

# The Oldest Hand-held Firearms from Slovakia

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## Abstract

The medieval warfare was affected by the firearms that appeared in 14<sup>th</sup> century on battlefields. There are written and material sources for the research of firearms. From the area of Slovakia are proved of using firearms from the 15<sup>th</sup> century. Medieval localities were discovered after the WWII, where early firearms were found. Those localities were fortified structures, such as castles or military encampments. 2 firearms were found in a complete state, 1 bronze and one iron, one was almost half of a bronze barrel and the rest were bronze fragments. The complete firearms were identified as hackbut, that is a type of a handgun equipped a hook. The oldest type of hackbut has a pole stock construction and a touchhole on the top of the barrel. Some of those localities were connected with military operations of the Brotherhood and their fortified encampments. The Brotherhood was a multiethnic group of soldiers that was operating mainly in the area of present Slovakia between the years 1452-1467 in times of political chaos within Hungarian kingdom.

A new kind of weapon had appeared during the 14<sup>th</sup> century on the European battlefields, using a new technology. This kind of weapons can be called firearms or guns. The earliest definitely datable reference to firearms comes from Florence. The Council of Florence appointed in 1326 two officials to manufacture what were described as *pilas seu pallectas ferreas as canones de metallo* ("missiles or iron bullets and metal cannon")<sup>1</sup>. The earliest illustration of a gun, however, appears in an English manuscript in Christ Church College Library, Oxford also dated 1326. Entitled *De nobilitatibus sapientis et prudentiis regum*, it was written for the English king Edward III by Walter de Milemete. The illustrations depict a variety of siege engines and among these is a picture of a gun shaped like a vase placed on a flat board supported by trestles<sup>2</sup>. The oldest surviving example of a gun, similar to the one described above, is accepted by most authorities as being the small bronze vase-shaped gun excavated in 1861 at Loshult in Sweden. This gun is preserved in the National History Museum (Statens historiska Museum), Stockholm and closely resembles the vase-shaped gun depicted in Milemete's manuscript. This is cast from bronze and weighs 9.07 kg and has a muzzle calibre of 36 mm and an overall length of 300 mm. This cannon is pierced with a large touchhole at the top. The gun from Loshult has been dated to the first half of the 14<sup>th</sup> century on the basis of its similarity to the one in the Milemete manuscript. Its shortness would seem to

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<sup>1</sup> Leonid Tarassuk, Claude Blaire, *The Complete Encyclopaedia of Arms and Armour* (New York: Simon and Schuster, 1982), 217.

<sup>2</sup> Ludovít Letošťák, *Delostrelectvo čierneho strelného prachu* (Ružomberok: Epos 2003), 57, fig. 15.

indicate that it was designed as a handgun rather than a piece of artillery, although this is by no means a certainty<sup>3</sup>. This cannon was probably the first phase of evolution in the artillery domain. The evolution continued to types such as bombards and the new part of the medieval army – the artillery. The artillery has a specific evolution and the first occasion to use it in battle was at Crécy in 1346. The effect was more psychological than destructive. The cannons used in medieval times had various shapes and size<sup>4</sup>.

The next phase of evolution of firearms is marked by the hand-held firearms. There are two basic types that occurred in the last quarter of the 14<sup>th</sup> century in Central Europe. For the medieval period, hand-held firearms were represented by *piszczel* (Polish), *píšťála* (Czech) or *Bischoln* (German) handgonnes and hackbuts (*Hakenbüchse* in German). *Piszczel* handgonnes are considered as the most primitive barrels of hand-held firearms, which were fixed in a hollow, in a stock using metal band or were attached to a wooden stock, using a bushing. Such weapons came to represent the initial stage in the development of this type of arms; they are remarkable by a variety of shapes and proportions. There are three pieces of hand-held firearms from the collection of Municipal arsenal at Plzen, Czech Republic dating back to the last quarter of the 14<sup>th</sup> century. Those guns have preserved their original construction details from the middle ages such as wooden stock and metal attachment<sup>5</sup> (Frýda 1988, 15). The touch hole of all guns is placed on the top. The “*Bischoln*” handguns have smaller parameters as hackbuts. For example, the handgun nr.1 from City arsenal in Plzeň has a hexagonal barrel, its length carries 315 mm and has 35 mm calibre. The total length of a gun is 1050 including wooden stock. The handgun nr.2 has an octagonal barrel, its length is 290 mm and calibre 26 mm. Total length is 1302 mm. There stands a maker’s marker at the bottom of the barrel. The handguns are equipped with a hook, but this element is not part of a barrel, but stands out separately. Another handgun was found in the ruins of castle Tannenberg in Hessen, Germany. The castle was destroyed in 1399 and the gun is dated before this year. The length of a bronze barrel is 320 mm; its calibre 17 mm. the barrel’s weight is 1235 g. At the end of the barrel a tunnel is designed for fixing the wooden stock. The handgun is deposited in Germanisches Nationalmuseum Nürnberg, Germany<sup>6</sup>.

The term hackbut can be defined as long hand-held firearms; barrel is designed with round or polygonal cross-sections and with an added hook, which is directed down at a right angle. Their role was to deafen the recoil of firearm. The hackbuts are usually longer and heavier than “*Bischoln*” handgun. The important construction detail is a touch hole. The hackbuts have touch holes on top or another pieces have the touch hole on the right side. The “*Piszczel*” handguns have touch holes on top. It seems that touch holes on the top are typical for earlier hand-held firearms. The evidence seems to be the hackbut found in the locality Gajary-Posádka, in western Slovakia. This firearm has one touch hole placed on the right side and a trace of the older touch hole on the top. The later touchhole

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<sup>3</sup> Tarassuk, Blaire, *The Complete Encyclopaedia of Arms and Armour*, 219.

<sup>4</sup> Zdzisław Żygulski, *Broń w dawnej Polsce na tle uzbrojenia Europy i Bliskiego Wschodu* (Warszawa: Państwowe wydawnictwo naukowe, 1975), 121-124.

<sup>5</sup> František Frýda, *Plzeňská městská zbrojnice* (Plzeň: Západočeské muzeum v Plzni, 1988), 7.

<sup>6</sup> Heinrich Müller, *Gewehre, Pistolen, Revolver* (Leipzig, 1979), 15-17, fig. 7.

was part of a pan, the pan-cover is broken. The handgun was found on the place of the former military encampment. The encampment ended around year 1467, the handgun was made earlier of course, possibly in 1430's. The length of a bronze barrel carries 682 mm, 21 mm calibre, and weighs 8.5 kg<sup>7</sup>. A similar example is a hackbut from the museum in Esztergom in Hungary, where the earlier touchhole was placed on a top and the later touchhole with a pan<sup>8</sup>.

The evolution of the hand-held firearms in Central Europe during the 15<sup>th</sup> century showed several points. The material had changed. Firstly, hackbuts were made from bronze and iron, later the bronze was replaced completely by iron. Most of the bronze barrels are dated at the furthest back to 1470 in central Europe, some of them go back also to 1450<sup>9</sup>. The touch hole on the top moved to one of the barrel's right side and turned to a pan. This affected the ignition and led to the development of a primitive lock, the matchlock. The iconography of a matchlock from Codex Germanicus is dated in the year 1475. In 1493 the thieves signed a letter with a picture of a matchlock, when they blackmailed the citizens of Bardejov town<sup>10</sup>. The bronze hand-held firearms disappeared after 1470 in central Europe. There is no evidence for me concerning the presence of a bronze barrel or a firearm with a matchlock in central Europe. The barrel was also extending, to 100 mm and more at the turn of the centuries. The construction of the wooden stock changed due to the metal barrel. The older barrels are equipped with a simple full hook and a tunnel on the rear end for fixing the stock, a simple wooden pole, for example the hackbut from National Museum in Cracow<sup>11</sup>. This form can be described as a harquebus with pole bearing<sup>12</sup>. The later forms of hackbuts have a hook with a small hole at the barrel and small metal clamps for a more secure fixing into the wooden forend. The later forms have also sights or its hint. Those can be dated around 1450 and later<sup>13</sup>. The evolution of hackbuts from Hungary was defined on the basis of hackbuts in Hungarian museums. It shows the difference between material and parameters of handguns, as it will be mentioned below<sup>14</sup>. The problem of hand-held firearms is prolonged usage, the early forms and later ones could be used at the same time. The evidence are written sources from the end of the 15<sup>th</sup> century and 16<sup>th</sup> century, for example castle inventories<sup>15</sup>, or the list of the municipal soldiers and their armaments<sup>16</sup>,

<sup>7</sup> Bello Polla, "Pamiatky hmotnej kultúry 15.stor. z Posádky pri Gajaroch," *Zborník Slovenského národného múzea*, LVI, História 2 (1962), 136, fig. 20 : 1.

<sup>8</sup> Karl Kozák, "Hakownice węgierskie XV-XVII w. w kolekcjach muzealnych," *Kwartalnik historii kultury materialnej*, 21, 2 (1973), 316.

<sup>9</sup> Zdeněk Měřínský, Rostislav Nekuda, "Dva nové nálezy pozůstatků ročních palných zbraní z Moravy," *Castellologica Bohemica*, 3 (1993), 282-288; Piotr Strzyż, *Średniowieczna broń palna w Polsce* (Łódź: Wydawnictwo instytutu archeologii a etnologii PAN, 2011), 23.

<sup>10</sup> Karol Kulašík, *Puškárstvo – remeslo piatich storočí* (Bratislava: Pallas, 1978), 10, 14.

<sup>11</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 146, abb. 3:1.

<sup>12</sup> Kozák, "Hakownice węgierskie XV-XVII w. w kolekcjach muzealnych," 323.

<sup>13</sup> František Frýda, *Plzeňská městská zbrojnice*, 15.

<sup>14</sup> Kozák, "Hakownice węgierskie XV-XVII w. w kolekcjach muzealnych".

<sup>15</sup> For further literature see Dalibor Figel' et al., "Interdisiplinárni analýha roztržené železné hákovnice z hradu Helfštýn," *Castellologica Bohemica* 12 (2010), 480.

where there are several types of firearms mentioned, including old hackbuts and handguns with matchlock together.

The oldest firearms from Slovakia were discovered during archeological researches or prospections. As far as I know, there are 8 localities where the hand-held firearm was discovered. The exception is hackbut from Gajary-Posádka. This locality was discovered in 1930 when the regulation of a river Morava was built. From this locality comes also rich material that was properly analyzed<sup>17</sup>.

Two bronze fragments of a barrel were found on the locality Moravany nad Váhom – Ducové, location Kostolec (Fig. 1). This location is known as a multicultural locality, especially as early medieval settlement with a church and cemetery<sup>18</sup>. It was rebuilt as a military encampment with wooden fortification during the 15<sup>th</sup> century. The evidence of a military character is a big quantity of missiles, sword cross guard, equestrian equipment, mentioned fragments of firearms, etc. The first fragment was 6,3 cm long and 2 cm thick. The second fragment was 4,5 cm long and 1,1 cm thick. The barrel was octagonal and was designed with a 23-24 cm calibre. This location was taken and fortified by the Brotherhood<sup>19</sup>.

Another fragment was discovered during the excavation of the rural settlement under present waterworks of Liptovská Mara in the Liptov region (Fig. 2). This fragment firearm was discovered near the location of workshop for falsifying coins. The fragment was made of bronze, octagonal and about cca 5 cm long and designed with a cca 11mm caliber<sup>20</sup>.

The fragment of a bronze hand-held firearm was found at the Kysak castle (Fig. 3). This castle was abandoned before the year 1450. a collection of militaria was found near the castle's are<sup>21</sup>.

A small bronze fragment of a firearm<sup>22</sup> (Fig. 4) was found in the locality Hrabušice - Zelená hura (Marcelov hrad). The barrel was octagonal and the locality was abandoned in the 2<sup>nd</sup> half of 15<sup>th</sup> century. This locality was a castle, but it remained unfinished since the 13<sup>th</sup> century. It was used as a fort of the Brotherhood during the 15<sup>th</sup> century<sup>23</sup>. The archaeological research found out the settlement's military character<sup>24</sup>.

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<sup>16</sup> f.e. Tadeusz Grabarczyk, "Uzbrojenie mieszczan Bardiowa w świetle spisów z lat 1493, 1521 i 1536," *Archaeologia Historica* 32 (2007), 467-468.

<sup>17</sup> Polla, "Pamiatky hmotnej kultúry 15.stor. z Posádky pri Gajaroch".

<sup>18</sup> Alexander Ruttkey, "Waffen und Reiterausrüstung des 9. bis zur ersten Hälfte des 14. Jahrhunderts in der Slowakei II," *Slovenská archeológia*, 24 (1976), 191-194.

<sup>19</sup> Alexander Ruttkey, "Militária a súčasti jazdeckého výstroja z 15. stor. na Kostolci v Moravanoch nad Váhom, Miestna Časť Ducové," *Sborník prací Filozofické fakulty Brnenské university*, E34-35 (1989-1990), 96-98, fig. 4, 6-8.

<sup>20</sup>Ján Hlinka, Jozef Hoššo, "Historicko-archeologický výskum v Liptovskej peňazokazeckej dielne v Liptovskej Mare," *Zborník Slovenského Národného Múzea*, LXXIIIV, História, 20 (1980), 247, fig. 9:1.

<sup>21</sup> Marián Uličný, "Nálezy z hradu Kysaka," *Historica Carpathica*, 31-32 (2001), 151- 152.

<sup>22</sup> Zdenko Rusko, *Palné zbrane* (Mgr dis., Comenius University Bratislava 2009), 17, fig. 2.

<sup>23</sup> Michal Slivka, Adrian Vallášek, *Hrady a hrádky východného Slovenska* (Košice: Východoslovenské Vydavateľstvo, 1991).

<sup>24</sup> Polla, "Zisťovací výskum v Hrabušiciach-Zelená Hura na východnom Slovensku," 270, fig. 29-30.

A fragment of a bronze firearm (Fig. 5) was found near Čabrad' castle in the "Táborisko" locality. This fragment was found probably during a surface prospection. This place was formerly a military encampment<sup>25</sup>.

The most important hackbut was found on the Gajary–Posádka locality, that was mentioned above (Fig. 6a). This locality was a military encampment of the Brotherhood. A rich collection of material culture from the 15<sup>th</sup> century such as pottery, metal artefacts – militaria, tools, etc. was found here<sup>26</sup>. The hackbut found here is round and made out of bronze. The total length is 68,2 cm, it has a 21 mm caliber, the muzzle is 6 cm wide, the tunnel for pole stock is 7,5 long. The barrel's rear half is reinforced. This hackbut has an older touch hole on a top and later touchhole on the right side. A hook is placed 11 cm from the muzzle (Fig. 6b). The weight is 8,5 kg. The hackbut is now deposited in the Slovak National Museum in Bratislava (inv. n. HF98).

The similar octagonal bronze hackbut was found at the Devín (Fig. 7) castle. The rear part equipped with a touchhole was chipped. The preserved length is 38,5 cm, with a 12 mm caliber, the muzzle is 2,7 cm wide, the barrel's rear part holds 3,2 cm. The barrel was found during the excavations within a pile of rubbish<sup>27</sup>. The barrel is now part of the exhibition in Municipal museum of Arms in Bratislava.

The similar but octagonal iron hackbut was excavated on Spišský hrad (Spiš castle) (Fig. 8). The barrel was found at the fortified gate towards the central courtyard. The length of a barrel holds 87 cm and a 2,5 cm caliber. The cross-section is octagonal. The touch hole is placed on a top. Upon the rear part lays a tunnel for wooden pole stock. This castle was occupied by the Brotherhood for almost a decade, but it is not possible to connect this handgun with the Brotherhood with unchallenged certainty<sup>28</sup>.

It is useful to describe the character of the localities where the firearms were discovered, because half of them are connected to historical events from the 15<sup>th</sup> century. The localities around the Devín castle, Spiš castle and Kysak are areas that were inhabited for centuries. The locality Liptovská Mara was a rural settlement, with a church and workshop for making false money.

Locality Gajary – Posádka, Moravany nad Váhom – Ducové, Hrabušice – Zelená hura and Táborisko were fortified encampments and were connected to the Brotherhood. The fortification was build out of wood or a simple wall from dirt and stone. The fort was often surrounded by a moat<sup>29</sup>. The Brotherhood used it also to conquer castles or towns (Fig. 9).

The Brotherhood (in Slovak literature Bratřici) was a group of soldiers or mercenaries that were operating in the area of Upper Hungary, today Slovakia. Many of the Brotherhood were former Hussite soldiers. The Hussites also attacked the area of Slovakia in 1420<sup>th</sup> and 1430<sup>th</sup>. They occupied castles and conquered few towns. After the

<sup>25</sup> Rusko, *Palné zbrane*, 17, tab. VIII.

<sup>26</sup> Bello Polla, „Pamiatky hmotnej kultúry 15.stor. z Posádky pri Gajaroch,“ 136.

<sup>27</sup> Daniel Antoni, „Palné zbrane v expozícii na Michalskej veži,“ *Zborník múzea mesta Bratislavy*, XXII (2010), 219-220, fig.1.

<sup>28</sup> *Terra Scepusiensis, Terra Christiana* (Spišská Nová Ves, 2009), 122, fig. 1.1.11.

<sup>29</sup> Ruttkay, „Militária a súčasť jazdeckého výstroja z 15. stor. na Kostolci v Moravoch nad Váhom, Miestna časť Ducové,“ 90.

battle of Lipany (1434), the rest of the Hussites were hired as mercenaries outside the Czech kingdom. After the death of King Sigismund, and the short rule and death of King Albrecht, the queen was pregnant. In 1440 was born a new king Ladislav (László). His rule was short and unstable. Jan Jiskra (John Giszkra) z Brandýsa was a Czech nobleman that was summoned to help and protect the young king. His soldiers were former Hussites, with their specific military tactic, including the usage of firearms<sup>30</sup>. The Brotherhood became a more independent force after 1452 and the soldiers were not only the Czechs but also, Slovaks, Hungarians, Polish, Austrians etc. Their leader was a Peter Aksamit. They occupied castles, towns and were building the encampments. They were a huge power in the dynastic struggles – around 15 000 soldiers. They were influenced by the Hussitism. They operated mainly in northern and eastern Slovakia, but they were also thieves, and they plundered the domains of their enemies. The end of the movement came with the rule of a new strong king – Matthias Corvinus. He defeated the Brotherhood in two battles. The first word happened in 1458 at the battle of Blatný Potok (Eastern Slovakia). Aksamit died and their activities were moved to western Slovakia. The final defeat occurred in 1467, when the king Corvinus besieged the Brotherhood in their fortified encampment in Jedľové Kostolány. After this battle the rest of the Brotherhood were conscripted to the famous Black Regiment and the Brotherhood movement disappeared; only thieves remained on the polish border<sup>31</sup>.

The military encampments of the Brotherhood (also Hussites) are reflected into the local names, toponyms. Local names such as Tábor, Táborisko (tábor means camp in Slovak) or Posádka (posádka means crew in Slovak) indicate the locations of military encampments of the Brotherhood. The archaeological evidence supports this theory. There were militaria found on many locations called “Tábor” within the 15<sup>th</sup> century. The name “Tábor” is located in eastern and western Slovakia, whereas the name is absent from the central Slovakian region<sup>32</sup>.

The connection with the Brotherhood is helpful in dating the firearms. All those localities (Gajary-Posádka, Moravany nad Váhom – Ducové, Táborisko and Hrabušice-Zelená Hura) were abandoned by 1467 and therefore the firearms can be dated before this year. It is possible, that those firearms were crafted between the years 1450-1467, that were the years of Brotherhood's operations. The reason could be in the material. According to physical analyses of the bronze fragment from the firearms, the service life of the bronze hand-held firearms was short. The gun shattered in few pieces and was dangerous for a shooter. The forged Iron was more suitable for making hand cannons than a molten bronze one. It was easy to load too much gunpowder to the bronze barrel and after the ignition the barrel could have cracked at a normal room temperature. The hackbut from Devín was possibly damaged in the same way. The iron barrels were cracking during the first shots at a temperature below 0°C. The bronze material was too thin for hand cannons, but for artillery bronze was used for centuries and was better

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<sup>30</sup> Ewart Oakeshott, *European Weapons and Armor from the Renaissance to the Industrial Revolution* (Woodbridge: The Boydell Press, 2000), 35-37.

<sup>31</sup> Peter Harčár, *Bratrické pevnôstky na Slovensku* (Mgr dis., Comenius University Bratislava, 2005), 18-40.

<sup>32</sup> Polla, “Pamiatky hmotnej kultúry 15. stor. z Posádky pri Gajaroch,” 109-110.

suitable than iron<sup>33</sup>. The iron barrels did not shatter in pieces like bronze barrels, but had only a rift<sup>34</sup>. The pieces of a bronze barrel could be collected and recycled. But of course, not every bronze barrel shattered, the hackbut from Gajary-Posádka was used for a long time and was found complete. It is also possible, that some firearms were better made, or the shooter was more skilled.

Hackbuts from Spiš castle and Gajary-Posádka are complete, so it is possible to classify them as hackbuts with pole bearing<sup>35</sup>. They have tunnel in the rear for simple wooden stock, namely for a pole. This construction is known from Bellifortis' manuscript, from Konrad Kyeser dated back to 1405<sup>36</sup>. The hook is placed at a distance from the muzzle. The barrels were usually octagonal; the round barrel from Gajary is the exception. The touch hole was on the top, if the gun was used longer, the new touchhole was on the right side and the old one was soldered<sup>37</sup>. The hackbut from Devín castle is damaged; the rear part is broken and lost. The construction of this barrel allows classifying it into the same group that was described above. To reconstruct the shape of a firearm found within the other localities a speculation could be used, namely they could be similar to a hackbut from Devín, but also to the older type known as "Bischoln" handgun.

There are plenty of hackbuts from central Europe with similar constructions as hackbuts from Slovakia. 3 complete pieces are stored in museums in Poland. Probably the oldest hackbut was found and remains in Lwow (now part of Ukraine, but before WW2 it was a part of Poland). This gun was found in Lwow before WW1. It was made of bronze and octagonal cross-section. The gun is divided in two parts – breech and barrel. The breech's facets are rotated into barrel facets with a 22.5° angle. The rear part is designed with a tunnel for pole stock. The touch hole is on top. Two standing lions and rounded marks are embossed near the touch hole. A placed primitive sight is located near the touch hole. The length of a gun holds 62 cm and 1, 9 cm caliber. The hook is placed at a distance from the muzzle. The gun was made during the first half of the 15<sup>th</sup> century<sup>38</sup>. The similar hackbut with the same construction is now deposited in the Museum of Polish Army in Warszawa. This gun has the same parameters, namely the embossed lions and rounded marks. This is the emphasizes upon the Lwow medieval gun makers' skills, who were able to produce series of good standardized hackbuts<sup>39</sup>. A similar hackbut is now stored in the National Museum in Cracow. The construction of bronze barrel is the same as that of the Lwow hackbuts, but doesn't present any marks. The touchhole is surrounded by rhomboidal jut for protecting the gunpowder before ignition. The hackbut

<sup>33</sup> Karel Stránský, Vladimír Ustohal, "Kvalita litých a kovaných středověkých pušek," *Slévárenství*, XXXIX 7/8 (1991), 225-226.

<sup>34</sup> f.e. Antoni "Palné zbrane v expozícii na Michalskej veži," 221; Dalibor Figel', Martin Hložek, Jiří Hošek, Zdeněk Schenk, Petr Žákovský, "Interdisiplinární analýza roztržené železné hákovnice z hradu Helfštýn," *Castellologica Bohemica*, 12 (2010).

<sup>35</sup> Kozák, "Hakownice węgierskie XV-XVII w. w kolekcjach muzealnych," 316.

<sup>36</sup> Eduard Wágner et al., *Kroj, zbrane a zbroj doby husitské a předhusitské* (Praha: Naše vojsko, 1956), tab 5, part VII.

<sup>37</sup> Kozák, "Hakownice węgierskie XV-XVII w. w kolekcjach muzealnych," 316.

<sup>38</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 22, Tab. IV: 3-4.

<sup>39</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 22, Tab. IV: 5-6.

has a wooden pole stock. The barrel's holds 1,7 cm and its length 50,3 cm. The total length of a gun is 85 cm. The weight is 4,69 kg<sup>40</sup>. These hackbuts are dated back to the first half of the 15<sup>th</sup> century, but their later usage is also possible<sup>41</sup>. Two iron hackbuts are deposited in the Museum of Polish Army in Warszawa. The first of them is 92 cm long and has a 2,7 cm caliber. The hook is placed in a distance from the muzzle. The touchhole is placed on top, but within a straight facet near the centre. The gun has a hole for a nail, that is supposed to fix the wooden stock. The present stock is not a simple pole, but it was possibly added later. The total length is 158 cm and the weight carries 11 kg. The gun is dated to the 2<sup>nd</sup> half of the 15<sup>th</sup> century<sup>42</sup>. The second piece has the similar construction, including the touchhole. The barrel's length is 84.5 cm, the total length with its reconstructed pole stock is 132,5 cm and the weight carries 7,8 kg. The caliber is of 2,4 cm. The barrel is marked, one mark is located on the rear and it is unreadable. The second is on the hook and it is round-shaped with a six-pointed star within<sup>43</sup>.

There is a big collection of hand-held firearms in the Czech Republic, that includes similar hackbuts to those from Slovakia. There is a former municipal armory in Plzeň (Pilsen) in western Bohemia, now part of Westernbohemian Museum (Západočeské museum v Plzni). This collection contains firearms from the end of the 14<sup>th</sup> century up to the 17<sup>th</sup> one. There are 24 pieces of hand-held firearms within the collection, that dated up to 1450<sup>44</sup>. The MZ5 to MZ17 handguns are polygonal hackbuts with pole bearing. They have different constructions of their touch hole and gun-stock, because some were added in later times. The MZ8 and MZ10 hackbuts are closer to the hackbuts from Slovakia, due to their construction. They have a tunnel for pole stock. The iron MZ8 hackbut is installed on a secondary wooden stock. The barrel is octagonal, but the facets on the rear part are rotated towards the front part facets. The touch hole is on top. The length of a barrel is 87,5 cm and the total length carries 171,5 cm. The caliber is of 24 mm. The hook is placed in front of the muzzle. The iron MZ10 hackbut is octagonal and the facets are rotated. The touchhole is placed on the right facet, towards the centre. The pole stock is placed towards the rear tunnel. There is a XX signature on the stock. The length of a barrel is 99,8 cm and the total length is 171,8 cm. The caliber is of 26 mm<sup>45</sup>.

The similar hackbuts are stored in several Hungarian museums. The Hungarian scholars defined the evolution of hackbuts from 15<sup>th</sup> to 17<sup>th</sup> century in Hungary, based upon this sample. The oldest form represent the hackbuts with pole stock bearing, where the barrel has a tunnel for fixing a simple pole stock. They were made of bronze and have octagonal cross-section. They are typical samples due to their small parameters; they are easily used on a battlefield by a single soldier. The length of a barrel varies from 38,6 to 74,5 cm, from a 1,0 to 1,6 cm caliber and carries a weight from 1,6 to 5,5kg<sup>46</sup>. The bronze hackbuts from Hungary are represented by findings in Pest (now part of Budapest) and

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<sup>40</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 22, Tab. IV: 1-2.

<sup>41</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 23.

<sup>42</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 24, Tab. V: 1-3.

<sup>43</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 24, Tab. V: 4-6.

<sup>44</sup> František Frýda, *Plzeňská městská zbrojnice*.

<sup>45</sup> František Frýda, *Plzeňská městská zbrojnice*, 9.

<sup>46</sup> Kozák, "Hakownice węgierske XV-XVII w. w kolekcjach muzealnych," 316-317, tab. 1.



Mostar (former Yugoslavia, but are stored in the Hungarian National Museum in Budapest). The hackbut from Pest has a total length of 38,6 cm, the caliber is 14mm and the weight is 1650 g. The touchhole is on top. They are dated into the first half of the 15<sup>th</sup> century<sup>47</sup>.

The iron hackbuts with pole stock bearing are identical visually, but they have bigger parameters. Their length starts from 87 to 116,5 cm and weight from 8,2 to 24,7 kg. The caliber is also bigger, from 2,5 to 3 cm. The bigger pieces need to be handled by two soldiers. The touchhole was on top and was designed with a simple pan. Their cross section is polygonal, but the rear half is rotated to a 22,5° angle, the line of aiming was on top. There wasn't any hole in the hook for fixing a forend. This became the case only in later remakes. The hook is placed 10-14 cm from muzzle. The hackbuts were found within 3 castles during the excavations – Gesztos, Kisnána, Szigliebet. 8 pieces of iron hackbuts are stored in the National Museum of Hungary, where they were found mainly inside of castles (Drégety, Galu). For example, the hackbut nr. 55.3307 is 87 cm long, with a weight of 8,2 kg and a 30 mm caliber. The iron hackbuts are dated back into the entire 15<sup>th</sup> century<sup>48</sup>.

Several fragments of firearms were discovered in central Europe during archaeological excavations. Four pieces were found in Poland. The fragment of a hackbut was found during the excavation at the fortification in Wenecja near Żnin. The fragment is 5 cm long, its weight is 0,1 kg and the thickness carries 1,2 cm. The barrel was made of bronze and has an octagonal shape. The caliber was around 2-2,2 cm. The fragment was found in a layer dated from 1435 to 1475. Another fragment was found in the ruins of Karpień castle in Góry Złote near town Kłodzko. The castle was violently destroyed in 1443. The fragment is made of bronze and has an octagonal shape. The length is 5,8 cm, thickness 1,1 cm and 14 mm caliber. Two fragments were found in the Muszyn castle. The first fragment is made out of iron, its length is 17,4 cm and has a cca 3 cm caliber. The second fragment is made out of bronze and it is 5,4 cm long with a 2 cm caliber. This castle was destroyed in the war that took place between years 1471 – 1474<sup>49</sup>.

There are few fragments known from the Czech Republic. On the fort in Rakov, near the town Nový Jičín, a bronze fragment from an octagonal barrel was found. The barrel was made from local material, exploited from the region of Kutná Hora (famous mining city). According to other artifacts from the fort, the fragment is dated to the first quarter of the 15<sup>th</sup> century<sup>50</sup>. The bronze fragment coming from a handgun's rear part was found in the ruins of Rokštejn castle in Moravia. The fragment is 27,5 mm long, the width is 18x19 mm and the thickness carries 3,5-4,5mm. The caliber is of 11 mm. There is a visible touchhole on this fragment. This fragment is dated back to the first third of the 15<sup>th</sup> century<sup>51</sup>. Two bronze fragments from a handgun were found near the stronghold in Mstěnice, also in Moravia. The first fragment (found in 1990) was 60 mm long, 42mm

<sup>47</sup> Kozák, "Hakownice węgierskie XV-XVII w. w kolekcjach muzealnych," 316.

<sup>48</sup> Kozák, "Hakownice węgierskie XV-XVII w. w kolekcjach muzealnych," 317-318, tab. 2.

<sup>49</sup> Strzyż, *Średniowieczna broń palna w Polsce*, 26-28.

<sup>50</sup> Jan Skála, Jiří Waldhauser, "Nález palné zbraně vrcholného středověku na tvrzišti Rakově na okrese Jičín v historickém kraji boleslavském," *Castellologica Bohemica*, 7 (2000), 310-311.

<sup>51</sup> Měřínský, Nekuda, "Dva nové nálezy pozůstatků ručních palných zbraní z Moravy," 277.

wide and was part of a breech. The thickness is 14-15 mm. The second fragment (found in 1995) was 45 mm long, 25-35 mm wide and has a 13 mm caliber. This fragment had a touchhole of about 4x2,5mm. These fragments were found inside a rural house, it was used as a position for shooting against the stronghold. According to the analysis, those handguns shattered after ignition, because of material's cavity. This locality was destroyed during the Czech-Hungarian war in 1468<sup>52</sup>. The analysis conducted on the bronze fragment from Mstěnice showed the material's composition: 94,5 % copper, 3 % tin, 1,57 % lead, 0,42 % iron and 0,7 % antimony<sup>53</sup>.

During the excavations at Shrattenstein castle in Lower Austria the big fragment of a bronze octagonal handgun was found. Its length is 28,6 cm and it has a 1,3 cm caliber. A bullet is stuck in the barrel<sup>54</sup>.

### Conclusions

The firearms appeared in the Slovakian archaeological material during the first half of the 15<sup>th</sup> century. The preserved firearms are the reflection of the restless political and military situation. They are connected to military operations of the Brotherhood, the followers of the Hussites, who developed innovative military tactics and organization of their units<sup>55</sup>. The Brotherhood was a multicultural movement. The brothers were former Czech Hussites, Slovaks, Austrians, Hungarians, etc. Their political aim was questionable, they were also rebels, deserters and thieves. There isn't any material evidence of firearms from Slovakia before the 1400. But there is more than enough evidence from the time of the Brotherhood. This is caused by the material's price. It was easier and cheaper to recycle the bronze, and this is probably the reason of the low number of preserved firearms compared to their number mentioned in written sources. The bronze firearms were made by bellmakers, and they were concentrated in the cities<sup>56</sup>. For example Bratislava had 6 gunmakers in 1438 that worked in good equipped workshop<sup>57</sup>. The guns were gathered in municipal armories. The biggest municipal armory in central Europe is still preserved in Plzeň, Czech Republic. The inventory from Bratislava dated to 1443 and mentioned a number of 120 firearms of all types. 62 of them were defined as handcannons, but it is not possible to define their type. According to this source, only one barrel was made of iron, the rest were made of bronze<sup>58</sup>.

There are 8 localities in Slovakia, where the firearms were found. Three of them are hackbuts (Gajary-Posádka, Devín castle, Spiš castle), the rest are just fragments. They all belong to the oldest type of hackbut, 2 are made of bronze, and they were designed with simple pole stock. One of them was made of iron, but of the same type (Spiš castle). The fragments are all bronze ones. The character of those localities was different – castles

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<sup>52</sup> Měřínský, Nekuda, "Dva nové nálezy pozůstatků ručních palných zbraní z Moravy," 223-228.

<sup>53</sup> Stránský, Ustohal, "Kvalita litých a kovaných středověkých pušek," 282-288.

<sup>54</sup> A. Daxböck, "Ein Handbüchsenfragment von der Ruine Schrattenstein, Niederösterreich," *Beiträge zur Mittelalterarchäologie in Österreich*, 20 (2004), 19.

<sup>55</sup> Oakeshott, *European Weapons and Armour from the Renaissance to the Industrial Revolution*, 36-37.

<sup>56</sup> Kulašík, *Puškárstvo – remeslo piatich storočí*, 11-13.

<sup>57</sup> Kulašík, *Puškárstvo – remeslo piatich storočí*, 41.

<sup>58</sup> Jan Durdík, "Bratislavský inventář palných zbraní z roku 1443," *Historie a vojenství*, 4 (1967), 575-576.

(Devín, Spiš, Kysak), military encampments (Ducové, Gajary-Posádka, Hrabušice-Zelená Hura, Táborisko) or a rural settlement (Liptovská Mara). Of greater importance are the localities that were connected to the Brotherhood (Gajary-Posádka, Ducové, Táborisko, Hrabušice-Zelená Hura). They were abandoned shortly after 1467 and the found firearms are dated before this year.

The hand-held firearms are the evidence of a progress on the medieval battlefields and the technology of metalworking. Hopefully, those found in Slovakia would be useful in the study of the medieval warfare.

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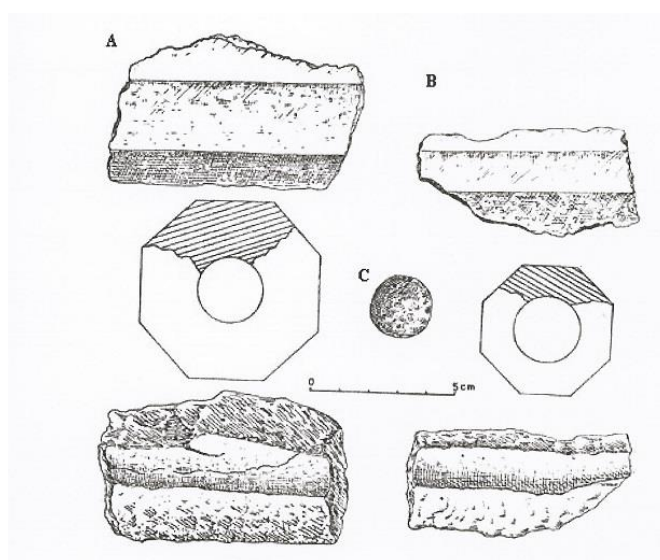
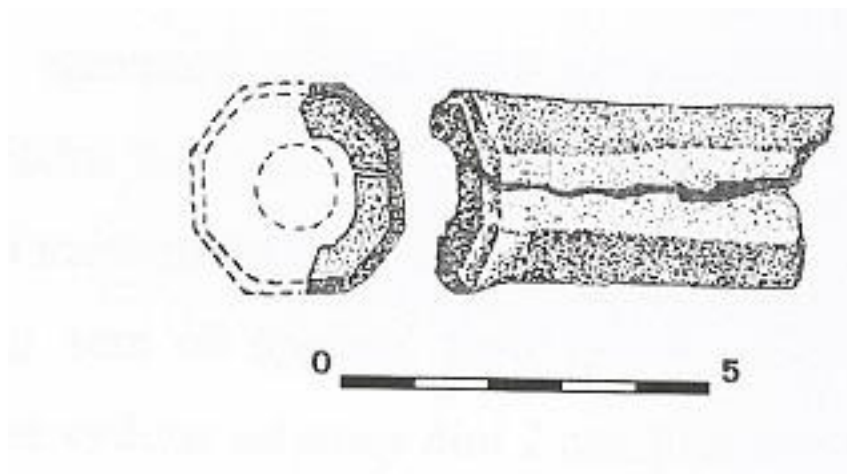
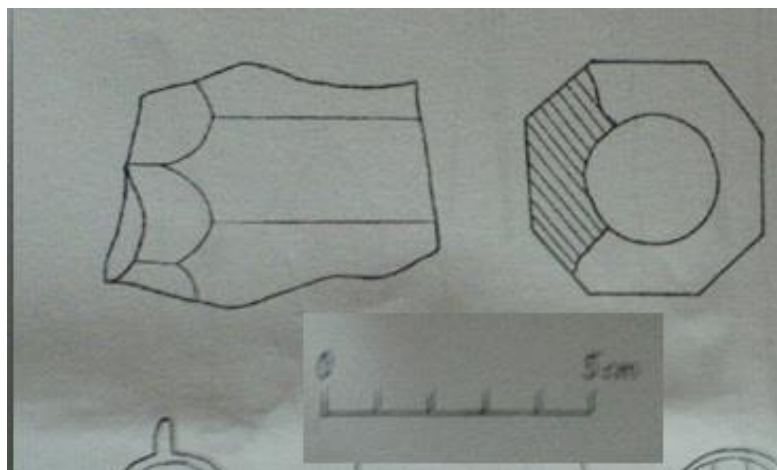


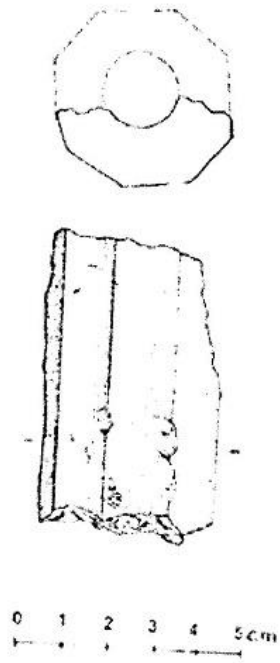
Fig. 1



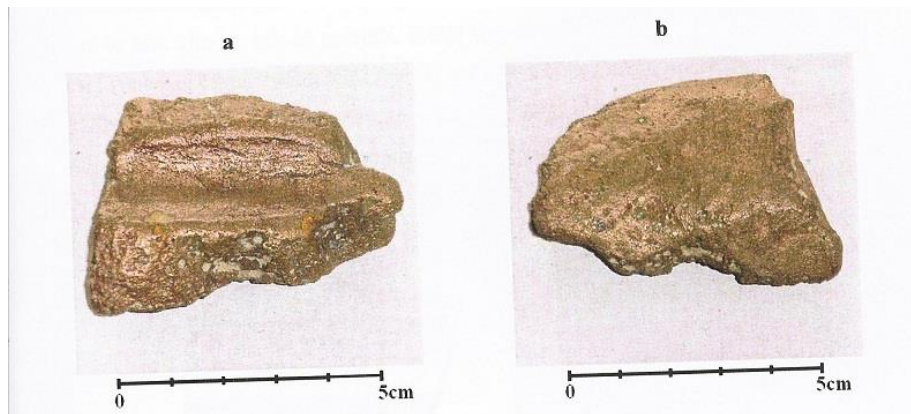
**Fig. 2**



**Fig. 3**



**Fig. 4**



**Fig. 5**



**Fig. 6a**



**Fig. 6b**



Fig. 7



Fig. 8

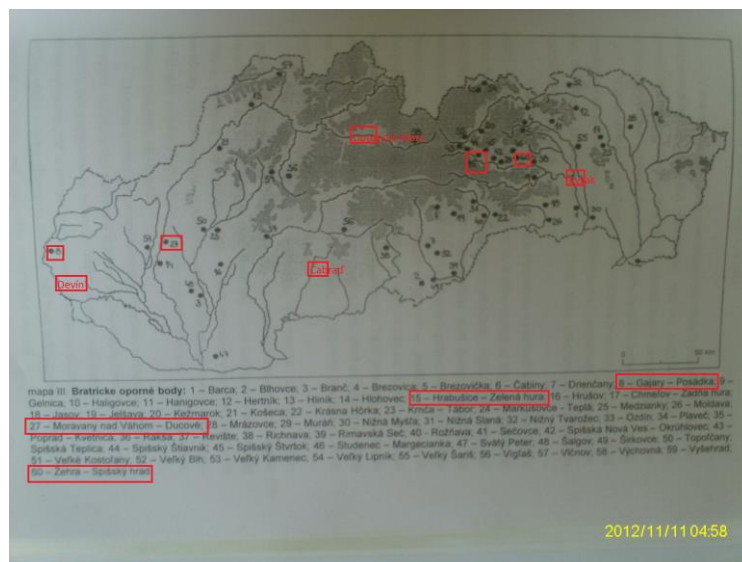


Fig. 9





## Bisericile fortificate săsești. Scurtă analiză istoriografică\*

Ioan-Cosmin IGNAT\*\*

**Keywords:** *Transylvania, germans, Saxon colonisation, fortified churches, archeology*

### Abstract

#### **Saxon Fortified Churches. Brief Analysis of Historiography**

*This project, the study of the research's progress, over time, of the fortified Saxon churches from Transylvania, is required because of the abundance of works for the tourists published in recent years. We will try, however, to speak especially about the scientific work that seem to be the best in the last century, and about some of the promotion materials of churches. It goes without saying that we do not claim to treat the subject exhaustively, but we intend to point out certain aspects that distinguish the pile of papers published over time. We therefore propose a classification of works as measured by the period of occurrence, knowing that historical research have a strong connection with the time when they were performed and with the type of (political) leadership able to treat a subject in a greater or lesser extent. Nowadays, interest in the history of the Transylvanian Saxons increases significantly, we believe, due to the tourism development, but perhaps because of awareness, that the immense artistic endowment is in danger of disappearing.*

Demersul de față, cel al studiului evoluției cercetării, a bisericilor fortificate săsești din sudul Transilvaniei, se impune cu prisosință dacă avem în vedere avalanșa de lucrări cu caracter turistic apărute în ultimii ani, vizând aceste monumente. Vom încerca, însă, să ne oprim îndeosebi asupra lucrărilor științifice ce par a fi „vârfuri de lance”, fără a ocoli și câteva dintre materialele de popularizare ale bisericilor, pomenite anterior. Este de la sine înțeles că nu avem pretenția de a trata exhaustiv această temă, ci intenționăm să punctăm anumite aspecte care se disting în noianul de lucrări publicate de-a lungul timpului. Pentru că, așa cum preciza și Thomas Năgler, „Enumerarea și prezentarea pe scurt a tuturor contribuțiilor moderne și contemporane la această problemă ar constitui ea singură un volum”<sup>1</sup>.

Propunem, așadar, o clasificare a lucrărilor din punctul de vedere al perioadei de apariție, știut fiind faptul că cercetarea istorică are o strânsă legătură cu timpul în care aceasta este realizată, dar și cu tipul de conducere (politică) care permite tratarea unui subiect într-o mai mare sau mai mică măsură. Am ales evenimente contemporane pentru a delimita și analiza perioadele când interesul pentru studiul bisericilor fortificate era unul mai mult sau mai puțin intens: anul 1918 (sfârșitul primului război mondial) și anul 1989 (sfârșitul perioadei comuniste în România).

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<sup>1</sup> Thomas Năgler, *Așezarea sașilor în Transilvania* (București: Editura Kriterion, 1998), 10.