RESTORATION/CONSERVATION OF 18TH CENTURY DUELLING PISTOL WITH FLINTLOCK

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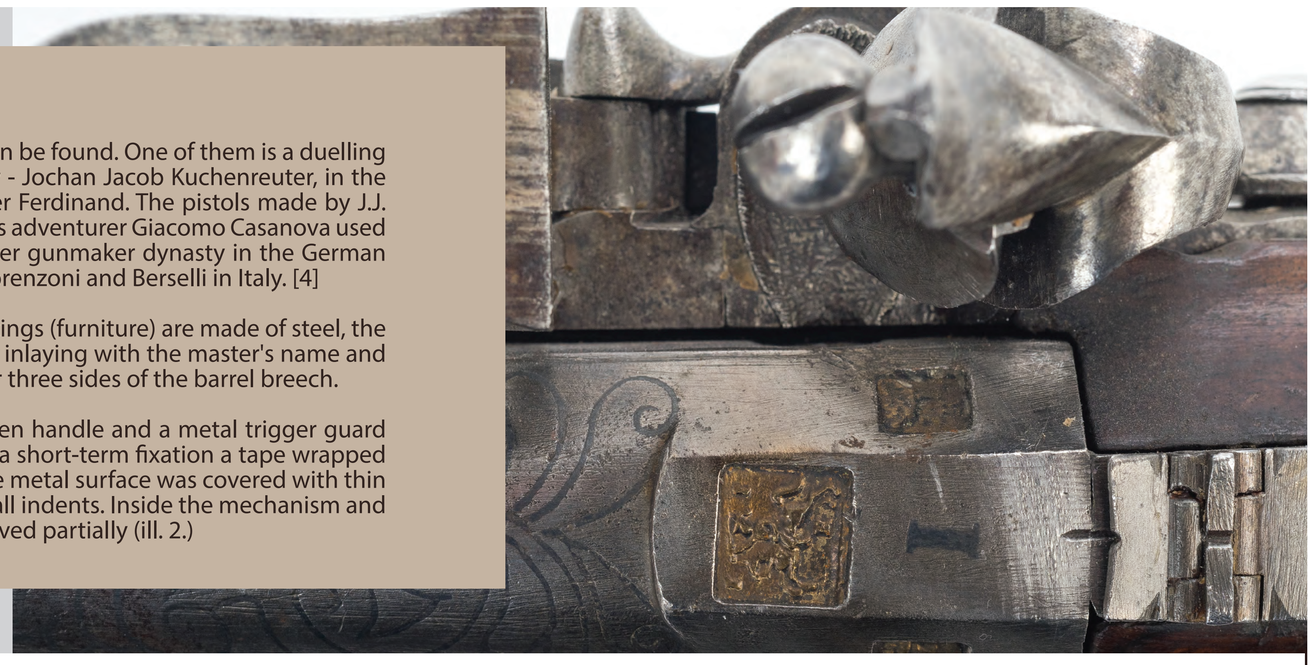
DESCRIPTION

The Latvian War Museum (LWM) stores a large collection of military heritage in which unique items can be found. One of them is a duelling pistol with flintlock [1], made by the best known representative of the Kuchenreuter gunmaker dynasty - Jochan Jacob Kuchenreuter, in the 1770s in Regensburg, Bavaria. [2] In 1757, he became a weapon master at the court of Prince Alexander Ferdinand. The pistols made by J.J. Kuchenreuter were known as high quality and accurate weapons. For example, in 18th century, the famous adventurer Giacomo Casanova used it in a duel when he seriously injured Polish nobleman Franciszek Ksawery Branicki. [3] The Kuchenreuter gunmaker dynasty in the German lands were the same as the Piraube, Chasteu and Crusché in France, Hill, Corson and Delop in England, Lorenzoni and Berselli in Italy. [4]

LWM got this weapon in the 1940s. [5] The barrel of the pistol, the parts of the mechanism and the fittings (furniture) are made of steel, the handle is made of wood and decorated with a bone casing at the front. At the top of the barrel is a silver inlaying with the master's name and decorative symmetrical ornaments. Square gold-plated brass master stamps are embedded on the upper three sides of the barrel breech.

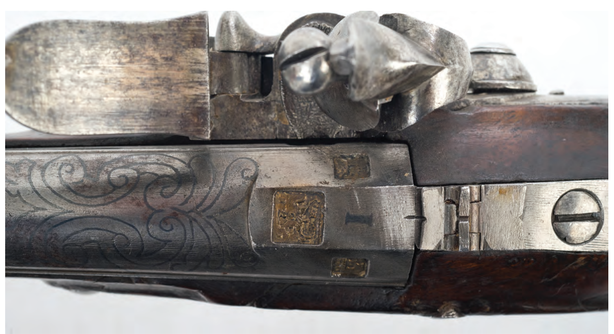
Prior restoration of the pistol was carried out in 1987. Several defects have been identified. A wooden handle and a metal trigger guard extension was broken (ill. 1). For this reason, it was problematic to store and expose the weapon, and as a short-term fixation a tape wrapped around the damaged spot was used. The preservation of the other parts of the pistol was also various: the metal surface was covered with thin and local corrosion products; parts of metal and wood from outside were covered with scratches and small indents. Inside the mechanism and the barrel, layers of corrosion and dirt were thicker and looser. Silver inlaying was oxidized, gilding preserved partially (ill. 2.)



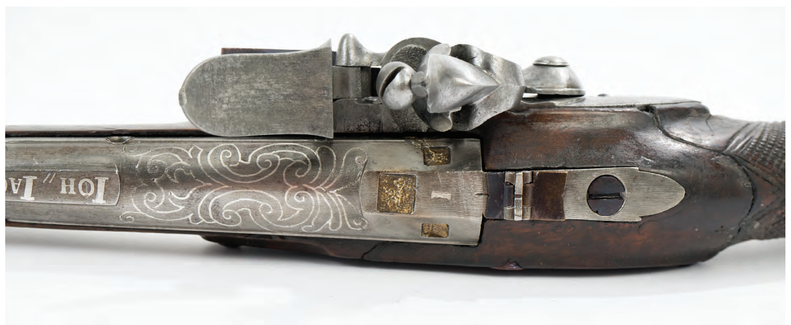
RESEARCH

Visual inspection and use of photo documentation allowed us to identify the types and extent of damage, and understand how safely to disassemble and reassemble a pistol.

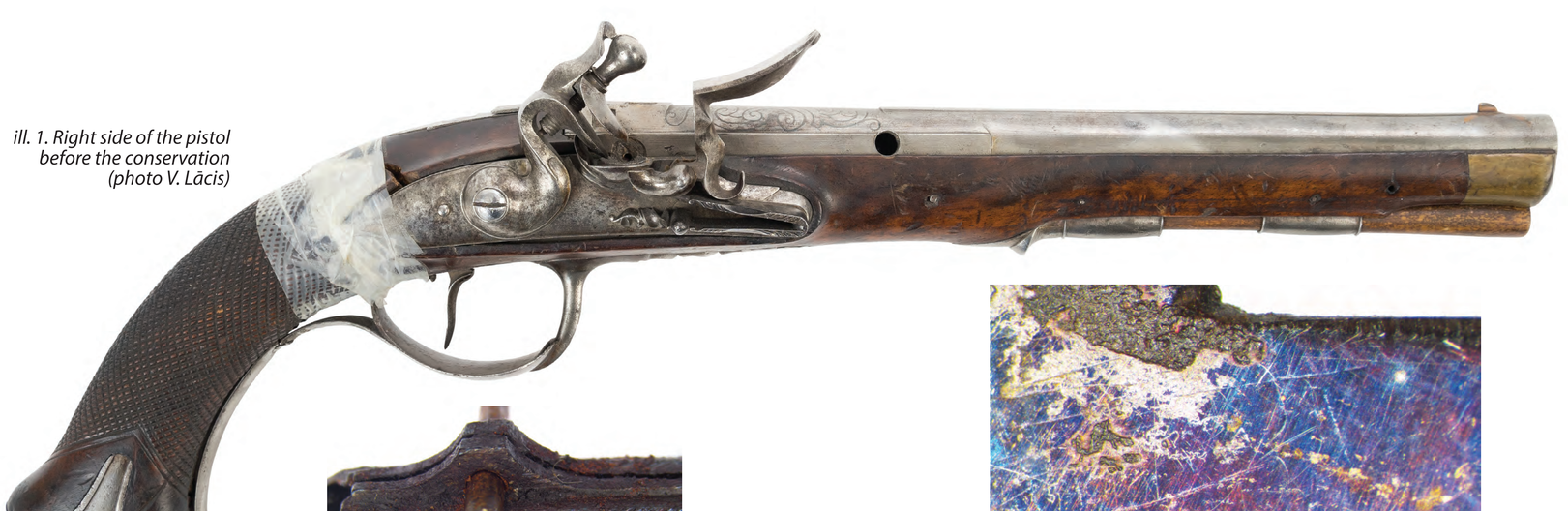
Microscopic research helped to find out which methods were used to make the components of the weapon and how they were handled. The majority of metal parts could be found to have thermal oxidation because their colour spectrum ranged from purple to pale blue (ill. 3.,7.) [6] Microscopic research also helped to figure out the methods of previous restoration. Some areas of the barrel and flint striking ignition mechanism was covered with a layer of colored paraffin, which was expanded into smallest slots and adopted the form of the surrounding details. It means that most likely the weapon has been fully soaked in a paraffin bath.



ill. 2. Fragment of upper part of the pistol before the conservation (photo V. Lācis)



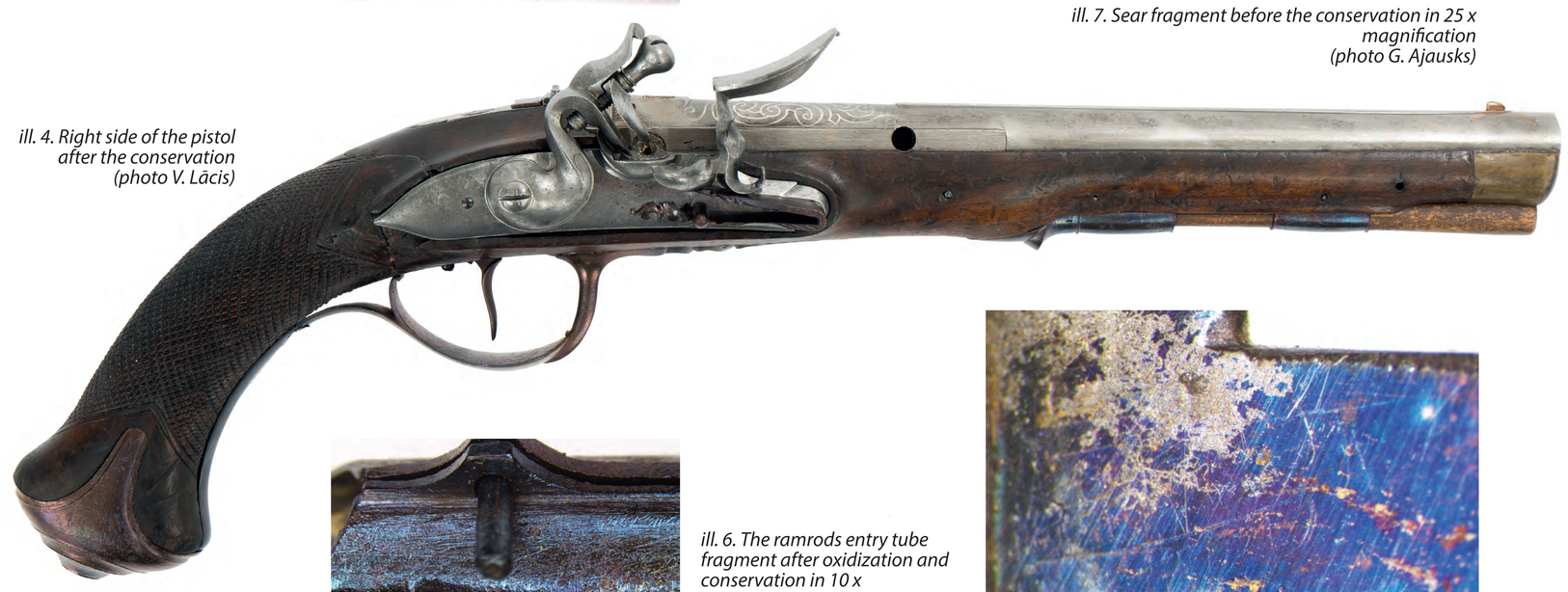
ill. 5. Fragment of upper part of the pistol after the conservation (photo V. Lācis)



ill. 1. Right side of the pistol before the conservation (photo V. Lācis)

ill. 3. The ramrods entry tube fragment before the conservation in 10 x magnification (photo G. Ajausks)

ill. 7. Sear fragment before the conservation in 25 x magnification (photo G. Ajausks)



ill. 4. Right side of the pistol after the conservation (photo V. Lācis)

ill. 6. The ramrods entry tube fragment after oxidization and conservation in 10 x magnification (photo G. Ajausks)

ill. 8. Sear fragment after the cleaning, oxidization and conservation in 25 x magnification (photo G. Ajausks)

MATERIALS AND METHODS

The pistol was completely disassembled in 55 details before microscopic examination. In the disassembling process, screwdrivers of appropriate width and length were used to prevent damage to the screw heads. In cases when the screws and pins were harder to take out Brunox Turbo Spry oil was dripped around them.

Metal details of the pistol were washed in a warm 5% Na2CO3 solution to free them from dirt. The thickest layers of paraffin were removed mechanically with scalpels. To remove corrosion products from the surface of metal details, in baths or compresses 5% EDTA solution in water was used. Such a chemical treatment was used for almost all metal details. The duration and number of times of this treatment for each detail depended on the thickness and extent of the corrosion layers. Between the etaps of chemical treatment and after it, metal details of the pistol were also mechanically cleaned with steel wire brushes (008), steel wool (000), ultrasonic and needle scalpels. The components that have been subjected to thermal oxidation were exposed to hot air stream (approximately 270°C - 320°C) from the hot air gun until the surface of the steel component has obtained the desired shade. (ill. 6., 8.) It is very difficult to achieve a consistent and even heat for thermal oxidation of large areas or complex configuration objects using a hot air gun and therefore thermal oxidation was made only for the smaller details of the pistol. To repair broken parts of wooden stock a wood glue was used.

As a protective coating, varnish and wax were used. Metal parts of the pistol which were not subjected to thermal oxidation were lacquered with 5% Paraloid B72 varnish with 0.1% BTA addition. Some details were covered with 20% microcrystalline wax Cosmoloid H80 solvent in Shellsol T. After conservation, the pistol was reassembled and the threads were lubricated. (ill. 4., 5.)

Refrences: **1.** *18. gs. divkauju pistole. - Latvijas Kara muzeja krājums, Inv. nr. LKM 7-36910/1164-IE* | **2.** *Hans-Peter Jobst, Gütesiegel Säbelschwingender Reiter, Die Oberpfälzer Büchsenmachertradition der Kuchenreuter [http://www.kuchenreuter.de/datei?datei_id=2]* | **3.** *Ibid.* | **4.** *Ibid.* | **5.** *Kara muzeja inventāra grāmata, CVVM ZA Nr.620. Inv. 1288 1/2* | **6.** *G. Buchner. Die Metallfärbung und deren Ausführung mit besonderen Berücksichtigung der chemischen Metallfärbung 2. Aufl., (Berlin, 1901); Techniques of Decoration on Arms and Armor [https://www.metmuseum.org/toah/hd/dect/hd_dect.htm]*