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## **PRODUCTION OF ARTILLERY IN LVIV IN THE XV–XVIII CENT.**

### **AND PARTICIPATION OF THE UKRAINIANS IN IT**

**Виробництво артилерії у Львові в XV–XVIII ст.  
та участь у ньому майстрів-українців**

Важливим чинником, що впливав на розвиток металообробних ремесел та зброярства у Львові, були багаті поклади болотної руди від Дністра по долині р. Зубри до Львова. Задовго до початку ліття артилерії у місті вже виливали дзвони, добре розвиненим було й ковальське ремесло. Завдяки вигідному географічному розташуванню Львів був важливим центром торгівлі та ремесел, що, в свою чергу, сприяло швидкій появлі новітньої зброї в місті. Метою роботи є проаналізувати участь майстрів-українців у виробництві артилерії у Львові в XIV–XVIII ст. на різних етапах його розвитку. Досліджується етнічне походження майстра як фактор впливу на виробництво гармат, зокрема, як це відображалося в декорі ствола гармати. На підставі аналізу документів Богоявленського братства та порівняльного

аналізу зображення постатьєвих святих на гарматах, встановлено, що І. Полянський — автор останньої відомої серії гармат вилитих у Львові, був греко-католицького віросповідання, тобто — українцем за походженням.

**Ключові слова:** артилерія XIV–XVIII ст., виробництво гармат, Львів, майстри-українці, орнамент.

*The article describes the events that accompanied the process of the appearance, production, and decline of artillery production in Lviv in the XIV–XVIII centuries. The factors that have become prerequisites for setting up the production of guns in Lviv are analyzed. An important factor influencing the development of metalworking and weapons production in Lviv was the rich deposits of marsh ore from the Dniester along the Zubra River valley to Lviv. Long before the casting of artillery in the city was already pouring bells. Due to its favorable geographical location, Lviv was an important center of trade and crafts, which in turn contributed to the rapid emergence of new weapons in the city. The initial period of development of artillery production is characterized, the preserved Lviv bell tower of the XIV century is described from the holdings of the Museum of the Polish Army, it was concluded that its design corresponds to the requirements of the time.*

*The key moments of the development of artillery production in Lviv in the XVI–XVII centuries are considered with an emphasis on the ethnic origin of foundries operating in the city. The influence of European production technologies is monitored through foreign craftsmen who worked as a sworn city foundries. The high authority of Lviv foundries is evidenced by the right to supervise masters of their profession throughout the territory of the Rzeczpospolita on a par with Krakow's colleagues. We do not find any documentary references to the involvement of Ukrainians in working with city guns. Obviously, this is due to the general confrontation between the communities in the city at the time.*

*Military-political and economic reasons for the actual cessation of production of artillery after the invasion of Charles XII's troops are examined. An attempt to resume casting in Lviv at the beginning of the XVIII century is described. On the basis of the analysis of some documents of the Epiphany fraternity and a comparative analysis of the image of the figures of saints on guns, it is established that I. Polyansky — the author of the last known series of guns poured in Lviv, was of Greek Catholic faith, that is — Ukrainian in origin.*

**Keywords:** artillery XIV–XVIII centuries, Lviv, production of guns, Ukrainian craftsmen, ornament.

Over the past few years, Eastern scientists started to pay more attention to the production and development of artillery of the XIV–XVIII centuries. A problem of authenticity of artifacts, study of the production process and factors which

influenced it, is particularly topical nowadays. Substantial study of the saved guns will make it possible to trace the specifics of development of this type of armament in certain regions, to see the reflection of cultural traditions of ethnos on gun barrels expressed in the decor style. The production of artillery in Lviv, in the time period we outlined, is a multifaceted issue. It is expedient to consider it not only in the framework of the development of gunsmiths and manning the town arsenal, but also in general in the context of the functioning of industry in the town. The separate issues that until now have not become the subject of interest of scientists are the contribution of masters-founders, Ukrainians of origin, in the history of artillery production in Lviv in the XIV–XVIII centuries and exactly how the ethnicity or religion of the founder was expressed in the style of the gun decor, which determines the novelty and relevance of the study.

There were few waves of historians' interest in the development of industry and the production of artillery in the XIV–XVIII centuries in Lviv. The first third of the XX century was marked by V. Lozynskyi's works; the value of his scientific works is in using archival materials, many of which have not yet been preserved. The scientific studios «Mistrz Herle i jego lwowskie dziala armatnie», «Komunikat o odlewnictwie lwowskiem» are among the first studies of the artillery of Lviv in the XVI–XVII centuries (Łoziński, V. 1896, s. CXXXI–CXXXII). K. Badetskyi made a solid contribution to the study of the development of Lviv artillery. Scientific works «Ludwisarstwo Lwowskie za Zugmunda I», «Sredniewieczne ludwisarstwo Lwowskie», «Leonard Herle. Ludwizarz I jego lwowskie dziala 1544–1572» and «Melchior Herle i Jan Milner. Lwowscy ludwisarze renesansu» are today the classics of the research of the military history of Lviv (Badecki, K. 1921a, s. 106; Badecki, K. 1921b, s. 59; Badecki, K. 1932, s. 12; Badecki, K. 1935, s. 33). L. Kharevichova studied the economic history of Lviv. However, in the writer's works there are no mentions of the confrontation between the workers-Ukrainians and Poles (Charewiczowa. 1925, s. 37).

The second wave of research of the industry of Lviv and the production of artillery was in the middle of the twentieth century. This includes the work «Industry of Lviv during the period of feudalism (XIII–XIX centuries)». The author Y. Kis, on a large factual material describes the foundations of the town's economic life, partly covering the problems of inter-ethnic confrontation (Кісь, Я. 1968, c. 233). In the context of studying the history of foundry, we considered the works of P. Zholtovskiy. The researcher focuses on the stylistic features inherent in the Ukrainian national traditions of decor in metal art items, which include guns of the XIV–XVIII centuries (Жолтовський, П. 1957, с. 73–81; Жолтовський, П. 1972, с. 113).

The third wave of study of the problem falls on the modern historical period. The first shot was the article by P. Lazechko «From the depths of ages. (Who founded Lviv guns)» (Лазечко, П. 1993, с. 106–109). O. Malchenko comple-

ments the conclusions of his predecessors in the works «Arsenal of Ukrainian castles of the XVI–XVII centuries» and «Ornamented artillery in the Right-bank Ukraine (XVI–XVIII centuries)» (Мальченко, О. 2004, с. 398; Мальченко, О. 2009, с. 284). The importance of the scientific contribution of the author to the study of the history of Lviv artillery is in the widespread processing of material sources — guns made in the town. «Essays on the military history of the town of the XIII–XVIII centuries. Leopolis militants» by A. Kozytskyi contain a lot of factual material on the military history of the town (Козицький, А. 2014, с. 368). M. Kapral published a number of valuable for us documentary sources in the works «National Communities of Lviv», «Economic Privileges», «Epiphany Brotherhood». In particular, numerous documents which cover economic and social relations in Lviv in the XVI–XVII centuries, handicrafts and other important aspects of the town's life (Капраль, М. 2003, с. 440; Капраль, М. 2013, с. 876; Капраль, М. 2016, с. 248). Regardless of lots of scientific works dealing with the history of industry development in Lviv in the given period of time, in particular with artillery production, a lot of issues are not cleared up.

The purpose of the work is to analyze the development of artillery production in Lviv in the XIV–XVIII centuries and the participation of Ukrainians in it. The sources of our work are gun's of Lviv production from the collections of the Lviv Historical Museum and the Museum of the Polish Army in Warsaw.

An important prerequisite for the establishment of artillery production in Lviv in the XV century became a high level of development of metalworking — blacksmith and foundry crafts. Long before the founding of guns the bells were already founded in the town. The old traditions of foundry are mentioned in the Galician-Volyn chronicle: «І дзвони (Данило) приніс із Києва, (а) інші тут вилив» («And the bell (Danylo) brought from Kyiv, (and) others were founded here») (Галицько-Волинський літопис 1994, с. 102). To this day, a unique memorial has been preserved — the bell, founded in 1341 for the Monastery of St. Yuri at the expense of the abbot Yefim, the author of which was Yakiv Skora (Александрович, В. & Ричков, П. 2008, с. 79–83).

The Galician-Volyn state was closely linked politically and culturally with the countries of Central and Eastern Europe. Due to its favorable geographical location, Lviv had always been an important center for trade and crafts, cultural development. In the last decades of existence of the state, the Czechs and Germans even made a significant place in the state council during the prince's rule. In those days, the Germans were the first to be destroyed and devastated by the Tatar invasions of the Galician lands, they settled alongside the indigenous people, bringing their cultural traditions to the town. The policy of resettlement, in particular, of German craftsmen and merchants to Lviv and other Galician-Volyn towns, started by King Danylo, was continued by his successors (Badecki, K. 1921b, s. 11). Among the German craftsmen who came to Lviv, there were many

specialists of various profiles. This state of affairs contributed to the fact that modern European production trends took root in the town.

It is impossible to say exactly when the first masters-founders of copper alloys appeared in the town. However, bronze foundry since X–XIII centuries had been a common craft in Rus. Lviv administrative books, which could be a source for this problem, were burned down during the fire in Lviv in 1381. However, in the fragment of the oldest judicial book of the Lviv Magistrate from 1382 to 1388, among the 23 craft professions there is a mention of the founder of the bells (Czolowski 1892: 361). This state of affairs allows us to assert that the foundations for the establishment of artillery production in Lviv were laid long before it began.

An important factor influencing the development of metalworking crafts and gunsmiths in Lviv, were rich deposits of marsh ore from the Dniester along the valley of the Zubra River to Lviv. Findings in the cultural layer of the XIII century such as an oven for smelting non-ferrous metals and three unique bilateral stone molds, which are rare even for such Rus towns as Kyiv and Galych, are another additional statement about the high level of foundry development in the town long before the production of artillery (Ісаєвич, Я. та ін. 2006, с. 90).

After the Galician-Volyn state actually ceased to exist, Lviv began to suffer from attempts to seize power. Polish, Lithuanian and Hungarian rulers fought for the town until the Polish authorities finally came to power. Regular military competitions for Lviv placed on the agenda not only the strengthening of fortifications, but also the development of the industry of gunsmiths. The fact that the Magdeburg Law was again granted to Lviv on June 17, 1356, said about the strategic importance of Lviv and the desire of the king to emphasize his commitment to it in every possible way. This contributed to the influx of new inhabitants, among which there were a lot of immigrants from the German lands. Contacts with Nogai and the Teutonic Order, in turn, contributed to the spread of the latest militaristic technologies in the town. In 1408, according to the decision of the town council, each shopkeeper had to purchase at the expense of the shop one machine for throwing arrows and cannon-balls that the town master had to produce (Ісаєвич, Я. та ін. 2006, с. 90).

Already in the medieval town of Lviv most of the craftsmen living in the town were united into shops that guarded their interests and, through their shopkeepers, took part in town administration. The shop belonged to artisans of one specialty (craft), or several crafts similar to each other. Since the foundry did not cover a large number of craftsmen, the founders belonged to the blacksmith shop, along with the tinsmiths and watchmakers. And from 1499 the founders joined the shop of tinsmiths (Charewiczowa, L. 1925, s. 46-54).

Despite the level of development of foundry in the previous centuries, in the XV century gunsmiths of mainly German origin worked in Lviv, largely due to

the policy of the magistrate which invited the Germans as recognized specialists in this field (Badecki, K. 1921b, s. 33-34).

Gun founding also belonged to artistic products because, in addition to technical education, the masters were required the ability to model shapes and ornaments. Lviv masters were very qualified in the period of the origin of the artillery and we can assess it from a few artifacts that have come to our days.

The constant need to upgrade the gun park of the town did not leave until our time the artillery manufactured in Lviv in the XV century. Thanks to the skillful actions of the founders of later centuries, they turned into new, more capable artillery.

From the real monuments of the artillery of Lviv production in the late XIV–XV centuries only hackbut which is currently kept at the Museum of the Polish Army in Warsaw<sup>1</sup>, has survived to this day. Let's describe the item. The length of the barrel is 735 mm in total. The diameter of the caliber is 16 mm. The length of the bore is 728 mm. The length of the muzzle is 396 mm. The length of the gun breech is 339 mm.

Structurally and visually, the barrel is divided into two parts. The muzzle is made in the form of a hexagon, and the breech is cylindrical. The muzzle is thickened and hexagonal, formed from a ring and two profiled belts. The figure hook is welded on the lower face of the muzzle at a distance of 178 mm from the muzzle face. The inflammatory hole is located in a rectangular part of a breech block, framed by a side. On the upper edge of the breech of the hackbut there is an expressive schematic dot ornament, below — two stamps in the form of blurred outlines of animals. According to K. Badetskyi, it is an image of squirrels (Badecki, K. 1921b, s. 43–44). Between the stamps and the breech block there is a line — the mark of the end of the powder chamber. In the breech there is a groove for a wooden guide fixing, with a depth of 65 mm, which controlled the hackbut.

In our opinion, the work is executed qualitatively, at a sufficiently high technical level, with observance of all proportions typical for the hackbut of that time (Вилинбахов, В. & Кирпичников, А. 1958, с. 243–252; Вилинбахов, В. 1959, с. 235–243). Authorship is attributed to Valentyn Falten, who at that time worked in Lviv and enjoyed high authority in the town, as evidenced by the long-term contract and pension agreement signed with the town (Badecki, K. 1921b, s. 44). After the death of V. Falten the founder Georgii came to Lviv from Turkey, but he worked in the town for a short time.

Participation of Ukrainians in the foundry and forge craft in Lviv is closely linked with the rights and privileges of the community in the town. Despite the dominant position during the Galician-Volyn state, after the transition of the town under the authority of Kazymyr III, there began several centuries of restriction of rights in many social, economic, legal, land, craft areas of urban life. Already in 1425, with the certification of the king's oath, only one Ukrainian is mentioned in the register of Lviv town officials and governors — Petro Rusyn, shopkeep-

<sup>1</sup> Museum of the Polish Army in Warsaw. Inw. № 51425.

er of shoemakers (Зубрицький, Д. 2002, с. 81). There are no documented references to the work of Ukrainian-made metalworking craftsmen at that time. It can be explained by the general social status of the community in the town. Only in the early XVI century certain changes took place in the expansion of the rights of Ukrainians in Lviv (Капраль, М. 2003, с. 97–98).

In 1468 Kazymyr Yagellonchyk brought artillery craftsmen to Lviv, among whom the most experienced gun founder was Valentyn. He was accepted into service as a town gunsmith and began to work in a new foundry built near the Krakiv Gate (Мальченко, О. 2004, с. 195).

Lviv artillery craftsmen of the Zygmund I era can be divided into two groups. At the head of the first group you can put Konrad Fritz or Frelikh. For a long time the master worked as the safeguard that is, served artillery in the arsenal and the town «gun» arranged on the walls and towers. It was necessary to unite gunsmiths-artillerists around him: Amvrosii Mlechka, unknown ones by the names of Matvii and Andrii and Hanush Svorcha. All of them, together with Konrad, swore allegiance before taking over duty: «Do not retreat under any circumstances and the necessity of the town, at every attack of the enemy be prepared to use weapon, do not divulge confidential secrets. Guns, gunpowder, bullets and tools should be kept so that they do not damage the town. Without the will and the message of advisors, do not leave the town, do not side with anyone else» (Badecki, K. 1921a, s. 56). The main representatives of the second group of gunsmiths, that is, the ludvysars, who founded the guns, were Bartosh Weis, Lukash, whose last name we do not know, and Martin. Ganush Wolf served as a gunsmith and a ludvysar, he was also engaged in the modeling and founding of bells and other smaller bronze objects for home use or in churches.

The professional level of the representatives of the gunsmith-foundry craft of Lviv was also manifested in a royal diploma, issued in Krakow on September 13, 1525, by which Zygmund I exempted Lviv industry from the rule and jurisdiction of the Krakow authorities, confirming the industrial shops in the town. During his reign Lviv gunmen did not form a separate workshop, but belonged to one large brotherhoods of shops, which covered various metal working crafts (Капраль, М. 2013, с.15).

To this day a little artillery of Lviv renaissance foundry has survived. Of the many guns made by Bartosh and Lukash, only a few are of high technical and artistic level of founding art in Lviv in the first half of the XVI century. Two of them are stored at the Museum of the Polish Army in Warsaw<sup>1</sup>. We will not make a description of them; it was done in detail by О. Мальченко (Мальченко, О. 2011, с. 35–36). Let's just note that the guns fully meet the requirements of the contemporary European artillery, both technically and stylistically, demonstrating the high level of professionalism of the craftsmen.

<sup>1</sup> Museum of the Polish Army in Warsaw. Inv. № 5165; Inv. № 51652.

As we see from the masters' names and surnames, they were foreigners, mostly of German origin. We do not find information about the work of the Rusyns from masters-founders of that time in Lviv. However, it should be noted that the documents of that time did not mention any apprentices or other workers in the shops (Кіс'євський, Я. 1968, с. 52-54).

We can speak about the influence of Western European artillery technology on the development of the production of guns in Lviv in the second half of the 16<sup>th</sup> century, based on the fact that the three leading masters who worked in the town — Leonardo and Melkhior Herle and Jan Milner — came from Nuremberg, a free imperial town in Middle Franconia in the northwest of Bavaria (Badecki, K. 1921b, s. 5-6). That is, they were bearers of the ancient traditions of artillery production, which originated from the middle of the XIV century (Чиппола, К. 2007, с. 17-21). This is reflected in the quality of the founding and stylistics of the guns of these masters, which are now stored in the Lviv Historical Museum and the Museum of the Polish Army in Warsaw (Верхатурова, М. & Церські, С. 2018, с. 174-184; Мальченко, О. 201, с. 37-39). That, in turn, is another argument in favor of a high level of foundry development in Lviv. Also, the right to supervise masters of their specialty throughout the Rzeczpospolita on the level with Krakiv colleagues testifies to the high authority of Lviv founders. It should be noted that Lviv blacksmiths in the years 1592-1613 were fighting the Kamyanets-Podilskyi shops for the right to control the masters of not only Rusyn but also Podilskyi provinces. We should mention about the presence of masters-blacksmiths from outside, so-called bunglers, and a loyal attitude towards them from the shop; records in the cash books of the shop about the amounts made by bunglers point to that fact (Кіс'євський, Я. 1968, с. 114-115). In the last quarter of the XVI century gunsmiths Felix Zhulkovskiy-Szczensnyi, the father of Stanislav Zulkovskyi and Daniel Krol worked in Lviv (Мальченко, О. 2009, с. 69-74).

However, if we talk about the social and legal relations of the Lviv communities in the context of artillery production of this time, we have to say that statistics was not comforting for Ukrainians. We did not find any documentary references to the work of the master-ludvysars or the local gunman of Ukrainian descent. Apparently, this was due to the confrontation between the Ukrainian and Polish communities in resolving issues with the right to work in the local shops. For example, in the course of litigation between the confessors of the Greek and Roman ceremonies of the tailor's shop, one of the main arguments of the latter in favor of the fact that the former could not enjoy all the full rights in the shop was that the shop was founded «on the basis of royal privileges only for Catholics, and not for people of another's faith» (Капраль, М. 2003, с. 121).

A significant contribution to the history of the Lviv gun foundry was made by Franke's family, whose masters worked in Lviv for more than half a centu-

ry. The dynasty was founded by Georgii Franke in 1598 as a local ludvysar. He worked as a master in the foundry workshop near the Krakiv Gate. Since 1601 G. Franke's son Kaspar Franke worked in his father's assistant. G. Franke died in 1634. After his father's death Kaspar headed the workshop. He died in 1639, and the shop was headed by Jean Franke. Since 1645 Andrii Franke began to work in the foundry workshop near the Galycian Gate. He fulfilled numerous municipal and private orders (Слободян, П. 2008, c. 180–183).

In the first half of the XVII century one more gun maker was working in Lviv — Jan Tuchynskyi Chokher. In 1661 Georgii Steniak worked in Lviv. Unfortunately, nothing is known about the work of these masters. In 1668, after the death of A. Franke, Georgii Lotryng headed the foundry workshop near the Galycian Gate. This appointment caused a controversy between him and the apprentice of A. Franke — Gregor Belkhovych, who wanted to lead the foundry workshop after the death of the master. The conflict led to the fact that G. Belkhovych left Lviv and returned only after the death of Lotryng. Since 1672, this workshop was headed by G. Belkhovych, who worked as a local ludvysar up to 1683 (Мальченко, О. 2009, c. 101).

In 1676 Ivan M. Matviiovych worked in Lviv as a specialist in the manufacture of hackbut. He fulfilled many private orders. He also collaborated with Armenian royal goldsmith Bedros Zakhariashovych. Unfortunately, documentary and material sources, which would show in detail about I. Matviiovych's work, have not survived. But we can assume that he was a Ukrainian of descent (Капраль, М. 2004, c. 101).

Despite the fact that founders and gunners were still working in the town, in the third quarter of the XVII century the military defense system of Lviv gradually, but steadily, was falling into decay. The reasons for this were, mainly, foreign policy riots, which did not contribute to the growth of the town's economy. Lviv was subjected to sieges, which also did not contribute to improving the financial situation. 1672 — un successful siege of the Turkish army of Sultan Mehmet IV and the Cossack army, led by P. Doroshenko. As early as 1675, 50,000 armed Tartars and Turks invaded Lviv (Козицький, А. 2014, c. 244–245). At the end of the XVII century in Lviv there were attempts to expand the boundaries of the town by building a new ring of defense fortifications. However, after the conclusion of the Karlovitsky Peace Treaty and the return of Kamyanets-Podilsk to the Rzeczpospolita, the town collapsed as a defensive center.

In Eastern Europe the Northern War took place. The army of Karl XII occupied Lviv on September 6, 1704, practically without a fight, entering the town through an open gate near the monastery of the Discalced Carmelites. For two weeks, the city suffered from robbery, and then an overreach indemnity fell on Lviv residents. After these events, Lviv finally lost its reputation as a powerful military defense center. Lviv artillery was greatly damaged from the invasion of

the Swedish army. Part of the guns was blown up and burned<sup>1</sup>, and the rest — were unusable for shooting because of the damage of the riveting of the inflammatory openings. These events became fatal for Lviv artillery. Guns, which were not only weapons, but also beautiful models of foundry art, disappeared without a trace. What was the artillery like in Lviv at the time of the arrival of uninvited guests, ironically, we can see in the album of a talented artist, a soldier of the Swedish troops F. Tellot, which is today stored in the archives of Stockholm (*Avbildning föreställande*).

The economic situation of Lviv after 1704 was deplorable. The inventory of the Lviv arsenal of May 2, 1724 mentions only one new gun, donated to the city by the bakery shop, the rest — obsolete artillery of the last century. The town did not have economic resources to renew the town arsenal with new guns. In the inventory of the arsenal Karel, Zygmund Schmeling and Alexander Gordon described the remnants of urban artillery, and, in particular, the cannon of L. Herlé, which today is in the collection of LHM, inv. № 3-3359<sup>2</sup> as «Dzialo z herbem miejskim, sub Anno 1556, karczoch odtracony, długie lokci». Gun under the inv. № 3-3358<sup>3</sup> was recorded in the inventory on the same day as position 14 «Dzialo 1 funt. Z herbem miejskim, z inscriptia nie mieckq, Lenhard mnie odlal, delfiny i Karczoch odtranony, długie kalibrow 44». Also, the inventory records L. Herlé's gun «Pod Orlikiem» of 1571 as «Dzialo 1 funtowe z herbem miejskim, sub signo Bociana z wezem i na gorze ptaszki, długie kalibrow 33» — today it is stored in the funds of the Museum of the Polish Army<sup>4</sup> (Badecki, K. 1932a, s. 39).

The Royal Order of 1738 and the Sejm Decree of 1739 declared the restoration of artillery in the town. Probably, this became one of the prerequisites for the appearance of a series of fourteen low-caliber bronze guns. According to the technical characteristics the guns are low-caliber (3/4 pounder) gun.

By the architectonics of the barrel they are field guns that have been widely used throughout Europe since the XVII century. The peculiarity of the decor of the barrels is the image of the Savior, John the Baptist and the 12 apostles, so the series received its unofficial name — the «Apostles» (Pawłowski, B. 1911, s. 53).

Guns belong to the authorship of Ioan Polianskyi, who in 1738 concluded a contract for the lease of urban founding workshop. I. Polianskyi was a member of the Epiphany Brotherhood, that is, Ukrainian of descent (Капраль, М. 2016, c. 44). To the present day only 7 guns have survived, all of them are part of the collection of the Lviv Historical Museum.

Let's describe the gun S. ANDREAS<sup>5</sup>. The length of the barrel is generally 900 mm. The barrel diameter is 49 mm. The length of the muzzle is 435 mm. The

<sup>1</sup> Львівський історичний музей, інв. № 3-3360; інв. № 3-3362; інв. № 3-3370.

<sup>2</sup> Львівський історичний музей, інв. № 3-3359.

<sup>3</sup> Львівський історичний музей, інв. № 3-3359.

<sup>4</sup> Museum of the Polish Army in Warsaw. Inv. № 225.

<sup>5</sup> Львівський історичний музей, інв. № 3320.

length of the breech is 231 mm. The length of the vyngradis 69 mm. The thickness of the base ring is 12 mm. The distance from the base ring to the center of the inflammatory opening is 43 mm.

The conical shape of the gun body is structurally and visually divided into three parts: muzzle, chop and bottom (base). The muzzle moulding is modeled in the form of several different-profile adjoining rings of different diameters (from the muzzle face: the ring of the type of astragal passes into a scotia, then again comes the ring of the type of astragal, to which three rings of type fourth roller are adjoined in the order of decreasing the diameter). Smooth bending of muzzle molding passes into the barrel. Muzzle neck is girded with frieze, modeled in the form of plant volutes, decorated with leaves. A band formed of a ring of type astragallimits the muzzle neck, which is adjoined on both sides with thin rings of the type shelf. The gun barrel is decorated with a gorgeous frieze: in the center two guns are shown on the carriages, which face one another with the breech parts, under the muzzles of which there are cannon-balls. Above the guns there are four crossed arrows. Above the center of crossed arrows there is a four-petal rosette framed with branches with leaves on both sides. The image of an angel mascaron with wings finalisees the composition. On both sidethe composition is framed by stylized columns, over which there are human mascarons. In the center of the muzzle of the barrel there is a male figure with a dowry standing on the water, in such a way the master depicted St. Andrew. Under the figure there is an inscription in Latin capital letters S. ANDREAS. The image of the figure of the saint is executed quite in relief. The water image is shown in the form of a thin founded belt, on which there are waves stamped by punch. Thanks to this composition this gun has got its name.

The muzzle part is completed by a frieze, executed as stylized palm trees and a composition of several rings of various profiles: astragal, scotia, fourth roller, astragal, slope, scotia, fourth roller.

The gun trunnion part is the shortest. It is separated from the muzzle part by the ring type hoop. Gun trunnions are symmetrical, placed horizontally, along the central line of the gun. The length of the right trunnion is 45 mm, the diameter is 43 mm. The length of the left trunnion is 44 mm, the diameter is 42 mm. Also, in the trunnion part there are two arches (the so-called dolphins) made in the form of sea monsters. Between them in the center there is a punch stamped four-petal rosette, the middle of which is decorated with a grid. The chop part completes the ring of the type of shelf, which adjoins the «sharp» astragal, and the scotia passes into the breech part.

The breech part begins with a ring type hoop. In the center there is an inflammatory opening in the square part of a breech block. At the opening there are remnants of the mounting of canopies for the lid that closed it. A breech screw is flat. Vyngrad is cone-shaped. Documentary references on the use of these guns cannot be found yet.

It should be noted that the images of the saints on the Lviv artillery do not appear for the first time. For example, on the gun of Lviv production of 1698, there is the figure of St. Ioan Baptist, depicted as a young man with a lifted right hand and a dowry from which the ribbon hangs, clothed in a mantle that does not cover his knees, and encircled with a thin belt. A lamb sits at the right foot, looking up at the young man. Nimbus over the head is not depicted, the figure seems moving and dynamic, which is a characteristic feature of the Roman iconographic tradition, which, in turn, is a reflection of the author's outlook. And although he is unknown, we can firmly assume that he was a confessor of the Roman rite. The gun is currently stored in the funds of the Museum of the Polish Army in Warsaw<sup>1</sup>. On the contrary, the image of the figures of saints on the «apostles» of the authorship of the Ukrainian writer I. Polianskyi is characterized by the static and rigorous character of Byzantine iconography<sup>2</sup>. St. Ioan stands on the water (water is made as a strip with punched waves), clothed in a mantle, with a dowry, from which the ribbon hangs in the right hand and a clear nimbus. Friezes, formed from stylized leaves, are almost identical on both guns, indicating a certain transmission of traditions of gun decoration. We can say that religious confessions of the Lviv craftsmen-founders were reflected in gun decoration quite plainly sometimes (Жолтовський, П. 1972, c. 113).

Unfortunately, despite the attempt the restoration of the town arsenal did not take place. The overall economic situation in the town did not contribute to the improvement of the state of defense. The town had a lot of debts. In 1753 the government decided to sell the urban artillery. Wholesale purchaser was Prince Ieronim Florian Radzyvil, who continued the tradition of previous generations — collecting weapons and actively replenishing the gun park of his residence (Верхатурова, М. & Церські, С. 2018, c. 174–184).

According to the results of the Revision of town fortifications in 1766, we see that urban fortifications came to a complete decline. The general political and economic situation of the Rzeczpospolita could not contribute to the development of Lviv as a defense center. During the Barska confederation, the town was sieged by Rus troops and Polish confederates, which eventually put an end to its defenses. These events have become the latest trials of Lviv as a defensive center in the Rzeczpospolita. After the Austrians occupied Lviv on September 19, 1772, an inventory of weapons of the local arsenal was conducted, in which two bronze guns were found, presented to the town by the magnate K. Konetspolskyi,<sup>14</sup> 14 bronze guns of 1740 and two one-pound bronze guns. There were also seven iron guns without decoration and 50 faulty musket shafts. Found guns were transferred to the premises of the town archive (Pawlowski, B. 1911, s. 81). As of 1784, there were 3 founders and 18 blacksmiths working in Lviv, however, there are no mentions of the production of artillery (Ісаєвич, Я та ін. 2006, c. 237). XVIII century actually completed the

<sup>1</sup> Museum of the Polish Army in Warsaw. Inv. № 3078.

<sup>2</sup> Львівський історичний музей, ІНВ. № 3504.

era of smooth-bore muzzle-loading artillery. Already at the beginning of the XIX century town guns of the XIV–XVIII centuries began to become the property of museum collections of Lviv. So, as we see, during the prosperity of the Rzeczpospolita, Ukrainian craftsmen did not take part in the production of artillery in Lviv. However, one of the most famous series of guns, founded in the city, belongs to the authorship of the Ukrainian master — Ioan Polianskyi.

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