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The Burden, the Craving, the Tool
The Provisioning of the 10th Century Byzantine Army in the Light of Leo's *Tactica* and *Sylloge Tacticorum*

As Vegetius pointed out, the lack of provisions for soldiers at war meant losing the war without fighting it[1]. As the Byzantines were the heirs of Imperium Romanum they took advantage of their knowledge and followed the suggestions of their predecessors[2]. Also Leo the Wise knew that victory would be given to an enemy without fighting, should the commanders fail to provide their soldiers with necessary provisions[3]. Thus, their primary obligations included providing supplies, transporting them with the marching army and protecting them from theft or corruption. In case the Byzantines failed to take enough rations, the commanders were charged with acquiring provisions in any possible way. Simultaneously, the authors of military treaties knew very well that an enemy would be aware of provisioning challenges on the part of the imperial armies and would do everything to take advantage of such situations.

In the following paper, I will make an attempt to determine to which extent the authors of chosen Byzantine military treaties from the 10th century provided imperial commanders with instructions, concerning provisioning of the army while on campaign. First, I will try to specify what the soldiers ate on a daily basis. Next, I will determine to what extent the provisioning system met the expectations and needs of the Byzantines fighting for the empire. With the help of *Tactica* and

[1] Vegetius gives a long list of short advices in form of proverbsyllos in the following chapter: *Flavi Vegeti Renati Epitoma Rei Militaris*, 3.26, ed. C. Lang, Lipsiae 1885 [= BSGR] (cetera: Vegetius), p. 121–124. The relevant passage was given on page 122.

[2] E.N. Luttwak, *The Grand Strategy of the Byzantine Empire*, Harvard 2009, p. 125–126. As G.T. Dennis points out, when the Byzantines followed instructions from the relevant treaties, they usually emerged victorious from battles: G.T. Dennis, *The Byzantines in Battle*, [in:] *Byzantium at War (9th–12th c.)*, ed. K. Tsiknakis, Athens 1997, p. 165, 178.

[3] *The Taktika of Leo VI*, XX, 63, trans. et ed. G. Dennis, Washington 2010 [= *CFHB.SW*] (cetera: Leo VI), p. 558–559.

Sylloge Tacticorum, I will try to explain how the rations were gathered, transported and protected. Finally, I will specify how the supplies were utilized not only as a means of nourishment, but also as a tool of war. The following research was carried out on the basis of military treaties from the 10th century, since this time was the peak of Byzantine military revival. Although I mainly base my research on the work of Leon the Wise and the anonymous treaty known as *Sylloge Tacticorum*, I also occasionally refer to other works, such as *Peri Strategias*, *De velitatione* and *Praecepta Militaria*.

In order to determine the role of alimentation in planning and conducting war campaigns, it is necessary to bring to light what in fact Byzantine soldiers ate. Due to the scarce amount of relevant sources from the 10th century one must refer to Roman tradition as well[4]. As Dio Cassius relates the words of Queen Boudicca, the Romans could not survive without bread, oil and wine[5]. The Roman diet also included grain, meat (especially pork) vegetables, cheese, salt, sour wine and olive oil[6]. It is rather doubtless that Roman soldiers ate wheat. As J. Roth pointed out they were occasionally put on a barley diet[7]. This happened especially as a punishment for cowardice or lack of discipline[8]. However, as A. Dalby pointed out, in the Byzantine period the hardtacks consumed by citizens of the empire were often made of barley, rather than wheat[9].

The Roman diet was not only a well-balanced one, but it was also long lasting[10]. The *Codex Theodosianus* confirms that the mentioned products were still a base of nutrition for the army as late as half of the 4th century[11]. According to the author of the source, the soldiers consumed hardtacks (*buccellatum*), bread,

[4] J. Haldon argues that the system of organization and, to an extent, provisioning in Byzantine period retained many elements of Roman system: J. Haldon, *The Organisation and Support of an Expeditionary Force: Manpower and Logistics in the Middle Byzantine Period*, [in:] *Byzantium at War*…, p. 114.

[5] *Dio's Roman History*, *Phd*, 62, vol. VIII, trans. E. Cary, London–New York 1955, p. 90–91.

[6] J.P. Roth, *The Logistics of the Roman Army at War (264 B.C. – A.C. 235)*, Leiden–Boston–Köln 1999 [= CSCT, 23], p. 26; Z. Rzeźnicka, *Military Diet in Selected Greek, Roman and Byzantine Sources*, [in:] *Standards of Everyday Life in the Middle Ages and in Modern Times*, ed. K. Mutafova, N. Hristova, I. Ivanov, G. Georgieva, Veliko Tarnovo 2014, p. 651–653.

[7] Z. Rzeźnicka, *Military*…, p. 650.

[8] The author mentions preparations for wars, including shipment of wheat and barley: Livy, *History of Rome*, XXIII, 38; XXVI, 47, vol. VI–VII, ed. F.G. Moore, Cambridge–London 1940 [= LCL] (cetera: Livy), p. 134–135, 180–181. Occasionally the barley was issued not only to cowards but also defeated soldiers: Livy, XXVII, 13, p. 260–261; Polybius, *The Histories*, vol. III, *Books 5–8*, VI, 38.4, trans. W.R. Patton, Cambridge–London [= LCL, 138], p. 356–357; Suetonius, *De Vita Caesarum*, XXIV, 2, vol. I, trans. J.C. Rolfe, London–New York 1914 [= LCL, 31], p. 156–157.

[9] A. Dalby, *Tastes of Byzantium. The Cusine of a Legendary Empire*, London 2010, p. 22.

[10] What is more, in case of meat the famous Roman *lucanica* were not only transmitted to Byzantium, but also entered Bulgarian cousine for good as lukanka: A. Dalby, *Tastes of Byzantium*…, p. 28.

[11] *Theodosiani Libri XVI cum Constitutionibus Sirmondianis et Leges Novellae ad Theodosianum Pertinentes*, 7.4.11, ed. T. Mommsen, P.M. Meyer, Berolini 1905, p. 317 (cetera: *Codex Theodosianus*).

sour wine (*acetum*), ordinary wine (*vinum*), salted pork and mutton[12]. We may not know what rations carried by the 10th century Byzantine army consisted of, but most probably the products were fit for consumption for a long time[13]. This can be understood by reading *Tactica*. Leo urges his commanders not to consume the army's supplies, should the opportunity to obtain food through plunder appear[14]. This passage leaves no doubt that if the soldiers spared its rations, they could be consumed later. This indicates that the army chiefly carried components rather than ready meals.

It is rather certain that, as a rule, Roman soldiers prepared their food[15]. The same probably applied to their Byzantine counterparts[16]. The grain, which was a fundament of diet was consumed either as bread, baked in the camp[17] or in a form of pulp[18]. It is worth stressing that the latter was popular not only in Roman times, but also during the Byzantine period[19]. This also means that in both periods, armies needed to include in their planning acquiring firewood in order prepare meals[20]. This in turn indicates that the Byzantines consumed them at a fixed time, probably the same time for the whole army. In Leo's *Tactica*, one can find information in support of this thesis. As the emperor remarked, soldiers often sang religious hymns after supper[21]. While the custom had both religious and social character, it is clear that the army ate more or less at the same time.

The Roman warriors consumed grain also in another form. One of the most important and primary components of soldier diet were hardtacks. Not only were they easy to prepare, they could also be stored and transported for a long time. It is clear that hardtacks were well known to Roman soldiers. These rations were also one of the basic products in Byzantine armies. In both cases, they were

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[12] Interestingly enough, the double-baked hardtacks were also popular among non combatant citizens of Byzantium, as Procopius stressed: Procopius, *Historia Arcana*, 6, 2, [in:] *Procopius ex recensione Guilielmi Dindorfii*, vol. III, ed. I. Webber, Bonn 1838 (cetera: Procopius, *Historia Arcana*), p. 43.

[13] J. Haldon argues that at least before Arab invasion in 7th century the pattern for soldiery meals was including bread every third day, hardtacks on two of three days, salt pork/mutton – the same proportion and wind/sour wine – the same proportion: J. Haldon, *Feeding the Army: Food and Transport in Byzantium, ca. 600–1100*, [in:] *Feast, Fast or Famine. Food and Drink in Byzantium*, ed. W. Mayer, S. Trzcionka, Brisbane 2005, p. 86.

[14] Leo VI, IX, 1, p. 155.

[15] J.P. Roth, *The Logistics*…, p. 44–45.

[16] J. Haldon, *Feeding the Army*…, p. 87. The author of *Sylloge Tacticorum* instructed commanders to provide their soldiers with hand mills for the grain: *Sylloge Tacticorum, quae olim "Inedita Leonis Tactica dicebatur"*, 38.2, ed. A. Dain, Paris 1938, p. 59 (cetera: *Sylloge Tacticorum*).

[17] *Commentari de Bello Civili*, I, 78, ed. F. Kraner, F. Hofmann, Berlin 1996 [repr.], p. 100–101.

[18] *C. Asini Polionis De Bello Africano*, 67, ed. E. Wölfflin, A. Miodoński, Lipsiae 1889, p. 106.

[19] A. Dalby, *Siren Feast. A History of Food and Gastronomy in Greece*, London 1996, p. 197; idem, *Tastes of Byzantium*…, p. 80.

[20] J.P. Roth, *The Logistics*…, p. 59–61.

[21] Leo VI, XI, 19, p. 203.

made of wheat, though in Byzantium barley was also consumed in this manner[22]. What is more, in the light of *De Cerimoniis*, the thick sliced hardtack made of barley (*paximadia*) was equally popular as ring shaped *boukellaton* made of wheat[23].

More information on hardtacks can be found in *De Bellis*, written by Procopius of Caesarea. In fact, the author not only describes how the food for the soldiers should be made, but also described the consequences of its flawed preparation[24]. As Procopius pointed out, the hardtacks were baked in a special oven twice in order to guarantee that they would be dry[25]. Meanwhile, during one of the campaigns led by Belisarius, the soldiers were given hardtacks which were baked once only[26]. As a result, the hardtacks delivered after some time to the warriors were not only unusable, but even proved lethal for those who consumed them. Procopius stressed that a few hundred soldiers died as a result of eating defective rations[27]. Interestingly enough, it seems that the Byzantines found the solution to produce the hardtacks in a less expensive and more efficient way. As the author of *Sylloge Tacticorum* pointed out, the mentioned rations formed basis of soldier's diet in the 10th century. Surprisingly enough, one can find in the treaty an instruction, according to which hardtacks should be baked once only and then dried in the sun[28]. The reason why these rations were not harmful for the soldiers probably was that they were very thin, as the author suggested. Regardless of the procedure of production, they were an important element of the army's diet through the 10th century and surely earlier, as Leo the Wise confirmed. According to his *Tactica*, the commanders should have ensured that a sufficient amount of hardtacks was transported in the baggage train for the army[29].

Apart from hardtacks and wine, there is little information on products consumed by ordinary soldiers. However, we have more material concerning the diet of the emperor while on campaign. The Treaty C written by Constantine Porphyrogenitus includes a detailed description of the imperial baggage train[30]. As one can

[22] Z. Rzeźnicka, *Military*…, p. 649–650; A. Dalby, *Tastes of Byzantium*…, p. 22.

[23] *Constantini Porphyrogeniti imperatoris De cerimoniis aulae byzantinae libri duo*, II, 44, vol. I–II, ed. J.J. Reiske, Bonn 1829–1830 [= *CSHB*, 1] (cetera: Constantine Porphyrogenitus), p. 658; A. Dalby, *Tastes of Byzantium*…, p. 99; J. Haldon, *Feeding the Army*…, p. 87.

[24] Procopius, *History of the Wars*, vol. II, *Books 3–4. (Vandalic War)*, III, 13, 15–20, trans. H.B. Dewing, Cambridge Mass. 1916 [= LCL, 81], p. 120–123 (cetera: Procopius, *History of the Wars*).

[25] In different source Procopius confirmed that the bread should be backed two times: Procopius, *Historia Arcana*, 6, 2, 5–9, p. 43.

[26] The reason for this was one the emperor's official's greed, as he wanted to save money on wood and servants employed in the process.

[27] Procopius, *History of the Wars*, III, 13, 20, p. 122–123.

[28] The Greek text seem to indicate that the bread was backed once only: *Sylloge Tacticorum*, 57.2, p. 109.

[29] Leo VI, X, 12–13, p. 190–191.

[30] Constantine Porphyrogenitus, *Three Treatises on Imperial Military Expeditions*, C, ed. et trans. J.F. Haldon, Wien 1990 [= *CFHB*, 28], p. 102–121 (cetera: *Treaty C*).

read, a not a small proportion of pack animals were required for the needs of the imperial household and the imperial table[31]. Thus, the treaty of Constantine Porphyrogenitus gives us a glimpse of knowledge on what the emperor and his people ate during a war campaign. Unsurprisingly, in the first place the author of the treaty lists wine[32]. Among other products, one must list oil, beans, rice, pistachio, almonds and lentils. It is worth mentioning, that different types of oil were taken and imperial oil is listed before ordinary oil[33]. Other important positions on the list were lard, fat, cheese, salted fish and animals for slaughter (sheep with lambs and cows with calves)[34]. Though Constantine did not provide any detailed information, he mentioned that the imperial household should do its best to obtain vegetables wherever it would be possible. Finally, the author remarked that nets for chickens should be taken as well. Among the animals suitable for imperial table and feasts are found lambs, cows, geese, and chickens[35]. It is clear that the rank-and-files soldiers could not count on such dishes. Most soldiers had to satisfy themselves with rations consisting largely of hardtacks[36]. Though there is little information about pulps and bread, it does not close the issue, since it is likely that the army carried both hardtacks and grain[37]. The soldiers probably also received olive oil and wine, as it is indicated in both *Sylloge Tacticorum* and *Tactica*[38]. Aside from this, one cannot determine with certainty what else the ordinary warriors received[39]. What seems obvious; however is that *tagmata* and officers ate better[40].

As there is at least scarce information on Byzantine military diet, it is worth considering whether the rations were rich enough to maintain a healthy and strong soldier. As. J. Roth estimates, an average soldier in the Roman army required about

[31] Constantine Porphyrogenitus, *Three Treatises…*, B, p. 84–85 (cetera: *Treaty B*).
[32] *Treaty C*, p. 102–103, 133.
[33] *Treaty C*, 143–145, p. 102. One can assume that the quality of these products were different.
[34] Interestingly again, salted fish was listed separately from other types of seafood, like sturgeon, shell-fish and carp.
[35] *Treaty C*, 145–147, 155–157, p. 102, 104.
[36] Leo indicates that while staying in intermediary camp after battle, the commander provided hardtacks, flour and water (Leo VI, X, 12, p. 190–191). However, though the hardtacks seem a rather modest product it was very popular also among all Byzantines: Procopius, *Historia Arcana*, 6, 2, 5–9, p. 43.
[37] In the light of *De Cerimoniis*, one should assume that in fact thematic soldiers received barley *paximadi* at least as often as wheat *boukellaton*, if not more frequently: Constantine Porphyrogenitus, II, 44, p. 658; J. Haldon, *Feeding the Army…*, p. 87; idem, *The Organisation…*, p. 124.
[38] *Sylloge Tacticorum*, 57.1–57.2, p. 109; Leo VI, X, 12–13, p. 190–191. The recommendation from *Sylloge* was probably derived from Syrianus Magister: *Sylloge Tacticorum*, 338, p. 139.
[39] There is also a passage in *De Velitatione*, where the anonymous author instructed the commanders to supply the soldiers with bread, cheese and dried pork: *Skirmishing*, 8, [in:] *Three Byzantine Military Treatises*, trans. et ed. G.T. Dennis, Washington 1985 [= DOT, 9; *CFHB.SW*, 25] (cetera: *Skirmishing*), p. 164–165.
[40] The long lasting sausages invented by Romans (*lucanica*) were more likely given to them, than to *themata*: A. Dalby, *Tastes of Byzantium…*, p. 28.

3000 calories per day, more or less the same as today[41]. Thus, it seems reasonable to assume that their Byzantine counterparts had similar if not an identical request. It is also likely that in the Roman army, the state provided the rations of food, subtracting the cost from the pay[42]. According to *Codex Theodosianus*, the soldiers were expected to collect their rations before a campaign and carry them themselves[43]. The system was a long-lasting one and there are indications that it might have been current in days of Belisarius. Though there is no information whether soldiers carried their rations, Procopius of Caesarea left no doubt that the hardtacks were baked and distributed by the state[44]. The issue becomes even more obscure in relation to later centuries. The expansion of Islam, the loss of many rich provinces and the formation of the theme system (both in the administrative and military dimension) surely created new circumstances and might have resulted in reforms also in the area discussed[45]. However, it seems undisputed that the state guaranteed the rations (*opsonion*) to the soldiers and they probably did not pay for it, as in Roman times[46]. Whether or not the quality of food was satisfying is another question, however.

It is quite possible that the quality of rations were probably different, depending on the type of formation[47]. It seems reasonable to assume that soldiers from *tagmata* were fed better than ordinary theme rank and file warriors[48]. However, the overall situation was probably difficult[49]. There are sources which cast doubts on the condition of the victualling issue in the Byzantine army. One of these is the *Life of St. Luke the Stylite*, who served in the army of Constantine Porphyrogenitus

[41] J.P. Roth, *The Logistics*…, p. 7–12, 67.

[42] G. Watson, *The Roman Soldier*, London 1969 [= AGRL], p. 91; J.P. Roth, *The Logistics*…, p. 14–15.

[43] *Codex Theodosianus*, 7.4.11.

[44] It seems that the commander was issued with guarantying provisions in case of any problems, as in the case of Belisarius: Procopius, *History of the Wars*, III, 13, 20, p. 122–123.

[45] The same applies to the nature and complexity of the stratiots status: D.M. Górecki, *Constantine VII's Peri ton stratioton*, GRBS 48, 2009, p. 135–154.

[46] The other popular term referring to the provision was *siteresia*: *Ioannis Scylitzae Synopsis historiarum*, 3, 19, ed. H. Thurn, Berolini 1973 [= *CFHB*, 5] (cetera: Skylitzes), p. 426; E. McGeer, *Opsonion*, [in:] *ODB*, vol. III, p. 1529; I. Heath, A. McBride, *Byzantine Armies 886–1118*, Oxford 1979, p. 5–6. However, one must note the opinion of J. Haldon who argues that it is possible that thematic soldiers were obliged to take care of supplies for themselves to some extent: J. Haldon, *The Organisation*…, p. 133–134.

[47] Soldiers from *themata* were often fed with *paximadi* made of barley instead of wheat: Constantine Porphyrogenitus, p. 658.

[48] They also earned better: N. Oikonomidès, *Middle-Byzantine Provincial Recruits: Salary and Armament*, [in:] *Byzantine Warfare*, ed. J. Haldon, Burlington 2007, p. 126; J. Haldon, *Theory and Practice in Tenth-century Military Administration: Chapters II, 44 and 45 of the Book of Ceremonies*, TM 13, 2000, p. 304.

[49] There are scholars who argue that an overall provisioning situation of the Byzantine army was satisfactory: E.N. Luttwak, *The Grand Strategy*…, p. 295.

in his youth and, as it is thought, died circa 970 AD[50]. The author of the text pointed out that the then future saint served in theme army and did not get by on state rations as most of his colleagues, but was supported by his rich family, who supplied him with food. What is striking, it is not that St. Luke is praised, but why. The chronicler stresses that St. Luke shared his rations with other colleagues, as state allocation was insufficient[51]. The relation indicates that the Byzantine military diet in 10th century was not a rich and well-balanced one, as in the case of the Romans, but quite contrary. The story of St. Luke the Stylite seems to capture a day-to-day reality of rank and file soldiers though. Financial difficulties were a common problem, especially in thematic armies and even cavalry men faced crises in the case of the death of their horses, the cost of which oscillated around 15 *nomisma*[52]. On the other hand, this does not mean that military service in Byzantium was not profitable in some cases. There are indications that some soldiers not only could get by decently, but also managed to save some money. This seems credible as in the work of Pseudo-Symeon there was a soldier mentioned, who accidentally left a bag with his savings (three pounds of gold) in his host's house[53]. However, it seems obvious that this was a man of significance, possibly a member of theme cavalry or even *tagmata* detachment.

Whatever the case, it is probable, that the rations in Byzantine army were in the best case modest both in abundance and differentiation of products. The *Life of St. Luke the Stylite* is not only an indication that the Byzantines soldier diet was rather a harsh one. Other information in support of this thesis can be found in Leo's *Tactica*. The emperor advised his commanders to train their soldiers in order to keep them tough and fit. However, later on in the fragment, Leo stressed that as a result, they will also eat with appetite their daily rations[54]. It is hard to believe that rank and file soldiers would complain about their food, because they were accustomed to eat tasty food and until one's fill. If they made a fuss, it might have been rather for the sake of poor quality, quantity or both.

Whatever the provisions consisted of, the amount was almost certainly never sufficient for the whole campaign. Urging to the plunder enemy territory repeats itself many times throughout *Tactica*. What is more, Leo the Wise made it clear that if the hostile area is fertile, the army should first aim at acquiring rations

[50] *La Vie de Saint Luc le Stylite*, XVI, 1–4, ed. F. Vanderstuyf, [in:] *PO*, vol. XI, ed. R. Graffin, F. Nau, Paris 1915 (cetera: *The Life of St. Luke the Stylite*), col. 204.

[51] *The Life of St. Luke the Stylite*, XVI, 1–3, p. 205.

[52] M. Kaplan, *The Producing Population*, [in:] *A Social History of Byzantium*, ed. J. Haldon, Oxford 2009, p. 153.

[53] Pseudo-Simeon, *Theophanes Continuatus*, *Ioannes Cameniata*, *Symeon Magister*, *Georgius Monachus*, XXV, 20–21, ed. I. Bekker, Bonnae–Lipsiae 1838 [= *CSHB*, 31], p. 713.

[54] Leo VI, VII, 12, p. 111.

from it, rather than consume its own supplies[55]. This indicates that eating one's own supplies was treated as a last resort solution, which also confirms that they were rather modest. There is also an interesting passage in *Tactica*, which can be read differently. Leo pointed out in one of his constitutions that the baggage train should move independently from the army[56]. The emperor also stressed on that occasion that the soldiers should stay away[57]. This may well be a disciplinary issue, but there is another way of understanding the passage. If one assumed that food was stored in the baggage train, there was no better way to steal rations than to infiltrate the mentioned unit. This could indicate that provisions were not particularly rich, especially while on march[58].

Though the soldiers were guaranteed rations by the state, it seems that it was not infrequent situation that they suffered from lack of provisions. When it comes to pay, the *roga* was given with considerable delay and it seemed rather to be an everyday reality than an accidental problem. T. Dawson points out that during the reign of Constantine Porphyrogenitus, there was a rebellion in the army as a response to delay in pay[59]. After putting down the unrest, the emperor decreed that the *roga* should be given every four years[60]. In reality, the wellbeing of the soldiers lied usually in the hands of their commanders. For this reason, Leo advised that they should be chosen from the wealthy class[61]. The emperor stressed that should the commander be able to financially support his soldiers, it would have a tremendous effect on their morale. It is possible that this statement referred not only to the *roga*, but also for supplies, which could be bought in the case of cash-shortage in the state funding[62]. Given the Byzantine practical nature, it seems striking that the state saved on alimentation of the army. Yet, one must remember that Byzantine soldiers did not pay for their rations, as their Romans predecessors[63]. This explains the difference in the quality of alimentation in both armies.

It seems that the soldiers received only enough food to be kept fit for combat. Thus, rations were probably calculated at a necessary minimum. What is more, the Byzantine commanders knew that the food and drink may detract the condition of soldiers even if it was not poisoned. For instance, Leo the Wise advises

[55] Leo VI, IX, 1, p. 155.
[56] E.N. Luttwak, *The Grand Strategy*…, p. 351.
[57] Leo VI, X, 15, p. 191–193.
[58] Leo VI, IX, 6, p. 197.
[59] T. Dawson, *Byzantine Cavalryman c. 900–1204*, Oxford 2007, p. 20; idem, *Byzantine Infantryman – Eastern Roman Empire c. 900–1204*, Oxford 2007, p. 41–42.
[60] Constantine Porphyrogenitus, II, 44, p. 493–494.
[61] Leo VI, IV, 3, p. 49.
[62] For instance from the merachants present both on friendly and hostile territory alike: Leo VI, VI, 19; XI, 7, p. 90–91, 196–197.
[63] A. Kazhdan, E. McGeer, *Stratiotes*, [in:] *ODB*, vol. III, p. 1965–1966; E. McGeer, *Recruitment*, [in:] *ODB*, vol. III, p. 1777–1778.

not to build camps to close to water sources. The emperor warns his commanders that in that case the soldiers and animals alike will drink too much water, become sluggish and get used to the abundance of water[64]. Leo knew very well that during a war campaign, the soldiers may not have this luxury. The same applied to food, especially during summer months and autumn. The author of *Sylloge Tacticorum* advises that soldiers should not eat only twice a day at that time[65]. Instead, they should eat more, but smaller portions, which, by the way is quite a symptomatic approach[66]. When the area was not abundant with water, rationing it was essential. There were situations where, for different reasons, the Byzantine army could not stay long in the same place and had to push forward. In that case, Leo advised to march at night. As the emperor stressed, during that time, both men and beasts will drink less[67].

J. Roth suggests the lack or bad quality of water led to a number of defeats in the Roman army[68]. As Y. le Bohec pointed out there was a special detachment in the Roman army (*metatores*) responsible for locating sources of water[69]. In the case of the Byzantine army, this mission was probably issued to the scouting party[70]. It is clear that the commanders tried to supply their soldiers and faced numerous difficult problems while doing so. Providing rations was always a challenge, but the difficulty of the task depended on circumstances. While Leo stressed a general instruction that the soldiers should be fed well, the emperor also mentioned that this should be supervised especially while on march and in the case of the concentration of the whole army[71]. This again indicates that the army did not carry provisions for the whole campaign. As the army progressed from friendly to hostile territory, the manner of sustenance evolved from billeting to plundering, alternatively buying supplies from local sources, such as merchants. Leo urged his commanders to treat the latter well since should they bear any grievance they may cease to supply the army[72]. While the possibility was undesirable on Byzantine soil, it could bring disastrous consequences on hostile territory.

Though the provisions might have been scarce and rations were not particularly rich in the day-to-day reality of Byzantine soldiers, there were moments, where commanders did their best to ensure that the army is well fed. One of these

[64] Leo VI, XI, 31, p. 208–209.
[65] *Sylloge Tacticorum*, 57.1, p. 109.
[66] As A. Dalby pointed out, the Byzantines were rather accustomed to one big meal in the evening: A. Dalby, *Tastes of Byzantium*…, p. 97. True, even during war campaign the supper was important part of the day also from social perspective: Leo VI, XI, 19, p. 203.
[67] Leo VI, XX, 197, p. 606–607.
[68] J.P. Roth, *The Logistics*…, p. 36.
[69] Y. le Bohec, *The Imperial Roman Army*, London 1994, p. 52.
[70] E. McGeer, *Sowing the Dragon's Teeth. Byzantine Warfare in the Tenth Century*, Washington 1995 [= DOS, 33], p. 300–302, 331–332.
[71] Leo VI, IX, 6, p. 197.
[72] Leo VI, IX, 7, p. 197.

occasions were feasts organized at the beginning and at the end of campaign, or after a sound victory[73]. However, there was also another situation in which it was crucial for the soldiers to eat well, i.e. before engaging the enemy. As Leo pointed out, it is important to plan a meal before the battle so that the soldiers did not have to fight hungry[74]. This seemed to be the customary way of preparing soldiers for the fight in Roman times as well[75].

Whatever the provisions consisted of, the amount was almost certainly never sufficient for the whole campaign. Urging the plunder enemy territory repeats itself many times throughout *Tactica*[76]. What is more, Leo the Wise made it clear that if the hostile area is fertile, the army should first aim at acquiring rations from it, rather than consume its own supplies[77]. It is clear that soldiers deprived of the provisions were eager to get them in any possible way. For the commanders, it was clear that the army would turn to plundering should they be forced to it by necessity[78]. This was an undesirable situation, regardless if it happened on Byzantine soil, or on hostile territory[79]. If the army was hungry, it could plunder and destroy the economic foundation of the theme on which it stationed[80]. For Leo, as an emperor, it was clear that allowing the army to loot Byzantine soil was an undesirable situation[81]. Thus, it is clear why he instructed his generals to prevent their soldiers from doing so. On the other hand, if the soldiers went away from the main force in hope of finding food, it could fall prey to an enemy skirmishing party[82]. All the same,

[73] Customary there was probably a feast at the beginning of the campaign. An indication of this may be found in Constaintine Porphyrogenitus Treaty B: *Treaty B*, p. 88–89. Most often the feast was organized after a victory: Leo VI, XX, 191, p. 605 Leo stressed that it is best to hold it out of the enemy's resources: Leo VI, XVI, 10, p. 387. J. Roth pointed out that this was not infrequent phenomenon, as even Caesar ate the supper of Pompey after defeating him at Pharsalos: J.P. Roth, *The Logistics*…, p. 59.
[74] Leo VI, XIII, 8 p. 283.
[75] J.P. Roth, *The Logistics*…, p. 54.
[76] Leo VI, IX, 25, 45, p. 162, 170; XI, 21, p. 202–204; XVII, 25, 27, 33, 34, 36, 37, 39, 40, 42, 53, 60, 65, p. 402–409, 412–413, 416–419.
[77] Leo VI, IX, 1, p. 155.
[78] The fact that Leo urged first to plunder enemy soil and consume own supplies later seem to indicate that the amount of provisions was sometimes truly modest.
[79] An exemption were military operation on the eastern frontier, where the Byzantines fought Arabs. The nature of the conflict allowed commanders to utilize the "burnt ground" strategy also on its own territory. The reason for this was sheer practicism, as the priority of the Byzantine authorities was the defense of fertile coastal territories: T. Wolińska, *Synowie Hagar. Wiedza Bizantyńczyków o armii arabskiej w świetle traktatów wojskowych z IX i X wieku*, VP 35, 2015, p. 413. However, more frequent approach was that of the author of *De Re Strategica*, dated on 9th century. According to the treaty, one should first see to the safety of Byzantine citizens, before taking any action against the enemy: *The Anonymous Byzantine Treatise on Strategy*, 5, 7–10, [in:] *Three Byzantine Military*… (cetera: *Treatise on Strategy*), p. 20.
[80] Leo VI, XIX, 18, p. 510.
[81] Leo VI, IX, 18–24, p. 159–161.
[82] The stratagem was used by Byzantines to counter Arab raiding parties, as described in *Skirmishing*, 18, 21–31, p. 211–215.

every campaigning army relied on plunder as a way to obtain extra provisions. The Byzantines did their best to restrain their soldiers from harassing peasants on the territory of the empire[83]. On the hostile territory, the policy was of course very different. As Leo the Wise remarks, the campaigning army should plunder what it can and burn the rest[84]. However, the emperor advised to plan the plundering process in advance, taking into account a long lasting operation. In this case, Leo urged his commanders not to burn and destroy everything at the beginning, but spare some part of the enemy territory unspoiled for the way back home[85].

The accumulation of rations before campaign and plunder were not the only ways to acquire provisions for the army. For the Byzantines, it was obvious that food can be obtained through hunting. In fact, from the perspective of a commander, this way offered many benefits. The author of *Sylloge Tacticorum* stressed that hunting strengthened the body and mind of the soldiers[86]. What is more, in order to make the whole process profitable one had to organize it on a wide scale and utilize tactics. This accustomed the soldier to discipline and cooperation. As for division of the prey, in the case of abundance, each soldier received his share. Should the hunting be poor, most of the catch went to one unit, who drew the lucky lot. However, in each case a recon unit received a proportion of the prey[87].

Needless to say, the most important need of every army is water. As J. Roth stressed, without access to liquids, the human body will die within days[88]. The commanders were well aware of this problem and tried to provide their soldiers with rations of clean water. Numerous indications that this was the most important issue can be found, for instance, in Leo's *Tactica*[89]. However, the Byzantine commanders were well aware that water does not need to be poisoned in order to become harmful on its own accord. Already Vegetius pointed out that the marching Roman army needs to deal with a stagnant water effect[90]. The Byzantines had to solve the same problem and came up with interesting solutions. Leo the Wise instructed his commanders that one should decide, whether it is possible to build

[83] The main aim of most if not all of the mentioned operations was ensuring safety of Byzantine citizens: *Treatise on Strategy*, 5, 7–10, p. 20. According to Leo the strength of the empire lies in fact in two social classes, namely the farmers and soldiers: Leo VI, IX, 11, p. 196–199. However, as J. Moralee stressed, in practice the symbiosis between Byzantine army and civilians of empire was a difficult and uneasy one: J. Moralee, *It's in the Water: Byzantine Borderlands and the Village War*, Hum 7, 2018, p. 4–5.

[84] This could force the enemy to separate the forces in order to look for provisions, giving the Byzantines chance to defeat inferior groups one by one: E.N. Luttwak, *The Grand Strategy…*, p. 262.

[85] Leo VI, XVII, 34, p. 404–405.

[86] *Sylloge Tacticorum*, 56.1, p. 106.

[87] *Sylloge Tacticorum*, 56.9, p. 109.

[88] J.P. Roth, *The Logistics…*, p. 35–36.

[89] The necessity of providing the army with water is stressed throughout constitutions: IX, X, XI, XIII and XIV.

[90] Vegetius, 3.2, p. 67–69.

a regular cistern. If it proved impossible, a large hole in the ground should be made or barrels arranged. In both cases, one should put some clean river pebbles on the bottom. In order to prevent the water from becoming stagnant, small basins should be placed next it in order to enable the water to flow into smaller containers drop by drop[91]. A very similar solution was proposed by the author of *Sylloge Tacticorum*. Also in this case, he advised making small holes in barrels, through which the water could circulate to other vessel gradually[92]. However, if this is possible, one should construct proper cisterns. Interestingly enough, Leo was aware that such action made sense in winter rather than in other seasons, for the sake of the abundance of rainwater[93]. The emperor also gave a detailed description how such a cistern should be constructed[94]. The analyzed material indicates that although the Byzantines did their best to prepare for the campaign, much depended on luck and even more on the proper recon. Without access to reservoirs of clean water, the army could not march very far. Also, information concerning the abundance of food in invaded regions was of great importance. Interestingly, that data was usually known to both parties and a skilled commander could use it to predict where the enemy will come from.

In order to understand the system of provisioning, one has to determine how the supplies were transported during campaign. During Roman period, as late as the 4th century, the soldiers were to take their twenty days rations from the warehouses and carry them all the way?[95] Also, two centuries later there was no indication that the soldiers of Belisarius were in different position[96]. However, the Arab invasion in the 7th century created a very different situation for the whole empire. The introduction of theme system probably also changed the rules of alimentation of the Byzantine soldiers. As we know, the Roman legionaries paid for their supplies, as the relevant sum was detracted from their pay[97]. The Byzantine theme soldiers however not only received their *roga*, but the state also granted them with toll-free rations (*opsonion*)[98]. It seems that unlike in the Roman period,

[91] Leo VI, XV, 63, p. 378–379.
[92] *Sylloge Tacticorum*, 55.2, p. 105–106.
[93] Leo VI, XV, 63, p. 378–379.
[94] Leo VI, XV, 64, p. 378–381.
[95] *Codex Theodosianus*, 7.4.11 – These included twenty days rations. This in fact is an important problem, since, as J. Haldon calculated a day's ration weighted between 3–4 pounds. In case one carried supplies for 3–4 days, the burden was at least noticeable: J. Haldon, *Feeding the Army*…, p. 86. This would explain why the Byzantines often preferred to equip their soldiers with shields instead of armour: E.N. Luttwak, *The Grand Strategy*…, p. 364.
[96] Procopius, *History of the Wars*, III, 13, 20, p. 122–123. As J. Haldon points out the weight of one day ration could reach 1,3 kg: J. Haldon, *Feeding the Army*…, p. 88.
[97] A.K. Bowman, *Roman Military Records from Vindolanda*, Brit 5, 1974, p. 367–368; J.P. Roth, *The Logistics*…, p. 14–15.
[98] E. McGeer, *Opsonion*…, p. 1529. According to Skylitzes they received the provisions monthly: Skylitzes, 3, 19, p. 426.

the rations were not carried by soldiers, at least not as a rule[99]. An indirect support for this thesis may be found in Constitution X of Leo's *Tactica*[100]. The emperor urges his commanders in chapter 12 not only to set up an intermediary (still, fortified) camp, but also to take substantial amount of provisions, such as hardtacks and flour[101]. It seems that these were not meant for the officers only, but mostly for everyone else who would be in the camp. Moreover, the rations were managed by the commander who could decide how much of food and forage would be stored in the fortified camp.

In that case, one should face another problem. If soldiers did not carry the provisions, how were the rations otherwise transported? The logical assumption is that supplies were kept in the baggage train. From what Leo described, one may understand that during a war campaign, the Byzantines marched with one baggage train only, supplying both the emperor and the whole army[102]. All instructions from Constitution X seem to indicate that there was no separate baggage train designated for the *basileus*. However, the treaty of Constantine Porphyrogenitus gives a very different impression. On the contrary, from the perspective of Treaty B and C, one could think that the only baggage train on the campaign is the one, which belong to the emperor. If that is the case, how were the rations for the soldiers transported?

In order to determine, whether there was one baggage train or more, one should analyze the sources available. The earliest source from the Byzantine military revival period seems to be *Peri Strategias*, attributed to Syrianos Magistros from the 9th century[103]. Unfortunately, there is little information about Byzantine baggage train, none of which seems helpful in solving the issue. Leo's *Tactica* deals with the subjects in more detail, but in the light of the source baggage train works as one structure[104]. Also, the author of *Sylloge Tacitorum*, dated around the middle of the 10th century speaks out in the same tone[105]. The author of *De velitatione*

[99] One should stress that according to Constantine VII the *opsonion* was distributed at the beginning of the campaign: Constantine Porphyrogenitus, II, 3, p. 695. However, as J. Haldon pointed out, it is highly improbable that the soldiers carried the rations for the whole 20 days period. More likely, they carried supplies for 3–4 days: J. Haldon, *Feeding the Army…*, p. 98. What is more, not infrequently the soldiers carried only rations for one day, especially while leaving the camp for battle: *Skirmishing*, 8, p. 164–165.

[100] See also: E.N. Luttwak, *The Grand Strategy…*, p. 305–306.

[101] Leo VI, X, 12, p. 191.

[102] On the role of baggage train during marches Leo gave detailed description in constitution IX. The composition and role of baggage train was described in constitution X.

[103] A vast majority of scholars agree that the period of composition should be shifted from the 6th to the 9th century: *Sylloge Tacticorum*, Preface, p. 4; S. Cosentino, *Syrianos' Strategikon – a 9th-Century Source?*, Bi 2, 2000, p. 243–280; P. Rance, *The Date of the Military Compendium of Syrianus Magister (formerly the Sixth-Century Anonymus Byzantinus)*, BZ 100.2, 2007, p. 701–737.

[104] Leo VI, IV, 31, p. 54–55.

[105] This is understandable, since the treaty was meant rather for active field commanders, and during campaign the baggage train was surely one organizational structure, as original text indicates: *Sylloge Tacticorum*, 23, p. 45–47.

addresses the issue even less frequently and mostly when it relates to enemy's vulnerability to attack[106]. The same applies to *Praecepta Militaria*[107]. The *Tactica* of Nikephoros Ouranos is a different issue, but it deals with the Byzantine army after the reform, as it seems. Thus, the only sources at our disposal are Treaties B and C on the preparation of the campaign by Constantine Porphyrogenitus.

At first glance, Treaty B gives the impression that emperor estimated the total number of pack animals required during the expedition. What is more, a number of extra mules and horses were taken so the imperial baggage train was even bigger[108]. Thus, it may seem that the imperial baggage train carried provisions for the whole army. Unfortunately, no indication is given whether supplies for all soldiers were taken or just the closest entourage of the *basileus*. We know, however, that as the army marched through Byzantine soil, new units of theme armies were joining. At each *aplekta*, the relevant *protonotarios* was supplying not only the emperor but also the theme soldiers with rations from taxes, forced sale or from imperial resources (*aerikon*, *synone*, *eidikon*)[109].

Treaty C provides us with more detailed description of the imperial baggage train. First of all, one should analyze whether it was capable of carrying provisions for the whole army. This can be determined by the number of pack animals arranged by the emperor for a campaign[110]. At first glance, the figures look impressive, as from Asia and Phrygia alone 200 mules and 200 pack-horses were to be provided[111]. If one added the customary gifts offered by officials and generals the number would rise by 70 mules and 11 horses[112]. Further animals were provided by other officials and bishops[113]. This would settle the number of pack-animals at 585 mules and 100 horses. From this pool one has to subtract 160 animals for the needs of the emperor himself and his entourage[114]. The imperial treasury took another 46 animals and we know that the rest was burdened barley for all the stock[115]. One can read elsewhere in the source materials that imperial expedition

[106] *Skirmishing*, 4, 14–28, p. 157–159; Ł. Różycki, *Byzantine Asymmetric Warfare in Light of "De velitatione bellica"*, ZNUJ.PH 143.4, 2016, p. 652–655.

[107] *Praecepta Militaria*, 1.16, 2.17, 4.3, 4.6, 4.12, 4.17, [in:] E. McGeer, *Sowing the Dragon's…* (cetera: *Praecepta Militaria*), p. 22, 32, 40, 42, 46, 48, 50.

[108] *Treaty B*, p. 84–85.

[109] *Treaty B*, p. 88–89; M. Bartusis, *Aerikon*, [in:] *ODB*, vol. I p. 28; A. Kazhdan, *Eidikon*, [in:] *ODB*, vol. I, p. 681; A.J. Cappel, *Synone*, [in:] *ODB*, vol. III, p. 1994–1995; J. Haldon, *The Organisation…*, p. 116–117.

[110] More on the subject: J. Haldon, *Feeding the Army…*, p. 88. According to the scholar the average weight of *annonikos modios* was 8,7 kg. This explains why those who loaded more on the pack animals were severely punished by the emperor: *Treaty C*, p. 120–121.

[111] *Treaty C*, p. 96–99.

[112] *Treaty C*, p. 98–99.

[113] *Treaty C*, p. 100–101.

[114] Description in details: *Treaty C*, p. 102–107.

[115] *Treaty C*, p. 112–113; 116–117.

to Syria required 1100 pack-animals in total, both mules and horses[116]. The total number is impressive and gives the impression that imperial baggage train might have been the only one in the army[117]. However, a detailed description provided by the emperor leaves no doubt that the loads of pack-animals did not include luggage of theme soldiers, not mentioning their rations[118].

A more exact reading of the treaty gives indication that the imperial baggage might not have been the only one. Constantine stresses that while the army marched to deserted regions neither the imperial baggage train nor any other went ahead[119]. There is one more place in Treaty C which suggests that there was another baggage train for *themata*, of which Constantine did not mention. While describing the camp the emperor mentions discipline issues relating to theme soldiers[120]. He leaves no doubt that these had their tents at their disposal, of which there was no word while describing the content of imperial camp. Thus, there is an indication that the most necessary belongings and equipment were carried by the theme army separately, probably as a part of their own infrastructure. In that case, their rations might have been transported there as well. This seems to confirm that theme army might have had a different baggage train, about which unfortunately emperor gives no details[121].

Perhaps it was so, because Constantine was interested in composition of the imperial baggage train only. As needed, there were the provisions for him and his entourage. Also, we know that at least some part of *hetaireia* rations came from there[122]. From what is described, one can also suspect that *tagmata* soldiers received provisions from imperial camp as well. However, the theme armies joined the imperial army on the way, so their provisioning was a whole different story. Perhaps, for this reason Constantine did not describe the process of its formation. At the last *aplekta*, where all forces joined together, the baggage trains were formed into one structure[123]. If that was the case, it is clear why in most of the military

[116] *Treaty C*, p. 118–119.

[117] What is more, just the animals from the imperial baggage train consumed circa 2500 kg of barley and 280 ha of pasture: J. Haldon, *The Organisation…*, p. 130.

[118] *Treaty C*, p. 118–121.

[119] *Treaty C*, p. 130–131.

[120] *Treaty C*, p. 130–131.

[121] Regardless of the practical organisation, the army had to transport the supplies on the back of pack animals. As J. Haldon stressed that was not the most efficient way. As a result a marching army was accompanied by a large number of animals. The scholar estimates, that an army of 10 000 men was followed by 8500–9500 pack animals: J. Haldon, *Feeding the Army…*, p. 97–98; idem, *The Organisation…*, p. 130–131.

[122] *Treaty C*, 593–596, p. 132. It is worth mentioning that while Byzantines serving in Hetaireia received one cow for ten soldiers, the foreigners only got an animal for every thirty warriors.

[123] The location of those points was not a secret, as not only the Byzantine soldiers but also Arabs new them: *Kitab al-Masalik wa'l-Mamalik*, vol. VI, ed. M.J. de Goeje, Lugdunum 1889, p. 82–83; A. Kazhdan, *Aplekton*, [in:] *ODB*, vol. I, p. 131.

treaties it appeared as one formation[124]. It is hard to believe that a marching army, especially during the 10th century, where military operations on the eastern frontier gained more hit-and-run character, had two different baggage trains[125]. This would require substantially more people, who otherwise could have participated in battle or could have been an assigned other tasks. It seems that the composition of the baggage train was flexible and depended on the type of military operation and who conducted it[126]. It is clear that from the tactical perspective, it was better to have a swift and possibly modest one. On the other hand, when the emperor was at the head of the campaign the baggage train could easily become a rich and lavish[127].

For the Byzantine commanders, it was trivial to say that food was an important, if not a crucial, part of successful campaign. What is more, it was clear for them that keeping all the rations in the baggage train may be risky[128]. While marching, this was the only plausible solution; and, when battle drew near, the Byzantines hoped for the best, but planned for the worst. Ensuring the safety of the baggage train was crucial for the army, also from the psychological perspective. It is clear that not only rations were stored there, but also families, relatives and property of the soldiers. Leo was aware that as long as the safety of the baggage train is not assured, the army would not be focus on the battle[129]. For this reason, the commander should dedicate an officer and strong unit of soldiers to guard it[130]. The soldiers tasked with guarding the baggage train moved independently of the rest of the army. Also, as Leo pointed out, other soldiers were ordered to stay away[131].

The Byzantine commanders knew that the army is vulnerable to attack while on march, especially on the hostile territory. For this reason, the Byzantines were always instructed to build a camp, even if the army was planning to resume

[124] Leo VI, IV, 31, p. 54–55; *Skirmishing*, 10, 84–86, p. 176–179; *Sylloge Tacticorum*, 23, p. 45–47; Ł. Różycki, *Byzantine Asymmetric*…, p. 654–655.

[125] What is more, the duration of raid was determined by amount of supplies consumed by men and animals alike. This was also clear for Arab enemies of Byzantium, who carried swift raids, for no longer than 20 days during winter: J. Haldon, *Feeding the Army*…, p. 98–99.

[126] However, the composition of the baggage train was largely determined by the number of soldiers. An army of 20 000 men required 700 tons of grain just to operate for fifteen days. During this period it would consume the production of 1700 ha: J. Haldon, *Feeding the Army*…, p. 92–94. The composition of baggage train also depended on type of military operation. As J. Haldon remarked a hit and run raid required different wagon then full scale military operation: J. Haldon, *The Organisation*…, p. 112–113.

[127] E. McGeer, *Touldos*, [in:] *ODB*, vol. III, p. 2099–2100.

[128] This also applied to situation when an operating army maintained supplying lines to their territory: *Campaign Organization and Tactics*, 21, 36–42, [in:] *Three Byzantine Military*… (cetera: *Campaign Organization*), p. 304–305.

[129] Leo VI, X, 1, p. 187.

[130] Leo VI, X, 5, p. 189.

[131] Leo VI, X, 15, p. 191–193.

marching the next day[132]. According to Leo, the area should be always fortified, even if one thought that the enemy is far away[133]. The engagement could well go wrong and the defeated Byzantine army forced to retreat. For this reason, the Byzantines not only set a fortified camp close to the battlefield, but also part of the rations was placed in it, should the imperial army be blocked[134]. The same applied to water. Leo urged again and again that one should see to the fact that plenty of water would be placed in intermediary camps[135].

The issue becomes even more crucial should the imperial army be besieged in a city or a fortress. Needless to say, Leo urges his commanders to guarantee that it would be well provided with food and water, both for soldiers and civilians[136], though the latter should be sent away if possible[137]. The rationing of water becomes a crucial issue during siege and the emperor stressed that the supply should be watched carefully[138]. The author of *Sylloge Tacticorum* also pointed out the need to assure the provisions for the army should it be besieged[139]. In this case all who were unfit for service should be sent away from the fortress, especially the old, the sick and women with children.

As already mentioned, the imperial armies did not, as a rule, take the provisions for the whole campaign[140]. Instead, the Byzantines assumed that while in hostile territory, an opportunity to acquire food would appear. The Byzantine commanders did their best to avoid a situation in which the process of plundering was unordered. They knew very well that soldiers who focus on acquiring the resources rather than the fighting would make an easy target. This is why Leo instructed his commanders that only selected warriors should go for loot[141]. Everyone who joined the raiding party on his own account should be punished. The same approach to the problem that was present in *Tactica* was repeated in *Praecepta Militaria* and *De velitatione*[142]. According to Nikephoros II Phokas, it is unacceptable for

[132] J. Haldon, *The Organisation…*, p. 138–139.

[133] Leo VI, XI, 2, p. 195. This was also clear from the logistic perspective, since an army marching to battle had to leave majority of pack animals and supplies behind. On the other hand, a raiding party of 4000 men could supply the army in the camp with provisions from plunder: J. Haldon, *Feeding the Army…*, p. 99.

[134] Or in case of upcoming battle: *Skirmishing*, 8, p. 164–165; Leo VI, X, 12–13, p. 190–191.

[135] Leo VI, XIII, 7, p. 180–183.

[136] Leo VI, XV, 40–41, p. 368–371.

[137] *Sylloge Tacticorum*, 53.1, p. 101; Leo VI, XV, 41, p. 370–371.

[138] Leo VI, XV, 52–53, p. 374–375.

[139] *Sylloge Tacticorum*, 53.1, p. 101.

[140] The maximum amount of provisions was to suffice for 24 days. Beyond this period the army would be too slow, for the sake of overloaded pack animals: *Campaign Organization…*, 21, p. 302–305.

[141] Leo VI, XVII, 53, p. 413.

[142] For commanders it was clear that maruding unit is susceptible to surprise attacks and ambushes: Leo VI, XVII, 53, 300–304, p. 413. The author of *De velitatione* described even how to provoke one: *Skirmishing*, 18, 21–31, p. 211–215.

the soldiers to focus on plundering or taking captives while the fight was still in progress[143]. The precaution was advisable indeed since the Byzantine soldiers frequently could not resist the temptation of enriching their drear and modest diet on their own account. Perhaps that was the case of Nikephoros Pastilas, one of the commanders of Nikephoros II Phokas, who accompanied his emperor during the successful invasion of Crete in 960–961 AD. As Leo the Deacon stresses, the soldier was ordered to recon the terrain after successful landing and fell into a trap set by the Arabs[144]. The chronicler points out that Pastilas was amazed by the richness of the countryside and relaxed discipline in his unit probably allowing his man to plunder the area[145]. It is worth mentioning that Pastilas was not a rank and file soldier, but a *strategos* of the Thrakesion theme. If a high ranking officer could be tempted in such way, how often ordinary soldiers broke the rules of discipline? Since we do not possess precise information, it must suffice to assume that the problem was grave, since regulations countering it was repeated in different treaties. The mechanism apparently worked both ways, since Byzantines also described stratagems to ambush the enemy, who was equally interested in acquiring food and forage. For instance, the author of *De velitatione* advised refrain from attacking the enemy until he started the return journey with the spoil[146]. In some instances, the Byzantines tried to provoke the enemy to break the discipline or divide their army by using the motivation in question. The author of *De velitatione* described a stratagem according to which some soldiers from the empire army should be dressed as peasants and advance in some distance from the army with the herds of livestock[147].

When the Byzantines and their enemies did not ambush the hostile army, they occasionally poisoned some of the provisions and left them behind as a trap. The idea was by no means invented by the Byzantine commanders, since it was already known to the Romans[148]. Also, Leo the Wise included in his *Tactica* important information on this matter. The emperor warned his commanders to remain cautious should they find food or water on hostile territory. It was clear to Leo that their enemies might have left it as bait and poison it in order to gain upper hand

[143] For Nikephoros II Phokas voluntary separation from the army was unacceptable in every situation, even during pursuit: *Praecepta Militaria*, II, 7, 68–76, p. 27.

[144] *Leonis Diaconi Historiae Libri Decem*, I, 3, [in:] *PG*, vol. CXVII, col. 665–666; *The History of Leo the Deacon. Byzantine Military Expansion in the Tenth Century*, trans. et ed. A.-M. Talbot, D.F. Sullivan, Washington 2005 [= DOS, 41], p. 63.

[145] As Leo stressed, after successful landing on the island Nikephoros II Phokas warned his commanders to stay vigilant.

[146] *Skirmishing*, 4, 14–28, p. 157–159. The instruction was old and Leo the Wise gave the same advice to his generals (Leo VI, XVIII, 128, p. 484–485); E.N. Luttwak, *The Grand Strategy…*, p. 343–344.

[147] *Skirmishing*, 18, 21–31, p. 211–215.

[148] *Iulius Africanus Cesti. The Extant Fragments*, ed. M. Wallraff, C. Scardino, L. Mecella, C. Guignard, Berlin–Boston 2012 [= *GCS.NF*, 18] (cetera: Iulius Africanus), p. 104–106.

at war with the Byzantines[149]. The emperor's warning is clear but obscure, without further details. Even more surprisingly, the issue is absent in works of Constantine VII, despite the fact, that the treaties referred to preparation of a war campaign.

The knowledge of the ancient Romans was not forgotten entirely though. The anonymous author of *Sylloge Tacticorum* provided us with detailed information on the use of poisonous food in waging war. The treaty leaves no doubt that the two most frequently poisoned products were breed and wine[150]. In both cases, detailed instructions were provided by the author on how to perform the whole process. Thus, in order to produce poisoned breed, one should kill, chop into pieces and boil a viper and a toad or a tree frog[151]. Next, the extract was utilized as an ingredient instead of clean water, and mixed with flour. The breed produced in that way was left for the enemy to eat as an invading army was under constant pressure to acquire food for the soldiers. The other way to spread disease was forcing captives to produce the breed, as a mere contact with the ingredients could cause ailments[152]. Next, the prisoners were set free and some of them joined the army. The preparation of poisoned wine was a bit more complex and required different ingredients. In order to produce the poison one had to mix the wine with quenched quicklime, monkshood, boxwood and hemlock[153]. It is clear that each of these were extremely dangerous as even one sip could cause a painful death. Next, the "wine" was left with other products and the deceitful army pretended to hold a feast. As the enemy drew near, one of the soldiers simulated panic and dummy escape. For many soldiers, who did not find the available rations satisfactory, this was too much of a temptation.

The effects of the actions were different, but both were grievous for the army. In case of wine, those who drink it would surely die. However, it is quite possible that the soldiers could taste the difference, realize that something is wrong and warn comrades. The casualties in this case were limited. In the case of poisoned breed, it was a different story. The toxin was probably not lethal, since the captives

[149] Leo VI, XVII, 54, p. 374–375.

[150] *Sylloge Tacticorum*, 59.1, 60, p. 110. It contrast to most quoted recommendations from *Sylloge*, those dealing with poisons derive not from Maurice' *Strategikon*, Syrianus Magister or later treaties but from much older treaty of Julius Africanus. According to G. Chatzelis and J. Harris the mentioned section of *Sylloge* comes from *Apparatus Bellicus* (*Apparatus Bellicus*, vol. VII, ed. I. Lamis, 1746, cetera: *Apparatus Bellicus*), dated mostly to 9th century (G. Chatzelis, J. Harris, *A Tenth-Century…*, p. 139, n. 338). However, first 30 chapters were probably based on *Kestoi*, by Julius Africanus. Thus, the text corresponds to: *Apparatus Bellicus*, 2, p. 916–917. Compare: Iulius Africanus, p. 110–114.

[151] *Sylloge Tacticorum*, 59.1, p. 110. The relevant passages can be found in: *Apparatus Bellicus*, 2, p. 916. For the procedures in case of plague outbreak: Iulius Africanus, p. 104.

[152] *Sylloge Tacticorum*, 59.2, p. 110. However, the Romans knew substances to counter toxin produced by tree frogs: Iulius Africanus, p. 156.

[153] *Sylloge Tacticorum*, 60, p. 111; compare *Apparatus Bellicus*, 3, p. 918. The section is clearly based on passage from *Cesti*, under the title: *How to use wine*: Iulius Africanus, p. 104–106.

forced to produce or eat the poisoned food lived long after they were set free. The aim of the stratagem was to cause a plague in enemy army and at least a few days had to pass before the freed prisoners reached their camp. However, it weakened the infected soldiers quickly. Also, it tended to spread rapidly, as the author of *Sylloge* pointed out[154]. The ailments probably included skin diseases, which were not lethal, but surely had a devastating effect on morale. Reading the treaty leaves no doubt that not only soldiers were perceived as a target. Also, it was crucial to ensure forage for the horses. The importance of the action is evident, also in the light of *Tactica*[155]. However, both Leo the Wise and the author of *Sylloge Tacticorum* stressed that commanders must stay vigilant, should they find any forage on the enemy soil, since it may be poisoned, as it already happened in the past[156].

Finally, both the Byzantines and their enemies employed a set of actions to hinder their opponents in different ways. As the author of *Sylloge Tacticorum* points out, the enemy tried not only to remove or poison the possible resources for the invading Byzantine army, but also detract that which he could not take with him or burn. This applied particularly to water reservoirs[157]. The author described that in order to do it, one should chop pufferfish or a snake and boil the remains. After that the brew should be poured out to the reservoir, from which the army drew water[158]. Whoever drank it, swelled up very quickly, and this eliminated him from fighting effectively in upcoming battles. A similar effect could have been achieved by the use of myrtle spurge, manure, fish lard, purple sea fish or conch. The author also gave a description on how to spoil orchards. For instance, in order to desiccate the trees, one should thrust the sting of a stingray or scatter about near the tree rind of beans[159]. In order to deprive the soil fertility, one should strew hellebore or salt around the field[160]. Toxins produced by poisonous animals were used also in more direct ways. As the author of *Tactica* pointed out it is by no means rare to hurl caskets containing snakes or scorpions at the enemies[161].

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[154] *Sylloge Tacticorum*, 59.1, p. 110.

[155] Leo VI, XIX, 14, p. 297–299.

[156] Leo VI, XVII, 54, p. 414–415. The warning was not an invention of Leo but was derived from older source (*Chronique de Jean de Nikiou*, 96, ed. et trans. H. Zotenberg, Paris 1883, p. 408 – citing after: G. Dennis, *The Taktika of Leo VI*…, p. 415). The author also gave instruction on how to poison enemy horses through poisoning water: *Sylloge Tacticorum*, 66, p. 112.

[157] *Sylloge Tacticorum*, 61, p. 111; compare *Apparatus Bellicus*, 2, p. 917–918.

[158] This was in fact a very often action on the side of the Byzantine army: E.N. Luttwak, *The Grand Strategy*…, p. 317.

[159] *Sylloge Tacticorum*, 63, p. 112. Description derived from: Iulius Africanus, p. 106.

[160] *Sylloge Tacticorum*, 64, p. 112; compare: Iulius Africanus, p. 106–108.

[161] Leo VI, XIX, 60, p. 526–527. Though this information is absent from *Sylloge*, it is clear that Romans had a vast knowledge both on poisonous properties of animals and relevant antidotes: Iulius Africanus, p. 140–141 (snake bites, asp bites and scorpion stings), 142 (animal bites and venomous sea creatures), 146–147 (spider and insect bites).

The Byzantines were well aware of these stratagems and knew how to counter them, at least to a certain extent. As Constantine Porphyrogenitus stressed, the commander going to war should take with him not only supplies, but also theriac, serapium juice and other antidotes[162]. In turn, the author of *Sylloge Tacticorum* provided his readers with a detailed description of some of the immunizers. In order to prevent soldiers from falling prey to poison and drugs they were ordered to eat rue leaves, local nuts and dried figs[163]. What is more, should the mixture prove ineffective, they were to include peppercorn and clay from Lemnos, which was attributed beneficial properties. The ingredients were mixed in equal proportions, formed into pellets the size of walnut and finally eaten.

Furthermore, the wine was used not only as a poison, but also in more subtle manners, such as anesthetics. The author of *Sylloge Tacticorum* also included in his treaty an interesting prescription, which enabled putting to sleep those who drank the mixture[164]. In order to prepare it, one should add to the wine certain amount of Theban poppy juice, myrrh, lettuce seed, henbane juice and mandrake juice. According to the author of the text, those who drink the potion will be sleepy for two-three days. The only way to awaken the dormant is to apply to his nose a bit of wine vinegar[165].

The Byzantines also knew how to eliminate digestive problems of their soldiers which arose in consequence of the climate and an unhealthy manner of consumption. In order to avoid indigestion or heaviness, commanders could have served their warriors a certain brew[166]. It mainly consisted of wine, which already tastes like vinegar and selection of herbs. Among these, rue and wild marshmallow were of greatest importance. The mixture should be drunk between meals, but no more than twice a day. Other suggested practices included drinking wine with milk, though the author of *Sylloge* did not specify if the type of milk was crucial in this case. In the case that the mentioned ingredients were beyond reach, the commander could still help his men. The rations of wine could be flavored with squill (*Drimia maritima*) in order to achieve a similar effect. It is not unlikely that the same properties were attributed to certain types of wine, as the author of *Sylloge Tacticorum* seems to suggest[167]. Among the products that are useful during a war campaign, wine from marshy lands was listed, probably for the sake of its digestive properties. In this case, this knowledge was also of Roman origin. As Plutarch points out, Roman soldiers fighting for Caesar near Pharsalus ate roots due to the lack of provisions. As the historian pointed out the disease was cured

[162] *Treaty C*, 205–211, p. 106, 108.
[163] *Sylloge Tacticorum*, 58, p. 109–110; Iulius Africanus, p. 114.
[164] *Sylloge Tacticorum*, 62, p. 111.
[165] A variant of the drink was offered to Christ before execution: Mc 15, 23.
[166] *Sylloge Tacticorum*, 57.1, p. 109.
[167] *Sylloge Tacticorum*, 57.2, p. 109.

by immense drinking of wine found in one of the cities of Thessaly[168]. On the other hand, Leo the Wise advised in his *Tactica* that soldiers should not drink wine at all during summer. Instead, the emperor suggested giving them water only[169].

It is clear that most of the knowledge included in analyzed treaties was of Roman origin. However, what seems striking is not the fact that the Byzantines copied certain prescriptions from Romans, but that they appear in detail in only one source, namely *Sylloge Tacticorum*. Also, whoever composed *Sylloge Tacticorum* did his best to avoid accusations of providing Byzantine commanders with prescriptions for poisons. The author describes stratagems referring only to hostile actions aiming at harming the Byzantines[170]. At the end of the section he further assured that his intention was to protect the imperial army from despicable deceit of the enemy and not to provide commanders with instructions[171]. It is clear that Leo the Wise also knew the possible danger lurking for Byzantine armies, but he did not bother giving detailed receipts for immunizers and anesthetics[172]. The author of *Peri Strategias* also did not mention any information allowing commanders to protect their men from poisons. The reason for this may well be that the knowledge was obvious. On the other hand, it is possible that at some point, stratagems based on poisons became increasingly popular among the enemies of Byzantium, such as Arabs, Bulgars or Ross people. If that was the case, the Byzantines were forced to dust off certain sections of Roman treaties they were not forced to use previously[173].

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For the Byzantines, as well as for the Romans, it was clear that provisioning will determine whether army will emerge victorious or defeated from upcoming conflict. Thus, one could think that the Byzantines would attach at least the same care for their solders as their counterparts in earlier centuries. At first glance, both the Byzantine and Roman soldiers consumed similar products. The base rations in both armies included cereals, especially wheat, barley, olive oil and wine. It seems that both Roman and Byzantine soldiers ate meat as well, though the first did this on regular basis and the latter rather occasionally. In case of the Byzantines, the diet of officers and probably *tagmata* warriors might have been richer and better balanced, but there is no direct proof for that. However, the provisioning of rank and file soldiers was bad enough to result with disciplinary issues.

[168] Plutarch, *Lives*, XLI, 3, vol. VII, trans. B. Perrin, Cambridge–London 1967 [= LCL, 99], p. 542–543.
[169] Leo VI, XIV, 83, p. 336–337.
[170] *Sylloge Tacticorum*, 59.1, p. 110.
[171] *Sylloge Tacticorum*, 59.3, p. 110.
[172] Leo VI, XVII, 54, p. 374–375.
[173] *Sylloge Tacticorum*, 59.3, p. 110.

The moments when *themata* could eat better were the occasionally feasts, organized before, after and during war campaign. Also, richer meals were probably served before battle. The Byzantine commanders were charged with dealing with difficult provisioning situation and were implemented all actions that proved effective, including rationing, plunder while on hostile territory and purchasing supplies from local merchants. Also, Leo the Wise left no doubt that affluent commanders were expected to sponsor occasional acquisition. All the same, it seems clear that not only the authors of *Tactica* and *Sylloge Tacticorum* knew about the inefficient provisioning system, but they preferred to teach officers to handle it instead of providing costly reforms. The food, water and forage were wanted resources while on campaign, and thus, were used as a tool war by both fighting parties. The supplies were destroyed, poisoned and burned, as Byzantines and their enemies did everything to harm the opponent. Summing up, the authors of the analyzed military treaties leave no doubt that the life of a soldier, especially from thematic formations, was a harsh one. It was probably so, since the duty to provide provisions was taken by the state, while the Romans deduced the cost of performing this responsibility from soldiers' pay. The changes were possible, but demanded the professionalization of the army, which entailed greater expenditures. This occurred largely during the reigns of military emperors, such as Nikephoros II Phokas, John Tzimiskes and Basil II. In the second half of the 10th century, the role of *themata* gradually fell and many stratiotes was charged with money tax instead of personal service. This was however a different Byzantine army and a different story to tell.

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Abstract. It seems obvious that 10th century was a period in which the Byzantine polemology flourished once again, before it collapsed one hundred years later. During that period numerous authors of Byzantine military treaties instructed imperial commanders how to wage war. Among many issues organization of the campaign was always an important aspect. In this paper I will try to clarify selected problems. First, I will try to specify what the soldiers ate on a daily basis. Next, I will determine to what extent the provisioning system met the expectations and needs of the Byzantines fighting for the empire. With the help of *Tactica* and *Sylloge Tacticorum*, I will try to explain how the rations were gathered, transported and protected. Finally, I will specify how the supplies were utilized not only as a means of nourishment, but also as a tool of war. The following research was carried out on the basis of military treaties from the 10th century, since this time was the peak of Byzantine military revival. Although I mainly base my research on the work of Leon the Wise and the anonymous treaty known as *Sylloge Tacticorum*, I also occasionally refer to other works, such as *Peri Strategias*, *De velitatione* and *Praecepta Militaria*.

Keywords: Byzantium, strategy, tacticts, logistics

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