

A steel Bullet for Russian Army (1760 – 1762): Between Magic and Science

The 18th century is widely known for the rationalization, secularization and growth of modern science. The exploring of these trends often concentrates on a few key figures, institutions and events. Their impact on broader intellectual and social processes is usually investigated to a far less extent. For example, the chapter about the development of Russian chemistry in the 18th century in *A History of Natural Science in Russia* (1957) is devoted primarily to Mikhail Lomonosov and some other academics. The influence of the personal scientific insights on practical application of chemistry in pharmacy, mints, dye or glass factories is mostly beyond the scope. (Figurovskii 1957: 351—384). Recent books on interaction of Magic and Science also mostly deal with intellectuals (Henry 2002; Marrone 2015).

My case focuses on two questions: whether the exact ‘invention’ of a Ukrainian priest Andrei Babich represented practical or magical knowledge and how did Russian military elite deal with project which intersected with supernatural forces and was proposed by person without military training? The consideration of these questions contributes to a broader discussion on relations between ‘rational’ (in philosophical and scientific sense) and ‘irrational’ (religious, spiritual, magic, traditional etc.) elements in the intellectual landscape of the 18th century.

The description of the case that drew my attention was found among the documents of Artillery Chancellery (*Artilleriiskaia Ekspeditsiia*) in Russian State Military-Historical Archive. On 19 March 1760¹ a Ukrainian priest Andrei Babich petitioned to Arsenii, the Metropolitan of Kiev, that Andrei’s father, a warrant officer (*khорунжий*), revealed to Andrei his know-how of producing steel pointed bullets that could shoot through cuirasses and also kill sorcerers. After his father’s death Andrei Babich performed a series of tests that proved his father’s words. Moreover, Andrei invented his own way of producing lead pointed bullets with the same properties and asked that the inventions were considered by the authorities. He especially stressed that his invention was a product of the art (*iskusstvo*), not magic and referred to chronicles to prove that “it happened in past times that various military arts were [mastered] by clergymen” (*prezde byvshe vsiakie iskusstva ratnie iz dukhovnogo china byvali*) and stated that “All knowledge in the world is a God’s gift” (*Kakie v svete ni est’ ucheniia – ot Boga de dar*). Metropolitan Arsenii decided to send Babich to Kievan Provincial Chancellery. However, the inventor at first was not found at home (he lived in village Velikoseletskaia not far

¹ It is worth mentioning that at that moment Russia participated in The Seven Years War as an ally of Austria against Prussia.

from town Lubny) (Babich case: ff. 117—118). Only on May 3 was he brought to the Chancellery. Two days later he repeated his claims with some new details. Babich added that his father had participated in 33 campaigns since Azov campaigns (1695–1696) till the last Crimean campaigns (probably ones of Russian – Turkish war 1735 - 1739) and shot through armor and sorcerers. It was found out that Babich's experiments (he charged a gun with his bullets and shot in iron ploughshare and old armor) drew attention of Stepan Pikovets, centurion (*sotnik*) of Lukomskaia hundred (*sotnia*, it was both military and territorial unit). Pikovets wrote to Kievan metropolitan Timofei that Babich succeeded because of magic (it presumably happened in 1757, shortly before Timofei became metropolitan of Moscow). Pikovets' message resulted in that the new Kievan metropolitan (Arsenii) prohibited Babich to worship and it was probably one more reason for Babich's petition. The Provincial Chancellery sent the report to Military Chancellery (*Voennaia kollegiia*) in Saint Petersburg and sent Babich to Kievan consistory (Ibid. f. 116).

In July Kievan authorities received an order to check Babich's words. This investigation was fulfilled in September by the Head of Kievan division general-in-chief General Petr Streshnev, lieutenant general Petr Devier and a few land militia officers. The priest was questioned once again and informed the committee that he composed "a substance" (*materiia*) of bear's fat, mercury, milk of a white goat, bluestone, sulfur, wax, potash alum. The milk of white goat was to be used for cooling the bullets after pouring. All other substances were to be added to bullet form and mixed with melted lead². Wax was also used to fix the bullet in the barrel in a proper way. Andrei Babich told he was a bad shooter so he had discharged an old dragoon gun at ploughshare and an old cuirasse from rather short distance of about 8.5 meters (*4 sazhen*³). Both targets were shot through (Ibid. f. 123-125).

The abovementioned reagents (except the milk of a *white* goat) was rather common for Russian practical chemistry. They were usually used for biting, vermeiling (copper sulphate), tinning (sulfur, copper sulphate, potash alum, mercury), creating gold paint (mercury), designing patterns on cloth or metal (wax) (Figurovskii 1948: 247-250), curing of horses (goat milk, copper sulphate, sulfur, potash alum) (Novombergskii 1910: 89; Apps №№ 4, 6, 8). In one manuscript for icon-painters (a book itself dates from the first half of the 18th c. but it's text was probably composed in the 17th c.) sulphur, bear's fat, potash alum were mentioned among materials for tinning iron things (Figurovskii 1948: 252). Maybe originally

² It is unclear whether this or other "substance" was added in steel bullet according to recipe by Andrei Babich's father Kozma.

³ *Sazhen'* is a the measure of long equal to 2.16 meters.

Kozma Babich (Andrei's father) tried to make a bullet composed of lead and iron using the technique of tinning. But, in Andrei Babich's proposal regarding lead bullets, I suppose, there were no "chemical" sense even in terms of 18th century man. And one could hardly expect that Russian military factories were able to pour bullets cooling them in goat milk. I have found no close parallels to the "substance" among Russian magical receipts (Toporkov, Turilov 2002). However, it was clear from the documents that both Andrei Babich (who mentioned bullet's efficiency against sorcerers) and his neighbour Stepan Pikovets (who accused Andrei Babich of witchcraft) regarded the "invention" as related to the magic. My interpretation is that Kozma Babich's experiments lay mainly in the domain of practical chemistry. However, he believed in magic and somehow came to the conclusion that pointed steel bullets are good not only for shooting through armour but also against sorcerers. His son Andrei also believed in magic and trusted that his father's bullet was effective against wizards. When he got acquainted with the "secret" and continued experiments he used the same pool of reagents. However, judging from Babich's petition cited above, he interpreted his "success" rather as God's blessing than scientific success.

Church and state officials considered the magic as a "superstition" (*sueverie*) (Smilianskaia 2016: 145) – thus means against magicians could also be considered as superstition. However, even among the elite this attitude was not ubiquitous (Smilianskaia 2013). In this case the officers' committee ignored magical implications and dubious details and sent the priest's testimony, bullets and "substance" to the Military Chancellery without any comments or additional expertise. The latter forwarded the materials to the Head of Russian Artillery Petr Shuvalov who received them on November 28, 1760 (Babich case: f. 126-128).

The next document is dated from August 3, 1762. New Head of Artillery Alexander Villebois (*Vilboa*)⁴ reported to Military Chancellery that his predecessor Shuvalov had offered Gun's Chancellery (*Oruzheinaia kontora*) to carry out an examination of newly invented bullets. The examination was performed on October 1761. Lieutenant colonel Zhukov, assessor Rebinder, masters Maximov and Egorov tried pointed steel and lead bullets made by Babich's formula and also ordinary lead bullets. They shot with a dragoon musket on ploughshare, cuirass steel plates (Babich's and factory made), factory made cuirasses from distances about 32.5 and 43 meters (15 and 20 *sazhen'*). The committee reported that all three types of bullets were able to shoot through the targets. There were no difference between ordinary and pointed lead bullets with Babich's "substance" but steel bullets were able to shoot through some targets that lead bullets were not. Rebinder asked

⁴ Petr Shuvalov dead on January 4, 1762.

Shuvalov for some more materials to check whether steel bullets have less striking power if the distance would be larger because of their less mass. Villebois, however, pointed out that steel bullets had never been used in battles and would probably damage gun barrels and offered Military Chancellery to stop the experiments in order to avoid futile losses of materials and money. The Military Chancellery confirmed this decision (Babich case: f. 129-130).

As we can see Petr Shuvalov who was an amateur inventor himself and encouraged inventions among artillery officers (Nilus 1904: 260–263; 265) deemed Babich's idea worth considering. The Guns Chancellery performed a rather strict experiment and revealed that there was no impact of the priest's "substance" on lead bullets' efficiency. However, experts were apparently ready to discuss the advantages of steel bullet. Supposed magical connections of the priest's proposal were put aside on all stages of it's considering. It indicates the lack of theoretical views (religious, philosophic or scientific) among the officers of all ranks. Only Villebois demonstrated some kind of theoretical thinking – he adhered to certain principles that made him confident enough to reject the project without empirical tests. Occasionally this small victory of theoretical mind happened nearly simultaneously with the beginning of the reign of Catherine the Great, which is remarkable for the increasing of the role of theories in the governmental practice.

Afterword

There is no exact information about Andrei Babich's destiny in the papers I dealt with. But there is evidence about similar case regarding Babich which took place in 1770. He apparently continued his living in Velikoseletskoe village and on October 1, 1770 he petitioned Catherine the Great that he had a revelation which he intended to tell directly to the Empress. After that Babich would take a cross and a sword and lead the Russian Army against the Turks⁵ until the liberation of Jerusalem. At the moment of composing the petition Babich was disgowned and arrested because of his stories about revelation (Drevniaia I Novaia Rossiia 1878: 346). I believe that this episode verifies my conclusions about the nature of the priest's invention.

Bibliography

Babich case – Rossiiskii gosudarstvennyi voenno-istoricheskii arkhiv (State Military-Historical Archive). Fond (collection) 5. Opis (description) 2. Delo (file) 202. ff. 116 – 131

⁵ There was a Russian-Turkish war (1768 - 1774).

Drevniaia I Novaia Rossiia 1878 – Drevniaia I Novaia Rossiia [Old and Contemporary Russia]. Vol. 3/12 (1878)

Figurovskii 1957 – Nikolai A. Figurovskii eds. Istoriiia estestvoznaniia v Rossii [A History of natural science in Russia]. Vol. 1. Moscow, 1957. P. 82 – 105. 351 - 384

Figurovskii 1948 – Nikolai A. Figurovskii, Ob odnom starinnom russkom sbornike khimicheskikh retseptov [Of an Old Russian collection of chemical receipts], *Trudy Instituta Istorii Estestvoznaniia [The Proceedings of Institution for the History of Natural Science]*, 2 (1948), 239 - 268.

Henry 2002 – John Henry, *Knowledge is Power (Icon Science): How Magic, the Government and an Apocalyptic Vision Helped Francis Bacon to Create Modern Science* (London, 2002)

Novombergskii 1910 – Nikolai Ia. Novombergskii, *Veterinarnoe delo v Rossii d polovine XVIII stoletiiia [Veterinary Science in Russia in the 1st Half of the 18th century]*. (Tomsk, 1910).

Nilus 1904 – Andrei A. Nilus, *Istoriiia material'noi chasti artillerii [A history of Artillery Equipment]* Vol. 1 (Saint Petersburg, 1904).

Marrone 2015 – Steven P. Marrone, *A History of Science, Magic and Belief: From Medieval to Early Modern Europe*. (London, 2015).

Smilianskaia 2013 – Elena Smilianskaia. Fortunetellers and Sorcerers in the Service of a Russian Aristocrat of the Eighteenth Century: The Case of Chamberlain Petr Saltykov, *Russian History*. 40/3-4 (2013), 364-380

Smilianskaia 2016 – Elena Smilyanskaya. The battle against superstition in eighteenth-century Russia: between 'rational' and 'spiritual', *Enlightenment and religion in the Orthodox world*. (Oxford University Press, 2016), 141-156.

Toporkov, Turilov 2002 – Andrei A. Toporkov, Anatoly A. Turilov (eds.) *Otrechennoe chtenie v Rossii XVII – XVIII vv. [Recanted books in Russia, 17th and 18th cc.]* (Moscow, 2002).