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ON THE ARMAMENT AND MILITARY TECHNOLOGY IN LIVONIA IN THE FIRST DECADES OF THE 13TH CENTURY

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ЗА ВЪОРЪЖЕНИЕТО И ВОЕННАТА ТЕХНИКА В ЛИВОНΙΑ ПРЕЗ ПЪРВИТЕ ДЕСЕТИЛЕТИЯ НА XIII ВЕК

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Abstract: *Abstract: In the late 12th and early 13th centuries, the Crusader movement expanded its reach in northeastern Europe, in territories known as Livonia. The clash of the crusaders with the local Baltic pagan tribes led to unexpected changes in the Latin military system, as the Latins were forced to adapt the Crusader warfare to the local political, climatic, and military conditions. Military activity in Livonia acquired a specific, unique character at the beginning of the 13th century as a result of the clash between two different military systems and different weaponry. The author presents the types of defensive and offensive weaponry of the German Crusaders and the local pagan tribes, emphasizing the technological advantage of the Crusaders. The superiority of the maritime technologies of the German merchants and crusaders over those of the local Curonians and Estonians is also emphasized in the article. Finally, the author concludes that, despite their technological superiority, the Crusaders were forced to adapt their warfare to the specific conditions in the lands of Livonia in the first decades of the 13th century.*

Keywords: *medieval Livonia, medieval warfare, medieval military technology, medieval arms, medieval armour.*

At the beginning of the 8th century there was established a movement known in historiography as *Ostsiedlung*. It was carried out mainly by a German-speaking population, including peasants, noblemen, merchants, and clerics, who settled territories from today's Romania in the south to Estonia in the north. This movement was motivated by adventurism, hunger for land, money, desire for freedom, and religious sentiments and managed to overcome the resistance of the local pagan population in vast territories in the east. One of these areas was located on the shores of the Baltic Sea and became known in the 13th century as Livonia. As a result of a series of crusades in these lands, particularly intense in the first half of the 13th century, Christianity was imposed on the lands of Livonia and the foundations of new political and social structures were established. These crusades were both part of the crusading movement during the period in question and a particular, specific period in the history of warfare in medieval Europe.

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In the decades around 1200, the technique of warfare in Europe changed across Europe to an extent that has been described as a *military revolution* with far-reaching consequences that were as important as the changes brought about by the much better-known military revolution of the early sixteenth century. The changes around 1200 A.D. did not primarily consist in the introduction of new technologies, but rather in the improvement of existing ones and especially in a significant increase in size. This led to larger, more solid, heavier, and more expensive weapons, as well as larger and more solid ships, fortresses, war machines, horses, and armour.

As a result, many researchers talk about an early military revolution around 1200 A.D., in which machines, ships, castles, and even horses got bigger and bigger. It is also possible to speak of a rapid transfer of men and military equipment from the northern German ports to the Eastern Baltic regions that were the subject of the crusades in question [Jensen, K. 2011, p. 258].

At the pan-European level, this development was possible not only due to the general growth of economic resources in the twelfth century but also through a new organization of war financing, which continued its development in the first half of the thirteenth century. On the one hand, these changes were provoked by the increased centralization of taxation and a more sophisticated administrative system, the replacement of personal semi-professional military service by tax payment, and the central financing of a professional warrior class. On the other hand, the military revolution was accomplished due to the increased level of militarization of societies and the improvement of general conscription, which ensured the participation of the entire kingdom in the war activities. The Livonian Crusade was a vivid expression of the consequences of these military changes and the clash of old and new military technologies around 1200 A.D.

Regarding the role of military technology in Livonia, one example concerns the role of new ships in sea communications and naval warfare. In 1210 the Curonians attacked the Crusaders with eight ships. The Crusaders left their ships, boarded smaller boats, and attacked the pagans. Without caution, each Crusader tried to outpace his fellows, rushing to strike at the enemy first, but due to their clever tactics and the higher boards of their pirate ships, the Curonians were victorious. Some of the Crusaders were killed by enemy spears, others were wounded, and others returned to their ships and fled [The Chronicle 1961, p. 95]. The Crusaders never repeated their mistake and always used the main advantage of their cogs – their considerable volume and high boards. The cog was a slow ship that moved under sail, and while not ideal for attack, it was well suited for effective defense. The cog could function as a floating fortress, was well fortified, and could be topped with a fortified wooden tower. Another advantage of the cog was that it carried up to 150–200 people, depending on its size [The Chronicle, p. 155]. Thus, around 1200 A.D., in the region of the North and Baltic Seas, two types of ships that were representatives of different eras and different military technologies collided: the traditional *longship* of the Viking Age and the *cog*. The longship was much faster than any other and easier to maneuver, could be driven ashore easily, but could only carry about 30–40 men or, in the case of unusually large longships, up to 60 men. Most likely, the ships used by the Curonians and the Öselians were of a similar Viking longship type, but the development of military engagements at sea in the Livonian Crusades showed their unsuitability compared to the cog.

As for land warfare around 1200 A.D., the primary engagement was still single combat with traditional weapons such as swords, spears, and shields. The armies consisted of infantry and horsemen, and especially in the latter group a great difference between the crusaders and the pagans emerged in the Livonian campaigns. Crusaders were protected in solid protective armour and rode much larger and stronger horses [Jensen, K. 2011, p. 256]. This was possible due to the development of horse breeding in Western Europe in the previous centuries. First of all, many of the Crusaders in Livonia came from areas that were famous for their horses in the twelfth century, namely Denmark and Frisia. The Danish horse was known as a large and reliable war horse. In contrast to the war horses of the Crusaders, Henricus de Lettis (Henry of Livonia) defines the horses of the local pagans as fast moving [The Chronicle 1961, p. 51, 60]. For that reason some authors call for a more critical attitude to the division of the horses of the opponents in these crusades into two completely different categories - heavy and massive horses of the Germanic knights and light and fast moving horses of the Baltic

pagans. Since few Crusaders had the means for a knightly warhorse, most likely they often relied on smaller and more unpretentious horses [Jensen, K. 2011, p. 257].

Focusing on the weaponry of the Crusaders, I can note that the most commonly used weapon was the spear. Spears were of two types – a long spear for stabbing, and a smaller, short, and light spear for throwing. The spear was used more effectively by the Crusaders. The local pagans dismounted from their horses, fighting with spears, while the Crusaders used their heavy spears from the saddle, attacking the enemy [Kasekamp, A. 1990, pp. 27–38]. The axe, an everyday tool, was another widespread weapon. A more expensive weapon was the double-edged broadsword, which had a steel wedge about a meter long, a narrow cross-guard, and a rounded pommel. Shorter, single-pointed swords about half a meter long, bows, and arrows with thin iron tips were also used. According to the chronicler Henry of Livonia, the Estonians were not using armour, and their main defense was a wooden shield covered with leather [The Chronicle 1961, p. 110]. An important weapon in the crusading armies was the crossbow, the use of which is well-attested in written and archaeological sources for the era and the region. The Crusaders also used mail of metal rings (chain mail), usually in the form of a long shirt that reached almost to the knees and covered the head, with an opening for the face. The sleeves ended with metal gauntlets, and the legs were protected by individual pieces of woven metal rings. The head of the heavily armed knights was further protected by a massive metal helmet with a flat top, two slits for the eyes, and several small holes in the mouth area.

Focusing on the group of knights in the Crusades in question, I can note that they were the best-armed and most effective part of the Crusader armed forces in Livonia. Although the German knight appeared later than chivalry in the French and English lands, from the beginning of the 12th century it became the basis of the military system of the Holy Roman Empire.

The details of the design of the defensive and offensive weapons of German knighthood varied from individual to individual and from region to region but still included few basic details: cuirass, armoured leggings, metal helmet, armoured shoulder and leg guards, spear, sword, a mace or war club, and a dagger [Contamine, P. 1984, p. 67]. The main tactical goal of the knights was to break through the enemy's battle line, and the main weapon for this was the heavy spear. Usually, the spear was between 2.70–3.30 m long [DeVries, K. 1992, p. 15; Oakeshott, E. 1960, p. 258]. The metal blade of the spear was massive, with stoppers at the base, which did not allow too deep penetration into the enemy's body. This ensured that it could be withdrawn and ready for another strike on the next victim. Another powerful weapon of the German knight of the Livonian campaign era was the long sword, which was extremely effective for use both from the height of the horse and in an emergency. The wedge of the sword, dominant at the end of the 12th and the first decades of the 13th century, had a sharp point and often two incised channels, which lightened it without affecting its strength [Oakeshott, E. 1960, p. 212].

Among the widely used weapons of the period, I can also point out the battle axe, which changed its design from one with a heavy and massive blade in the 10th–11th centuries to an ax with a smaller size and shorter blade in the 12th–13th centuries. It was extremely effective against helmets and armour compared to the sword because all the striking power was concentrated in a small area. However, the knight used the battle-ax less often, since in this situation the sword had an advantage. The mace or war club was also rarely used in the era and the region under consideration.

As for the protective armament of the knights, I must mention the chain mail [DeVries, K. 1992, p. 27–28]. Each chain mail was made of about 35,000–40,000 metal rings, which shows the difficult workmanship and high value. Also attached to the chain mail was partial plate metal armour on the shoulders, designed to protect against impact from above. Additional leg armour existed to complement the knight's defensive armour. Under the chain mail, the knight wore a quilted garment, which at the same time provided additional protection to the body and softened the contact with the rough metal mail. The helmet of the mounted knight generally remained unchanged throughout the 12th century. It was conical in shape, often made of several segments riveted together, with a nose and eye guard [DeVries, K. 1992, p. 67]. Around 1200 A.D. the design of the helmet changed, initially with the addition of a full mask in front of the face and additional protection for the ears, forming a

cylindrical shape with a flat top and full head protection, or so-called *grand helm*. The large triangular shield, characteristic of the 11th–12th centuries, changed its size in the 13th century, evolving to a smaller, more compact, and convenient for horsemen to use a triangular shield [DeVries, K. 1992, p. 70; Turner, M. 1993, pp. 31–32.].

The protective armour of the horse in the 12th–13th centuries covered the horse's head and body and was made of quilted material, leather, or chain mail parts [Oakeshott, E. 1960, p. 279]. The war horse was the most important part of a knight's equipment. The horse had to be strong enough to carry its armed rider, including at high speed, tall enough to dominate opposing infantry and cavalry, trained enough not to be intimidated by the chaos and shouting of the battlefield, and sufficiently resilient when suffering a wound [Davis, R. 1989, p. 11]. These qualities were achieved as a result of a strict and purposeful selection of suitable horses over generations, and the breeding itself was labor-intensive and extremely expensive.

No less effort and time was invested in the training of the rider, i.e. the adolescent knight, which started in earliest youth. Despite the myths about the immobility of the medieval knight, the trained young warrior could mount and dismount from the left, right, and even the rear in full battle armour [Davis, R. 1989, p. 13]. A knight's training included not only individual exercises but also collective actions such as jousting tournaments, which reached the height of their popularity around the beginning of the 13th century. German merchants also provided part of the military participants in the Baltic Crusades. Since the first requirement for successful trade was security on land and sea, the merchants, although not essentially a military stratum, gained considerable experience in the handling of weapons for the protection of their lives and their goods. Despite the existence of a large trading center at Visby on the island of Gotland in the Baltic Sea, many German merchants preferred to travel to the lands of Livonia and Rus to buy and sell goods at a better price. In the course of these travels, they developed a system of guarding and protection, and gained substantial experience in the handling of weapons, especially since they could afford the prices of the best armaments of the era [Urban, W. 1994, p. 23]. It is interesting to note that merchants and their servants often acted as lightly armed horsemen or crossbowmen in support of the knights in military actions in Livonia. However, this military participation was carried out only when necessary. According to Henry of Livonia, the merchants took part in military action only twice: in covering an attack by the Lithuanians in 1207 and against the Prince of Polotsk in 1212 [The Chronicle 1961, p. 80, 123.].

More significant was the participation of merchants in the suppression of the Estonian rebellion after 1222, which testifies to the lack of regular troops among the Crusaders. In addition to their military function, the merchants provided important assistance in supplying Riga with provisions by sea in crises and also provided important intelligence data about the enemy and upcoming attacks by the Estonians and the army of Pskov [The Chronicle 1961, p. 157.]. It is difficult to determine the status and participation in military actions of pilgrims of ordinary, low social origin since most often the written sources give information not about them, but about noble crusaders. Pilgrims of low social origin were sometimes unarmed for defense or offense, armed only with a staff, although some of them had chain mails [Turner, M. 1993, p. 32]. The role of these worst-armed crusaders was probably mostly related to the sieges and to undermining the walls, manning the ditches, moving and providing maintenance for the siege engines.

Like the Germans, the Scandinavians were heavily involved in Eastern Europe in the period up to the 11th century, and which led to a strong influence in their model of warfare. These intense contacts with the East led to the adoption of lamellar armour. Evidence of lamellar armour is found in an altarpiece in a Gotland church, in archaeological finds from 10th-century Sweden, and a burial after the Battle of Visby in 1361. By the 12th century, Scandinavia was largely incorporated into the Western European military system. The shields and conical helmets led to the conclusion that the Danes and Swedes had heavy cavalry similar to that of northern Germany.

As far as the native population of the Eastern Baltic is concerned, the Letts, Zemgalians, and Latgalians occupied the area north and south of the Daugava River between the Gulf of Riga and the Lithuanians. The Livs—a local people indigenous to contemporary northern and northwestern Latvia,

were of Finno-Ugric origin and close to the Estonians, as in ancient times they migrated from Finland to take advantage of richer fishing areas on the southern shores of the Baltic Sea [Bilmanis, A. 1951, p. 16.]. The Livs and Letts were in close contact with the Lithuanians, Rus people, and partial contact with Scandinavians until the beginning of the Baltic Crusades. Like their Lithuanian neighbors to the south, the spear dominated the warfare of these tribes. The first mention of a spear in the chronicle of Henry of Livonia suggests its importance as a ritual instrument. In 1186 the Livs held a trial trying to convict the Christian priest Theodoric, the will of the pagan gods being sought by whether or not a horse would step on spear [The Chronicle 1961, p. 27]. Also, Bishop Berthold was speared in the back before being torn to pieces in a battle in 1197 [The Chronicle 1961, p. 32]. In the same chronicle, there are many references to the Livs and Letts in 1206, 1210, 1228, and 1235. I can note the prominent role of the spear, both for throwing at the opponent in the first phase of battles and for a deadly stab at close range. Just like Bishop Berthold, the local chieftains Ako and Kaupo were killed with a spear [The Chronicle 1961, p. 33].

The symbolism of the spear for the locals is also emphasized by the role of this weapon in the conclusion of peace and truce (spears were exchanged, and the return of the exchanged spear meant the end of peace and truce). Archaeological findings in Zemgale include dated spearheads from the 11th century [Spekke, A. 1957, p. 211]. These spearheads are much heavier than those found in Lithuanian lands and have sockets for massive wooden shafts. The unusual designs and other spearheads that are obvious imports show Scandinavian influence, but it is also possible that they were a Western influence after the adoption of Christianity. Another difference with the armament in the Lithuanian lands was also the more frequent use of swords.

In 1211 the Livs used swords against the Estonians under the walls of Turaida, and in 1224 the Livs and Latgalians struck their shields with their swords before the battle began. Archaeological finds show the same type of swords among local Zemgalians and Latgalians in the 11th–12th century, which testifies to a possible Rus' influence, and after the adoption of Christianity, the local Baltic tribes had access to Western swords. Axes were probably also more commonly used by these tribes than the Lithuanians. Although there is no written evidence of Livs, Latgalians, and Zemgalians using axes, there is archaeological evidence of axes similar to Scandinavian ones, and a find from the Latgalian' lands is similar to Slavic battle axes [Spekke, A. 1957, p. 211, 234]. There is no written evidence of archers among the three local tribes, but they adopted the crossbow after the arrival of the German Crusaders. The *Livonian Rhymed Chronicle* states that merchants who entered the Daugava River were attacked by the locals with arrows and stones, but this information is considered unreliable, as the chronicle was written about a century and a half after the events in question. However, there is archaeological evidence of several thousand iron arrowheads found in local ancient settlement sand fortifications [Mugurevics, E. 1987, p. 64].

Some authors accept the possibility that the local Livonian tribes had some protective armour and helmets since according to Henry of Livonia the Livonians were partially protected [The Chronicle 1961, p. 59]¹. Most likely, however, the representatives of these local tribes did not have any other defensive weapons, except for the shield. In 1211, for example, the Livs and Latgalians used shields at the siege of Turaida, and in 1224 the Livs and Latgalians were described as carrying shields at the siege of Dorpat [The Chronicle 1961, p. 224]. It is also very likely that the Livs, Latgalians, and Zemgalians used horses for fast movement just like the Lithuanians. A description of the local population in the *Livonian Rhymed Chronicle* reads: "Nearby there is another people called Latgali. . . They ride in the ancient manner, and their army is very strong whenever assembled." [The Livonian 1977, pp. 5–6]. An ancient manner could mean that they rode unsaddled, but it may also mean that they rode with their legs bent, which was characteristic of lightly armed horsemen. Archaeological finds testify that semi-circular horseshoes with an eastern design were widely used in the territories in question in the 11th–12th centuries, after which the oval horseshoe of the Western type prevailed in the 13th century [Mugurevics, E. 1987, p. 65].

¹ „Vulneratur passim bostium nuditus a sagitta volante.“

The Curonians, inhabiting a vast territory west of the Zemgalians, and the Livs along the Daugava River are usually identified as separate tribes. In fact, before the German conquest of the Curonians in the second half of the 13th century, the coastal inhabitants and the inland Curonians had little contact with each other. The Curonians that the German crusaders encountered were certainly related to the Livs.” [The Livonian 1977, p. 6]. Like the Estonians of the island of Ösel (Saaremaa), the Curonians were pirates who often raided the Swedish and Danish coasts, meaning that they were familiar with Western military systems and often acquired weapons of Western origin. Like the rest of the Baltic tribes, the Curonians used the spear massively, and the numerous archaeological finds of spear blades from their territories testify to a strong Western influence [Nicolle, D. 2002, pp. 849–850]. Like specimens from the lands of the Estonians, some of these blades are massive and suitable for use even against knights. As for the swords, those found are similar to those in Estonia, and Henry of Livonia’s account of the battle with the Curonians under the walls of Riga in 1210 deserves special attention. According to the chronicler, each of the Curonian warriors carried in front of him a wooden shield made of two boards, white in colour and supported by a step, to keep the shield upright and protect the man behind him [The Chronicle 1961, p. 97]². It is assumed that the shields described above served specifically to protect archers. Next, the Curonians had bows, as evidenced by numerous metal arrowheads found in Courland.

The Estonians were of Finno-Ugric origin, separated from the Finns, and moved to the southern shore of the Baltic Sea in ancient times. Subsequently, in the era of Norse penetration to the south-southeast, the Estonian lands to be crossed by the road to Novgorod, which brought both some advantages and many problems for the local tribes. However, thanks to the convenient location of the Estonian lands, the Estonians accumulated considerable wealth in the pre-Christian era [Uustalu, E. 1952, p. 27]. The key location of the Estonians led to numerous invasions by Scandinavians and Rus people, and which developed their warfare and promoted the importation of weapons, making the Estonians one of the most warlike tribes in the Baltic region. The Estonians, like their Baltic neighbors, relied on the spear as their primary weapon. This was repeatedly testified by Henry of Livonia in his chronicle, describing events of 1209, 1210, 1211, 1217, 1219, and in 1223 [The Chronicle 1961, p. 93, 100, 109, 161, 182, 213; Uustalu, E. 1952, p. 27]³. The use of swords was widespread in Estonian lands, probably more so than among the Livs and Latgalians.

Henry of Livonia indicated their use only in 1209, but archaeological finds testify to a wider use. In contrast to the saber swords of their neighbors, the Estonians usually had long, straight, double-edged swords. Many of these Estonian swords were made of quality steel, thanks to their wealth and their contacts with Rus’ lands and Scandinavians [The Chronicle 1961, p. 30]. Also, the Estonians used bows and slings, as well as battle axes of the Scandinavian type [The Chronicle 1961, p. 12]. Like their neighbors, the Estonians used horses in war campaigns, although not as extensively as the Lithuanians. Also, like their neighbours, the Estonians did not use protective armour and helmets.

Describing the Estonian siege of Turaida in 1211, the chronicler Henry of Livonia points out that the crossbowmen from the fortress wounded and killed many of them, as the Estonians were not using protective armour [The Chronicle 1961, p. 110]. The only protection in combat was provided by the shield, which in all likelihood was relatively light and could not withstand heavy blows. In summary, I would note that the main differences between the military systems of the Estonians, on the one hand, and the other Baltic tribes, on the other, were due to the wealth of the Estonians and their ability to purchase high-quality iron, steel and ready-made weapons, which were effective even against western knights. The Estonians on the island of Ösel were pirates and very close to the mainland Estonians in their weaponry and military organization. They were probably even richer than the continental Estonians and better equipped with Western weapons, as evidenced by some archaeological artifacts [Nicolle, D. 2002, p. 849].

² This description resembles a *pavise* or *mantlet* type shield that was used in the Late Middle Ages to protect crossbowmen.

³ E. Uustalu claims that every Estonian warrior carried a heavy, decorated spear for close combat, as well as several throwing spears.

Among the numerous pagan tribes in the region, the strongest military power was the Lithuanians, who had inhabited their territories since before A.D. times. For a long time, the lands of the Lithuanians remained outside the sphere of strong external influence, and in the period up to the 13th century, three external factors partially influenced their military system: the Poles, the Rus people, and the Scandinavians [Turner, M. 1993, p. 50]. Combined with this understanding of external military influences, the textual evidence leads to a comparatively clear picture of the Lithuanian military system. Lithuanian society was entirely agrarian, and most of the land was covered by dense forests and swamps [Christiansen, E. 1980, p. 133]. The Lithuanian military elite was relatively small in number and engaged in raids on the lands of neighboring tribes. The chronicler Henry of Livonia described Lithuanian tactics in 1208 when the Lithuanians attacked by throwing spears and retreated on their fast-moving horses [The Chronicle 1961, p. 80]⁴. The short spear with a non-massive blade was an extremely important weapon for the Lithuanians. According to Henry of Livonia, on the way back from a raid into the lands of the Estonians, the Lithuanians were massacred and slaughtered as a consequence of the lack of sufficiently strong spears. Again, Henry of Livonia testified that in 1212 the Lithuanians symbolically broke the peace with the Germans by ritually throwing a spear into the Daugava River [The Chronicle 1961, p. 133]. An exception to the use of light lances, according to the *Livonian Rhymed Chronicle*, occurred at the decisive Battle of Saule in 1236. After several days of forays into Lithuanian territories, the army of the Order of the Brothers of the Sword started to retreat, hesitating at the River Saule, where its path was blocked by Lithuanian warriors. During the night considerable Lithuanian reinforcements arrived, and the next day in the battle that ensued the Brothers of the Sword were routed, the Lithuanians using not only short lances but also long spears. Probably the wealthier Lithuanians owned swords, although there is no explicit evidence for this [Kasekamp, A. 1990, p. 30]. Axes were probably also used [Christiansen, E. 1980, p. 133]. Although Henry of Livonia attests to a war club as the key to a Lithuanian victory over the Order of the Brothers of the Sword and Zemgalians in 1208, there is no archaeological evidence of the use of a mace or war hammer by the pagan Lithuanians. The logical explanation why the spear was the most commonly used weapon by the Lithuanians lies in the poverty of the region. The Lithuanians did not have iron ore deposits, which meant importing unwrought and wrought iron. The traditional barter commodity – amber, no longer brought significant profits. The slave trade provided some income, but despite this, there was an obvious shortage of iron in the Lithuanian lands in the 12th-13th centuries. Therefore, items that required a significant amount of metal such as swords, maces, protective armour, and heavy axes were not mass-produced and used. For this reason, the short throwing spear, the blade of which required a small amount of iron, was widespread among Lithuanians.

Next, horses were extremely important to the Lithuanians. This is evidenced by many horses taken as booty by the defeated Lithuanians after the Battle in the Snow in 1205, described by Henry of Livonia [The Chronicle 1961, p. 50]⁵. Later, in 1235, the Christians again collected a large booty in horses from the defeated Lithuanians – 2500 in number. Although exaggerated, this number testifies to the important role of horses in the Lithuanian model of warfare. As for the warriors themselves, they were unarmed, often described as *nuditas*, and extremely vulnerable to arrows [The Chronicle 1961, p. 56].

Another military factor in the Livonian Crusades was the Rus people. In the 12th and the 13th centuries, the Russes were in close contact with many different military systems. Rus' merchants reached Denmark in 1134, and in 1142 a commercial and military conflict between the Swedes and Russes erupted, and the intensity of these conflicts grew until the end of the 12th century. After 1203, the Rus' cities of Polotsk, Pskov, and Novgorod periodically waged wars with the newly created Livonia. Byzantium and the nomads from the Eastern European steppes also had a strong influence on

⁴ „Quod intelligentes Lethones velocitate equorum suorum eos undique circumvolant et, prout consuetudo eorum habet, circumferuntur hac et iliac, modo fugiendo, modo persequendo, et lancearum suorum ac pedorum missione quam plures vulerant.“

⁵ „Igur post cedem Lethonum et Estonum Theutonici cum Semgallis ad spoila gentis utris quere vertuntur et infintiam predam, tarn in equis et pecoribus.“

the Rus' military system. These diverse influences had a strong impact in the military field as well. The Russes relied on heavy cavalry, but also on horse archers hired among the neighboring nomads. The Rus' infantry units were armed according to the Byzantine model, and some of the Rus archers were armed like the Scandinavian ones – with ordinary longbows. Iconographic sources support the thesis of the widespread use of battle axes. Some archaeological finds of crossbow parts and crossbow arrowheads prove the use of this weapon in northern Rus. Defensive armament also testifies to multi-directional external influences. Chain mails from the early 13th century, found west of Kyiv, indicate mixed Western and Eastern, Islamic influences [Nicolle, D. 2002, p. 675]. The lamellar armour was also popular in the lands of Rus [Nicolle, D. 2002, p. 675]. Helmets and shields also followed various external influences. Some of them resemble Norman conical helmets, while others resemble Eastern, Islamic-style helmets. Shields also followed Western and Eastern patterns in the form of triangular and circular shields. All this testifies that there was no unified military system in Rus due to the strong external influences and the need to counter various opponents.

Focusing on the role of military technology at the end of the 12th- the first three decades of the 13th century in Livonia, I could emphasize again the role of naval technology. The most obvious was the ability of the Germanic cog to transport the crusaders and the necessary supplies and weapons from northern Germany to Livonia. The German naval cog could transport up to 200 tons, which was eight to ten times the capacity of Viking longships [Turner, M. 1993, p. 209]. The cog could also transport an average of 50–100 people with provisions or food supplies for a thousand people for five to six months. Bishop Albert appeared in Livonia with twenty-three ships with men and supplies, who managed to establish a strong outpost in the face of fierce Livonian resistance. The cogs were also suitable for transporting the heavy warhorses needed for the shock cavalry that proved crucial in 1205 and subsequent operations. Moreover, each early autumn Bishop Albert made several voyages to Germany aboard such a ship, whence he returned in the following late spring with new Crusaders, equipment, and supplies. As a result, it was the transport capabilities of the German cog that were the first and most important technology successfully used by the Crusaders in Livonia. In 1206 the Germans at Riga, Holm, and Wexküll were in a difficult situation, and the whole crusade was on the verge of failure when two cogs arrived from Germany with grain. Thus, the two ships brought enough food to save the German colonists in Livonia from starvation. According to Henry of Livonia, during one of the Pagan raids, the citizens of Riga built a cog as a floating fortress, placed crossbowmen in it, and anchored it at the mouth of the Daugava River. This floating fortress dominated the low ships and boats of the enemy and did not allow sailing up the river [The Chronicle 1961, p. 155]. Also, during the early period of the Livonian Campaigns, the Estonians from the island of Ösel, known as shipmen and pirates, were determined to cut off the sea connection between Livonia and Germany, but in the first sea battle, the Germans won a victory without losses on their side [Turner, M. 1993, p. 210]. This superiority prevailed except at the battle of Sunde, in which, despite of the warnings of the bishop, the pilgrims abandoned the cogs and attacked the Curonians in small boats, but were defeated. With this exception, despite some very serious attempts, the pagans did not succeed in defeating the Crusaders and were unable to cut off supplies to the Christians in Livonia [Turner, M. 1993, p. 211].

Focusing on land military technologies, I could also emphasize the important role of the crossbow, which stands out in Henry of Livonia's Chronicle. When repelling the Lithuanians who tried to loot livestock in the fields around the city of Riga, the marauders were met with arrows, most probably from a crossbow [The Chronicle 1961, p. 45]. Also, the *ballistaries* played an important role in the first battle for Fort Holm, as the opponents were repulsed by the crossbowmen, who killed even those who tried to escape by swimming [The Chronicle 1961, pp. 58–59]. Another evidence of the effectiveness of the crossbow is also the unsuccessful attack of the Livs in alliance with the Rus from Polotsk against the Uexküł fortification, defended by the knight Konrad and his crossbowmen (*balistarii*) [The Chronicle 1961, pp. 62–63]. Next, judging by the data from the Livonian Chronicle, I can conclude that the bishop of Riga purposefully attracted a large number of crossbowmen as pilgrims and that the usual ratio of knights to crossbowmen varied around 1:5 [The Chronicle 1961, pp. 202–203]. Generally, crossbow is mentioned more often in Henry of Livonia's chronicle than other

weapons. The word crossbow (*ballista*) occurs 17 times, and crossbowmen (*balistarii*) – 32 times in the text of the chronicle. The word *sagitta* is used by Henry to denote both crossbow arrows and bow arrows, but in at least 13 cases the author undoubtedly uses it in the sense of crossbow arrows [**The Chronicle** 1961, p. 21, 24, 42, 54, 84, 108, 133, 157, 163–164, 203]. The last chapter of the chronicle uses the terms *iaculum* and *telum* to refer to crossbow arrows. Historians studying the Baltic Crusades do not dwell on the crossbowmen in detail, assuming that they were the squires of the knights [Benninghoven, F. 1965, pp. 402–404]. However, the chronicler Henry of Livonia himself pays great attention to crossbowmen, mentioning some by name [**The Chronicle** 1961, p. 59, 65, 66, 80].

The professional skills of the crossbowmen were also manifested in their actions of humiliating selected individuals among the enemy. The case of striking Rusin (a chieftain of the Latgalians) with a crossbow, who for a moment took off his helmet and showed himself from the wall of the fortification is indicative [**The Chronicle** 1961, p. 108]. Similarly, Westhard's nephew (Westhard was a Zemgalian chieftain) was killed by a crossbow during the siege of Mezoten in 1219 [**The Chronicle** 1961, p. 157]. In 1218, when a Rus' detachment besieged the Venden fortress (Estonian Võnnu, Latvian Cēsis), many of the besiegers were killed and wounded by the crossbowmen in the fortress [**The Chronicle** 1961, p. 170].

Henry's records testify to crossbowmen only in the defense or siege of fortifications, with no description of crossbows being used in open combat. The important role of crossbows in the defense of fortifications is demonstrated by the fact that they were the only weapon that Henry mentions as part of the defensive armament installed in the fortresses in 1221 when the Crusaders started to strengthen their positions in Estonia [**The Chronicle** 1961, p. 185, 191, 195, 201]. Some of these weapons later fell into the hands of the local Estonians during their uprising against the Germans [**The Chronicle** 1961, p. 191, 195, 201].

Henry's chronicle also testifies that crossbowmen often formed a significant part of the garrisons of the fortifications [**The Chronicle** 1961, p. 21, 56, 65, 66, 89]. In many of the descriptions of sieges of Crusader fortifications, Henry specifically mentions the participation of crossbowmen, who were highly effective, and in at least eight cases the chronicler attributes the end of the siege to the effective shooting of the crossbowmen and the high losses among the besiegers [**The Chronicle** 1961, p. 21, 43, 75–76, 151–152, 157, 197, 220]. In 1223, a large army of Russes and Estonians besieged the Danish fortress of Reval for four weeks, but without success, as many of them were killed by the arrows of the crossbowmen in the fortification [**The Chronicle** 1961, p. 216].

The first natives to adopt the crossbow as part of their weaponry were the Estonians. They acquired many of these weapons during their uprising in 1222–1223 and also provided crossbows to the Russes, whom they called their allies in the war with the Germans [**The Chronicle** 1961, p. 217]. It is also interesting how the Estonians used these weapons in the defense of their fortifications in 1223–1227 [**The Chronicle** 1961, p. 214–215, 222–223, 240–241]. Crossbowmen used their weapons with success not only on land but also on water. In 1215, for example, the Estonians blockaded nine crusaders on the island of Ösel for two weeks, but without success due to the effectiveness of the crossbowmen shooting from the ships [**The Chronicle** 1961, p. 147–148]. Next, when the Estonians planned an attack on Riga in 1216, the Crusaders bought a cog from the merchants, built wooden towers, and stationed crossbowmen in it, which prevented enemy ships from crossing the river mouth and attacking the city [**The Chronicle** 1961, p. 154–155]. In 1211, the Estonian fleet proved unable to break through the dense barrage of crossbows from both banks of the Gauja River at Turaida [**The Chronicle** 1961, p. 109–110].

Almost as often as in the defense of fortresses, the chronicler Henry of Livonia noted the role of the crossbow in siege operations. In sixteen cases, the chronicler describes a siege of native fortifications undertaken by the Crusaders, emphasizing the role of crossbows. In other accounts, Henry always points to the active role of crossbowmen, often even considering it decisive [**The Chronicle** 1961, p. 60, 103–104, 153, 218–219], and in nine cases he mentions siege towers, directly associated with the activity of crossbowmen [**The Chronicle** 1961, p. 104, 127–128, 153, 180–181, 214–215, 218–219, 224–225, 240–241, 243–244]. Henry repeatedly described siege towers that were moved as

close as possible to the fortress, allowing crossbowmen to fire on the defenders of the wall in a certain sector. This allowed the foundation to be undermined and the collapse of the wall or fortification in this section usually led to the surrender of the defenders [**The Chronicle** 1961, p. 127–130, 180–182, 224–226]. Descriptions in Henry's *Livonian Chronicle* show that crossbowmen never engaged in open combat. One of the reasons for avoiding open battles was probably the military tactics of the local tribes, who usually hid in ambush and attacked unexpectedly. This made it pointless to use the heavy and slow-loaded crossbow against the locals in open field. Henry's information is also confirmed by numerous archaeological artifacts, most notably metal crossbow arrowheads in the Baltic region. Since this weapon was unknown to the local people before the arrival of the Crusaders, these finds are eloquent evidence in support of the written accounts. Excavations of fortified Estonian hills and their surroundings have revealed hundreds of metal crossbow arrowheads dating to the period 1208–1227 [Mäesalu, A. 2011, p. 273].

It is also important to note that the enemy's technological superiority was a strong incentive for the adoption of at least some of the new and hitherto unknown indigenous weapons and machinery. Describing the Estonian Revolt of 1222–1223, Henry of Livonia notes that the Estonians were trained both in crossbow shooting, using captured crossbows, and in the construction and use of siege engines [**The Chronicle** 1961, p. 210]. The description of the siege of Dorpat by the Germans, in which the Estonians tried to set fire to the enemy machines by dropping burning wheels on a downward slope, also speaks of the technological progress of the Estonians [**The Chronicle** 1961, p. 225]. Despite their purposeful attempts to copy Western technology, however, the pagan Estonians failed, probably due to the limited number of crossbows at their disposal, as well as poor skill in using the siege engines they had constructed. I should also note that the written sources specifically testify to the use of siege towers by the Crusaders, but not by the local pagans. Most likely, the overall level of craft development among the natives did not allow full assimilation of the enemy's military technology.

In summary of the above, I would emphasize that while the armament of the Crusaders in Livonia was the result of the military revolution of the 12th century, including that of the classical Western knight, the armament of the local pagan tribes was at a significantly lower technological level. I also cannot fail to mention data that among the natives there were tribes that partially influenced Western technology such as the great spear and sword of the Estonians and Curonians, but basically, among the pagans there was no defensive weaponry except for shields, with helmets being rare. Particularly indicative of the technological superiority of the Crusaders was the crossbow. Although widely and massively adopted by the Estonians during their great uprising of the second decade of the 13th century, it remained the main weapon of the conquerors. In this sense, the military conflict was largely decided by technological superiority in favor of the Crusaders.

The analysis of strategy, tactics, and logistics in the region also leads to interesting conclusions. The strategy and tactics of the war in Livonia bear a specific imprint due to the remoteness of this region from the main recruiting base of the Crusaders, as well as due to the specifics of warfare in the region. First of all, the strategy was campaign-like and repeatable, as it depended on annual reinforcements from pilgrims, who usually arrived in late spring or early summer. This strategy was adapted to local conditions, adopting a seasonality of warfare with raids and campaigns conducted mainly in winter time. Also, the German Crusaders regularly included forces of local tribes in their armies. Since the usual goal of local warfare was booty and prisoners, the most important strategic goal was to surprise the enemy. Another specific feature of military affairs in the studied region and period was the avoidance of open and prolonged battles, as well as effort at conducting sieges of fortifications. The raiding party was usually on the march for nine to fourteen days, rarely coming into direct contact with the defending forces, and if the enemy managed to raise an army, the raiders usually quickly returned home. To achieve speed and surprise, warriors usually used horses, but they were not true horsemen, as they went into battle on foot. Battles involved throwing light spears and shooting arrows as a prelude to actual combat, in which men clashed and charged with swords, axes, and war clubs until one side retreated and fled the battlefield. All this testifies to a specific nature of the war in Livonia at the beginning of the 13th century due to the clash of two different military systems. This clash led

both to the apparent superiority of the crusader forces over the local tribes, and also to the adaptation and changes in the crusaders' warfare in a new reality.

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