

## NEW ENTRIES REGARDING THE 12 PDRS OLD GUN FROM CONSTANȚA'S NAVAL MUSEUM

During the XVIII century the smoothbore guns were used for covering and supporting infantry maneuvers and also for slowing down the enemy troop ones. It was a wise accepted idea that by a battery of artillery one should understand an assemble of such types of guns mounted in fortification or other sappers works on the battlefield thus having a lack of mobility. In the previous century there are guns with a relatively light caliber and more or less customized the manufactories and armories taking in a certain degree some autonomy over their products and laboring methods. But this is no more valid for the XVIII<sup>th</sup> century where there is a certain trend of standardizing the ballistic methods governing the role of artillery. The British scientist Benjamin Robert has gathered all those theories forging within a single research which soon became a reference study. His first paper in this domain was *New Principles of Gunnery* (1742). A practical result of his activity in this field was the invention of carronade a piece of ordnance seeming with mortars and later howitzers but with a smaller caliber of 6 to 68 pounds, light enough and also reduced in size to fit very well on the narrow deck of an wood made rigged XVIII century warship.

Back to the smoothbore guns we must say, at least for the terminology used around the end of the XVIII<sup>th</sup> century, well indurate even since the Queen Elisabeth age, then adopted by Cromwell's government and used by the English well through the eighteenth century there it was: the 6-, 9-, 12-, 18-, 24-, 32-, and 42-pounder classifications. On the Continent, during much of this period, the French were acknowledged leaders. Louis XIV (1643-1715) brought several foreign guns into his ordnance, standardizing a set of calibers (4-, 8-, 12-, 16-, 24-, 32-, and 48-pounders) quite different from Henry II's in the previous century.

The 12 pounds guns each required a gun team up to 14 men to operate and weighed about 32 cwt. They are called 12-pounders because they fired a cannonball that weighed 12 pounds. Although the solid 12 pound shot is what was commonly used, the guns could be loaded with a combination of projectiles. The long gun possessed one

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great advantage: it could far outrange the carronade, and if well operated had a chance of crippling the enemy before coming to close quarters.

The common amount of powder used for throwing this ball of 5,4 kg was of 4 pounds (1,8 kg)<sup>1</sup>, and maximum range at most efficient elevation was around 1600 m, less than a mile, but very inaccurate. So, the maximum effective range was somewhere around 1000 m. The usual engagement range, however, was much closer<sup>2</sup>.

The trunnions, about a caliber in size, were located well forward (3/7 of the gun's length) "to prevent the piece from kicking up behind" when it was fired. Gunners blamed this bucking tendency on the practice of centering the trunnions on the *lower* line of the bore. "But what will not people do to support an old custom let it be ever so absurd?" asked John Müller, the master gunner of Woolwich. In 1756, Müller raised the trunnions to the *center* of the bore, an improvement that greatly lessened the strain on the gun carriage. He also recalculated the proportions the windage<sup>3</sup>. Windage in the English gun of 1750 was about 20 percent greater than in French pieces. The English ratio of shot to caliber was 20:21. The English figured greater windage was both convenient and economical: windage, said they, ought to be just as thick as the metal in the gunner's ladle; standing shot stuck in the bore and unless it could be loosened with the ladle, had to be fired away and lost. John Müller brushed aside such arguments impatiently. With a proper wad over the shot, no dust or dirt could get in; and when the muzzle was lowered, said Müller, the shot "will roll out of course." Besides, compared with increased accuracy, the loss of a shot was trifling. Furthermore, with less room for the shot to bounce around the bore, the cannon would "not be spoiled so soon." Müller set the ratio of shot to caliber as 24:25.

All cannons were made by pouring molten metal around a solid cylinder to form a chamber for powder and shot. Exact alignment was difficult and the interior cavity was often miss-shaped. At the beginning of the XVIII<sup>th</sup> century the iron ordnance became predominant despite the bronze ordnance, even if the price of iron was double regarding the bronze one<sup>4</sup>. But the iron could be reused by

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<sup>1</sup> Despite those acknowledged information the corrections operated by the renowned weapon designer from Woolwich, John Muller, the ideal amount of powder was one third from the ball weight.

<sup>2</sup> <http://www.globalsecurity.org/military/systems/ship/sail-armament.htm>

<sup>3</sup> It refers to the difference in diameter between the bore and the shot, especially in muskets and cannons. Greater windage mean less throwing power so a small and inaccurate range.

<sup>4</sup> Despite the fact that the bronze is a heavy metal, because of its high

melting the old guns into the forge. In 1740, Maritz of Switzerland<sup>5</sup> made an outstanding contribution to the technique of ordnance manufacture. Instead of hollow casting (that is, forming the bore by casting the gun around a core), Maritz cast the gun solid, then drilled the bore, thus improving its uniformity. Metal impurities, known as slag, was forced to the center by the cooling action and removed by a lathe during the finishing operation<sup>6</sup>. But although the bore might be drilled quite smooth, the outside of a cast-iron gun was always rough. Bronze cannon, however, could be put in the lathes to true up even the exterior.

The gun belonging to the Romanian Naval Museum collection was made by this so-called "solid drill" or "cold drill" method.

On the upper part of the bore along the trunions, before the second segment framed by the enforcing rings from the breech to the muzzle, there is the original ordnance mark of the gun. This belongs to the Goerge III<sup>rd</sup> reign (1760-1820) specific to the iron ordnance. The figure is half erased and is hardly readable because of the metal corrosion. The remaining half keep the "R" from the "3GR - George the III<sup>rd</sup>" monogram and more then half of the imperial crown where one may see the majesty's lilies the outer fit of the crown made from bulb trying to copy gems and also the Bavarian cross laying on a circle on the top. The length of the item including the cascabel is of 305 cm, the latter have a spherical form an about 16 cm wide. By rolling a rope through the rear of the gun, then connecting to the cascabel for fixing it one was binding the rope by a series of rammers in order to reduce the recoil of the gun after firing and to bring back the barrel in "ready to fire" position. The diameter of the barrel base ring is of 53 cm, followed by the first enforcing ring of 49 cm, the second of 46, the third of 40, the fourth of 37, the fifth of 35, finally the swell being enlarged again to about 38 cm. The nowadays caliber of the bore (the muzzle) is of 138 mm meaning almost 5.6 inches in real caliber, corroborated with other dimensions of the guns leading us to the conclusion that the piece of ordnance is of 12 pounds.

The item consists of gun's barrel with the trunions and cascabel, the chassis and the screw for elevation. The chassis and the elevation device are approximate reconstruction trying to copy the patterns

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resistance the thickness of the barrel was lighter than to the iron ordnance, and so a bronze gun had a less weight than an iron one.

<sup>5</sup> <http://www.gutenberg.org/files/20483/20483-h/20483-h.htm>

<sup>6</sup> Since 1775 all guns used this manufacturing technique. See, Darrell D. Hall, *An Historic 12-pdr Muzzle-loading Naval Gun*, in „Military History Journal”, vol. 3 no. 6, december, 1976, *passim*.

from the era in discussion.

On the left trunion there is "solid 7/0" inscription and on the right one may see the letter "Z". Three arrows pointing the muzzle are engraved after the fabrication, laying one before the first enforcing ring and the other two before the second one. Those are markings for sighting procedure and accuracy correction at long range. Considering the above mentioned inscription from the edges of the trunions, and keeping in mind that most of the guns of this type from other museum or collections has engraved on the trunions the mark of factory and the caliber, which in most cases is Carron Foundries after 1779, in this case following the first half of George the III<sup>rd</sup> reign, we may conclude that the barrel of the gun presented here is drilled in 7<sup>th</sup> or 8<sup>th</sup> decade of the XVIII<sup>th</sup> century. In this case it is possible that the gun would have been used aboard some warships sailing in the Black Sea. Despite the fact that those type of iron smoothbores were used on ships until the half of the XIX<sup>th</sup> century, thus existing the possibility for the gun to be used aboard a British or Ottoman warship during the Crimean War, getting back to the year of construction we must take in consideration that it could be used aboard an Ottoman galley or light gunboat even at the end of the XVIII<sup>th</sup> century. This mean that the gun belongs to the era of the Russian-Ottoman War 1787-1792, more exactly being used in the first big struggle of this war, the naval battle of Kinburn, September-October 1787. The battle was won by the Russian Fleet commanded on one hand by the former captain of "Bonhomme Richard" also an American War of Independence hero, John Paul Jones (1747-1792) and on the other hand by the prince Charles of Nassau-Siegen. The Cossack's deadly gunboats inflicted great damage to the Ottoman galleys thus decimating their fleet<sup>7</sup>. This battle was merely the prelude of what will be the great successes of Rear Admiral Fyodor Ushakov at Feodosi in 1788 and on the Kerch straight on July 1790. Here, the Ottomans lost two of their ship of the line, one of them being the admiral ship of their Black Sea Fleet<sup>8</sup>. Following the disastrous fate of those battles the remaining Turkish warships had retreated to Constantinople letting the Black Sea on the grasp of the Russians. This is the starting point of the Imperial Russian affirmation as a naval power at the Black Sea. The Ottoman Navy begins to crumble, its fate being sealed by the defeat of Navarino until the half of the XIX<sup>th</sup> century.

If we take a look at Ottoman ships carrying cannons, irrespective

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<sup>7</sup> Charles King, *the Black Sea. A History*, Oxford Univeristy Press, 2006, p. 160-161.

<sup>8</sup> R.G. Grant, *Battle at Sea*, DK Publishing, 2008, p. 208.

of the century in which they were used, we see that among the ones powered with oars were kaiks (kayk), brigantine (perkende), saika (şayka) with three guns, mahone (mavna) with 24 guns, galley (kadirga) with 13 guns and bafiltarda with three heavy guns and several light guns. Among sailing ships carrying guns were sloops (şalope) of 12 guns, brigs (brik), ağribar with over 30 guns, corvettes (korvet) with 20–30 guns, barça with over 80 guns, galleons (kalyon) with 60–80 guns, three-decked galleons (iç ambarh kalyon) with 80–120 guns, frigates (firkateyn) with 30–70 guns, kaypak/kapak with 80–100 guns and uskuna with 16 guns. A late XVIII<sup>th</sup> century ship of the line, the Çift Aslan, a first-rate ship, could carry 108 guns of 8-112, 22-48, 2-24, 30-18, 28-12 (same as the one owned by the Romanian Naval Museum) and 18-8 pounders meanwhile a two decker third-rate Ottoman ship had only 66 guns on board. A last attempt to regain the lost glory for the Ottoman naval power was the construction of “Medgidyie” ship of the line, launched in 1828, the biggest warship from the world for several years. She will participate to the siege of Sevastopol during the Crimean War in 1854. So, it is possible that the gun owned by the Romanian Naval Museum, being found underwater in the old Constanța harbor’s bay in 1959, to come from such an Ottoman warship in full retreat to the Empire’s capitol as a result of their fleet decimation.

According to the stories of the travelers at the West bank of the Black Sea, we found out about the importance of the Constanța harbor around the end of the XVIII<sup>th</sup> century and the beginning of the XIX<sup>th</sup> century, helping us to reconsider the strategic value of this city played in the relations between Ottoman Empire and the new affirmed Russian Empire naval power at the Black Sea, as we said. Initially, still a poor and narrow village in 1714, considering the journal of the French traveler Aubry de Matroye, it was no wider then 1 square mile including the harbor, the latter, having an open bay, weren’t able to assure a safe stationing at anchor to ships. The economist Charles Claudel de Peyssonnel, an the Austrian traveler Wenzel von Brognard inform us that during the Russian-Ottoman War from 1787-1792 the city was almost completely erased by the fire coming from the Imperial Russian warships, finally standing only 200 houses from the total of 800<sup>9</sup>. Constanța harbor continued to exist, changing its functionality during the XVIII<sup>th</sup>-XIX<sup>th</sup> centuries, becoming from harbor a port and then a menzil<sup>10</sup>. Those upgrading had a disastrous effect

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<sup>9</sup> Valentin Ciorbea, *Portul Constanța de la antichitate la mileniul III*, Editura Europolis, Constanța, p. 60-61.

<sup>10</sup> Menzil – old name used around Walachia and Moldavia for postal service.

upon the city after all, as it became a main target for the Russian forces seeking not only to capture it but to vanquish it.

The strategic position of the realm between Danube River and the Black Sea put it in the path of the European Empires counteroffensive against the Russian threat during the first half of the XIX<sup>th</sup> century. To the strong siege of Constanța harbor by Russian Navy in 1828, the Ottomans opposed a fortification system about 450-500 m far from the town. Von Moltke marshal, analyzing the situation of this small citadel with its defending capabilities, concluded that it could be accessible only from the North considering its geographical position. The port, even if it wasn't so sure comparable with the other West bank port from the Black Sea, had in his opinion a great importance. Its depth was no more than 7 feet being completely exposed to the southern winds. The German tactician thought the port was big enough for to many ships maneuvers and the attacking warships couldn't get to close of its coast without being seized by the coastal guns. Those was, as we mentioned, about 450 m on the West inside the gulf holding the ancient moors, the guns exposing their line of fire on south-south-east direction.

So, according to these last statements, we may conclude that it is possible for the analyzed gun to belong to the beginning of the XIX<sup>th</sup> century even if it was forged at the Imperial British Foundries in 1770, being thus used by the Ottoman defending fortifications of Constanța harbor during the Russian-Ottoman Wars from 1787 to 1829. After this year, the information we have confirm that the fortifications was completely erased.

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### **Abstract**

In the light of the latter researches we found some interesting data about the history of what could be the most impressive piece of ordnance belonging to a national collection from Romania. The XVIII<sup>th</sup> century old gun, British bronze ordnance, was used for sure by the ottoman allies around the end of the XVIII<sup>th</sup> century and the beginning of the following one. But the exact circumstances still lacks in proofs, so basing on the story of the Constanța town during this time as passing through the history of naval struggles from the Black Sea from the rising of the Ottoman Fleet until the total collapse of the Empire

we can bring together some facts for tracing the main features of this gun.

Keywords: 12 pdrs, bronze gun, George 3rd, Russian Ottoman War 1774, naval gun, Black Sea.