the article on mosaic works in the Mineralogical Museum (Chistyakova, 2009), the collection has a press-weight from the Stroganovs, which is mentioned in the Inventory List as a product of the Peterhof Cutting Factory worth 140 Roubles in 1898. By that time, the factory has significantly reduced production of such items. The Inventory List of 1898 does not mention them at all. Perhaps, it was a private order. Earlier, we described this item, proposing that it could be a product of the Yekaterinburg Cutting Factory. The problem of its origin remains unresolved.

The jasper handles for the table tools (Fig. 28) are an example of inexpensive items, which were manufactured at the factory during many years since the middle 18th century. Many members of the Royal family ordered them. For instance, the Princess Eugenia Maximilianovna ordered knife handles in 1896 (see the "Inventory List", p. 488). The Mineralogical Museum received handles

from KEPS, which was a source of many items in the Museum.

The Peterhof Factory produced three eggs of vari-coloured jasper collected in the Orsk region in the Southern Urals (Fig. 28). It was mentioned earlier that the factory was a producer of Easter eggs during many years. The Empress Alexandra Fedorovna personally gave them as a present to many visitors, who were allowed for the Paschal greeting with the Emperor. The museum notes mentioned that eggs were produced in the early 20th century. The museum received them from Kadykina in 1919.

One of the late works of the factory, when it stopped production of large high art masterpieces, was a low oval-shaped plate from patchy pink-green jasper from the River Filippovka in the Altai (Fig. 29). The plate came to the museum from the Stroganov collection in 1919, mentioned that this is a work of the Peterhof Factory of 1914. However, this item is not mentioned in the Inventory List of the items produced during that year.

The mosaic panels, kept in the Mineralogical Museum, undoubtedly represent a peak of the cutting art of the Peterhof Cutting Factory. They decorate doors and a draw box of the two-sided cabinet (Fig. 30). It is described in details in the article about mosaic works of the museum collection (Chistya-

Fig. 27. Knife handles. Jasper. Outskirts of Orsk, Urals. Length 8.5 cm. Peterhof Cutting Factory(?). Received from KEPS in 1925. FMM № PDK-2103.

Fig. 28. Easter eggs. Jasper. Outskirts of Orsk, Urals. Length 6 cm. Peterhof Cutting Fcatory, early 20th century. Received from Kadykina in 1919. FMM № PDK-576-578.

Fig. 29. A small oval plate. Jasper. Altai. Length 13 cm. Peterhof Cutting Factory, 1914. Received from the Stroganov collection in 1919. FMM № PDK-1133.

Fig. 30. A cupboard-cabinet from Amboina tree. Panel of the Florence mosaic. Marble, lazurite, jasper, labradorite, amazonite, agate, tiger eye (quartz with inclusions), opal, queensite (pink opal), and others. Height 160 cm. Peterhof Cutting Factory, 1885–1893. Received from the Laboratory of Stone, USSR Ministry for Construction Materials, in 1962. FMM № PDK-5381.

kova, 2009). For this reason, this paper contains only its brief description.

A cabinet is made from the precious tropical Amboina tree. In addition to the panel, it is decorated by beautiful gold-plated bronze. The work on this cabinet, as well as on the other two similar cabinets, continued from 1884 until 1893. All of them were meant to decorate the palace interiors. Members of the Royal family were constantly interested in the progress of this work. Today, two out of three items are in the Hermitage.

We know that all three cabinets were demonstrated at the 1893 World Columbus Exhibition in Chicago, where the Peterhof Cutting Factory has received a bronze medal and an honorary diploma.

A panel with 'tropical forest and parrots against the blue background', which decorates the cabinet doors kept in the Mineralogical Museum, was produced after a drawing received by the factory from Henri Dasson, one of the most important producers of furniture and art objects in Paris. In St.-Petersburg, the Academician Baron Klodt made water-coloured paintings of the mosaic and its split into individual fragments. The paintings were then given to several craftsmen, and they were again reassembled into a single panel afterwards.

The extremely fine work consists of lazurite, marble, prase, opal, pink opal, tiger eye, jasper, petrified wood, and amazonite. The small pattern required cutting the tiny plates from stones with absolutely different properties, which were then polished together, which is always difficult even for experienced craftsmen.

In the Inventory List, a cabinet is mentioned among the 1897 works. Its 1897 price was 9.361 Roubles. When a cabinet was sent to the Chicago Exhibition, it was estimated to value 28,100 Roubles (Mavrodina, 2007, p. 153, 490). A cabinet was transferred to the Mineralogical Museum in 1962 from the Stone Laboratory of the USSR Ministry for Construction Materials.

The Mineralogical Museum collection of the masterpieces produced at the Peterhof Cutting Factory is not large and does not represent the significance of Peterhof in development of the stone-cutting art in Russia. However, even such a small number of items manifests the highest art level of stone works at the factory and the colossal development of skills of its craftsmen, who started from

simple cups in 1760 – 1780 and mastered the manufacturing of fantastic mosaic masterpieces by the end of the 19th century.

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