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## Medieval Georgian Poliorcetica

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Poliorcetica is the art of siege warfare, more precisely that of capturing strongholds and their defense. Owing to the large number of castles, siege actions were highly characteristic of the Middle Ages.<sup>1</sup> According to Philippe Contamine, “in its most usual form medieval warfare was made up of a succession of sieges accompanied by skirmishes and devastation, to which were added a few major battles...”<sup>2</sup> Hence, the accompanying “siege mentality”.<sup>3</sup> Indeed seizure castles held the most important place in the art of war of the period, sieges being much more frequent than field battles.<sup>4</sup> This was natural, for in the Middle Ages war was carried on to master land, and land was controlled by castles.<sup>5</sup>

In the Middle Ages, when fighting took place at arms length, he who had the advantage of height and was protected behind walls enjoyed considerable superiority.<sup>6</sup> Hence capturing a fortress was a difficult and laborious undertaking. It demanded the participation of many people (soldiers and various specialists) and diverse materials (wood, iron, hides, ropes for the camp and siege engines, stones for artillery). The besieger had to take into account numerous factors: correct place for the camp, ensuring food supplies, keeping to elementary sanitary norms to prevent an epidemy, putting an end to the garrison’s sorties, repulsing outside attacks.

Apart from the difficulties generally attending military operations, conducting a siege required from the besieger to solve certain specific problems. Complex siege operations made necessary definite mathematical calculations and the use of a theodolite type device. The Byzantine anonym, conventionally called Heron of Byzantium, who in the 10th century wrote extremely important works in poliorcetics (*Parangelmata Poliorcetica* and *Geodesia*), considers that the besieger had to know and make a correct calculation of the height of a wall

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<sup>1</sup> In the Classical period a city was basically besieged, and in the Middle Ages castles were oftener the objects of siege; BRADBURY (1992) 1.

<sup>2</sup> CONTAMINE (1984) 101.

<sup>3</sup> CONTAMINE (1984) 219.

<sup>4</sup> GRAVETT (1990) 3; DEVRIES (1992) 125; BRADBURY (1992) 71.

<sup>5</sup> MCGLYNN (2010) 265.

<sup>6</sup> FRANCE (2000) 53.

from afar, for error would necessitate the use of wrong size devices (ladder, tower, etc.), inevitably resulting in casualties.<sup>7</sup>

The techniques of capturing a castle and a city did not differ, yet they were characterized by certain peculiarities. As a rule, a castle was built on a more inaccessible site and its fortifications were stronger. In taking a city, however, its residents created an additional difficulty. During the attack, a city was defended not only by the garrison but city militia and even the part of the population that was usually noncombatant. Moreover, even women took part in the defense of a city. The residents of a city played a significant role in repairing breaches and supplying the combatants, they participated in the defense of the ramparts too. From this standpoint the defense of cities was an example of a “total war” of old times.

Taking a well-fortified city was rather difficult and use was made of every favourable opportunity, including earthquakes. This chance was used by Egypt’s Mamluk Sultan Qalawun in 1287 when he took the earthquake-damaged Latakia.<sup>8</sup> In D. Nicolle’s assessment, “the earthquake offered Sultan Qalawun an opportunity that was too good to miss.”<sup>9</sup> The Georgians made similar use of the earthquake of 1139 when in the reign of Demetre I (1125-55) they attacked, under the command of Ivane Abuletisdze, earthquake-damaged Gandja, seizing numerous captives and spoils.<sup>10</sup>

Several basic techniques of capturing a fortress are identified, such as storming the wall, breaching the wall, digging an underground tunnel under the wall and weakening the garrison as a result of siege.<sup>11</sup> This list does not involve the capturing of strongholds by stratagem, by bribing or threatening the garrison, using the effect of surprise and so on. Such cases rather belong to the general sphere of warfare, not being considered widely as the subject of classic *poliorcetica*.

In general, all techniques of taking fortresses may be united under two methods: assault or siege. Both assault and siege may be carried out by various means; their joint use is also frequent.

That Georgians were familiar with diverse siege methods is seen in a 10th century manuscript. “The Life of Jacob of Nisibis” narrates: “they set numerous engines to bombard the

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<sup>7</sup> Heron, *Geodesia...*, p. 115; At the turn of the 4th-5th centuries Vegetius names two methods of measuring the height of walls: with a thread tied to an arrow and by measuring the shadow of the towers and walls; Vegetius IV. 30. According to Anna Komnene, in 1107 during siege of Dyrrachium the Franks revealed good knowledge of optical theory or at least they understood the use of optical instruments as they correctly measured the height of the walls and constructed the siege tower of the appropriate height. Anna Komnene XIII.3, p. 365.

<sup>8</sup> The Muslim siege engines inflicted additional damage to the earthquake-stricken city, forcing the Christians to surrender; MARSHALL (1992) 232.

<sup>9</sup> NICOLLE (2005) 15.

<sup>10</sup> DJAPARIDZE (1995) 92 - 93.

<sup>11</sup> WISE (1976) 164.

city, and made carts with engines to come up to the wall and undermine its foundation.”<sup>12</sup> As we see, described here is the attack of a city with stone-throwing artillery and digging the foundation of fortress wall under movable cover. But the method described in the manuscript is one thing and its use in practice is another matter. Therefore I shall begin the discussion of Georgian medieval siege warfare considering the siege techniques, for the level of their development will demonstrate the siege capabilities of the Georgian army.

### **Siege machinery**

Generally, three basic materials were required for the construction of siege machinery: timber, iron details and ropes, and of course talented engineers and craftsmen.<sup>13</sup>

Heron of Byzantium lists diverse machinery used by besiegers: various types of tortoises, composite and of a single piece of wood rams, mobile wooden towers, various ladders including composite, light and for observation, different tools for digging through walls, drop-bridges for ditches, etc.<sup>14</sup> If we add to this list medieval artillery, we shall obtain a list of principal war-machines: ram, tortoise, siege tower, assault ladders, stone-thrower and arrow-shooting engines, as well as diverse pyrotechnical means.<sup>15</sup>

Bearing in mind various data, in the Middle Ages the Georgians used the following technical means: assault ladders, rams and other wall-breaching devices, ballista, stone-throwing engines and subterranean tunnels.

Regrettably, not only a trace but even a substantial description or representation has not survived. This is the more deplorable that according to Jean François Gamba, in the 1820s specimens of old siege machinery had survived in Georgia: “At Ilori there is one more old church where a few years ago catapults, rams and old weapons of war, used prior to the invention of gunpowder, could be found.”<sup>16</sup>

### **Stone-throwing artillery**

The siegers used ballistic (stone-throwing and arrow-shooting) engines against fortified places to demolish its rampart and battlements and to inflict damage to the garrison.<sup>17</sup> In the Middle Ages Classical-type catapults were replaced by a new type stone-throwing engine

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<sup>12</sup> MSHVENIERADZE (1961) 65.

<sup>13</sup> ROGERS (1992) 21.

<sup>14</sup> Heron, *Parangelmata*..., p. 29.

<sup>15</sup> HOFFMEYER (1966) 128.

<sup>16</sup> GAMBA (1826) 98.

<sup>17</sup> Beginning with Classical times, making stone-throwing engines was a difficult task which could not be done by everyone. As G. Lordkipanidze points out, such engines were made only by those who could carry out complicated mathematical calculations and had appropriate material and technical facilities and highly skilled masters; LORDKIPANIDZE (1976) 173.

– trebuchet.<sup>18</sup> The principle of operating of trebuchet differed from that of Greek-Roman torsion engines that used the energy of twisted sinews (ropes). Trebuchets are of two types: traction and counterweight. The former, operated by human force, is an earlier engine, while the counterweight trebuchet was invented later.

Traction trebuchet is a Chinese invention and perhaps is first mentioned in a military manual written between the fifth and third centuries BC.<sup>19</sup> Towards the end of the 6th century it



**Fig. 1.** In the centre of the miniature, conjecturally traction trebuchet is crudely represented. Second Tetraevangelion of Jruchi (Ms H1667), f. 111r, National Centre of Manuscripts.

entered the Mediterranean region from Central Asia. The traction trebuchet was introduced by Avars to the Byzantines and in the 7th century it already constituted standard armament of the Byzantine army.<sup>20</sup>

<sup>18</sup> Trebuchet is a later, French name of a stone-throwing engine, used due to terminological simplicity. The 7th century Arab historians used the word *manjaniq* to describe the new stone-throwing engines, that stems from Byzantine *manganikon*, while the later comes from the Greek *manganon* denoting the lifting device; MCCOTTER (2003); D. Nicolle believes that the root of the designations of Byzantine stone-throwing engines (*manganon*, *manganikon*, *magganika*) or the Arabic-Persian-Turkish name (*manjaniq*) derived from them should be sought in the Greek word *mangano* which means “demolition.”; NICOLLE (2003) 10; In P. Chevedden’s view, the word *manganon* means “charming, bewitching” pointing to trebuchet – a new type engine, the power of which cast a spell on everyone; CHEVEDDEN (1998) 199.

<sup>19</sup> GILLMOR (1981) 1; CHEVEDDEN (1998) 179.

<sup>20</sup> MCCOTTER (2003); DAWSON (2007) 11; In Europe, the fact of the use of trebuchet occurs in the 9th century – before the Crusades; GILLMOR (1981) 2 - 3, 6.

Traction trebuchet is a stone-throwing engine operated by man. Its making, assembly, transporting and use were easier than the Greco-Roman torsion engines.<sup>21</sup> Apart from this, in comparison with Classical period artillery, traction trebuchet was a more powerful engine.<sup>22</sup> It was much more safer and more “patient” to the operator’s error than Classical torsion engines.<sup>23</sup> Onager – the best Roman stone-throwing engine was a much more expensive, complex and hazardous.<sup>24</sup>

Traction trebuchet consists of a long wooden beam resting on a frame. ropes were fixed to its shorter arm and a gigantic sling to the long end. The ropes were pulled by men which generated quite a strong force; sudden release of the sling endowed the longer arm with motion that would hurl the projectile. The power and precision of the traction trebuchet largely depended on the training of the operators. The better the team was trained and action coordinated the more effective the trebuchet was.<sup>25</sup> A major role was assigned to the so-called “shooter” who pulled the sling with the missile, letting it to go at the right moment and the correct angle.<sup>26</sup> In a military treatise written for Salah al-Din, al-Tarsusi gives an advice on how to fire correctly from a traction trebuchet and how to adjust the aim. According to al-Tarsusi, such an engine shot to the distance of 80-120 m. The beam of a traction trebuchet should be flexible and the cherry-tree was considered best for it.<sup>27</sup>

The largest Chinese traction trebuchet was managed by a 250-strong team and it hurled a 56 kg stone to the distance of 77 m.<sup>28</sup> According to Aristakes Lastivertc’i, in 1054 in the siege of Manzikert the Seljuks of Toghril Beg (-1063) used a trebuchet of such size that its ropes were pulled by 400 men.<sup>29</sup> But such an engine was a great rarity. In general, traction trebuchet was a smaller and simpler engine. According to a Chinese military treatise of 1044, the majority of traction trebuchets hurled 15 kg stones to the maximum of 92 m.<sup>30</sup> Traction trebuchets operated at the distance of the shot of an arrow and their personnel had to be protected. Thus, during the above-cited Manzikert siege the Seljuks set up a wall of fabric to protect their artillery team.<sup>31</sup>

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<sup>21</sup> NICOLLE (1988) 45; NICOLLE (1990) 18.

<sup>22</sup> CHEVEDDEN (1995) 164; GILLMOR (1981) 4.

<sup>23</sup> TARVER (1995) 141.

<sup>24</sup> TARVER (1995) 165; In comparison with trebuchet the onager was heavier and had a powerful recoil. Its rate of fire was much slower and required diverse spare parts; PURTON (2009) 9.

<sup>25</sup> DEVRIES (1992) 133 - 134, 137.

<sup>26</sup> HILL (1973), 103.

<sup>27</sup> TARVER (1995) 148 - 149; HILL (1973) 103.

<sup>28</sup> While the counterweight trebuchet hurled 50-300 kg stone; CHEVEDDEN (1999) 37 - 38; CHEVEDDEN (1998) 183.

<sup>29</sup> Aristakes Lastivertc’i (1985); According to Matthew of Edessa, this engine had been built by the Byzantine Emperor Basil II; Matthew of Edessa, 87.

<sup>30</sup> CHEVEDDEN (1998) 213.

<sup>31</sup> Aristakes Lastivertc’i (1985).

In comparison with the more powerful counterweight trebuchet, the traction one was much easier to build and had faster fire rate.<sup>32</sup> It was primarily an anti-personnel weapon which destroyed relatively weak battlements and prevented the garrison from manning the walls.<sup>33</sup> In 1147 at the siege of Lisbon 100 men managed to hurl 5000 relatively small-sized stones with 2 engines in ten hours.<sup>34</sup> This is the best illustration of the fire rate of traction trebuchet. In 1032, while campaigning in Syria, the Byzantine army bombarded a Muslim stronghold. Entering the stronghold, the Byzantines found 200 dead as a result of the bombardment.<sup>35</sup>

Continual wars between Christendom and the Islamic world contributed to the invention of a powerful siege engine such as counterweight trebuchet.<sup>36</sup> Prior to the invention of gunpowder weapon the counterweight trebuchet was the most powerful weapon.<sup>37</sup> It was a masterpiece of medieval engineering in which even kings took pride, giving large machines their own names.<sup>38</sup> The counterweight trebuchet appeared in the 12th century.<sup>39</sup> The precise time and place of its origin are unknown. D. Nicolle believes that the counterweight trebuchet was created in the Islamic Near East. However, he does not rule out the possible authorship of the Byzantines.<sup>40</sup> After all, it seems priority should be assigned to the Byzantines.<sup>41</sup> In Chevedden's view, the counterweight trebuchet was invented in Byzantium early in the 12th century, perhaps even slightly earlier. He adduces convincing arguments to illustrate that the counterweight trebuchet is a Byzantine invention.<sup>42</sup>

The counterweight trebuchet was acting in the same way as that of its traction counterpart, with the difference that in place of human power a heavy counterweight was used. It had a longer sling which increased the length of the arm and enabled the hurling of a heavier projectile with more acceleration.<sup>43</sup> The beam of the counterweight trebuchet had to be stronger in order to withstand the bending stresses caused by the heavy counterweight.<sup>44</sup> The counterweight weighed several tons, its weight being proportional to the power of the trebuchet. The counterweight trebuchet was more powerful and precise than its predecessor, for

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<sup>32</sup> GILLMOR (1981) 2.

<sup>33</sup> Only the strongest fortress could stand the bombardment by counterweight trebuchet; NICOLLE (2002) 6.

<sup>34</sup> ROGERS (1992) 185.

<sup>35</sup> NICOLLE (2003) 11 - 12.

<sup>36</sup> ROGERS (1992) 247.

<sup>37</sup> It took a century for gunpowder weapon to reach the power of the counterweight trebuchet; NICOLLE (2007) 226.

<sup>38</sup> The spread of counterweight trebuchet was followed by changes in fortification: it led to the construction of larger and more solid towers that should withstand the impact of such powerful weapon; CHEVEDDEN (1999) 35; NICOLLE (2002) 24.

<sup>39</sup> HILL (1973) 103 - 104.

<sup>40</sup> NICOLLE (2003) 4 - 5; Purton also believes the counterweight trebuchet to have been a Muslim invention; PURTON (2009) 300.

<sup>41</sup> DENNIS (1998) 110 - 113.

<sup>42</sup> CHEVEDDEN (2000) 76 - 87, 102 - 111.

<sup>43</sup> CHEVEDDEN, EIGENBROD, FOLEY, SOEDEL (1995) 69; TARVER (1995) 164.

<sup>44</sup> HILL (1973) 109.

it enabled adjustment of the distance of shooting by altering the size of the counter or the pivotal length.<sup>45</sup> This fairly precise engine was served by a relatively small team.<sup>46</sup>

The counterweight trebuchet could hurl heavy stones to the distance of up to 200 meters,<sup>47</sup> which means that it acted from a distance inaccessible to the arrows of the garrison for the effective range of the arrow is up to 140 m.<sup>48</sup> This was of paramount importance for the safety of the artillerists. In 1138 when the Byzantines breached the walls of the Sheizar, Usama ibn Munqidh paid attention to the fact that the artillery of the besiegers threw stones from a longer range than the arrows of the defenders could reach.<sup>49</sup>

Making stone-throwing engines was expensive (especially of a counterweight trebuchet). They needed timber, ropes, leather, iron details. In order to throw precisely, specially dressed stones of standard weight and shape were used. Stones of firmer species were also carefully selected for projectiles.<sup>50</sup>

In the Georgian language *pilakavani* was used to denote a stone-throwing engine. P. Chevedden has ascertained the Persian provenance of this word and explained its meaning. Similarly to the Armenian *p'ilipan* (*p'ilikian*), “the Georgian term *p'ilekavani* are derived from the Persian *pilvar-afkan* or its abbreviated form – *pol(o)kan*. The Persian term means “a thrower of elephant-size objects.”<sup>51</sup> This must have been the original designation of the traction trebuchet spread in Iran in the sixth century. Following the conquest of Iran by the Arabs the original Persian term was replaced by the Arabic *manjaniq*, though it survived in the Armenian and Georgian languages.<sup>52</sup>

It should be said that in the majority of cases Georgian sources do not give a lavish description of the use of stone-throwing artillery, to say nothing of their design and other peculiarities. Often the chronicler only notes the siege of some stronghold without mentioning the war machines used. Only archaeologists can find the trace of this machine. Thus, *Life of Kartli* tells us about the battles fought by the kings of Abkhazia, Kakheti, Tao and Armenia for dominance over Uplistsikhe. There is not a single mention of *pilakavani* or any siege engines in the said battles. At the same time, the use of stone-throwing machines is attested

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<sup>45</sup> JONES (1999) 174.

<sup>46</sup> NICOLLE (1988) 31.

<sup>47</sup> PURTON (2009) 384.

<sup>48</sup> EDBURY (1999) 109.

<sup>49</sup> *Kitab al-I'Tibar*, p. 143.

<sup>50</sup> NICOLLE (2002) 16; During the Third Crusade Richard the Lionheart brought especially hard stone projectiles from Sicily to Palestine, using them in the siege of Acre; NICHOLSON (2004) 93; One such stone killed 12 persons; the astonished Muslims showed it to Salah al-Din; HINDLEY (2009) 43; We know that in 1244 in Northumberland a certain Gerard cut stones for the engines from a mold; HILL (1973) 104; In 1304 the English besieging Stirling had specially cut 784 stone projectiles; HINDLEY (2009) 97.

<sup>51</sup> CHEVEDDEN (1998) 202 - 203.

<sup>52</sup> CHEVEDDEN (1998) 203.

archaeologically. D. Mindorashvili, the author of a special study of the former city site of Uplistsikhe, writes: “Numerous finds have been made of specially cut and dressed sling stones and fairly large projectiles. The latter were designed for pilakavanis.”<sup>53</sup> Conjecturally, these projectiles are of the 9th-10th centuries, when intensive struggle was underway for the possession of Uplistsikhe. The “fairly large projectiles” were designed against the personnel, pointing to the traction trebuchet.

The term *pilakavani* itself shows that traction trebuchets came from Sassanian Iran towards the close of the 6th or early 7th century. The first evidence on the use of traction trebuchet occurs in the siege of Tbilisi in 627 by the Emperor Heraclius and the Turks. Movses Dasxurants’i relates that “They [The inhabitants] saw the four-wheeled ballista and various other weapons built by Byzantine engineers with which [the enemy] unerringly hurled huge rocks to breach the walls.”<sup>54</sup> By that time the Byzantines had been familiar with traction trebuchet for at least 30 years, which in comparison with earlier siege machines (onager) hurled larger stones, which was exaggerated in the chronicler’s report (“hurled huge rocks”).

The next report on the stone-throwing artillery dates only from the early 11th century. This obviously does not mean that over this period of time such engines were not used in Georgia. An analysis of a report cited below will convince us that we are dealing with a well-developed branch which could not have started from scratch. The formation of new Georgian kingdoms and continued wars with neighbors in the 9th-10th centuries must have been special stimulus for the development of siege warfare when capturing strongholds was of primary importance.

The anonymous author of *Matiane Kartlisa* supplies a very interesting report on the use of Georgian stone-throwing artillery. In 1011 or 1012 Bagrat III (978-1014) jointly with the Armenian allies campaigned against the Shaddadids: “This Great and totally victorious King Bagrat devastated the land of Ran, besieged the city of Šank’or, and set up catapults [p’ilakavanni]. Within a few days they had demolished the walls of Šank’or. The next day he was intending to attack and reduce the city, but that night P’adlon sent an envoy and requested mercy.”<sup>55</sup> As we see, described here is the action of fairly powerful ballistic engines that in a short time demolished the city walls. As is known, trebuchets had a greater effect in clustered action when they were concentrated on one section of the wall. It is noteworthy that Bagrat used several trebuchets in attacking the city. Nevertheless, such demolition of the wall that brought about the surrender of the opponent raises many questions. The stone-throwing artillery of the early 11th century could not demolish strong walls.<sup>56</sup> As indicated above stone-throwing

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<sup>53</sup> MINDORASHVILI (2008) 80.

<sup>54</sup> Movses Dasxurants’i (2010).

<sup>55</sup> *Rewriting Caucasian History...*, p. 279.

<sup>56</sup> On the basis of a study of the four military treatises of the 10th-11th centuries (the *Parangelmata Poliorcetica* of Heron of Byzantium and the *De obsidione toleranda* of an anonymous author, the *Taktica* of Nikephoros Ouranos and the *Strategikon* of Kekavmenos) E. MCGEER points out that until the 12th century digging underground tunnels was the most favoured tactic of the Byzantines. This points to the relative weakness and little effectiveness of Byzantine, and in general, synchronous artillery against fortifications; MCGEER (1995) 123 - 129.



engines of various epochs and design had different capacities. In the Middle Ages the wall of a strong fortress could be breached only with a counterweight trebuchet which, unlike its predecessors, threw projectiles of considerable weight to a long range. In the early 11th century the counterweight trebuchet had not yet been invented, it came into use only in the 12th century. It is hard to judge about the variety of weapon used by such scanty evidence and it would be too bold to presume that Georgians used the counterweight trebuchet in such an early period.<sup>57</sup> At the same time it is doubtful for an ordinary traction trebuchet to have breached a city walls. The more so that the city's fortifications were quite strong.<sup>58</sup> We should assume that at Shamkor (Šank'or) Georgians used transitional type or large-size trebuchets that were more powerful than the ordinary traction trebuchet. So far there is no consensus among scholars regarding the design of such artillery.<sup>59</sup> Neither do I have any information to enable me to discuss design details. However, it is obvious that there were such experienced engineers in Bagrat III's army who could design and manage heavy war machines. These machines threw such heavy stones that could demolish the wall. This speaks of a highly advanced status of Georgian stone-throwing artillery early in the 11th century.

Further development and the numerousness of the Georgian artillery park in the mid-11th century is indicated by other evidence as well. In 1045, during one season of campaigning Bagrat IV (1027-72) fought the Byzantines with stone-throwing engines at Anakop'i ("[Bagrat] was besieging Anakop'i, and was about to take it... He posted Ot'ago, son of Čača K'uabuleli, outside Anakop'i with the Ap'xaz army")<sup>60</sup> and at the fortress of Xup'at'i ("He led off to Xup'at'i the nobles of Guria and Lomsiani; they set up catapults [p'ilakavanni]")<sup>61</sup> and Tbilisi residents to take citadel ("The people of Isni had broken down the bridge, and they had not

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<sup>57</sup> As only the counterweight trebuchet can demolish walls, some try to use such evidence as a proof of the existence of counterweight engines. Unlike them, J. Bradbury refuses to see a counterweight "trebuchet every time a source says considerable damage was done to walls."; BRADBURY (1992) 264; I, too, share his opinion.

<sup>58</sup> According to Yakut, Shamkor (Šank'or) was an old, "always settled and flourishing city," renovated and rebuilt in 854 by Bugha al-Kabir; Yakut, p. 67.

<sup>59</sup> In Chevedden's view, it was a *hybrid trebuchet*. Apart from ropes a load was fastened to its beam and along with human force it used gravity force as well, making for its enhanced Power; CHEVEDDEN (1998) 180 - 181; Basista calls such an engine a *counterpoise trebuchet* and believes that a weight added to the end of the short side acted as a counterpoise thus negating the actual weight of the throwing arm; BASISTA (2007) 47 - 55; The simplest and probably correct explanation is proposed by Purton who believes that engines simply became larger and better designed; PURTON (2009) 381.

<sup>60</sup> *Rewriting Caucasian History...*, p. 291; The chronicler says nothing about about the use of p'ilakavani but on the basis of a Greek inscription T. Qaukhchishvili determined that during the siege Georgians damaged castle buildings; QAUKHCHISHVILI (1951) 26 - 28; J. Samushia finds it possible that the Georgians used stone-throwing engines; SAMUSHIA (2008) 96; I concur with this view: the destroyed buildings must indeed be indicative of the use of ballistic artillery. A. Vinogradov who studied two inscriptions made in February and March 1046 in Anakop'i, considers that Byzantium urgently sent protospatharios Eugene Despotēs and Theodore Balantes, the turmarchos of Kasa to carry out repair work in the fortress and to reinforce the garrison; VINOGRADOV (2011) 214 - 218; Clearly enough, the need for repair works would arise following an unsuccessful siege of the Georgians. It is interesting that the water cistern, restored by the Byzantines is within the citadel. Apparently, Bagrat's army took the outer wall of the fortress and aimed stone-throwing artillery at the inner castle on the mountain top.

<sup>61</sup> *Rewriting Caucasian History...*, p. 291.

submitted. They [Georgians] set up catapults [p<sub>il</sub>akavanni], attacked the Isni and shot arrows at them”).<sup>62</sup> This means that the Georgian army had mastered well the technology of building war engines and was capable of fighting with stone-throwing machines at three points far from each other geographically. Obviously, not only separate engineers but many others were capable of building siege engines and their exploitation. In the Georgia of Bagrat IV’s period we find a team of specialists who guided siege actions and served numerous ballistic engines. Such specialists are called a “technological elite” of the epoch.<sup>63</sup>

As to a counterweight trebuchet, it must have become known in Georgia in the reign of David IV (1089-1125). The chronicler reports that the Georgians, victorious in the Didgori battle, captured various new (“foreign”) types of military equipment including p<sub>il</sub>akavannis.<sup>64</sup> It is noteworthy that the king’s historian, who is not much interested in military affairs and as a rule does not take trouble in conveying such details, stresses the capture of foreign type stone-throwing engines. In 1121 only the counterweight trebuchet may have been foreign and new, for they were already familiar with other types of trebuchet. The army of Il-Ghazi may indeed have been equipped with such advanced artillery. Aleppo, the administration city of Il-Ghazi, was famous for its engineers and siege specialists.<sup>65</sup> In 1119, following the routing of Roger of Antioch in the battle of Balat, Il-Ghazi took Atharib and Zardana, both after heavy bombardment. Walter the Chancellor points out that following his success at Atharib, Il-Ghazi used the same stone-throwing engine at Zardana, in both cases three to four times during the day.<sup>66</sup> Such a low rate of fire must point to the counterweight trebuchet; setting it for firing required some time. Purton also notes that Il-Ghazi’s artillery was unusually effective.<sup>67</sup> Besides, we know that the ally of the Artukid did possess such artillery. In 1125 the governor of Mosul Ak Sunkur al-Bursuki and the Atabeg Tughtigin of Damascus used counterweight trebuchets to breach the walls of Azaz, referred to in sources as *manganiqe rawrbe* (great trebuchets).<sup>68</sup> Tughtigin was Il-Ghazi’s father-in-law and he gave the latter all-round support. David’s historian points to the presence of Damascenes in Il-Ghazi’s coalition army.<sup>69</sup> Thus, we may assume that Il-Ghazi carried dismantled counterweight trebuchets in his train and their service personnel.

Subsequently, reports on Georgian stone-throwing artillery become more sporadic and vanish in general.<sup>70</sup> The age of George III (1157-84) is an exception when certain information

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<sup>62</sup> *Rewriting Caucasian History...*, p. 292.

<sup>63</sup> NICOLLE (2007) 241.

<sup>64</sup> King David’s Chronicler, 1: 341.

<sup>65</sup> NICOLLE (1993) 25; NICOLLE (2007) 231, 241.

<sup>66</sup> Walter the Chancellor, pp. 145 - 146, 149.

<sup>67</sup> Though he does not consider it to be a new type weapon; PURTON (2009) 223 - 224.

<sup>68</sup> CHEVEDDEN (2000) 92.

<sup>69</sup> King David’s Chronicler, 1: 340.

<sup>70</sup> Which does not mean that the Georgians stopped using them. The reason lies in the scarcity of sources and their terseness. The age of David the Builder will also serve as an example of the neglect of Georgian sources of siege warfare, with the King’s chronicler passing in silence the methods of capturing numerous castles and cities. However, the very fact of their capture is enough for Purton to consider David IV (as well as Bagrat IV) skilled in the siege warfare; PURTON (2009) 183.

can still be found. In 1163 Toreli, residing in Anisi in anticipation of the Muslim offensive, “made ready the weapons and machines.”<sup>71</sup> Presumably, the Georgian garrison made ready the stone-throwing engines and ballistas that were placed in the fortress and on its towers and was prepared to open counter-battery fire against Muslim manjaniques. Owing to their relatively small size, placement of traction trebuchets on towers was especially practicable. Only a strongly built tower with a large platform could offer room for and withstand the action of a counterweight trebuchet. In this aspect the advantage was on the side of the besiegers for they were not restricted and could construct larger and more powerful engines. Hence the garrison placed machines on the towers which gave them the advantage of height and accordingly of distance for a projectile thrown from a height went further.<sup>72</sup>

In 1177 George III besieged the rebels in the Agaraki castle. According to an Armenian colophon, “the siege continued for two and half months. With the aid of machines the king was in a hurry to destroy the ramparts and palaces within them.”<sup>73</sup> These machines must have been counterweight trebuchets for only a powerful trebuchet could reach and destroy buildings within a rampart.

The miniature of the 12th century Second Tetraevangelion of Jruchi is the only Georgian representation in which we may assume a trebuchet is depicted. The picture conveys an assault of a city. In its centre some device is visible the ropes of which are being pulled by two men. Although it is hard to perceive a trebuchet in this representation, the basic design of a traction trebuchet is present: the beam fixed to a support and the ropes suspended from it, pulled by the personnel. Perhaps, the artist who was skilled in iconography had only been told about the traction trebuchet, drew this siege engine according to the story he had heard and by his own imagination (fig. 1).

## **Ballista**

Ballista was a large bow horizontally fixed to a wooden frame, shooting a large-sized arrow. As is known, in the Middle Ages the Byzantines used crossbow-like arrow-shooting engines resembling the devices from the Hellenistic period (gastrafetes, euthytona).<sup>74</sup> The medieval ballista shot the arrow at a considerable initial speed travelling at a relatively flat trajectory.<sup>75</sup> This determined precise hitting of the target, hence it was used for the killing of the enemy personnel. An arrow shot from a ballista could simultaneously kill several men.<sup>76</sup> It was used also to shot incendiary arrows.

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<sup>71</sup> *The Histories and Eulogies of the Sovereigns...*, 2: 13.

<sup>72</sup> CHEVEDDEN (1999) 38.

<sup>73</sup> ABDALADZE (2005) 38.

<sup>74</sup> HOFFMEYER (1966) 137.

<sup>75</sup> ROGERS (1992) 264.

<sup>76</sup> In the siege of Paris of 885-86, a ballista arrow shot by the garrison killed 7 Vikings; BRADBURY (1992) 252.



**Fig. 2.** Ballista arrowhead. From the left: a) front, b) back.

The construction of a ballista was rather expensive,<sup>77</sup> though less than that of a powerful trebuchet. At the same time, in comparison with trebuchets the transportation of ballista was much easier.<sup>78</sup> Owing to difficulty of recharging, ballista was fired slower. Because of this it was not effective in the battlefield. Instead, the ballista was used intensively in the siege where the slow rate of shooting was not of much hindrance. As noted above, “the weapons and machines,” made ready by Toreli at Anisi, must have included ballistas too, as they were used actively in the defense of strongholds of that period.

Preserved in the Georgian National Museum is a large-sized arrowhead the shooting of which from an ordinary bow is unimaginable. This arrowhead claimed the attention of S. Margishvili who assumes that it might be an arrow of a ballista.<sup>79</sup> This conjecture seems to be justified. I have had a chance to study the cited arrowhead. It proved to be larger than it appeared at first sight. From the beginning its curiously blunt head attracted my attention. A close examination showed that the tip of the arrow had been broken off and was attached to it at the back. The length of the arrowhead to the point of the breach is 10.5 cm, the length of the broken-tipp is 11.4 cm and the length of the tang is 6 cm; the reconstructed width is ca. 9 cm. The arrow is corroded so much as to make weighing it irrelevant, nor is it generally resorted

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<sup>77</sup> PURTON (2006) 86.

<sup>78</sup> NICOLLE (2002) 34.

<sup>79</sup> MARGISHVILI (2006) 333.

to.<sup>80</sup> Clearly enough, the balancing of such a large arrowhead would need a fairly long shaft. An arrowhead of this size is unusual even for a ballista and would need a large device for operation<sup>81</sup> (fig. 2). This arrowhead, discovered at Urnisi, dates from the early feudal period (probably the beginning of the 6th century). It is interesting to note that this arrow was not used by the enemy; it was kept indoors and belonged to the garrison.

## Scaling

Attacking the fortress with assault ladders was technically the easiest but most hazardous way. Ladders were mainly made of wood, sometimes with a hook at the top.<sup>82</sup> Apart from ladders, hooked nets and ropes were also used to mount the wall. This was the most bloody method with the greatest human losses.<sup>83</sup> Usually the attacker adopted this tactic when his numerical superiority was obvious.

In 1289 the residents of Derbend rebelled against the Ilkhans. The chronicler describes the developments in the following way: “Then the Derbendians broke away from the Khan. And he set out for Derbend calling on King Demetre<sup>84</sup> to join him. The latter went with him and they entered Derbend. And the Derbendians failed to put up resistance. They fled to the fortress and were besieged. Arghun Khan commanded the king to attack the castle which was very strong. The king and his army equipped themselves and surrounding the castle, they rushed into it. For Rati son of Bega climbed first the wall and the castle was taken.”<sup>85</sup> It is not surprising that Arghun Khan (1284-91) ordered the Georgians (rather than the Mongols) to take the most hazardous part of assault – to mount the fortress wall which must have entailed great human losses. King Svimon (1556-69, 1578-99) resorted to a different tactic in 1599. He intended to take Gori fortress held by the Turks using assault ladders, but being well aware of the huge losses, he ordered his followers to prepare many ladders in secret and using them he

took the fortress by night attack.<sup>86</sup>

However, in a number of cases when the fortress walls or the garrison allowed it, the besieging side launched a direct assault without preliminary preparation or bringing up heavy siege engines. The attackers tried to mount the wall by ladders, being supported by intensive shooting of arrows, which prevented the garrison from counterattacking.<sup>87</sup> At such a rapid

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<sup>80</sup> JAMES (2010) 209, 214.

<sup>81</sup> By way of comparison, the 10.2 cm long arrowhead discovered at Dura-Europos (N783) is considered to be of large size; JAMES (2010) 220.

<sup>82</sup> GRAVETT (1990) 30.

<sup>83</sup> Vegetius notes that storming the walls was very bloody for the assailants; Vegetius IV. 12.

<sup>84</sup> Georgian King Demetre II (1270 - 1289).

<sup>85</sup> Zhamtaaghtsereli, p. 177.

<sup>86</sup> Parsadan Gorgijanidze, 220-221; To reduce human losses Robert Bruce took Perth in 1312 using ladders in a night attack; MCGLYNN (2009) 145.

<sup>87</sup> SULLIVAN (1998) 200; According to Leo the Deacon, during the 964 campaign Nikephoros Phokas, using this tactic, took away from the Muslims more than 20 fortresses; Leo the Deacon, p. 101 - 102.

assault the ladder was the principal means of attack.<sup>88</sup> If such a risky assault proved successful, the attacking side – at the cost of original losses – would avoid a long siege with its attending difficulties which may have been heavier and bloody.<sup>89</sup> There is no doubt that the Georgians also possessed such tactic. The miniature on 186v of the Second Tetraevangelion of Jruchi depicts the taking of a fortress by using this stratagem. In the picture we see a besieged city; the archers try to cover the attackers and to overcome the garrison; part of the attackers have set up a ladder against the wall and are moving upward under cover of shields (fig. 3).



**Fig. 3.** Scaling of fortress walls under cover of archers. Second Tetraevangelion of Jruchi (Ms H1667), fragment of folio 186v, National Centre of Manuscripts.

Occasionally, the fortress wall was mounted by improvised means. At the end of the 9th century when the kings of the Ap‘xaz and the Armenians fought for Kartli, “Kostanti, king of the Ap‘xaz, seized K‘artl‘i, and became an enemy of the king of Armenia, Sumbat *tiezerakali*. (The latter) marched forth with a large army and besieged Up‘lis-c‘ixe. They brought pack-saddles, piled them up, and by this stratagem captured the fortress.”<sup>90</sup> Exactly the same fact occurred in 896, when attacking Rome the Germans piled baggage at the wall and climbed it.<sup>91</sup>

### **Breaching the wall**

Breaching the fortress wall was effected with a battering ram or bore. A battering ram was a massive tree trunk with a head of iron. The battering ram was served by dozens of men

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<sup>88</sup> Vegetius notes that “there is a risk of defenders being frightened off the fortifications by a mass of archers, who then set up ladders and occupy the wall.”; Vegetius IV. 6.

<sup>89</sup> MCGLYNN (2010) 266.

<sup>90</sup> *Rewriting Caucasian History...*, p. 265.

<sup>91</sup> GRAVETT (1990) 31.

while several men were enough to drive the borer. Usually both engines were kept under protective shelter.<sup>92</sup> Walls were demolished with a pick as well, used by besiegers working under cover.

In 1122 David the Builder took Tbilisi after breaching the wall. Following his victory at Didgori, he besieged Tbilisi: “He camped before Tiflis and besieged it for a while. Then he tore down its walls from the west and entered it by the sword, burning and plundering it.”<sup>93</sup> The Georgians broke the western wall of Tbilisi which was probably done with a battering ram.

The capture of Zandjan in 1209, during a campaign in Iran shows the diverse siege methods possessed by the Georgian army of the period: “They reached a small city of Zandjan fortified with an adobe wall. The city was strongly fortified and a stiff battle began. As the war became protracted, they divided the walls of the city to bore. And they began to bore the walls. First on the right side the Meskhians made a hole in the wall (it was made of adobe), and they entered the first and began to slay and destroy those who were warriors.”<sup>94</sup> According to the chronicler’s report the Georgians breached the city wall built of unfired bricks (adobe). Such wall stands better stone projectiles than a stone wall: the stone breaks while the softer adobe partially absorbs the force of impact.<sup>95</sup> A brick wall also withstands better the impacts of ram.<sup>96</sup> It is noteworthy that in the given situation the Georgians chose the most effective tactic, i.e. drilling the walls. Such a large-scale operation, simultaneously at several sections, must have been conducted under protection of numerous wooden or wickerwork shelters, under which the attackers felt relatively secure.<sup>97</sup>

It is interesting to note that the action of the Georgians during the siege of Zandjan followed, as it were, the instructions of a Byzantine military treatise, which seems to point to their awareness of this type of literature. According to Heron of Byzantium, if the attacker wishes to destroy brick walls quickly, he should try to bore the wall. Such bores are 1.5 m long and their correct use requires fairly good knowledge of siege skills. The drillers should observe the required distance and sequence of the holes, give appropriate form and direction to the holes, and fix them to prevent their premature collapse.<sup>98</sup> There is no doubt that the Georgian army had this knowledge which is indicated apart from the use of drills, by the quick capture of Zandjan as well.

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<sup>92</sup> GRAVETT (1990) 47; BRADBURY (1992) 274.

<sup>93</sup> HILLENBRAND (1990) 41.

<sup>94</sup> *The Histories and Eulogies of the Sovereigns...*, 2: 106.

<sup>95</sup> DENNIS (1998) 104.

<sup>96</sup> Heron, *Parangelmata...*, p. 57, 63.

<sup>97</sup> The protection of the attackers, especially of those borers and tunnel diggers with artificial cover was paid considerable attention in Byzantine military treatises; MCGEER (1991) 135 - 138.

<sup>98</sup> Heron, *Parangelmata...*, p. 51 - 57.

## Underground mines

Digging the earth under the wall was one of the oldest stratagems of taking a fortress.<sup>99</sup> When the soil allowed it, an underground mine was a powerful weapon against fortresses. As a rule, digging was started in secret at some distance from the wall, so that the garrison might not learn about it. In building a tunnel its walls and ceiling were buttressed with timber. When the tunnel reached the basement of the wall, it was broadened, filled with inflammable material and set on fire; as a result part of the wall would collapse. Occasionally, a tunnel was used to penetrate into the fortress.<sup>100</sup> This was done by the Georgians at storming Baghdad.<sup>101</sup> Underground mines were oftener resorted to against towers; it was apparently easier to demolish the corners of a tower than a longitudinal section of a wall.<sup>102</sup> The tunnel had to be dug as deep as possible so as to prevent the opponent from noticing it and digging a counter-tunnel to destroy the attackers with smoke or water.<sup>103</sup>

Nikephoros Ouranos, a successful 10th-11th century Byzantine commander and military theoretician, considered underground mines to be the most effective means of capturing fortresses. He wrote: "The men of old, in their conduct of siege warfare, constructed many devices such as rams, wooden towers, scaling ladders with various features, as well as tortoises and all kinds of other things which our generation has never even seen. It has, however, tried all these devices and discovered that of all of them, the more effective way, one the enemy cannot match, is undermining the foundations."<sup>104</sup> However, in a number of cases it was simply impossible to drive a tunnel: rocky ground, the presence of several deep moats constituted an insurmountable obstacle for a tunnel.

Unlike most offensive means, in digging a mine the besiegers were protected from the garrison's fire.<sup>105</sup> At the same time, building tunnels was heavy, long and hazardous labour, requiring specific training in engineering and coordinated work.<sup>106</sup> In 1099 in besieging a city Arqa the crusaders attempted unsuccessfully to use an underground mine. Albert of Aachen notes that the army was exhausted in digging.<sup>107</sup> Nevertheless, Georgians must not have found it difficult to build underground tunnels as they had engineers and appropriate knowledge. Archaeological studies revealed that in the Middle Ages, to mine iron the Georgians had to dig deep mines, e.g. the Poladauri iron mines were 80 m deep.<sup>108</sup> Georgian miners were well-versed in the art of management of the ceilings of mines, which was of major importance for safety.

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<sup>99</sup> The oldest picture of taking a fortress by means of an underground tunnel is to be found in the palace of the Assyrian king Ashurnasirpal II (883-859 BC) in Nimrud; WIGGINS (2003) 9.

<sup>100</sup> In comparison with demolishing walls by means of a tunnel, such cases were rare; PURTON (2010) 25.

<sup>101</sup> For some reason, Purton believes that the Georgians demolished the walls through a tunnel; PURTON (2010) 20.

<sup>102</sup> NICOLLE (2007) 239.

<sup>103</sup> Heron, *Parangelmata*..., p. 43 - 45.

<sup>104</sup> Nicephoros Ouranos, 161.

<sup>105</sup> AYALON (1971) 474.

<sup>106</sup> B. Bachrach compares medieval sappers even to the crew of a submarine; BACHRACH (1994) 132 - 133.

<sup>107</sup> Albert of Aachen 379, 385; FRANCE (1994) 321.

<sup>108</sup> GDZELISHVILI (1969) 92.



Ventilation was so good that a strong fire could be built in the tunnel.<sup>109</sup> This knowledge was of major importance both in the process of building a tunnel and at the last stage when a fire was lit under a tower or wall in order to demolish it.

We find examples of the use of underground mines by Georgians in the sources as well. In 1258 a Georgian contingent accompanied the Mongols during the siege of Baghdad. According to the version of the chronicler, the Georgians dug an underground tunnel fairly quickly under the wall of the city,<sup>110</sup> got into Baghdad and opened the gates of the city: “King David ordered his troops to dig under the walls and they did so, the Georgians entered the city and stiff fighting followed, the Baghdadians were massacred and the citizens of Baghdad had great fear, and the Georgians opened the gates of the city and the Tartars entered.”<sup>111</sup> The chronicler surely exaggerates the role of the Georgians in the capture of Baghdad but the episode of digging a mine should be true to a certain extent. In 1281 the Mongol army that set out against Egyptian Mamluks was accompanied by the prince of Samtskhe Beka. In siege warfare in Syria the Georgians again used the mine.<sup>112</sup>

### Siege tower

Siege tower was a wooden structure of several floors, higher than the fortress walls and towers,<sup>113</sup> being covered with raw hides, they protected the besiegers from fire, allowed them to dominate over the garrison and enabled to carry on various types of offensive operations.<sup>114</sup> Siege tower was a fighting platform from which arrows were shot and ballistic engines were placed on it. They were very difficult to build and the main problem while using them was their transportation to the walls under enemy fire.<sup>115</sup>

In D. Berdzenishvili’s view, “In the late medieval Georgian sources, wooden towers made for attack were referred to under the Mongolian name *siba*. Originally, *siba* was the name of a defensive structure – a ditch fortified with a fence. Later, in Georgia *siba* acquired the meaning of a mobile, offensive tower.”<sup>116</sup> By way of illustration, the researcher refers to “New Kartlis Tskhovreba”, describing the siege of Ateni by Shah Tahmasp (1524-76) in 1556:

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<sup>109</sup> GDZELISHVILI (1964) 31.

<sup>110</sup> For which some twelve days proved enough; Zhamtaaghmtsereli, p. 113.

<sup>111</sup> Zhamtaaghmtsereli, p. 113.

<sup>112</sup> Zhamtaaghmtsereli, p. 169 - 170.

<sup>113</sup> In 1099, in the storming of Jerusalem the height of the city walls was 12-15 m, while that of the crusaders siege tower – 15-17 m.; FRANCE (1994) 350.

<sup>114</sup> FRANCE (1994) 352 - 253.

<sup>115</sup> In describing medieval battles, siege towers are occasionally referred to as *Helepolis* which is an anachronism. In the Classical Age the siege towers were indeed called Helepolis (the taker of cities). In the course of time the meaning of this term altered and in the Middle Ages it no longer solely denoted a siege tower. The Byzantines used this term in reference to ballistic or other assault engines. Helepolis referred to the most powerful assault device of its time; at one time it was siege tower, at another – battering ram, sometime – ballistic artillery; DENNIS (1998) 101 - 104; CHEVEDDEN (2000) 78 - 79; PURTON (2009) 116.

<sup>116</sup> BERDZENISHVILI (2007) 182.

“Taking the fortress proved difficult because neither a *siba* could be brought up to it, nor could the walls be dug under.”<sup>117</sup> It may be added that the Parsadan Gorgijanidze too mentions *siba* in a similar context and points out that the *siba* must have been high.<sup>118</sup> It is seen from the sources that the Georgians were familiar with the *siba*, considering them to be one of the means of capturing a fortress; however, their direct use by the Georgians is not confirmed. This is not surprising, for because of the character of the terrain the use of siege towers was rather limited.

## Siege

Blocking a fortress through siege was a bloodless method but it tied down the army for a long period of time around the fortress and economically was highly disadvantageous. Siege was a rather costly undertaking, for the besieging army needed full-valued supplies.

Medieval Georgian army was capable of carrying on long-term siege, pointing to the high level of its organization and discipline. Besides, long-term siege required enormous resources. Unfortunately, the evidence at our disposal does not allow to determine even an approximative cost of a siege. The use of a comparative method remains the only to form an idea. As is known, Louis VII introduced the universal tax in his domains in order to launch the siege of Verneuil in 1173; in 1224 to carry on the siege of Bedford, Henry III imposed a tax on the church; and in 1215 the two-month siege of Rochester required 60 000 marks.<sup>119</sup> The eleven-month siege of Calais in 1346-47 cost £150 000 to the king of England Edward III while the royal income was slightly above £80 000.<sup>120</sup> These examples show clearly the huge effort that is needed for a long siege and the pressure on the state system at the time. At the same it is clear that the capacity of carrying on a long siege points to well-organized military and state structure. Beginning with the 11th century, Georgian armies conducted such sieges fairly often.

In the 11th century Bagrat III's army took a castle in Kakheti after one year of siege.<sup>121</sup> In 1037/8 along with his Kakhetian allies, Bagrat IV besieged Tbilisi, which lasted two years: “For two years they battled over Tp‘ilisi.”<sup>122</sup> Even longer lasted the siege of Kars which started in 1202 when after capturing the city, the Georgians besieged the citadel. The siege of the citadel lasted more than 5 years and the garrison surrendered only at the turn of 1206-7.<sup>123</sup>

Water supply acquired the primary importance for a besieged garrison. Stopping the supply of water to a fortress caused its quick surrender. According to Basil, historian of Queen Tamar, the many-year siege of Kars ended only when the besieging Georgian army cut off the

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<sup>117</sup> New Life of Kartli, Third Text, 2: 506.

<sup>118</sup> Parsadan Gorgijanidze, 259, 303.

<sup>119</sup> STRICKLAND (1996) 207.

<sup>120</sup> HINDLEY (2009) 143.

<sup>121</sup> Matiane Kartlisa, 1: 279.

<sup>122</sup> *Rewriting Caucasian History...*, p. 289.

<sup>123</sup> For the siege of Kars, see DJAPARIDZE (1995) 121 - 122, 161 - 162.

water supply to the Muslim garrison.<sup>124</sup> The rebels who had found shelter in the Agaraki fortress surrendered to George III because of the cutting of their water supply.<sup>125</sup>

Often a siege that lasted for many months, following the exhaustion and weakening of the garrison, was crowned successfully with storming. Thus, Tbilisi was taken by storm by David the Builder after a siege lasting six months.

### **Siege castle**

When, for a number of reasons a fortress failed to be taken and full blockade was not feasible, a siege castle was set up nearby. It was located close to the gate of the besieged stronghold with the purpose of preventing all communication.<sup>126</sup> Such a siege castle had at least three functions: blocking the besieged fortress, preventing sorties by the garrison, and using it as a convenient bombardment platform.<sup>127</sup> It was also used for observation. Unlike a complete blockade, a siege castle needed a relatively small unit, releasing the main forces of the besiegers for other duties. The method of blocking a stronghold with a siege castle was widespread in 11th century Europe.<sup>128</sup> This method was known and used in Georgia too.

In the 10th century the fortress of Locobanni refused to submit to the Abkhazian King George II (916-60). He built a siege castle and installed troops inside, thereby blocking the fortress.<sup>129</sup> If need arose, several siege castles were used.<sup>130</sup> According to Beri Egnatashvili, to block Birtvisi fortress Timur Lang built three siege castles.<sup>131</sup>

The present paper does not deal with such methods as entering a fortress by ruse or sudden bursting into it, for they are indirect methods of capturing fortresses. However, in the Middle Ages they were frequently used.

Fortresses were often seized by methods of psychological pressure as well, by combining cruelty and threat, and mercy in the case of surrender.<sup>132</sup> These too constituted indirect methods of taking fortresses.<sup>133</sup> Scaring the garrison by encroaching upon the life of its master belongs to the same method, followed in the majority of cases by the surrender of the garrison. Claude Cahen is quite right in not assigning it to “proper” military operations.<sup>134</sup> However, it is worth touching upon this stratagem which allowed seizing important strongholds

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<sup>124</sup> Basili ezosmozghuari, 2: 143.

<sup>125</sup> ABDALADZE (2005) 38.

<sup>126</sup> GRAVETT (1990) 23 - 24.

<sup>127</sup> SHAISHMELASHVILI (1987) 46.

<sup>128</sup> ROGERS (1992) 39; PURTON (2009) 162.

<sup>129</sup> *Rewriting Caucasian History...*, p. 270.

<sup>130</sup> During the siege of Antioch (1097-98), the crusaders used three siege castles; ROGERS (1992) 25 - 39.

<sup>131</sup> Beri Egnatashvili, 2: 337.

<sup>132</sup> CONTAMINE (1984) 101 - 102.

<sup>133</sup> CONTAMINE (1984) 102.

<sup>134</sup> CAHEN (1971) 470.

without costly and problematic siege.<sup>135</sup> Such cases were especially frequent during feudal internecine wars. If we pass under review the cases gathered by Matthew Strickland from the history of 11th-12th centuries England and Normandy, we shall become convinced in the frequency of such occurrences. For example, Robert of Gloucester made the captive William Martel give up the castle of Sherbourne.<sup>136</sup> The king of England Stephen made special use of this stratagem: in 1143 he seized three fortresses by threatening to hang Geoffrey de Mandeville. Earlier, he took possession of Lincoln, Newark, Salisbury, Malmesbury and other castles by starving the bishops Salisbury and Lincoln and threatening to hang Roger of Salisbury's son.<sup>137</sup> Occasionally, such practice assumed the form of ransom: in 1044, Geoffrey Martel, count of Anjou in battle took captive Theobald of Blois and forced him to cede the city of Tours as the price of freedom.<sup>138</sup> Rarely, this method brought no result: in 1146, Roger de Berkeley fell captive to his own brother Walter who hanged him thrice in front of Berkeley castle. Yet the garrison refused to surrender.<sup>139</sup>

In Georgian historiography J. Samushia was the first to pay attention to this stratagem.<sup>140</sup> He cites several facts from 11th century Georgian history: in 1046 Liparit Bagvashi forced the captive Grigol, son of Abuser to give up Artanuji by threats of death; in 1055 Bagrat IV put Liparit and his son on the gibbet, taking Kldekari fortress in this way; in the same way did Samshvilde surrender to Bagrat IV when he put the Armenian King Kwirike on the gibbet for three days.<sup>141</sup>

It appears that seizure of fortresses by threats to the life of the owner was a fairly widespread practice in medieval Georgia, which is attested to by other examples as well. In 914 invasion, the Arabs used the same method: "The women of the garrison who were found outside fell into his hands. Therefore they handed over the fortress."<sup>142</sup> In 1032 the Georgians gained hold of Birtvisi in exchange for the freedom of Japar, emir of Tbilisi.<sup>143</sup> In the 1030s, Bagrat IV defeated Kakhetians and captured several *eristavis*: "At his insistence these *erist'avis* gave up their castles."<sup>144</sup> Of course, the captured *eristavis* gave up their castles to Bagrat as a result of appropriate pressure. Especially prominent in this respect is the fate of the emir of Gandja. In 1068 Fadl II (1067-73), Gandja's Shaddadid ruler fell into the hands of Aghsartan I (1058-84), king of the Kakheti, who with his "assistance" took possession of Khornabuji and Aradeti castles.<sup>145</sup> Subsequently, Aghsartan gave Fadl II to Bagrat IV in exchange for Bochorma and

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<sup>135</sup> STRICKLAND (1996) 198.

<sup>136</sup> STRICKLAND (1996) 199.

<sup>137</sup> STRICKLAND (1996) 199.

<sup>138</sup> STRICKLAND (1996) 198.

<sup>139</sup> STRICKLAND (1996) 198; In 1046, when the enemy's "captured Sula, the *erist'avi* of Kalmaksi; with severe tortures and laceration on a gibbet they demanded Kalmaksi; but he did not give it up."; *Rewriting Caucasian History...*, p. 294.

<sup>140</sup> SAMUSHIA (2008) 90, 98.

<sup>141</sup> SAMUSHIA (2008) 98; *Rewriting Caucasian History...*, p. 294, 297, 299.

<sup>142</sup> *Rewriting Caucasian History...*, p. 266.

<sup>143</sup> *Rewriting Caucasian History...*, p. 289.

<sup>144</sup> *Rewriting Caucasian History...*, p. 290.

<sup>145</sup> *Rewriting Caucasian History...*, p. 303.

Ujarma; instead Bagrat took Tbilisi through Fadl: “They fixed him to a gibbet and captured Tbilisi.”<sup>146</sup>

This method of capturing fortresses points clearly to the desire of the besiegers to seize the stronghold without siege, averting thereby expenses and human losses, to say nothing of the possible failure.

## Antipoliorcetica

In comparison with storming fortresses, evidence is still less in Georgian sources on the peculiarities of their defense. In the Graeco-Byzantine world numerous theoretical works were available dealing with means of defending fortresses. The Byzantine *De obsidione toleranda* is a manual written in the 10th century for the commander of a besieged fortress containing diverse and detailed instructions.<sup>147</sup>

According to *De obsidione toleranda*, the commander of the fortress which is threatened with siege must lay a store of at least 6 months’ or one year provisions and fill all the reservoirs and vessels with water,<sup>148</sup> should have engineers, arms manufacturers, siege machine operators, physicians, ropemakers, stone cutters, builders, architects and various artisans; should prepare and keep a store of shields, arrows, swords, helmets and other arms;<sup>149</sup> should repair the wall and place war machines on them.<sup>150</sup> If possible, he should dig a deep moat round the fortress and fill it with water; at the same time, he should have a reliable bridge to be thrown across the moat, enabling unexpected sorties.<sup>151</sup> It is necessary to train the garrison to shoot the bow rapidly and with good aim and to throw stones skilfully by hand; should have a stock of small and heavy stones.<sup>152</sup> It is advisable to have a large garrison and many war engines.<sup>153</sup> Finally, if the attackers breach the wall, a new one must be erected that will keep the enemy out.<sup>154</sup>

Now, after this theoretical introduction, on the basis of an analysis of the fragmentary evidence, we may ascertain how fortresses were defended in medieval Georgia and to what special attention was given.

From one section of *Matiane Kartlisa* it is clear that they were well aware of the importance of a strong garrison. In 927, the Abkhazian King George II jointly with his Tao and Kakhetian allies besieged Uplistsikhe “yet were unable to damage the fortress in which there

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<sup>146</sup> *Rewriting Caucasian History...*, p. 303 - 304.

<sup>147</sup> *De obsidione toleranda* follows that of the tradition of military manuals starting in the 4th century BC from Aeneas Tacticus’ *How to Survive under Siege*; *De obsidione toleranda*, p. 144.

<sup>148</sup> *De obsidione toleranda*, p. 151 - 153, 159.

<sup>149</sup> *De obsidione toleranda*, p. 155.

<sup>150</sup> *De obsidione toleranda*, p. 161.

<sup>151</sup> *De obsidione toleranda*, p. 163 - 165.

<sup>152</sup> *De obsidione toleranda*, p. 171 - 173.

<sup>153</sup> *De obsidione toleranda*, p. 257.

<sup>154</sup> *De obsidione toleranda*, p. 197.

were many defenders.”<sup>155</sup> It was the multiplicity of the garrison that ensured the impregnability of the fortress.

The Georgians paid relevant attention to equipping a fortress with ballistic artillery and other technical means. This is exemplified by the above case when, expecting an enemy attack, the commander of a city prepared stone- and arrow-throwing engines at Anisi.

In the written sources we find no evidence on stones thrown from above during the defence of a fortress. Instead, this technique is often reflected in Georgian miniatures. In the miniatures of the Second Tetraevangelion of Jruchi and Psalter H1665, dating from the 2nd half of the 14th century, apart from the archers the defenders of the fortress are depicted, throwing stones on the assailants. It is notable that in the 111r miniature of Jruchi, a guard covers himself with a shield while throwing a stone, pointing to a definite technique of throwing (fig. 4). It is also interesting that in the miniatures the guards are always holding specially dressed stones which cannot be accidental<sup>156</sup> (fig. 5). True, we have no illustration on the use of a heavy stone but we know that it was called *sagoravi* (“to be rolled”).<sup>157</sup> The Georgians understood the significance of moats; where the landscape allowed, they dig moats and filled them with water. In the 11th century Akhalkalaki was protected by a very deep moat filled with water. In 1064, during the attack of the Seljuks, the bridge spanning the moat was removed by

the garrison.<sup>158</sup> The Fortress of Gandzi (in Javakheti) was surrounded with a man-made moat which was supplied with water from the river Mtkvari.<sup>159</sup> The moat of Rustavi and Urbnisi fortresses were also



**Fig. 4.** Stone-throwing under cover of a shield. Second Tetraevangelion of Jruchi (Ms H1667), fragment of folio 111r, National Centre of Manuscripts.

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<sup>155</sup> Matiane Kartlisa, 1: 267.

<sup>156</sup> Vegetius points out specially that the garrison of the fortress had to gather round stones from rivers, owing to their weight and good ballistic properties; Vegetius IV. 8.

<sup>157</sup> ORBELIANI (1993) 23.

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<sup>158</sup> Sadr al-Din Ali al-Husayni, p. 50.

<sup>159</sup> BERDZENISHVILI (1964) 89.

filled with water diverted from the Mtkvari.<sup>160</sup> The Melouri fortress, defended from three sides by natural obstacles, was defended on the easily approachable side by two deep moats.<sup>161</sup> Dmanisi fortress too was fortified with two moats.<sup>162</sup> In 1235, the Mongols besieged Shamkor which at the time was Varam Gageli's dominion. The attackers committed a blunder by filling the moat of the city with wood. The defenders made instant use of this circumstance, setting on fire the wood at night. To take the city the Mongols had to fill the moat anew with stones.<sup>163</sup>

The desire of the garrison to continue fighting to the end and not surrender at the first setback was of major importance in defending a fortress. In this case resistance was continued even after the wall was demolished. We can find such an example in 1485, when Yakub Khan (1478-90) attacked Akhaltsikhe; According to Fadlullah b. Ruzbihan, the artillery of the Ak Koyunlu demolished the wall; despite the continuous bombardment the Georgians managed to repair it with iron and other materials.<sup>164</sup>

The activity of the garrison was given major importance in the course of the siege, with surprise attack and sorties holding a special place. A well-planned sortie, even with a small force, might cause a confusion in the enemy camp.<sup>165</sup> The activity of the garrison and sorties pointed primarily to their high morale and fighting mood, a necessary condition to withstand the siege successfully. Researchers into the crusading warfare pay attention to the fact that the crusaders frequently left the strongholds and responded to Muslim attacks with counterattacks. Bearing in mind the Muslim vast superiority in numbers, it is surprising that Christian garrisons often renounced the security of the fortress walls and met the Muslim army outside.<sup>166</sup> As C. Marshall puts it, the "aggressive side of Christian defensive techniques included a willingness to meet a Muslim attack outside the walls of a stronghold."<sup>167</sup>

Interestingly enough, such episodes – bold sorties against numerous besiegers – occur frequently in medieval Georgian history. It is hard to find an unambiguous explanation to this attitude of the Georgians, though similar chivalrous psychology of the crusaders and the Georgians played its role. It should be taken into account that both the crusaders and Georgians had to live in permanent encirclement against numerous enemies, which – like the crusaders – dictated an aggressive fighting style of which the enemy must beware.

In 1064, during the invasion of Alp Arslan (1063-73), the Georgian garrison chose to engage the enemy in an open battle rather than offer resistance through defense of the city, with its wall not completed. "They [Georgians] fought for three days, but because Axalk'alak'i was

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<sup>160</sup> LOMTATIDZE (1968) 38; LOMTATIDZE (1988) 27 - 28.

<sup>161</sup> BERADZE (1977) 30.

<sup>162</sup> CHILASHVILI (1970) 2: 112.

<sup>163</sup> Kirakos Gandzaketsi, p. 157.

<sup>164</sup> Fadlullah b. Ruzbihan Khunji, p. 51.

<sup>165</sup> MARSHALL (1992) 237.

<sup>166</sup> MARSHALL (1992) 236.

<sup>167</sup> MARSHALL (1992) 236.

not surrounded by strong walls, they were unable to resist the powerful attackers. The inhabitants of the city armed themselves, opened the gates, and made a valiant sortie.”<sup>168</sup>



**Fig. 5.** Guard throwing a rounded stone at the assailants. Psalter H1665, fragment of folio 212v, National Centre of Manuscripts.

<sup>168</sup> *Rewriting Caucasian History...*, p. 298 - 299.



The losses of the Muslims and the sortie of the Georgians is also attested to by Ibn al-Athir.<sup>169</sup> According to Sadr al-Din al-Husayni, only the intervention of the Sultan saved the Seljuks who were retreating under the pressure of the Georgians.<sup>170</sup>

The Georgians resorted to similar aggressive tactics in the 13th century when Samtskhe was invaded by the Mongols. In defending Tsikhisjvari, which “was not completely surrounded by strong wall,” the defenders of the fortress “did great harm to those outside, making sorties day and night and slaying the enemy at many places.”<sup>171</sup>

At the same time, Georgian garrisons did not resort to sorties only in condition of defective fortifications. In 1226, when Djalal al-Din attacked Tbilisi, the defenders of the city made a bold sortie.<sup>172</sup> The sortie is noted by al-Nasawi as well.<sup>173</sup> In 1386 it was Timur Lang who besieged Tbilisi. Bagrat V (1360-93) had no time call an army. He was accompanied only by own household. Nevertheless, the Georgians did not shut themselves up but confronted the enemy with an aggressive tactic and attacked them outside the city.<sup>174</sup> In 1403, during the siege of Birtvisi castle, the garrison again made a sally against Timur’s army: “Then a large number of [Muslim] troops went up to the castle; and the garrison came out – chosen warriors, who attacked and massacred many.”<sup>175</sup> The sorties of the Birtvisi garrison is attested to by Muin al-Din Natanzi as well.<sup>176</sup>

Thus, in spite of the scarcity of sources and lack of attention on the part of Georgian chroniclers to the siege warfare, a general picture can still be formed. By the available evidence it is not apparent that Georgians made use of all the siege techniques known in the medieval world; however, it can be said that they were familiar with and used successfully the basic methods of siege warfare.

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<sup>169</sup> *The Annals of the Saljuq Turks...*, p. 154.

<sup>170</sup> Sadr al-Din Ali al-Husayni, p. 50; Such an example can be found with the crusaders as well. In 1278, the prince of Antioch Bohemond besieged Gibelet. The city fortifications were weak and Embriaco preferred to meet the enemy in the open; MARSHALL (1992) 138.

<sup>171</sup> Zhamtaaghmtsereli, p. 125.

<sup>172</sup> Zhamtaaghmtsereli, p. 59.

<sup>173</sup> Shihab al-Din Muhammad al-Nasawi, p. 162.

<sup>174</sup> *New Life of Kartli*, Second Text, 2: 450.

<sup>175</sup> *New Life of Kartli*, Second Text, 2: 470.

<sup>176</sup> KATSITADZE (1975) 156.

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## Summary

In the medieval art of war siege constituted one of the principal forms of fight. Several basic techniques were used in taking a stronghold, such as assaulting the walls of the fortress, breaching the wall, digging a subterranean tunnel under the wall and enfeeblement of the garrison by lengthy siege.

Bearing in mind various data, in the Middle Ages Georgians used the following technical means to capture fortresses: assault ladders, battering rams and other engines for breaching walls, ballistas, stone throwing engines and subterranean tunnels. In the article light is shed on the siege capabilities of the Georgian army of the period. Extensively discussed are the Georgian army's stone throwing artillery, various types of stone hurling engines and the time of their spread in Georgia.

Various techniques of capturing fortresses, applied by the Georgians are described. These include mounting the walls with ladder or various improvised means. The hazardous technique of directly assaulting the fortress without preliminary preparation or bringing up heavy siege engines is shown. The capturing of fortresses by means of underground tunnels is discussed separately.

By the available evidence it is not apparent that Georgians made use of all the siege techniques known in the medieval world; however, it can be said that they were familiar with and used successfully the basic methods of siege warfare.

**Keywords:** Georgian Warfare, Military History, Army, Middle Ages