

# ATLANTİS

Uluslararası Tarih Dergisi / International History Journal  
1, 2025, s. 76-99.

## A Synopsis of the Battlefield Organization and Tactics of the Parthian Spād (army)

Part Spād'ın (ordusunun) Savaş Alanı Organizasyonu ve Taktiklerinin Özeti

Kaveh Farrokh\*

### Abstract

This article provides a synopsis of Parthian battlefield tactics of the Arsacid dynasty (c.247 BCE-224 CE) (coordinated Attacks by Asbārān armored lancers and horse archers, wedge, convex, crescent, rhombus, flanking, tactics for contrived withdrawals, and scorched earth tactics) and the weaponization of geography utilized by the Parthian spād (army), preceded by an overview of military organization, the role of cavalry forces, and auxiliary units. The article also examines Parthian tactics at the battle of Battle of Hormzdgān (224 CE) followed by an analysis of strategies devised by the Roman army against the Parthian Cavalry. In conclusion, the Parthian cavalry was an evolving force to impart its legacy upon the Asbārān cavalry corps pf the succeeding Sassanian dynasty (224-651 CE).

**Key Words:** Arsacid Parthia Spād (army) Asbārān (armored cavalry) Horse Archers Tactics

### Öz

Bu makale, Arsak hanedanının (MÖ 247-MS 224) Part savaş alanı taktiklerinin (Asbārān zırhlı mızraklıları ve atlı okçuları tarafından koordineli saldırılar, kama, dışbükey, hilal, eşkenar dörtgen, yan saldırı, yapmacık geri çekilme taktikleri ve yakılmış toprak taktikleri) ve Part spād'ının (ordu) kullandığı coğrafyanın silahlandırılmasının bir özetini sunar; ardından askeri örgütlenme, süvari kuvvetlerinin rolü ve yardımcı birlikler hakkında bir genel bakış sunulur. Makale ayrıca, Partların Hormzdgān Muharebesi'ndeki (MS 224) taktiklerini inceler ve ardından Roma ordusunun Part Süvarilerine karşı geliştirdiği stratejilerin bir analizini yapar. Sonuç olarak Part süvarileri, mirasını Sasanî hanedanının (MS 224-651) Asbaran süvari birliklerine aktarmak için gelişen bir güçtü.

**Anahtar Kelimeler:** Arsak Partları Spād (ordu) Asbārān (zırhlı süvari) Atlı Okçular Taktikler

### Introduction

The Parthian spād (army) was an effective military force in its wars against the Roman empire during the tenure of the Arsacid dynasty (c.247 BCE-224 CE). Parthian military successes against the formidable armies of the Roman Empire may be largely attributed to the development of the spād's battle tactics<sup>1</sup>. More specifically the successful tactics applied by the spād in the battle of

Geliş Tarihi/Received: 17.05.2025

Kabul Tarihi/Accepted: 06.06.2025

Atıf: Kaveh Farrokh, A Synopsis of the Battlefield Organization and Tactics of the Parthian Spād (army), *ATLANTİS*, 1, 2025, s. 76-99.

\* Dr., Langara College, Vancouver, manuvera@aol.com

ORCID ID: <https://orcid.org/0000-0001-5732-2447>

<sup>1</sup> Olbrycht, M.J., Parthian Military Strategy in Wars Against Rome, In G.V. Viliinbachov & V.M. Masson (eds.), *Military Archaeology: Weaponry and warfare in the Historical and Social Perspective (2-5 September 1998)*, St. Petersburg: The State Hermitage Museum Institute of the History of Material Culture of Russian Academy of Sciences, 1998, p. 141.

Carrhae (53 BCE) for example, were not confined to that battle<sup>2</sup>, as these were part of continuum of evolution of Parthian battles tactics dating to the early days of the Arsacids<sup>3</sup>, influenced from the outset by adaptation against Western doctrines of warfare introduced into Iran by the Greco-Macedonians and the succeeding Seleucids<sup>4</sup>. The spād demonstrated its resiliency by its ability to recover and re-constitute its military efficacy against the devastating Roman attacks of the 2<sup>nd</sup> century CE to the early 3<sup>rd</sup> century CE, led by Emperor's Trajan, Lucius Verus, Septemius Severus and Caracalla. The Parthians were to emerge successful in their final battle against Roman forces at the battle of Nisibis in 217 CE. The consistent element throughout Parthian military history (from the early Arsacid era to the early 3<sup>rd</sup> century CE) was its deployment of Parthian battlefield tactics notably the proficient interoperability of the asbārān armored lancers with the horse archers<sup>5</sup>. This article first concentrate on Parthian military organization and field army deployment, followed by an examination of Parthian battlefield tactics as outlined by the Classical sources, the Gotha manuscripts and Islamic era sources, the Byzantine Interpolation of Aelian, as well as the Shahname followed by an overview of the weaponization of geography<sup>6</sup>. An synopsis of three Roman strategies used by the Roman army for countering the Parthian cavalry is also examined, followed by the conclusion section outlining the Parthian cavalry as an evolving force, imparting its legacy upon the succeeding Sassanian dynasty's savārān cavalry corps.

### An Overview of Parthian Military Organization

The core of the spād's military potential rested upon on the upper Parthian aristocracy who fielded the asbārān armored lancers with the lesser nobility having provided the horse archer contingents<sup>7</sup>. The *Spādpēt* (commander in chief of the army)<sup>8</sup> was traditionally selected from one of the seven major Parthian clans<sup>9</sup>, even as the spād was officially under the authority of the king or crown prince. The spād's organizational structure for its units was based upon the decimal system<sup>10</sup>, which paralleled that of the former Achaemenid empire's usage of the decimal system for their military organization<sup>11</sup>. Parthian decimal organization was subdivided as follows: the *Wāšt*

<sup>2</sup> Overtoom, N., The Parthians Unique Mode of Warfare: A Tradition of Parthian Militarism and the Battle of Carrhae, *Anabasis: Studia Classica et Orientalia*, 8, 2017, pp. 95-96, 118.

<sup>3</sup> Overtoom, The Parthians Unique Mode of Warfare: pp.95-96, 118.

<sup>4</sup> Olbrycht, M.J., Parthia and Nomads of Central Asia. Elements of Steppe Origin in the Social and Military Developments of Arsacid Iran. *Orientwissenschaftliche Hefte. Mitteilungen des SFB "Differenz und Integration" 5: Militär und Staatlichkeit*, 12/2003, Germany: Orientwissenschaftliches Zentrum der Martin Luther Universität Halle-Wittenberg, 2003, pp. 99-100.

<sup>5</sup> Nikonorov, V.P., On the Parthian Legacy in Sasanian Iran: the Case of Warfare. In V. Nikonorov (ed.), *Central Asia from the Achaemenids to the Timurids: Archaeology, History, Ethnology, Culture. Materials of an International Scientific Conference dedicated to the Centenary of Aleksandr Markovich Belenitsky* (St. Petersburg, November 2–5, 2004), St. Petersburg: Institute of the History of Material Culture of the Russian Academy of Sciences, 2005, p.143.

<sup>6</sup> Syväne, I., Parthian Cataphract vs. the Roman Army 53 BC-AD 224. *Historia I Świat*, No. 6, 2017, pp. 33-54.

Sheppard, S., *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, Oxford Bloomsbury 2020, p. 28 and Gregoratti, L., The Arsacids vs. Rome (First to Third centuries CE): Observations on Parthian Tactics and Warfare. In J. Hyland & Kh. Rezakhani (eds), *Brill's Companion to War in the Ancient Iranian Empires*, Brill: Leiden & Boston, 2025, pp. 366-399.

<sup>7</sup> Nikonorov, On the Parthian Legacy in Sasanian Iran., p.146.

<sup>8</sup> The term *-pet* commander, chief) is derived from Avestan *paiti* Farrokh, K., *The Armies of Ancient Persia: The Sassanians*, Pen & Sword Publishing, Barnsley 2017, p. 9; Pourdavood, I., *Yad-dasbthaye Gathaba* [Notes on the Gathas]. Tehran: Entesharate Anjomane Iranshenasi, Tahran 1336/1957, pp. 244-245.

<sup>9</sup> Syväne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, pp.34-35.

<sup>10</sup> Olbrycht, M.J., Manpower Resources and Army Organization in the Arsacid Empire, *Ancient Society*, 46, 2016, p. 294.

<sup>11</sup> Shahbazi, A. Sh., Army, pre-Islamic Iran, *Encyclopedia Iranica*, Vol. II, Fasc. 5, 1986, p. 492; Hignett, C., *Xerxes' Invasion of Greece*, Clarendon Press, Oxford 1963, p. 42.

(likely 100 troops)<sup>12</sup>, the *Drafš* (1000 troops)<sup>13</sup> with ten of the latter to form a *Gund* of 10,000 troops<sup>14</sup>. Parthian military organization system have also been influenced by Greco-Roman systems<sup>15</sup> notably the 16-troop system introduced into Iran in the aftermath of the Alexandrian conquests<sup>16</sup>. This in turn may have influenced the numerical organization of certain types of Parthian tactics such as the convex-wedge and rhombus formations discussed later in this article.

The battlefield organization of a Parthian *Gund* is recognized as having been in five sections (outer left, left, centre, right and outer-right)<sup>17</sup> a system described as early as the 3<sup>rd</sup> century BCE by the Sanskrit *Arthaśāstra* treatise<sup>18</sup> and post-Parthian Sassanian and later Islamic documents<sup>19</sup>. In practice, the five-component system was in three broad sections, with the left and outer-left folded into a single “left flank”, with the right and outer-right folded into a singular “right flank”. Depending on the *Gund* military leadership on the battlefield, each “flank” could either operate as a single unit or function in two distinct sections as determined by battle plans against the enemy forces.

### Symbiotic Role of the Asbārān and Horse Archers

Seminal to Parthian battle doctrine was the role of the *Asabārasavār* (lit. horse borne/rider) cavalry (asbārān armored cataphract lancers and horse archers)<sup>20</sup>, bearing a distinctive Saka or Scythian heritage<sup>21</sup> in which the asbārān armored lancers and horse-archers played the major role in the application of battle tactics. The formidable nature of the asbārān was as much due to their equipment<sup>22</sup> as well as their tactics, coordinated with efficient horse archery<sup>23</sup> (discussed further below), resulting in the amplification of battlefield military performance<sup>24</sup>. The primary weapon of the Asbārān was the *Nyžg*/*Nēžag*<sup>25</sup> twelve-foot-long lance, also known as the *Kontus* which was wielded in two-handed fashion<sup>26</sup> and capable of penetrating two enemy warriors in a single thrust<sup>27</sup>. The *gurdīb* (armor) of the asbārān was known for its resilience against hand propelled missiles and

<sup>12</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 14.

<sup>13</sup> *Drafš units as having organized their military units a dragon-motif banner* Shahbazi, Army, pre-Islamic Iran, pp. 489-499; Olbrycht, Manpower Resources and Army Organization in the Arsacid Empire, p. 294; Syväanne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 34; Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p.14.

<sup>14</sup> Syväanne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 34.

<sup>15</sup> Syväanne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 35.

<sup>16</sup> Olbrycht, Manpower Resources and Army Organization in the Arsacid Empire, p. 295.

<sup>17</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p.27.

<sup>18</sup> Kautiliya, *Arthaśāstra* (edited & translated by L.N. Rangarajan), New York: Penguin Books, New York, 1992, pp. XI, viii.

<sup>19</sup> Syväanne, I., & Maksymiuk, K., *The Military History of the Third Century Iran*, Scientific Publishing House of Siedlce University of Natural Sciences, Siedlce, Poland 2018, p. 14.

<sup>20</sup> Overtoom, The Parthians Unique Mode of Warfare:, p. 96.

<sup>21</sup> Cernenko, E.V., *The Scythians 700-300 BC*, Osprey Publishing, London 1983, reprinted 1989, p. 20.

<sup>22</sup> Mielczarek, M., Cataphracts - A Parthian Element in the Seleucid Art of War, *Electrum*, 2, 1998, p. 104.

<sup>23</sup> Nikonorov, V.P., Central Asia: From Achaemenids to Timurids – Archaeology, History, Ethnology, Culture. In V.P. Nikonorov (ed.), Materials of the international scientific conference dedicated to the 100th anniversary of the birth of Alexander Belenitzky, St. Petersburg, November 2-5, 2004, St. Petersburg: Institute of the History of Material Culture of the Russian Academy of Sciences, 1995, p. 156.

<sup>24</sup> Overtoom, The Parthians Unique Mode of Warfare:, p.101.

<sup>25</sup> *Āyādigār-i-Zārīrān* (translated by J.J. Modi, 1899/1917), Bombay: Education Society's Steam Press; See also Gheibiy, B. 1999, *Āyadgar-i Zarīran*, Bielefeld, Germany: Nemudar Publications, p. 31.

<sup>26</sup> Farrokh, K., Karamian, Gh., Maksymiuk, K., *A Synopsis of Sasanian Military Organization and Combat Units*, Siedlce, Siedlce University Press, Institute of History and International Relations & Tehran Azad University Press, Department of Archaeology and History, Siedlce & Tehran, 2018, p. 130; note also Cassius Dio's description (*Roman History*, XL (40), 22.3., Cassius Dio, *Roman History* (translated by E. Carey, 1914), William Heinemann, London 1914.

<sup>27</sup> As noted by Plutarch: "...the spear which the Parthians thrust ... often had impetus enough to pierce through two men at once." (*Crassus*, 27.1-2).

javelins<sup>28</sup> primarily dispensing with the need for these types of cavalry to carry shields. Parthian *gurdjāh* for the asbārān was typically constructed of varieties of scale and/or lamellar, laminated limb armor, vambraces, *ābdast* (gauntlets), etc. for comprehensive protection of body and limbs<sup>29</sup>, with the Parthian *xmmd* (helmets) of bronze and metal shaped variously (and broadly) from bowl-shaped, “US M1” type to conical, with Parthian helmets variously enhanced with *grīmbān* (aventails and neck-guards)<sup>30</sup>. The Asbārān cavalryman was also well equipped for close quarters combat with the double-edged *Spšyr/safsēr* (sword)<sup>31</sup>, *čl’n/ Čelān* (dagger)<sup>32</sup>, as well as *čakuč* (axe) and *wazr* (mace)<sup>33</sup>.

A fundamental research subject in Parthian military studies has been the question of proportional differences between asbārān and horse archer forces on the battlefield. Previous scholarship has relied upon Plutarch’s report of the Battle of Carrhae (53 BCE) which cites a proportion of ten archers to every asbārān lancer, however as observed by Syvānne, this is an erroneous assumption as this is based on misconception that the (10 to 1) proportion report from Carrhae remained unaltered in the spād across the centuries<sup>34</sup>. In practice, these proportions were to significantly alter in subsequent centuries after Carrhae as noted by Shahbazi: “...in the first and second centuries the number and importance of the lancers as the major actors of the battlefield increased substantially.”<sup>35</sup>

More specifically, Syvānne further observes that<sup>36</sup>: (a) the primary core of the Parthian military (notably the royal contingents) was to consist of armored asbārān lancers and that (b) the proportions reported at the Battle of Carrhae were reflective of the Suren clan’s special entourage of Saka warriors, who would have been distinct from the official royal forces of the spād. The large hoard of Parthian weapons finds (dated to the 1<sup>st</sup> century BCE to the 3<sup>rd</sup> century CE) at Vestemin in northern Iran discovered in 2015 yielded (in addition to large numbers of arrowheads) significant finds with respect to lance warfare (i.e. discoveries of spearheads), close quarters combat equipment (swords and daggers) and (lamellar) armor<sup>37</sup>. The distribution of such weapons at Vestemin may be an indication that the Parthian military system was committed to equipping large numbers of asbārān capable of lance warfare as well as close quarters combat. The Parthians were utilizing Spangenhelm helmets<sup>38</sup>, with Spangenhelm technology recognized for having enabled ancient

<sup>28</sup> Matufi, A. *Tarikh-e-Chabar Hezar Sal-e Artesh-e Iran: Az Tamadon-e Elam ta 1320 Khorsheedi, Jang-e- Iran va Araqb* [The 4000 Year History of the Army of Iran: From the Elamite Civilization to 1941, the Iran-Iraq War], Entesharat-e Iman, Tehran 1378/1999, p. 152; note that Plutarch states “... *armour of their mail-clad horsemen* [Parthian Asbārān lancers] ... *give way to nothing*” (Crassus, 18.3).

<sup>29</sup> Anderson, E.B., *Cataphracts: Knights of the Ancient Near Eastern Empires*, Pen & Sword Military, Barnsley, England 2016, pp. 51-52.

<sup>30</sup> Farrokh, K., Karamian, Gh., Kubic, A., & Oshterinani, M.T., An Examination of Parthian and Sasanian Military Helmets, In K. Maksymiuk & Gh. Karamian (eds.) *Crowns, hats, turbans and helmets: Headgear in Iranian history volume I*, Siedlce University & Tehran Azad University, 2017, pp. 122-129.

<sup>31</sup> Khorasani, M. M., *Arms and Armor from Iran: The Bronze Age to the End of the Qajar Period*. Legat Verlag, Tübingen, Germany, 2006, pp. 82-83; Farrokh, K., Karamian, Gh., Delfan, M., Astaraki, F., Preliminary Reports of the Late Parthian or Early Sassanian Relief at Panj-e Ali, the Parthian Relief at Andika and Examinations of Late Parthian Swords and Sappers, *Historia I Sviat*, No. 5, 2016, pp. 47-51, 53.

<sup>32</sup> Khorasani, *Arms and Armor from Iran*, p. 83; Farrokh, K., Karamian, Gh., Delfan, M., Astaraki, F., Preliminary Reports of the Late Parthian or Early Sassanian Relief at Panj-e Ali, the Parthian Relief at Andika and Examinations of Late Parthian Swords and Sappers, pp. 51-53.

<sup>33</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 25.

<sup>34</sup> Syvānne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 33.

<sup>35</sup> Shahbazi, A. Sh., *Army, pre-Islamic Iran*, pp. 489-499.

<sup>36</sup> Syvānne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 33.

<sup>37</sup> Karamian, Gh., Farrokh, K., Kiapi, M.F., & Lojandi, H.N., Graves, crypts and Parthian weapons excavated from the gravesites of Vestemin, *Historia I Sviat*, No.7, 2018, pp. 45-62.

<sup>38</sup> Wilcox, P., *Rome’s Enemies 3: The Parthians and the Sassanians*, Osprey Publishing, Oxford 1999, 1986, p.15.

armies to equip larger numbers of troops<sup>39</sup>, providing support for Syvānne's hypothesis that the spād was capable of fielding larger numbers of armored asbārān cavalry forces<sup>40</sup>.

Horse archers of the early Parthian era were primarily equipped for their role as mobile archery platforms, equipped with the venerable Central Asian bow, but with little armor protection<sup>41</sup> and armed with daggers and swords<sup>42</sup>. As a stand-off archery force, these types of horse archers were not intended to engage in close quarters combat against enemy infantry or enemy cavalry attempting encirclement. Instead, horse archers relied primarily on their speed and mobility for battlefield survival<sup>43</sup> in addition to their capabilities at surrounding and outflanking opponent cavalry and infantry forces<sup>44</sup>. While the element of mobility was critical for the horse archer in general<sup>45</sup>, the lack of armor limited the extent to which he was able to approach the targeted enemy. More specifically the horse archer was vulnerable when confronting the Roman legionnaire, whose hand hurled *Pilum* could be lethal even when hurled at a maximum distance of 30-33 meters<sup>46</sup>. If the horse archers approached Roman lines at these distances, they risked suffering high casualties, obliging them to fire from more safe distances of between 100-150 meters, with significant armor penetration possible at 91-122 meters<sup>47</sup>, however the increased distance translated into diminished lethal accuracy at just 1 in 50 (and even 1 in 100)<sup>48</sup>. The Parthians compensated for this by engaging in massed archery barrages, which proved significantly lethal due to the sheer number of shots now being delivered upon enemy formations.

The achievement of battlefield success was ultimately derivative of the efficiency of tactical coordination between the asbārān and horse archers<sup>49</sup>. The asbārāns' primary mission was to strike into enemy lines with the aim of disrupting their cohesion to expose them to the deadly archery barrages of the horse archers<sup>50</sup>. The earlier and lightly armored horse archers' vulnerability thus tasked the asbārān with the additional task of protecting their comrades-in-arms during battle<sup>51</sup>. More specifically both the asbārān and (earlier unarmored) horse archers complemented each other with their respective battlefield capabilities<sup>52</sup>: the armored asbārān lancers could launch into enemy lines with their lances and engaged in close quarters combat, with the horse archers providing longer-range (standoff) archery salvos which would weaken the enemy in favor of subsequent asbārān lance charges against the enemy.

---

<sup>39</sup> Farrokh, K., Karamian, Gh., Kubic, A., & Oshterinani, M.T., An Examination of Parthian and Sasanian Military Helmets, p.123.

<sup>40</sup> Syvānne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 33.

<sup>41</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 22.

<sup>42</sup> Wilcox, P., *Rome's Enemies 3: The Parthians and the Sassanians*, p. 43, Plate B; Karasulas, A. *Mounted Archers of the Steppe 600 BC-AD 1300*, Osprey Publishing, Oxford 2004, p. 61, Plate C.

<sup>43</sup> Thorne, J., Battle, Tactics and the Emergence of the Limites in the West. In P. Erdkamp (ed.), *A Companion to the Roman Army*, Blackwell Publishing Ltd., Malden MA 2007, p. 223.

<sup>44</sup> Ureche, P., Some Tactical Elements for Archers in the Roman Army, *Journal of Ancient History and Archaeology*, No. 2.4, 2015, p.12.

<sup>45</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 27.

<sup>46</sup> Minimum distance of the hurled *Pilum* approximately at 15-20 meters – for more on the *Pilum* consult Erdkamp, P., *A Companion to the Roman Army*, Wiley-Blackwell, Oxford 2011, p. 89 and Bishop, M.C. & Coulston, J.C.N., *Roman Military Equipment from the Punic Wars to the Fall of Rome*, Oxbow, Oxford 2006, p. 52.

<sup>47</sup> Erdkamp, *A Companion to the Roman Army*, p. 89; Bishop & Coulston, *Roman Military Equipment...*, p. 52.

<sup>48</sup> Karasulas, *Mounted Archers of the Steppe 600 BC-AD 1300*, p. 23.

<sup>49</sup> Nikonorov, On the Parthian Legacy in Sasanian Iran, p.143.

<sup>50</sup> Ellerbrock, U., *The Parthians: The Forgotten Empire*, Routledge, New York 2021, p. 85.

<sup>51</sup> Overtom, The Parthians Unique Mode of Warfare, p. 101.

<sup>52</sup> Olbrycht, M. J. The origins of the Arsacid Parthian Cavalry: Some Remarks, In W.M. Masson (ed.), *The Role of Abalteke Horse in the Formation of World Horse-Breeding: Materials for the International Conference*, The Rukhname Presidential Programme Dedicated to the 10<sup>th</sup> Anniversary of Independent Turkmenistan, Ashkabad 2001, p. 110.

As a significant battlefield arm, the horse archer was to evolve into a more effective archery platform by the late Parthian era, during which armored horse archers began to appear in the ranks of the spād, as evidenced by the portrayals of these types of cavalry at (the c. 3<sup>rd</sup> century CE) mural graffiti depictions at Dura Europos<sup>53</sup> as discussed later in this article. The later introduction of armored horse archers would have allowed for more effective cooperation with the asbārān as the former's armor would have allowed them to press their archery attacks at closer ranges, allowing for more precise and effective archery into enemy lines.

### The Question of Auxiliary Forces

The spād was fundamentally an all-cavalry force (asbārān and horse archers), however infantry forces were at times recruited for various Parthian military operations<sup>54</sup>. Despite this no determined efforts were affected towards the raising and integration of a professional heavy infantry force to operate alongside the primary core of cavalry-centric forces<sup>55</sup>. Nevertheless, infantry proved effective in defensive combat during sieges of cities and fortresses as occurred for example during Seleucid king Antiochus III's (r. 223-187 BCE) siege of Syrinx in Hyrcania<sup>56</sup> in c.209 BCE as well as the city of Hatra's successful defeat of the sieges of Roman Emperors Trajan (r. 98-117 CE) and Septemius Severus (r. 193-211 CE) in 116 CE and in 198-199 CE respectively<sup>57</sup>. Infantry forces could also consist of slingers<sup>58</sup> with foot archers also used for initiating archery barrages against enemy lines<sup>59</sup>, although these do not appear to have been used consistently in all of the Parthians' battles during the tenure of the Arsacid dynasty. There are select cases of the Parthians having utilized combat infantry, such as reported for example in the *Chronicle of Arbela* in which the Arsacids are described as having dispatched twenty thousand infantry<sup>60</sup> to fight against a rebellion in northwest Iran's Media Atropatene region<sup>61</sup> characterized by mountainous geography, a combat theatre well-suited for close quarters infantry combat<sup>62</sup>. The Parthians may have shifted at least in part, their military doctrine towards higher recruitment of infantry forces, as seen for example with Valaksh (Vologases) IV (r. 147-191 CE<sup>63</sup>) who apparently conscripted infantry to support the asbārān<sup>64</sup>. North Iranian Dailamite infantry were to be recruited by the last Parthian king, Ardavan IV<sup>65</sup> (r. 213-224 CE) however it remains unclear if combat infantry had become

<sup>53</sup> Ivanovits, E., & Kulcsar, V., Sarmatians through the eyes of strangers. The Sarmatian warrior, In E. Ivanovits & V. Kulcsar (eds), *International Connections of the Barbarians of the Carpathian Basin in the 1<sup>st</sup> to 5<sup>th</sup> centuries A.D. Proceedings of the international conference held in Aszod and Nyiregyhaza*, Muzeumi Fuzetek & Josa Andras Muzeum Kiadvanyai, 2001, Aszod & Nyiregyhaza, Hungary, p. 152, Figure 10.7, p.153; Wozniak, M.A., *The Armies of Ancient Persia: From the Founding of the Achaemenid State to the Fall of the Sassanid Empire*. Winged Hussar Publishing, Lawrence NJ 2019, p.180.

<sup>54</sup> Olbrycht, M.J., Parthian Military Strategy in Wars Against Rome, p.139; Wozniak, 2019, p.142.

<sup>55</sup> Overtoom, The Parthians Unique Mode of Warfare, p.95.

<sup>56</sup> Polybius, *The Histories* (translated by W.R. Paton, 1922-1927), Harvard University Press, Cambridge, Massachusetts, X, 39.9.

<sup>57</sup> Cassius Dio, *Roman History*, LXXVI (75), 10, 1; 11, 1-4; 13, 1; Herodian, *History of the Empire*, III, 9.5.

<sup>58</sup> McDowall, D., *A Modern History of the Kurds*, I.B. Tauris, London 1999, p. 9; Olbrycht, M.J., Manpower Resources and Army Organization in the Arsacid Empire, p. 308.

<sup>59</sup> Ellerbrock, *The Parthians: The Forgotten Empire*, p. 87.

<sup>60</sup> Msiha Zkha, *Die Chronik von Arbela* [Chronicle of Arbela] (tr. T. Kroll, 1985), III-Bishop Ishaq (Isaac) of Arbela (135-148 A.D.), pp.5-6.

<sup>61</sup> Olbrycht, Manpower Resources and Army Organization in the Arsacid Empire, p. 293.

<sup>62</sup> Nikonorov, On the Parthian Legacy in Sasanian Iran, p. 144.

<sup>63</sup> Ellerbrock, *The Parthians: The Forgotten Empire*, pp. 61-62.

<sup>64</sup> Barnett, G., *Emulating Alexander: How Alexander the Great's Legacy Fuelled Rome's Wars with Persia*, Pen & Sword, Barnsley, England 2017, p. 67.

<sup>65</sup> *Kārnāmag ī Ardashīr ī Babagān*, IV, line 14; Firdowsi, *Shahname* (edited & compiled by F. Junaydi, 1387/2008, Vol. IV, p. 95.

integrated into Parthian battle doctrine by the 3<sup>rd</sup> century CE as no infantry forces are reported among the Parthians at the battle of Hormzdgān in 224 CE.

Combat elephants are not known to have been a regular battle arm of the spāh however the *Ayadgar-i Zarīran* does report of a military scenario in which elephant drivers are described as going to their elephants<sup>66</sup>. There is also the documented case of the Parthians having deployed battle elephants against Trajan's invasion of the Parthian Empire in 116 CE<sup>67</sup>. Roman forces however successfully neutralized the Parthian elephants with the deployment of the *Carroballista* (a cart-mounted rapid firing artillery/ballistic system)<sup>68</sup>. In the overall context of Parthian military history, battle elephants were most likely not a major battle arm and (excepting during Trajan's 116 CE invasion) was rarely utilized in battle<sup>69</sup>. A new type of battlefield arm to appear by the early 3<sup>rd</sup> century CE were the camel cataphracts which made their combat debut at the battle of Nisibis (217 CE), with their personnel most likely having been of Arabian descent<sup>70</sup>.

### Coordinated Attacks by Armored Lancers and Horse Archers

The coordinated attack strategy was essentially one in which armored asbārān lancers and horse archers "took turns" in attacking the enemy formations. The strategy was straightforward in that the asbārān would launch direct lance attacks into the enemy lines with the primary aim of undermining the cohesion of their ranks to then be followed by the missile salvos of the horse archers. If Roman opponents chose to protect themselves from archery closing ranks to lock their shields together, the asbārān would once again launch their lance attacks to destabilise their lines to then retire in favor of a new wave of horse archery attacks. The battlefield impact of coordinated asbārān-horse archer tactics was to be demonstrated at the Battle of Carrhae (53 BCE) in modern-day Harran in Turkey, against the Roman invasion forces of Marcus Lucinius Crassus (115-53 BCE), as reported by Cassius Dio:

For if they [the Romans] decided to lock shields for the purpose of avoiding the arrows by the closeness of their array, the pikemen [asbārān] were upon them with a rush, striking down some, and at least scattering the others; and if they extended their ranks to avoid this, they would be struck with the arrows. ... many perished hemmed in by the horsemen. Others were knocked over by the pikes or were carried off transfixed. The missiles falling thick upon them from all sides at once struck down many by a mortal blow ... it was impracticable for them to move, and impracticable to remain at rest. Neither course afforded them safety but each was fraught with destruction ...<sup>71</sup>.

The effectiveness of coordinated asbārān-horse archer tactics during the battle are corroborated by Plutarch in his report of one of phases of the battle at Carrhae:

...as the enemy got to work, their light cavalry rode round on the flanks of the Romans and shot them with arrows, while the mail-clad horsemen in front, plying their long spears, kept

---

<sup>66</sup> *Ayādīgār-i-Zārīrān*, p. 27-31; Gheiby *Ayadgar-i Zarīran*, p. 2; See also translation and analysis by Daryaei, T., From Terror to Tactical Usage: Elephants in the Partho-Sasanian period. In V.S. Curtis, E.J. Pendleton, M. Alram & T. Daryaei (eds.), *The Parthian and Early Sasanian Empires: Adaptation and Expansion, Proceedings of a Conference held in Vienna 14-16 June 2012*, Published by the British Institute of Persian Studies (BIPS) Archaeological Monographs Series, Oxbow Books, Oxford & Philadelphia 2016, pp. 40, 41, footnote 23).

<sup>67</sup> Nossov, K., *War Elephants*, Osprey Publishing New Vanguard, Oxford 2008, p. 35.

<sup>68</sup> Kistler, J. M. *Animals in the Military: From Hannibal's Elephants to the Dolphins of the U.S. Navy*. ABC-CLIO, Santa Barbara (California), Denver (Colorado), Oxford (England) 2011, p. 83.

<sup>69</sup> Ellerbrock, *The Parthians: The Forgotten Empire*, p. 89.

<sup>70</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 66.

<sup>71</sup> Cassius Dio, *Roman History*, XL (40), 22.2-5.

driving them together into a narrow space ... the spear which the Parthians thrust ... often had impetus enough to pierce through two men at once<sup>72</sup>.

Cassius Dio and Plutarch also document how the Romans' efficiency and discipline was weaponized against them at Carrhae: if Roman troops elected to close ranks for mutual protection with their shields against Parthian horse archery, they would be exposed to the deadly lance attacks of the asbārān. The latter's attacks would then disrupt the Romans, further exposing them to the missiles of the horse archers.

The coordinated asbārān-horse archer tactic was to also be successfully applied against Roman forces led by their commander Paetus a little over a century later in 62 CE at the battle of Rhandeia in eastern Turkey at the ancient Arsianias river. Cassius Dio's report of the battle of Rhandeia appears to be describing the impacts of the coordinated attacks of the lance bearing asbārān along with the overwhelming delivery of missiles by the horse archers, resulting in the defeat of the Roman forces in the theatre: "... *Paetus stood in fear of his archery ... as well as of his cavalry, which kept appearing at all points...*"<sup>73</sup>

Cassius Dio's distinct references to "*archery*" and "*cavalry*" may be in reference to the horse archers and asbārān at the battle at Rhandeia, given that these were the types of corps deployed by the Parthian spād. The last major military engagement between the Romans under the leadership of emperor Macrinus (r. 217-218 CE) and the Parthians at the three-day battle at Nisibis in 217 CE, also witnessed the spād applying the coordinated asbārān-horse archer tactic (as well as the flanking maneuver as discussed later in this article). The coordinated asbārān-horse archer assaults were launched in the first two days of the battle, during which armored camel cataphract lancers also made their combat debut. The deadly impact of the Parthian attacks upon the Romans is described by Herodian: "*The barbarians inflicted many wounds upon the Romans from above, and did considerable damage by the showers of arrows and the long spears of the mail-clad dromey riders.*"<sup>74</sup>

Despite Roman successes at counteracting the asbārān and camel cataphracts efforts at breaking through, thanks in large part to the use of caltrops<sup>75</sup>, Macrinus was unable to launch any offensives of his own, as he was obliged to adopt a strictly defensive position. The coordinated asbārān-horse archer assaults resulted in heavy losses to both protagonists, resulting in a stalemate in which the Parthians maintained the initiative of the attack with the Roman lines continuing to hold their ground<sup>76</sup>. The third day of the battle at Nisibis witnessed the Parthians applying a flanking maneuver as discussed in the following section.

### **The Regular Battle Line and the Flanking Maneuver**

Ancient Iranian armies would implement flanking attacks in scenarios when outnumbered<sup>77</sup>, however the Parthians would apply this stratagem as suited them on the battlefield, including circumstances in which they fielded larger numbers of troops than the enemy. The flanking maneuver was also applied with regular battle lines in which the flank attack would be launched from one side (or flank) in contrast to the crescent tactic (discussed further below) in which both the left and right flanks engaged in the attack. The regular battle line would apply this tactic by having a large proportion of forces shifted to one side (right or left flank) to then be launched from

<sup>72</sup> Plutarch, *Fall of the Roman Republic Six Lives by Plutarch: Marius, Sulla, Crassus, Pompey, Caesar, Cicero* (translated by R. Warner, 1970), Penguin Books; Pelling, C. London & New York 2011, 27.1-2.

<sup>73</sup> Cassius Dio, *Roman History*, LXII (62), 21.2.

<sup>74</sup> Herodian, *History of the Empire* (tr. C. Whittaker, 1970), IV.15.2.

<sup>75</sup> Farrokh, K., *Shadows in the Desert: Ancient Persia at War*, Osprey Publishing, London 2007, p. 168.

<sup>76</sup> Sheldon, R. M., *Rome's Wars in Parthia: Blood in the Sand*, Vallentine Mitchel, London, England & Portland, Oregon 2014, p. 174.

<sup>77</sup> Syv  nne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 39.



that position to outflank the enemy<sup>78</sup>. The formation of a regular battle line at the outset of the battle by the Parthians may have been part of a stratagem of misleading the enemy into preparing for a traditional frontal assault, who would then be unexpectedly assaulted with a flanking attack.

The scenario of a flanking maneuver was to occur on the third day of the battle of Nisibis in 217 CE (as alluded to previously), during which the Parthian cavalry proceeded to outflank their opponents with this tactic<sup>79</sup>. This was successfully countered by the Romans whose well-trained legions extended their right and left flanks (by thinning their frontline capacity) to prevent the Parthians' from flanking them<sup>80</sup>. As per Herodian's report, the Parthians had larger numbers of troops<sup>81</sup> which may explain their abilities at forcing the Romans to remain static in their positions as the Parthian cavalry attempted to outflank them.

### **Tactics for Contrived Withdrawals**

The Parthians deployed four types of contrived withdrawals: artificial battlefield retreat, attack-withdraw, tactical withdrawal, and scorched earth. The implementation of these strategies was contingent upon tactical conditions, especially in scenarios where the enemy held the military advantage. The artificial battlefield retreat in which the Parthians were highly adept at<sup>82</sup>, was the deceptive feigning of retreat before the battlefield enemy<sup>83</sup>. The "retreat" would be taking place even as the Parthians had not been militarily defeated on the battlefield. The primary objective of this tactic was to entice the enemy in pursuit towards a predesignated ambush<sup>84</sup>. This tactic could also be deployed with the lethal Parthian shot in which the "fleeing" Parthians (while riding forwards) would then fire their archery backwards to their rear towards their pursuing enemies<sup>85</sup>, a scenario which occurred at the battle of Carrhae (53 BCE)<sup>86</sup>. The stratagem of the artificial battlefield retreat may have been applied by the founder of the Arsacid dynasty, Arsaces I (r. c.247-211 BCE<sup>87</sup>) in his successful campaign at repelling the Seleucid army led by Seleucis II (r. 246-225 BCE)<sup>88</sup>.

The attack-withdraw strategy would be applied in scenarios where the Parthians were comprehensively outmatched militarily with no realistic prospects of prevailing against the enemy in a sustained set-piece battle<sup>89</sup>. The successful application of this technique was dependent upon high levels of mobility to enable rapid and synchronized strikes to then engage in rapid withdrawals before the enemy recovered to organize efficacious resistance and counterstrikes. The three primary objectives of attack-withdraw attacks were to (a) inflict as many casualties upon the enemy as possible and to (b) demoralize enemy troops in order to (c) significantly degrade the enemy's discipline and cohesion. Arsaces II (r. 211-191 CE<sup>90</sup>) may have been attempting to apply this stratagem against the invading Seleucid armies of Antiochus III (r. 222-187 BCE), albeit

---

<sup>78</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 28.

<sup>79</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 64.

<sup>80</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 64.

<sup>81</sup> Herodian, *History of the Empire* (tr. C. Whittaker, 1970), IV.15.4.

<sup>82</sup> Farrokh, K., Observation of the Role of Climate and Geography in the War Planning of the Sasanian Spāh. *Hunara: Journal of Ancient Iranian Arts and History*, Vol.1, No.1, 2023, pp. 62-63.

<sup>83</sup> Overtoom, The Parthians Unique Mode of Warfare:, pp. 105-107.

<sup>84</sup> Overtoom, The Parthians Unique Mode of Warfare:, pp. 97-98, 103.

<sup>85</sup> Farrokh, K., Observation of the Role of Climate and Geography in the War Planning of the Sasanian Spāh. pp. 62-63.

<sup>86</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 36.

<sup>87</sup> Ellerbrock, *The Parthians: The Forgotten Empire*, p. 27.

<sup>88</sup> Overtoom, 2016, p. 16.\*\*

<sup>89</sup> Overtoom, The Parthians Unique Mode of Warfare:, p. 103.

<sup>90</sup> Ellerbrock, *The Parthians: The Forgotten Empire*, p. 28.

unsuccessfully. As noted by Overtoom<sup>91</sup> (a) Arsaces II was mindful of the greater size of the Seleucid army, significantly diminishing his chances of defeating Antiochus III and that (b) Polybius' report of the Parthians having become overcome with "*pani*" and compelled to flee is a misrepresentation (or misinterpretation) of the Parthians' military tactics. It is possible that the Parthian strategy of attack was the application of asbārān-horse archer coordinated strikes to inflict maximal damage to then withdraw. The Parthians would then regroup to resume these patterns of attacks to inflict as many casualties as possible in a bid to convince Antiochus III to abandon his operation<sup>92</sup>. Notably as Arsaces II and his forces engaged in withdrawal after having been outflanked by Seleucid light infantry, Polybius reports of Antiochus III having: "... *made every effort to restrain his men from continuing the pursuit, summoning them back by bugle-call, as he wanted his army to descend into Hyrcania unbroken and in good order.*"<sup>93</sup>

The Seleucid king was apparently cognizant of not being drawn into an ambush by what appeared to be a fleeing enemy in disarray<sup>94</sup>. The hazards of engaging in pursuit of a Parthian force pretending to be in flight was demonstrated at the Battle of Carrhae (53 BCE) when Publius (son of the Roman commander, Crassus) and his cavalry force were ensnared by a "withdrawing" force and systematically demolished<sup>95</sup> (see also "Weaponization of Geography" discussed later in this article). A similar strategy had apparently been deployed against the 10,000-man Roman force of Statianus during Marc Antony's 36 BCE invasion of Media Atropatene (in modern northwest Iran) which as noted by Florus: "*The Parthians, who were crafty as well as confident in their arms, pretended to be panic-stricken and to fly across the plains*"<sup>96</sup>.

Florus subsequently details the Parthians' unanticipated return to shatter a significant Roman formation<sup>97</sup> (possibly in reference to Statianus' force).

The tactical withdrawal strategy, much like the attack-withdraw strategy was also deployed against a militarily superior invasion force with one notable distinction: the Parthian force would engage in deep withdrawals into friendly territory. Once ensconced in friendly territory outside of the enemy's reach, the Parthians would first (a) recruit new allies and rebuild formations and personnel previously lost to the enemy to then, once sufficiently strengthened to (b) engage in a major counter-offensive into occupied territory to expel the invading host. The latter process would be implemented when favorable political circumstances availed themselves in the occupied territories, a critical element in amplifying the impacts of the counteroffensive. An example of this strategy was to be executed by Ardavan (Artabanus) II (r.12-38 CE)<sup>98</sup> when he was confronted with the overwhelming combination of a military defeat in the Caucasus followed shortly after by a dangerous coalition formed against him by his Parthian adversaries. Forced to vacate his throne before his opponents, Artabanus II engaged in a major tactical withdrawal into the northeast and eastern regions of the empire by marching his battered forces into Carmania and into the north in

<sup>91</sup> Overtoom, N., *Reign of Arrows: Rise of the Parthian Empire in the Hellenistic Middle East*, Oxford University Press, Oxford 2020, p. 124.

<sup>92</sup> Overtoom, *Reign of Arrows*..., p. 125.

<sup>93</sup> Polybius, *The Histories*, X, 31.4.

<sup>94</sup> Overtoom, *Reign of Arrows*..., p.126.

<sup>95</sup> Overtoom, *The Parthians Unique Mode of Warfare*..., p. 113.

<sup>96</sup> Florus, Lucius Annaeus, *Epitome of Roman History* (translated by E.S. Forster, 1960), Harvard University Press, Cambridge, MA, 2.20.3.

<sup>97</sup> Florus, *Epitome of Roman History*, 2.20.3.

<sup>98</sup> Gregoratti, L., The Parthians between Rome and China, *Academisk Quarter*, 4/2, 2012, pp. 109-119. p. 129; Ellerbrock, U., *The Parthians: The Forgotten Empire*, Routledge, New York 2021, pp. 49-50 cites the date from 10 CE however he concurs that it was not until 12 CE when Artabanus II achieved victory over Vorones I.

Hyrkania, Parthava in the northeast as well as Dahae-Saka territories in Central Asia<sup>99</sup>. This deployment allowed for Artabanus to rebuild his army into a more powerful military force which proved successful in his subsequent counteroffensive in which he re-acquired his throne and consolidated his rule in the Arsacid realms<sup>100</sup>.

The Parthians also utilized scorched earth tactics against prodigiously larger enemy armies invading the Arsacid realms<sup>101</sup>. The precedent for such tactics in the armies of ancient Iran prior to the Parthians had been demonstrated against the invasion forces of Alexander who had been subjected to scorched earth tactics in southern Bactria by Bessus in 329 BCE<sup>102</sup>. These scorched earth tactics resulted in the destruction of food supplies in the path of Alexander's advance, causing considerable difficulties for the invading Greco-Macedonian host<sup>103</sup>. Over a century later in 209 BCE, scorched earth tactics were to again be applied by the Parthians led by Arsaces II against Antiochus III. Polybius' report of Parthian tactics state that: "... *Arsaces had retired with his army, but ... some of his cavalry were engaged in destroying the mouths of the channels ...*"<sup>104</sup>

What is clear is that the Parthians were engaged in the weaponization of water supplies against the invading Seleucid armies of Antiochus III in a bid to cripple his advance. In this context, it is possible that Polybius' description of the "*mouths of the channels*" is in reference to the ancient aqueduct systems of Iran (qanats). Scorched earth tactics were to again be deployed by the Parthians over three centuries later against the invasion forces of Roman emperor Trajan (r. 98-117 CE) in 116 CE<sup>105</sup>.

### **Parthian Tactics as per the Gotha Manuscripts and the Byzantine Interpolation of Aelian**

Syv  ne's studies of classical and Muslim era primary sources has revealed descriptions of numbers of Parthian tactics not cited in Classical sources such as Cassius Dio, Plutarch and Herodian. More specifically Syv  ne has examined the Gotha Manuscripts (MS 258, f.110-215), which were edited and translated into German by Ferdinand W  stenfeld in 1880 (see references section). This work provides information on Parthian battle formations from ancient (pre-Islamic) Iranian armies which (as per Islamic referencing) hail from the 'age of ignorance'<sup>106</sup>. This text is a virtual verbatim of the well-known *Nihayat al-su'l* excepting that select chapters are lacking in W  stenfeld's work<sup>107</sup>. Parthian battle tactics as per information provided by the Gotha Manuscripts may be classified into two broad categories: line-array deployments and maneuvers. The four types

<sup>99</sup> Olbrycht, M. J., The Political-military strategy of Artabanos/Ardawan II in AD 34-37, *Anabasis: Studia Classica et Orientalia*, 3, 2012, p. 223.

<sup>100</sup> Olbrycht, The Political-military strategy of Artabanos/Ardawan II in AD 34-37, p. 225.

<sup>101</sup> Overtoom, *Reign of Arrows...*, p. 114.

<sup>102</sup> Nikonorov, V.P., *The Armies of Bactria 700 BC-450 AD Volume I (Text)*, Montvert Publications, Stockport 1997, p. 23.

<sup>103</sup> Arrian, *The Anabasis of Alexander* (translated by P.A. Brunt, 1976-1983), Harvard University Press, Cambridge Massachusetts, III, 28, p. 8-9; Strabo, *Geography*, XV, 2, p. 10.

<sup>104</sup> Polybius, *The Histories*, 10.28.5-6.

<sup>105</sup> Kia, A., *The Persian Empire: A Historical Encyclopedia [2 volumes]: A Historical Encyclopedia (Empires of the World) ABC-CLIO*, 2016, p. 58.

<sup>106</sup> Syv  ne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 39.

<sup>107</sup> For the development of Iranian battle tactics in the succeeding Sassanian era consult the *  y  n-n  me*.

of line-array tactical battlefield deployments of Parthian cavalry forces, are composed of 2 two-line array and 3 three-line array deployments<sup>108</sup>:

[1] Two-array: Horse archers placed at the front row with a mixed force of horse archers and asbārān following behind the front row.

[2] Two-array: Horse archers placed at the front lines, with asbārān placed in the second (or rear) lines.

[3] Three-array: mounted archers at the front, second array composed of horse archers, with the third (or rearmost) lines consisting of the asbārān.

[4] Three-array: mounted archers at the front, second and third arrays composed of the asbārān.

A possible fifth line-array tactic may have been to position the asbārān in the front lines with the horse archers following in the second line to their rear. This proposal is based on the battle of Carrhae (53 BCE) when the asbārān attacked the Roman lines first.

Syvänne's studies of the Gotha manuscripts also provide information on three distinct Parthian attack tactics, with a fourth tactic also described as per the *Byzantine Interpolation of Aelian*:

[1] The wedge tactic. A preferred tactic of the Parthians for confronting a larger sized army on the battlefield was the wedge attack tactic<sup>109</sup>. This strategy was utilized purposely by the Parthians for breaking the central section of enemy forces<sup>110</sup> and may have deployed a standard number of sixty-four cavalymen in its formation<sup>111</sup>, although other numerical standards may have been applied. The essence of the wedge tactic was to attack the enemy in the shape of a spearhead or "V", preferably targeting their weakest defended points<sup>112</sup>. The origins of this strategy may be traced to the Scythians<sup>113</sup>, to then be adopted by the Thracians and the Macedonian cavalry<sup>114</sup>, with the Achaemenid cavalry also known to have applied the wedge tactic on a smaller scale<sup>115</sup>. The utilization of this tactic by the Parthians appears to have been due in part to their Scythian origins<sup>116</sup>, whose own use of this stratagem was characteristic of warfare in the wider north Iranian realms<sup>117</sup>.

[2] The convex tactic. Much like the wedge tactic, the Parthians are also known for having utilized the convex tactic when outnumbered on the battlefield by the enemy<sup>118</sup>. The primary objective of the convex tactic (like the wedge tactic) was for breaking through the enemy's center<sup>119</sup>.

[3] The crescent tactic. For flanking and defensive maneuvers, the Parthians utilized the crescent tactic. This strategy was to have the vanguard of the field army of mounted archers

<sup>108</sup> Syvänne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 39; see also earlier analyses by Syvänne, I., *The Age of Hippotocotai. Art of War in Roman Military Revival and Disaster (491-636)*, Tampere University Press, Tampere 2004.

2004) and Syvänne, Syvänne, I. *Persia, la Caída de un Imperio* [Persia, the fall of an Empire], *Desperta Ferro*, 24, 2014, pp. 44-51.

<sup>109</sup> Syvänne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, pp. 35, 38-39, 40-42.

<sup>110</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 28.

<sup>111</sup> Syvänne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 35.

<sup>112</sup> Farrokh, K., *The Armies of Ancient Persia: The Sassanians*, pp. 166-167.

<sup>113</sup> Warry, J. *Warfare in the Classical World: An Illustrated Encyclopedia of Weapons, Warriors, and Warfare in the Ancient Civilizations of Greece and Rome*, University of Oklahoma Press, Norman 1997, reprinted 2015, p. 155.

<sup>114</sup> Sidnell, P., *Warhorse: Cavalry in Ancient Warfare*, Hambleton Continuum, London 2006, p. 20; Arrian, *Anabasis*, 1.15.7.

<sup>115</sup> Arrian, *Anabasis*, 1.15.7.

<sup>116</sup> Wozniak, *The Armies of Ancient Persia...*, p. 215.

<sup>117</sup> Wozniak, *The Armies of Ancient Persia...*, p. 216.

<sup>118</sup> Syvänne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, pp. 40-41.

<sup>119</sup> Sheppard, *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, p. 28.

deployed into a crescent formation (with one to two lines following behind) for the purpose of outflanking enemy lines<sup>120</sup>. With the crescent formation in attack, the left and right flanks of that formation would attack the enemy's right and left flanks at their rearmost points. Meanwhile the center (of the crescent formation) engaged the enemy's center with the aim of forcing these in place. This was to prevent them from interfering with the demonstrations of the crescent formations' left and right flanks attacking to encircle the enemy. The left and right flanks could also swing more widely to avoid clashing with the enemy's flanks by rapidly maneuvering to the enemy's rear in the endeavor to encircle them, just as the crescent formation center engaged the enemy's center, again with the objective of preventing these from interfering with the encirclement being affected. The archers deployed in the vanguard of the crescent formation were most likely of the armored cataphract type as these had to approach enemy lines to engage them in close proximity. The archery attacks would have been core to their assaults, as their volleys would be able to target their opponents from multiple positions as cavalrymen at the flanks could also fire into the center of the enemy formations. An example of the Parthian application of the crescent tactic against Roman forces occurred during Marc Antony's 36 BCE invasion of Media Atropatene in northwest Iran. With the failure of his siege of Praaspa, Anthony led ten legions, three praetorian cohorts and cavalry aiming to draw the Parthians into a set-piece battle. Plutarch provides a brief report on the usage of the crescent tactic by the Parthians: "...were enveloping him [Marc Anthony] and seeking to attack him on the march. He therefore displayed the signal for battle in his camp... he marched along past the line of the Barbarians [Parthians], which was crescent-shaped".<sup>121</sup>

The crescent formation was also effective as a defensive tactic for the Parthians. In this scenario enemy forces would be permitted to advance towards the Parthians lines which would then lead them into a trap: the Parthians would unleash the left and right flanks of their crescent formation to encircle the enemy with armored horse archers. With the successful conclusion of this flanking operation, the center of the Parthian crescent formation would have the option of continuing to press their attacks against their opponents to their fore, as well as launching their asbārān cataphracts in lance charges (in coordinated attacks with horse archers).

[4] The rhombus tactic. Parthian and Armenian horse archers are reported by the *Byzantine Interpolation of Aelian* to have deployed the rhombus tactic<sup>122</sup>. This raises the possibility of a Seleucid legacy upon the presence of such a tactic in Parthian and Armenian armies. The Thessalian Greeks are recognized as the original inventors of the diamond-shape or rhombus formation for use by cavalry units<sup>123</sup>, with these having consisted of 128 to 256 cavalrymen, numerical proportions which lasted into Parthian times<sup>124</sup>. The Parthian deployment of the rhombus formation for the attack appears to have been due to their battle experiences against Seleucid armies who were adept users of this strategy<sup>125</sup>. A key inherent advantage with this strategy was that cavalry situated along the flanks of the rhombus formation would be well placed to confront (with archery) enemy attacks arriving from multiple avenues, notably the rear and flanks<sup>126</sup>. The rhombus formation was also

<sup>120</sup> Syväanne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, pp. 39-40, 44-45.

<sup>121</sup> Plutarch, *Lives, Volume IX: Demetrius and Anthony. Pyrrhus and Gaius Marius* (translated by B. Perrin, 1920), Harvard University Press, Cambridge, MA, 39, 2-3.

<sup>122</sup> Aelianus, *Aelian's Manual of Hellenistic Military Tactics* (tr. A.M. Devine, 1989).

<sup>123</sup> Lendon, J.E., *Soldiers and Ghosts: A History of battle in Classical Antiquity*. Yale University Press, New haven & London 2005, p.98.

<sup>124</sup> Syväanne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 35.

<sup>125</sup> Syväanne observes of the Dahae having served in earlier Seleucid armies, with the Parthians hailing of Dahae ancestry, Syväanne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 35.

<sup>126</sup> Syväanne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, pp. 35, 38.

effective in scenarios where it became isolated from the primary forces and vulnerable to ambushes<sup>127</sup>.

### A Synopsis of Possible Tactical Reasons for the Parthian defeat at the Battle of Hormzdgān

A military analysis of the Parthian defeat battle of Hormzdgān (224) obliges an examination of the of the joust-combat depictions at the Firuzabad relief<sup>128</sup> as well as the reports of Ṭabarī<sup>129</sup>, Firdowsi<sup>130</sup> and Baḷ'ami<sup>131</sup>. The depictions at the Firuzabad relief panels (in close proximity to Ardashir's palace) provide pictographic information on three panels (left, middle and right)<sup>132</sup>: (1) the first (or left) panel displays an unidentified Sassanian knight, who was most likely a high-ranking dignitary and/or possibly a category of *Artēštārān Sālār* [lit. commander of warriors]) wrestling with his (unidentified but most likely high-ranking) Parthian opponent on horseback (2) the second (or middle) panel exhibits crown prince Shapur having lanced and unhorsed his opponent, the Parthian grand vizier, *Dādbbundādh*<sup>133</sup> (New Persian: *Darbandan*) and (3) the third (or right) panel portrays the Sassanian king Ardashir I (r.224-242 CE) who (like his son Shapur) has also lanced and unhorsed his adversary (the last) Parthian king Ardavan IV (r. 213-224 CE). It is thus possible that the (three) Firuzabad joust scenes were portraying three battle lines at Hormzdgān led by an unknown Sassanian dignitary, Shapur and Ardashir respectively. If Ardashir had been deploying in three lines, this would not have meant that Ardavan's forces would have been organized in the same manner. As per Syvānne and Maksymiuk's analyses, Ardavan's deployment may well have been in two cavalry battle lines<sup>134</sup>. The general overview is that Shapur struck Darbandan's line, to then be forced to retreat by Ardavan who was in turn was then attacked and destroyed by Ardashir<sup>135</sup>, however not all sources are congruent in their descriptions, posing academic challenges with the reconstruction of the actual phases of the Hormzdgān battle. Baḷ'ami's account for example, reports that Shapur's slaying of Darbandan compelled the Parthians to flee the battlefield, leading Ardashir (with a single corps) to launch a lance charge, which led to capture and killing of Ardavan<sup>136</sup>. Thus, as per Baḷ'ami, Shapur's strike decided the battle which Ardashir concluded in person by eradicating Ardavan. It is also possible to propose that the Parthian tactical defeat had been due to Ardashir having organized his army into two lines as per the descriptions of Baḷ'ami<sup>137</sup>

<sup>127</sup> Syvānne, Parthian Cataphract vs. the Roman Army 53 BC-AD 224, p. 38.

<sup>128</sup> Syvānne, I., & Maksymiuk, K., *The Military History of the Third Century Iran*, Scientific Publishing House of Siedlce University of Natural Sciences, Siedlce, Poland 2018, pp. 32-34.

<sup>129</sup> Ṭabarī (al-), Muhammad ibn Jarir, *The History of Al-Tabarī (Ta'rikh al-Rusul wa'l-Muluk) Volume IV: The Ancient Kingdoms* (translated by M. Perlmann, 1987), State University of New York Press, Albany NY, pp. 13-14.

<sup>130</sup> Firdowsi (Firdowsi), *Abolghassem, Shāhnāma* (edited and compiled by F. Junaydi, Preface and 5 volumes, 1387/2008), *Nasr-e Balkh vabesteh be Bonyad-e Nishapur, Tehran*, Vol. IV, pp. 95-96.

<sup>131</sup> Baḷ'ami, Abu Ali Mohammad bin Muhammad, *Tarikh Baalami* (edited by M.A. Bahar & M.P. Gonabadi, 1353/1974), Chapkhaneye Tabesh, Tehran, Volume 2, pp. 882-883.

<sup>132</sup> See Ghirshman, for full description of battle panels at Firuzabad Ghirshman, R., *Iran, Parthians and Sassanians*, Thames & Hudson, London 1962, pp. 125-130.

<sup>133</sup> Ṭabarī, *Ta'rikh al-Rusul wa'l-Muluk*, Volume V, p. 14.

<sup>134</sup> See Syvānne and Maksymiuk, for their reconstruction of the battle based on the 2-line hypothesis Syvānne & Maksymiuk, *The Military History of the Third Century Iran*, pp. 32-33.

<sup>135</sup> Syvānne & Maksymiuk, *The Military History of the Third Century Iran*, pp. 32-33.

<sup>136</sup> Baḷ'ami, *Tarikh Baḷ'ami*, Volume 2, pp. 882-883.

<sup>137</sup> Baḷ'ami, *Tarikh Baḷ'ami*, Volume 2, pp. 882-883.

and Ṭabarī<sup>138</sup> with Shapur I (Ardashir's son and crown prince) in command of the first line with Ardashir in lead of the second line.

Firdowsi's description does not provide details as to specific and detailed battle tactics at Hormzdgān<sup>139</sup>, but instead states the following passage in reference to Ardashir's final assault that shattered the forces of Ardavan: "*Beyamad ze ghalb-e Sepah Ardashir*" [arrived from the heart of the army [did] Ardashir]. The designation of "*heart*" is seen in reference to the center of later Sassanian armies<sup>140</sup>. If the Sassanian army had been arranged in a single battle line at Hormzdgān, Ardashir may have been at the center with left flank led by the unknown Sassanian grandee with the right flank under the command of Shapur. The overall scholarly consensus is that Ardashir's decisive attack killed Ardavan in a lance thrust<sup>141</sup>, which in turn led to the collapse of the Parthian army.

### Weaponization of Geography

The Parthian spāh is recognized for having weaponized geography in battles against enemies, a strategy inherited and further developed by its successor, the Sassanian spāh (army)<sup>142</sup>. The Parthians were adept at the use of geography for the concealment of their cavalry forces. An example of this is evidenced at the battle of Carrhae (53 BCE) where they utilized the battlespace's hilly terrain to conceal a proportion of their cavalry to mislead the Romans as to the actual numbers and configuration of their army<sup>143</sup>. Cassius Dio alludes to this Parthian stratagem at the Battle at Carrhae:

The Parthians confronted the Romans with most of their army hidden; for the ground was uneven in spots and wooded. Upon seeing them [Publius] Crassus ... felt scornful of them, since he supposed them to be alone, and so led out his cavalry against them, and when they turned purposely to flight, pursued them, thinking the victory was his; thus he was drawn far away from the main army, and was then surrounded and cut down.<sup>144</sup>

As indicated by the above description the Parthians had weaponized the local topography in a successful bid at deceiving the Romans as to the actual strength of their forces in the battle theatre. This stratagem in turn facilitated the successful application of the attack-withdraw tactic as previously alluded to. More specifically the "withdrawing" Parthians were to lead their Roman pursuers into a dangerous trap where a formidable force of lance-bearing armored asbārān awaited their coming. Upon their ingress into the unexpected trap, the asbārān lancers launched their attacks, supported by the horse archers, which led to the destruction of the Roman cavalry force led by Publius<sup>145</sup>.

### Roman Strategies against the Parthian Cavalry

The Romans developed three successful countermeasures against Parthian cavalry tactics from the first century CE. The first effective strategy was in the Roman avoidance of open and flat

<sup>138</sup> Ṭabarī, *Ta'rikh al-Rusul wa'l-Muluk*, Volume V, pp. 13-14.

<sup>139</sup> Firdowsi, *Shāhnāme* (edited & compiled by F. Junaydi, 1387/2008), Vol. IV, pp. 95-96.

<sup>140</sup> Khorasani, M. M., *Lexicon of Arms and Armor from Iran: A Study of Symbols and Terminology*, Legat Verlag, Tübingen, Germany 2010, p. 295.

<sup>141</sup> Agathangelos' *The Romance of Artawan and Artashir* however reports of Ardavan having been killed by Ardashir's Parthian shot (Agathangelos' History, *The Romance of Artawan and Artashir* (tr. G. Muradyan & A. Topchyan, 2008), 9.

<sup>142</sup> Farrokh, Observation of the Role of Climate and Geography in the War Planning of the Sasanian Spāh. pp. 61-70.

<sup>143</sup> Overtoom, *Reign of Arrows*., p. 53.

<sup>144</sup> Cassius Dio, *Roman History*, 40, 21.2-3.

<sup>145</sup> Bivar, A.D.H., The political history of Iran under the Arcasids. In E. Yarshater (Ed.), In I. Gershevitch (ed.), *Cambridge History of Iran: Vol.3(1) The Seleucid, Parthian and Sassanian Periods*, Cambridge University Press, Cambridge, 1983, p. 53; Anderson, E.B., *Cataphracts: Knights of the Ancient Near Eastern Empires*, p. 50; Overtoom, *Reign of Arrows*., p. 60.

terrain conducive to Parthian cavalry tactics. As noted by Gradoni, the successful campaigns of emperors Trajan (r. 98-117 CE) in 116 CE, Lucius Verus (r. 161-169 CE) in 163-166 CE and Septimius Severus (r. 193-211 CE) in 197-199 CE was due to their astute avoidance of the flat and exposed Mesopotamian plains exceptionally befitting for Iranian cavalry tactics: unlike Crassus who advanced into the open plains of Carrhae, the Roman emperors of the 2<sup>nd</sup> century CE elected to march their legions along the Euphrates River<sup>146</sup>.

The second successful Roman strategy was in their recruitment of auxiliary cavalry familiar with Parthian tactics, notably horse archery. Horse archers may have been utilized by the Roman military from the reign of Emperor Augustus (r. 27 BCE-14 CE)<sup>147</sup>, with increasing numbers of horse archers being recruited from the Flavian dynasty (69-96 CE) and Trajan's deployment of significant contingents of horse archers<sup>148</sup>, notably the *Ala Parthorum* unit for his campaign against the Parthian Empire<sup>149</sup>. Emperor Hadrian (r. 117-138 CE) is documented for his command to the Roman army to train Roman cavalry in Parthian-Armenian horse archery systems<sup>150</sup>.

The third successful Roman strategy was in their deployment of powerful catapults and ballistae for the propulsion of long-range stones and missiles against Parthian cavalry, which as noted by Gregoratti, also outranged the maximum range of Parthian horse archery<sup>151</sup>. Roman general Corbulo for example successfully deployed catapults and ballistae installed upon specially designed ships against Parthian cavalry opposing Roman landings on the eastern side of the Euphrates<sup>152</sup> in 62 CE. Corbulo's catapults and ballistae had successfully neutralized the demonstrations of the Parthian cavalry corps by having outranged the missiles of their horse archers. Another example of the decisive Roman deployment of catapult batteries for keeping the Parthian cavalry at bay occurred with Roman general Avidius Cassius' crossing of the Euphrates<sup>153</sup> in c.164 CE, as part of Emperor Lucius Verus' campaigns against the Parthian empire.

### Conclusion: An Evolving Cavalry Force

Gregoratti notes that a fundamental weakness of the Parthians' in their later battles against the Romans to have been the absence of cooperation between their asbārān and the horse archers, or more specifically the absence of either the former or the latter in the battlefield theatre<sup>154</sup>. Examples of the lack of asbārān-horse archer cooperation occur during Pacorus' campaigns against Roman-held territories in the Near East, notably at the battle of the Cilician Gates (39 BCE). However, horse archers are cited by Florus in the subsequent battle of Gindarus (38 BCE)<sup>155</sup> in

<sup>146</sup> Gradoni, M.K., The Parthian campaigns of Septimius Severus: Causes and roles in dynastic legitimation, In E.C. De Sena (ed.), *The Roman Empire during the Severan Dynasty: case Studies in History, Art, Architecture, Economy and Literature*, Gorgias Press, New Jersey 2013, p.10.

<sup>147</sup> MacAllister, D.W., *Formidable Genus Armorum: The Horse Archers of the Roman Imperial Army*. Master's Thesis, Department of Classics, University of British Columbia, 1993, ii.

<sup>148</sup> Trajan was already utilizing horse archers for his Dacian conquests (*Cobors I Cretum Sagittariorum Equitata*, *Cobors II Flavia Commagenorum Equitata Sagittariorum*) prior to his campaigns against the Parthians D'Amato, R., *Roman Army Units in the Eastern provinces (1): 31 BC-AD 195*, Osprey Publishing, Oxford 2017, pp. 46-47.

<sup>149</sup> Kennedy, D.L., Parthian Regiments in the Roman Army. In J. Fitz (ed.) *Limes. Akten des XI Internationalen Limeskongresses 1977*: Akadémiai Kiadó Hungarian Academy of the Sciences, Budapest 1977, pp. 524, 526.

<sup>150</sup> Wheeler, E. L., *The Army and the Limes in the East*, In P. Erdkamp (ed.), *A Companion to the Roman Army*, Wiley-Blackwell, Oxford 2007, p. 261.

<sup>151</sup> Gregoratti, The Arsacids vs. Rome, p. 382.

<sup>152</sup> Tacitus, *Annals*, XV, 9.

<sup>153</sup> Cassius Dio, *Roman History*, LXXI (71), 3.

<sup>154</sup> Gregoratti, The Arsacids vs. Rome, p. 370-372, 376, 383.

<sup>155</sup> Florus, *Epitome of Roman History*, 2.19.6.



contrast to Cassius Dio who reports of the asbārān<sup>156</sup>, but not the horse archers<sup>157</sup>. Gregoratti also notes of the absence of asbārān lancers during Marc Antony's 36 BCE invasion of northwest Iran, however this may be explained in part by the uneven and often forested terrain of northern and northwest Iran<sup>158</sup> which serve to impede asbārān-horse archer cooperation best implemented by largely flat and even terrain. Another example cited of the lack of asbārān-horse archer cooperation is the battle fought by Orodes against Pharasmanes of Iberia in 35 CE<sup>159</sup> who was supported by powerful contingents of Sarmatian lancers<sup>160</sup> (who like the Parthian asbārān also fought with lances and swords<sup>161</sup>) as well as significant formations of Albanian and Iberian infantry<sup>162</sup>. Tacitus' broad descriptions however does not clearly rule out the asbārān. This is seen with Tacitus' report of "*the combatants [Parthians and Sarmatians] struggled breast to breast, with a clash of steel*"<sup>163</sup> on horseback, which is indicative of close quarters combat for which the asbārān would be committed to. The Parthian horse archers were neutralized by Pharasmanes' infantry who were able to close in with close quarters combat, thus effectively neutralizing them. The Sarmatians and Iberians also fought in the Iranian style of cavalry warfare, thus being capable of effectively countering Parthian strategies, notably in the use of infantry forces against opposing cavalry.

As concluded by Gregoratti the application of the combined (asbārān lancer-horse archer) arms tactic was "...a unique occurrence employed by Surena against Crassus and never again by the Parthians ... at least against the Romans"<sup>164</sup>. However, this hypothesis may be addressed with three queries. The first is the notion that this tactic was an anomaly or aberration in Parthian military history confined to general Surena at the battle of Carrhae, a school of thought that has been supported by a numbers of scholars<sup>165</sup>. However as noted earlier in 2017 by Overtoom: "...scholarly tradition generally has attempted to portray the Parthian tactics and strategy utilized during the Carrhae campaign as somehow anomalous and, therefore, has attempted to portray the Parthian general Surenas as an unrivaled Parthian military genius and reformer"<sup>166</sup>.

As noted by Overtoom in his examination of Parthian battle tactics from the outset of the Arsacid dynasty, the implementation of the asbārān lancer-horse archer was already in place before Carrhae in 53 BCE in Parthian military campaigns against Seleucid armies, notably at the Battle of Ecbatana (129 BCE) against the forces of Antiochus VII Sidetes (r. 138-129 BCE)<sup>167</sup>. Olbrycht has outlined the evolution of cavalry lancer and horse archer battlefield cooperation earlier to the post-Achaemenid era, notably at the Battle of the Zarafshan River<sup>168</sup> (or Polytimetos River in

---

<sup>156</sup> Cassius Dio, *Roman History*, XLVIII (49), 20.1-2.

<sup>157</sup> Gregoratti, *The Arsacids vs. Rome*, p. 370.

<sup>158</sup> Gregoratti, *The Arsacids vs. Rome*, pp. 371-372.

<sup>159</sup> Gregoratti, *The Arsacids vs. Rome*, pp. 375-376.

<sup>160</sup> Tacitus, *The Annals* (translated by A.J. Church & W.J. Brodribb, 1876): Macmillan & Co., London. VI, 35. Note that while Tacitus fails to provide information on the state of armor of the Sarmatian lancers during that battle, Ash's analyses concludes that these cavalrymen and their horses were most likely armored p. 122.

<sup>161</sup> Perevalov provides a detailed analysis on Sarmatian armored lance combat Perevalov, S. M. (translated by M.E. Sharpe), *The Sarmatian Lance and the Sarmatian Horse-Riding Posture. Anthropology & Archeology of Eurasia*, Spring, 41/4, 2002, pp. 7-21.

<sup>162</sup> Tacitus, *Annals*, VI, p. 34.

<sup>163</sup> Tacitus, *Annals*, VI, p. 35.

<sup>164</sup> Gregoratti, *The Arsacids vs. Rome*, p. 392.

<sup>165</sup> Examples include Sampson (Sampson, G. C., *The Defeat of Rome: Crassus, Carrhae and the Invasion of the East*, Pen & Sword, Barnsley, England 2015, pp.111-113, 117-121, 147) and Sheldon, *Rome's Wars in Parthia...*, pp. 13-64.

<sup>166</sup> Overtoom, *The Parthians Unique Mode of Warfare*; p. 96.

<sup>167</sup> As per Overtoom's analysis of the battle of Ecbatana, Seleucid lines became overwhelmed by the relentless attacks of the asbārān lancers and missile barrages of the horse archers, which led to defeat of Antiochus VII Sidetes Overtoom, N., *Reign of Arrows...*, p. 213.

<sup>168</sup> Olbrycht, *Central Asian, Achaemenid and Parthian Cavalry Developments*, p. 198.

Classical sources) (329 BCE) in which northeast Iranian cavalry led by Spitames defeated the Greco-Macedonian invasion forces of Alexander<sup>169</sup>. Spitames' cavalry hailed from the Dahae confederation from which the future Arsacid dynasty would rise<sup>170</sup>. The horse archers at Zarafshan River successfully launched missile barrages against the Greco-Macedonian forces<sup>171</sup>. Olbrycht observes that Spitames' cavalry would most likely have included armored lancers at Zarafshan, as a proportion of Macedonian casualties are attributed to cavalry charges into enemy lines for engagement in fighting at close quarters<sup>172</sup>.

The second query as per Gregoratti's hypothesis pertains to the evolution of Parthian cavalry resulting in military formations no longer contingent upon two distinct corps of horse archers and asbārān armored lancers. These were the armored horse archers alluded to earlier in this article, who were also equipped for close quarters combat characteristic of the "traditional" asbārān lancers. It is possible therefore that Gregoratti's observation of the lack of horse archer-asbārān cooperation in numbers of battles after Carrhae may have been due to the possible presence of armored horse archers whose primary mission may have been to press their attacks with horse archery. Put simply, armored horse archers were not necessarily a "one-function only" (ergo: horse archery) force. The depictions of late Parthian armored cavalry at the Firuzabad relief panel show these as lancers but also equipped with the tubular *tir-dān* (quiver), suggestive that the Parthian cavalry had been steadily evolving towards more "hybrid" forms. While the primary offensive weapon of the armored Parthian cavalry was the lance<sup>173</sup> as well as close quarters combat equipment, both king Ardavan IV and his grand vizier *Dādbbundādh* (New Persian: *Darbandan*) are seen equipped with the *tir-dān* at Firuzabad<sup>174</sup>. This would suggest that the Parthians had developed a more efficient cavalry corps capable of combat with lance, close quarters combat and horse archery, with the "traditional" distinct corps of lightly armored horse archers and asbārān lancers continuing to remain in service. The robust state of armor for the Parthian armored cavalry corps as attested to by Justin<sup>175</sup> and Sallust<sup>176</sup> is also evident among Parthian armored horse archers. This is depicted in the c.3<sup>rd</sup> century CE Dura Europos graffiti in which the horse archer is depicted with armor<sup>177</sup>. There is a consensus that Rox-Alan armored horse archers (see Trajan's column XXXVII, scene 37<sup>178</sup>) were influenced militarily by the Parthians<sup>179</sup> and (like the Parthians) were armored in similar fashion as armored lancers<sup>180</sup>. As alluded to previously, with their significantly greater amount of armor protection in comparison to their less (or more lightly) armored horse archer counterparts, Parthian armored horse archers were enabled to approach Roman lines at shorter distances to discharge their archery, enhancing the power and efficacy of their targeted missile shots. These maneuvers were essentially unimpeded by the need for shields, as armored Parthian

<sup>169</sup> Curtius, *Anabasis*, XII, 7, 31-32.

<sup>170</sup> Ellerbrock, U., *The Parthians: The Forgotten Empire*, Routledge, New York 2021, p. 25.

<sup>171</sup> Arrian, *Anabasis*, IV, 5.5.

<sup>172</sup> Olbrycht, Central Asian, Achaemenid and Parthian Cavalry Developments, p. 198; see also Curtius, *Anabasis*, XII, 7, p. 34-37.

<sup>173</sup> Michalak, M., The Origins and Development of Sassanian Heavy Cavalry, *Folia Orientalia*, 24, 1987, p.73.

<sup>174</sup> Farrokh, *The Armies of Ancient Persia: The Sassanians*, pp. 61, 78.

<sup>175</sup> Justin (Marcus Junianus Justinus), *Epitome of the Philippic History of Pompeius Trogus*, (translated by J. S. Watson, 1853), London: Henry G. Bohn, 41, 2, 10.

<sup>176</sup> Sallust (Gaius Sallustius Crispus), *The Histories* (P. McGushin, 1992), Oxford University Press, Oxford, 16-17.

<sup>177</sup> Ivanovits, & Kulcsar, Sarmatians through the eyes of strangers. The Sarmatian warrior, p. 152, Figure 10.7, p.153; Wozniak, *The Armies of Ancient Persia...*, p. 180.

<sup>178</sup> Ivanovits, & Kulcsar, Sarmatians through the eyes of strangers. The Sarmatian warrior p.148, Figure 7.3. For a detailed photograph of this consult, *TRAJAN'S COLUMN XXVIII/XXXVII (scene 37): Cavalry attack*, Link: [https://www.trajans-column.org/?attachment\\_id=538](https://www.trajans-column.org/?attachment_id=538) (accessed July 14, 2023).

<sup>179</sup> Ivanovits, & Kulcsar, Sarmatians through the eyes of strangers. The Sarmatian warrior, p.157.

<sup>180</sup> Brzezinski, R. & Mielczarek, N., *The Sarmatians 600 BC – 450 AD*, Osprey Publishing, Oxford 2002, p. 46, E2; see also photo on p. 5.

cavalry in general did not require these, thanks to their robust armor<sup>181</sup>. In summary, the apparent absence of traditional combined asbārān and horse archer assaults in numbers of engagements after Carrhae may be attributed to the evolution of Parthian cavalry and tactics. This leads to the third query of the varieties of Parthian tactics reported from the Gotha Manuscripts, the Shahname, Islamic era sources and the Byzantine Interpolation of Aelian examined earlier in which armored horse archers were integral to numbers of battlefield deployments.

In conclusion, the tactics of the Parthian cavalry were characterized by variety and evolution, notably with the appearance of new forms of cavalry such as armored horse archers and (as per the battle of Nisibis), camel cataphract lancers. The asbārān and horse archer coordinated system was apparently one of a variety of tactics available to the Parthian spād which was able to utilize several alternate tactics such as the rhombus and wedge formations. As noted previously, the capabilities of the armored cavalry corps were to apparently expand to include archery as illustrated by the relief panel at Firuzabad. Iranian cavalry development and tactics were to continue their evolution into the later Sassanian era savārān cavalry corps, notably the rise of the “composite cavalryman” of the 6<sup>th</sup> and early 7<sup>th</sup> century CE. This type of cavalryman is described as having been capable of lance warfare, close quarters combat and horse archery. As described by Ṭabarī, this type of later Iranian pre-Islamic era cavalryman was equipped as follows: “... horse mail, soldier’s mailed coat, breastplate, leg armor plates, sword, lance, shield, mace, and fastened at his waist, a girdle, battleaxe, or club, a bowcase containing two bows with their strings, thirty arrows, and finally, two plaited cords, which the rider let hand down his back from the helmet.”<sup>182</sup>

The late Sassanian savārān were essentially the heirs of the developments of their Parthian asbārān and horse archer predecessors of the Arsacid era.

## REFERENCES

### Middle Persian and New Persian Sources

- Ayâdigâr-i-Zârîrân* (translated by J.J. Modi, 1899/1917), Bombay: Education Society's Steam Press;  
See also Gheiby, B. 1999. *Ayadgar-i Zariran*. Bielefeld, Germany: Nemudar Publications.
- Ferdowsi (Firdowsi), Abolghassem, *Shāhnāme* (edited and compiled by F. Junaydi, Preface and 5 volumes, 1387/2008), Nashr-e Balkh vabesteh be Bonyad-e Nishabur, Tehran.
- Kārnāmag ī Ardāshīr ī Babagān* (translated from Pahlavi to New Persian by B. Faravashi, 1354/1975), Tehran University, Tehran.

### The Gotha Manuscripts and Islamic Era Sources

- Aqṣarā’ī (al-), Muḥammad ibn ‘Īsā ibn Ismā‘īl al-Ḥanafī (1979, translated by G.R. Smith), *Nihayat al-Su’l wa al-Ummiya fi Ta’allum ‘Amal al-Furusiyya* (translation: Compendium of the Military Arts; Smith’s translation “*Medieval Muslim Horsemanship. A Fourteenth-Century Arabic Cavalry Manual*”), London: British Library.
- Āyīn-nāme* (originally in Middle Persian Pahlavi) - *Ibn Qutayba, Uyun al-Akhhbar*, 4 volumes. This work contains a subsection “Kitab al-Harb” which in turn contains an Arabic translation of portions of the Pahlavi work, the “Kitab al-Ayin”, Cairo, 1964.
- Bal‘amī, Abu Ali Mohammad bin Muhammad, *Tarikh Baalami* (edited by M.A. Bahar & M.P. Gonabadi, 1353/1974), Chapkhaneye Tabesh, Tehran.

---

<sup>181</sup> Cassius Dio, *Roman History*, p. 40, 14, 2.

<sup>182</sup> Ṭabarī, *Ta’rikh al-Rusul wa’l-Muluk*, Volume V, p. 964.

*Das Heerwesen der Muhammedaner und die Arabische Uebersetzung der Taktik des Aelianus; mit Zeichnungen und dem Plane eines Muhammedanischen Lagers / aus einer Arabischen Handschrift der Herzoglichen Bibliothek zu Gotha* [The army of the Muhammadans and the Arabic translation of Aelianus' tactics; with drawings and the plan of a Muhammadan camp / from an Arabic manuscript in the Ducal/Dukedom Library in Gotha] (1880, edited and translated from Gotha Manuscript 258, f.110-215 by F. Wüstenfeld), Göttingen, Dieterich'sche Verlags-Buchhandlung.

Ṭabari (al-), Muhammad ibn Jarir, *The History of Al-Tabari (Ta'rikh al-Rusul wa'l-Muluk) Volume IV: The Ancient Kingdoms* (translated by M. Perlmann, 1987), State University of New York Press, Albany NY.

### **Syriac, Caucasian and Sanskrit Sources**

Agathangelos, *The Romance of Artawan and Artashir in History of the Armenians* (translated by G. Muradyan & A. Topchyan, 2008), Yerevan: Matandaran Institute.

Kautiliya, *Arthaśāstra* (edited & translated by L.N. Rangarajan), New York: Penguin Books, New York, 1992.

Msiha Zkha, *Die Chronik von Arbela* [Chronicle of Arbela] (translated by T. Kroll in 1985), Peeters, Leuven.

### **Greco-Roman Sources**

Aelianus, *Aelian's Manual of Hellenistic Military Tactics* (tr. A.M. Devine, 1989).

Ammianus Marcellinus, *The Later Roman Empire* (translated by W. Hamilton, 1986), London, England: Penguin Books; See also translation by J. C. Rolfe (1939), Cambridge, Massachusetts: Harvard University Press.

Arrian, *The Anabasis of Alexander* (translated by P.A. Brunt, 1976-1983), Harvard University Press, Cambridge Massachusetts.

Cassius Dio, *Roman History* (translated by E. Carey, 1914), William Heinemann, London.

Florus, Lucius Annaeus, *Epitome of Roman History* (translated by E.S. Forster, 1960), Harvard University Press, Cambridge, MA.

Herodian, *History of the Empire* (translated by C. R. Whittaker, 1970), Cambridge, MA: Harvard University Press.

Justin (Marcus Junianus Justinus), *Epitome of the Philippic History of Pompeius Trogus*, (translated by J. S. Watson, 1853), Henry G. Bohn, London.

Plutarch, *Fall of the Roman Republic Six Lives by Plutarch: Marius, Sulla, Crassus, Pompey, Caesar, Cicero* (translated by R. Warner, 1970), Penguin Books; Pelling, C. London & New York 2011.

Plutarch, *Lives, Volume IX: Demetrius and Anthony. Pyrrhus and Gaius Marius* (translated by B. Perrin, 1920), Cambridge, MA: Harvard University Press.

Polybius, *The Histories* (translated by W.R. Paton, 1922-1927), Harvard University Press, Cambridge, Massachusetts.

Sallust (Gaius Sallustius Crispus), *The Histories* (P. McGushin, 1992), Oxford University Press, Oxford.

Strabo, *Geography*, translated by H. L. Jones (ed.), Perseus project, Tufts University, 2000; see also Strabo, *Geographica* (translated and edited by H. L. Jones, & J.R.S. Sterret, Cambridge, Massachusetts: Harvard University Press, 1924.

Tacitus, *The Annals* (translated by A.J. Church & W.J. Brodribb, 1876),: Macmillan & Co., London.

### Secondary Sources

- Anderson, E.B., *Cataphracts: Knights of the Ancient Near Eastern Empires*, Pen & Sword Military, Barnsley, England 2016.
- Barnett, G., *Emulating Alexander: How Alexander the Great's Legacy Fuelled Rome's Wars with Persia*, Pen & Sword, Barnsley, England 2017.
- Bishop, M.C. & Coulston, J.C.N., *Roman Military Equipment from the Punic Wars to the Fall of Rome*, Oxbow, Oxford 2006.
- Bivar, A.D.H., The political history of Iran under the Arcasids. In E. Yarshater (Ed.), In I. Gershevitch (ed.), *Cambridge History of Iran: Vol.3(1) The Seleucid, Parthian and Sassanian Periods*, Cambridge University Press, Cambridge 1983, pp. 21-99.
- Brzezinski, R. & Mielczarek, N. (2002). *The Sarmatians 600 BC – 450 AD*. Oxford: Osprey Publishing.
- Cernenko, E.V., *The Scythians 700-300 BC*, Osprey Publishing, London 1983, reprinted 1989.
- Clodfelter, M. (2002). *Warfare and Armed Conflicts: A Statistical Reference to Casualty and Other Figures, 1500–2000*. Jefferson NC: McFarland & Company. \*\*
- D'Amato, R., *Roman Army Units in the Eastern provinces (1): 31 BC-AD 195*, Osprey Publishing, Oxford 2017.
- Daryaei, T., From Terror to Tactical Usage: Elephants in the Partho-Sasanian period. In V.S. Curtis, E.J. Pendleton, M. Alam & T. Daryaei (eds.), *The Parthian and Early Sasanian Empires: Adaptation and Expansion, Proceedings of a Conference held in Vienna 14-16 June 2012*, Published by the British Institute of Persian Studies (BIPS) Archaeological Monographs Series, Oxbow Books, Oxford & Philadelphia, 2016, pp. 36-41.
- Dodgeon, M.H. & Lieu, S.N.C. (1991). *The Roman Eastern Frontier and the Persian Wars (AD 226-363)*. London & New York: Routledge. \*\*
- Ellerbrock, U., *The Parthians: The Forgotten Empire*, Routledge, New York 2021.
- Erdkamp, P., *A Companion to the Roman Army*, Wiley-Blackwell, Oxford 2011.
- Farrokh, K., Karamian, Gh., Delfan, M., Astaraki, F., Preliminary Reports of the Late Parthian or Early Sassanian Relief at Panj-e Ali, the Parthian Relief at Andika and Examinations of Late Parthian Swords and Saggers. *Historia I Świat*, No. 5, 2016, pp. 31-55.
- Farrokh, K., Karamian, Gh., Kubic, A., & Oshterinani, M.T., An Examination of Parthian and Sasanian Military Helmets, In K. Maksymiuk & Gh. Karamian (eds.) *Crowns, hats, turbans and helmets: Headgear in Iranian history volume I*, Siedlce University & Tehran Azad University, 2017, pp. 121-163.
- Farrokh, K., Karamian, Gh., Maksymiuk, K., *A Synopsis of Sasanian Military Organization and Combat Units*, Siedlce, Siedlce University Press, Institute of History and International Relations & Tehran Azad University Press, Department of Archaeology and History, Siedlce & Tehran, 2018.
- Farrokh, K., Observation of the Role of Climate and Geography in the War Planning of the Sasanian Spāh. *Hunara: Journal of Ancient Iranian Arts and History*, Vol.1, No.1, 2023, pp. 61-70.

- Farrokh, K., *Shadows in the Desert: Ancient Persia at War*, Osprey Publishing, London 2007.
- Farrokh, K., *The Armies of Ancient Persia: The Sassanians*, Pen & Sword Publishing, Barnsley 2017.
- Ghirshman, R., *Iran, Parthians and Sassanians*, Thames & Hudson, London 1962.
- Gradoni, M.K., The Parthian campaigns of Septimius Severus: Causes and roles in dynastic legitimization, In E.C. De Sena (ed.), *The Roman Empire during the Severan Dynasty: case Studies in History, Art, Architecture, Economy and Literature*, Gorgias Press, New Jersey 2013, pp. 3-23.
- Gregoratti, L., The Arsacids vs. Rome (First to Third centuries CE): Observations on Parthian Tactics and Warfare. In J. Hyland & Kh. Rezakhani (eds), *Brill's Companion to War in the Ancient Iranian Empires*, Brill: Leiden & Boston, 2025, pp. 366-399.
- Gregoratti, L., The Parthians between Rome and China, *Academisk Quarter*, 4/2, 2012, pp. 109-119.
- Hignett, C., *Xerxes' Invasion of Greece*, Clarendon Press, Oxford 1963.
- Istanovits, E., & Kulcsar, V., Sarmatians through the eyes of strangers. The Sarmatian warrior. In E. Istanoivits & V. Kulscar (eds), *International Connections of the Barbarians of the Carpathian Basin in the 1<sup>st</sup> to 5<sup>th</sup> centuries A.D. Proceedings of the international conference held in Aszod and Nyiregyhaza*, Muzeumi Fuzetek & Josa Andras Muzeum Kiadvanyai, 2001, Aszod & Nyiregyhaza, Hungary, pp. 139-169.
- Jalali, I. (1383/2004). *Arteshe Iran dar Asre Sassanian* [The Army of Iran in the Sassanian Era]. Kerman, Iran: Entesharate Vadiat.\*\*\*
- Karamian, Gh., Farrokh, K., Kiapi, M.F., & Lojandi, H.N., Graves, Crypts and Parthian Weapons Excavated from the Gravesites of Vestemin. *Historia I Sviat*, No.7, 2018, pp. 35-70.
- Karasulas, A., *Mounted Archers of the Steppe 600 BC-AD 1300*, Osprey Publishing, Oxford 2004.
- Kennedy, D.L., Parthian Regiments in the Roman Army. In J. Fitz (ed.) *Limes. Akten des XI Internationalen Limeskongresses 1977*, Akadémiai Kiadó Hungarian Academy of the Sciences, Budapest 1977, pp. 521-531.
- Khorasani, M. M., *Arms and Armor from Iran: The Bronze Age to the End of the Qajar Period*. Legat Verlag, Tübingen, Germany, 2006.
- Khorasani, M. M., *Lexicon of Arms and Armor from Iran: A Study of Symbols and Terminology*, Legat Verlag, Tübingen, Germany 2010.
- Kia, A., *The Persian Empire: A Historical Encyclopedia [2 volumes]: A Historical Encyclopedia (Empires of the World) ABC-CLIO*, 2016.
- Kistler, J. M. *Animals in the Military: From Hannibal's Elephants to the Dolphins of the U.S. Navy*, ABC-CLIO, Santa Barbara (California), Denver (Colorado), Oxford (England) 2011.
- London, J.E., *Soldiers and Ghosts: A History of battle in Classical Antiquity*. Yale University Press, New haven & London 2005.
- MacAllister, D.W., *Formidable Genus Armorum: The Horse Archers of the Roman Imperial Army*. Master's Thesis, Department of Classics, University of British Columbia, 1993.
- Matufi, A. *Tarikh-e-Chahar Hezar Sal-e Artesh-e Iran: Az Tamadon-e Elam ta 1320 Khorsbeedi, Jang-e-Iran va Aruqb* [The 4000 Year History of the Army of Iran: From the Elamite Civilization to 1941, the Iran-Iraq War], Entesharat-e Iman, Tehran 1378/1999.
- McDowall, D., *A Modern History of the Kurds*, I.B. Tauris, London 1999.

- Michalak, M., The Origins and Development of Sassanian Heavy Cavalry, *Folia Orientalia*, 24, 1987, pp. 73-86.
- Mielczarek, M., Cataphracts - A Parthian Element in the Seleucid Art of War, *Electrum*, 2, 1998, pp. 101-105.
- Nikonorov, V.P., Central Asia: From Achaemenids to Timurids – Archaeology, History, Ethnology, Culture. In V.P. Nikonorov (ed.), Materials of the international scientific conference dedicated to the 100th anniversary of the birth of Alexander Belenitzky, St. Petersburg, November 2-5, 2004, St. Petersburg: Institute of the History of Material Culture of the Russian Academy of Sciences, 1995, pp. 141-179.
- Nikonorov, V.P., On the Parthian Legacy in Sasanian Iran: the Case of Warfare. In V. Nikonorov (ed.), *Central Asia from the Achaemenids to the Timurids: Archaeology, History, Ethnology, Culture. Materials of an International Scientific Conference dedicated to the Centenary of Aleksandr Markovich Belenitsky* (St. Petersburg, November 2–5, 2004), St. Petersburg: Institute of the History of Material Culture of the Russian Academy of Sciences, 2005, pp. 141-179.
- Nikonorov, V.P., *The Armies of Bactria 700 BC-450 AD Volume I (Text)*, Montvert Publications, Stockport 1997.
- Nossov, K., *War Elephants*, Osprey Publishing New Vanguard, Oxford 2008.
- Olbrycht, M. J., Central Asian, Achaemenid and Parthian Cavalry Developments. Древние культуры Евразии: Материалы международной научной конференции, посвященной 100-летию со дня рождения А. Н. Бернштама; Редакционная коллегия: В. А. Алёкшин и др. Санкт-Петербург [Ancient cultures of Eurasia: Proceedings of the international scientific conference dedicated to the 100th anniversary of the birth of Bernshtam; Editorial board: VA Alëkshin et al.], St. Petersburg: Russian Academy of Sciences & Institute for the History of Material Culture, 2010, pp. 196-200.
- Olbrycht, M. J., The Political-military strategy of Artabanos/Ardawan II in AD 34-37, *Anabasis: Studia Classica et Orientalia*, 3, 2012, pp. 215-237.
- Olbrycht, M.J. The origins of the Arsacid Parthian Cavalry: Some Remarks. In W.M. Masson (ed.), *The Role of Abalteke Horse in the Formation of World Horse-Breeding: Materials for the International Conference*, The Rukhname Presidential Programme Dedicated to the 10<sup>th</sup> Anniversary of Independent Turkmenistan, Ashkabad 2001, pp. 108-111.
- Olbrycht, M.J., Manpower Resources and Army Organization in the Arsacid Empire, *Ancient Society*, 46, 2016, pp. 291-338.
- Olbrycht, M.J., Parthia and Nomads of Central Asia. Elements of Steppe Origin in the Social and Military Developments of Arsacid Iran. *Orientwissenschaftliche Hefte. Mitteilungen des SFB "Differenz und Integration" 5: Militär und Staatlichkeit*, 12/2003, Germany: Orientwissenschaftliches Zentrum der Martin Luther Universität Halle-Wittenberg, 2003, pp. 69-109.
- Olbrycht, M.J., Parthian Military Strategy in Wars Against Rome. In G.V. Viliambachov & V.M. Masson (eds.), *Military Archaeology: Weaponry and warfare in the Historical and Social Perspective (2-5 September 1998)*, St. Petersburg: The State Hermitage Museum Institute of the History of Material Culture of Russian Academy of Sciences, 1998, pp. 138-141.
- Overtom, N., *Reign of Arrows: Rise of the Parthian Empire in the Hellenistic Middle East*, Oxford University Press, Oxford 2020.

- Overtoom, N., The Parthians Unique Mode of Warfare: A Tradition of Parthian Militarism and the Battle of Carrhae, *Anabasis: Studia Classica et Orientalia*, 8, 2017, pp. 95-122.
- Perevalov, S. M. (translated by M.E. Sharpe), The Sarmatian Lance and the Sarmatian Horse-Riding Posture. *Anthropology & Archeology of Eurasia*, Spring, 41/4, 2002, pp. 7-21.
- Pourdavood, I., *Yad-dashthaye Gathaba* [Notes on the Gathas]. Tehran: Entesharate Anjomane Iranshenasi, Tahran 1336/1957.
- Sampson, G. C., *The Defeat of Rome: Crassus, Carrhae and the Invasion of the East*, Pen & Sword, Barnsley, England 2015.
- Shahbazi, A., Sh., Army, pre-Islamic Iran, *Encyclopedia Iranica*, Vol. II, Fasc. 5, 1986, pp. 489-499.
- Sheldon, R. M., *Rome's Wars in Parthia: Blood in the Sand*, Vallentine Mitchel, London, England & Portland, Oregon 2014.
- Sheppard, S., *Roman Soldier vs Parthian Warrior: Carrhae to Nisibis*, Oxford Bloomsbury 2020.
- Sidnell, P., *Warhorse: Cavalry in Ancient Warfare*, Hambleton Continuum, London 2006.
- Syvänne, I. *Persia, la Caída de un Imperio* [Persia, the fall of an Empire], *Desperta Ferro*, 24, 2014, pp. 44-51.
- Syvänne, I., & Maksymiuk, K., *The Military History of the Third Century Iran*, Scientific Publishing House of Siedlce University of Natural Sciences, Siedlce, Poland 2018.
- Syvänne, I., Parthian Cataphract vs. the Roman Army 53 BC-AD 224. *Historia I Świat*, No. 6, 2017, pp. 33-54.
- Syvänne, I., *The Age of Hippotoxotai. Art of War in Roman Military Revival and Disaster (491-636)*, Tampere University Press, Tampere 2004.
- Thorne, J., Battle, Tactics and the Emergence of the Limites in the West. In P. Erdkamp (ed.), *A Companion to the Roman Army*, Blackwell Publishing Ltd., Malden MA 2007, pp. 218-234.
- Ureche, P., Some Tactical Elements for Archers in the Roman Army, *Journal of Ancient History and Archaeology*, No. 2.4, 2015, pp. 10-14.
- Warry, J. *Warfare in the Classical World: An Illustrated Encyclopedia of Weapons, Warriors, and Warfare in the Ancient Civilizations of Greece and Rome*, University of Oklahoma Press, Norman (1997, reprinted 2015).
- Wheeler, E. L., *The Army and the Limes in the East*, In P. Erdkamp (ed.), *A Companion to the Roman Army*, Wiley-Blackwell, Oxford 2007, pp. 235-266.
- Wilcox, P., *Rome's Enemies 3: The Parthians and the Sassanians*, Osprey Publishing, Oxford 1999, 1986.
- Wozniak, M.A., *The Armies of Ancient Persia: From the Founding of the Achaemenid State to the Fall of the Sassanid Empire*, Winged Hussar Publishing, Lawrence NJ 2019.