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# Cutting the Enemy's Line of Supply: The Rise of the Tactic and Its Use in Early Chinese Warfare

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## Abstract

As the logistical distance between a field army and its domestic base increased from being measured in days to weeks or even months during the Warring States period, how to maintain the continual provisioning of armies on campaigns of long duration conducted in faraway places became a crucial issue. On the other hand, a new tactic which capitalized on the fragility of the enemy's supply lines arose subsequently, and became an option to break stalemates and to undermine the enemy's will and ability to fight before a frontal assault. This study, by tracing four documented cases, aims to analyze the preconditions that gave rise to the tactic of cutting the enemy's supply line, and through these to examine certain features in the development of early Chinese warfare.

## Keywords

supply line/line of supply – early Chinese warfare – cavalry – tactics – Warring States period

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Famine makes greater havoc in an army than the enemy, and is more terrible than the sword.

VEGETIUS, *De Re Militari*, Book III<sup>1</sup>



Early in the ninth lunar month of the year 260 BC, the Zhao 趙 army camped at Changping 長平 had been starving for forty-six days since their line of supply was cut by the opposing Qin 秦 forces; the trapped Zhao soldiers were killing and eating their comrades covertly. By cutting the Zhao army off from resupply, the Qin commander Bai Qi 白起 (d. 257 BC) left his Zhao counterpart Zhao Kuo 趙括 (d. 260 BC) no choice but to be starved out. Zhao Kuo eventually led his men to attack the Qin stronghold. He was shot dead and his purportedly 400,000 troops surrendered—all but 240 of them were slaughtered by order of Bai Qi.<sup>2</sup> The Battle of Changping has gone down in Chinese history as one of the bloodiest battles of all time.

<sup>1</sup> Vegetius, 128.

<sup>2</sup> The total death toll of the Zhao side has long been questioned in Chinese history; the focal point is whether Bai Qi buried the 400,000 defeated soldiers alive as the conventional interpretation of the historical records suggested. A typical view can be seen in the comments made by Zhu Xi 朱熹 in the twelfth century. Zhu found it extremely dubious that 400,000 men gave up their weapons and let themselves be slaughtered, not to mention how a large enough pit was dug for burying such a huge crowd. He therefore denied the authenticity of the figures. See *Zhuzi yulei*, 83: 2149 and 134: 3214. Modern scholars are usually skeptical about the large number of casualties and take it as no more than exaggeration for rhetorical effect, while conceding that a massacre of a much smaller number of captives might have happened. See, for example, Lan 1979, 8-11; Jin and Xie 1998, 15-22; Zhang 2006, 45-47. In addition, although not directly addressing the Battle of Changping, Hong Jinfu has provided inspiring research on the number of 400,000 being used in a rhetorical way in Chinese history, see Hong 2001, 296-302. For further analysis of the accuracy and reliability of numbers in Chinese history, see Yang 1963, 75-84; with regard to biases concerning the numbers of ancient Chinese armies, see Graff 2002, 9-10.

On the other hand, over a hundred male skeletal remains bearing the blows of weapons have been excavated from the site of the battle in modern Shanxi province since 1995. The findings might not only corroborate the massacre but also reveal that the defeated soldiers were killed before the burial. Nevertheless, the number of bodies found was still far smaller than the received texts claimed. For the excavation report, see Shi and Song 1996, 33-40 and 98.

To identify the factor(s) that determined the outcome of the battle, both folklore and conventional historical narratives often revolve around the personality and experiences of the two commanding generals, attributing Qin's victory to the cunning stratagem of Bai Qi and Zhao's catastrophic defeat to the incompetent generalship of Zhao Kuo. Personal factors, however, are too difficult to articulate in analyzing the battle at the operational level, which includes three components: tactics, logistics, and strategy.<sup>3</sup> Of the tactics employed by both sides in the battle, cutting the enemy's line of supply was particularly singled out in the major historical sources.

The most detailed account of the Battle of Changping available today is in the *Shiji* 史記, which was compiled over a century after the battle.<sup>4</sup> The *Shiji*, like other traditional Chinese historical writings, generally gives brief accounts of no more than a few words to military operations,<sup>5</sup> but the Battle of Changping is one of the few exceptions receiving comparatively detailed treatment. Two reasons may explain this exception. First, the Battle of Changping was indeed a significant triumph for Qin, as a Qin statesman contemporaneous with Bai Qi commented in hindsight that the victory helped the state of Qin to advance its imperial enterprise (*diye* 帝業).<sup>6</sup> It might therefore be natural that the Qin official history and archives contained details of the battle, on which the compilers of the *Shiji*, Sima Qian 司馬遷 and his father Tan 談, relied heavily after the Qin imperial state banned the circulation of historical records of the erstwhile rival kingdoms. Secondly, a direct ancestor of Sima Qian named Sima Jin 司馬靳 was an aide-de-camp of Bai Qi in the Battle of Changping, an accomplice in the massacre of the Zhao captives, and was ordered by the Qin

3 The tripartite division is borrowed from Archer Jones's analytical framework of military operations. According to Jones's definitions, "Tactics deals with combat and with the weapons, methods, and maneuvers on the battlefield. Logistics concerns providing the men themselves and the support of military operations, including the movement of armies and navies and the supply of weapons, food, clothing, and shelter for the soldiers and sailors. Strategy integrates tactics and logistics to determine the military objectives and the means of carrying them out." See Jones 1997, 1.

4 See *Shiji*, 43: 1825-26, 73: 2333-35, and 81: 2447. The *Zhanquo ce* 戰國策 also contains several entries on the Battle of Changping but focuses on diplomacy and stratagems rather than military operations.

5 Records of military operations in ancient China were always written by literati who either were unfamiliar with, if not hostile to, military affairs or deliberately diverted the focus from battlefield combat to court discussion, leaving many of the practical details of warfare unknown. For the characteristics of writing about warfare in traditional Chinese history, see Graff 2002, 4-10 and Graff 2009, 143-64.

6 *Shiji*, 79: 2423.

king to commit suicide along with Bai Qi three years later. Given Sima Jin's close relationship with Bai Qi and his own role in the military campaign, it is not impossible that certain esoteric family records of the battle might have been available and thus enabled the compilers of the *Shiji* to spill more ink on such a remarkable event.<sup>7</sup>

Whatever texts it was based on, the *Shiji*'s account of the Battle of Changping mentioned the blockade or cutoff of Zhao's line of supply three times.<sup>8</sup> Such a frequent mention might indicate the chronicler's intentional emphasis on the significant role of the cutting supply line tactic (hereafter the CSL tactic) in contributing to the destruction of the Zhao army. As a matter of fact, it is also the earliest documented case of using such a tactic in the extant Chinese sources. It might not be a coincidence that the first recorded case appeared in the Warring States period (403-221 BC), an epoch marked by drastic changes in various aspects of military affairs in Chinese history. New tactics were introduced to cope with new challenges arising from the internecine warfare of the period, and certain new conditions made the execution of new tactics possible. Examining the circumstances that gave rise to the CSL tactic, as this paper aims to do, will not only provide a case study of the rise and use of the tactic but also trace certain features of military development in early China.

#### Four Cases in the *Shiji*

Following the Battle of Changping, there were three other cases of employing the CSL tactic in military campaigns, for which, to a certain extent, evidence survives in the *Shiji*, namely the Battle of Julu 鉅鹿 (207 BC), the Chu 楚-Han 漢 campaign (203-202 BC), and the Rebellion of the Seven States (154 BC). All four cases were significant military operations with far-reaching impacts for those living in the late third and second centuries BC, which is possibly one of the reasons why the compiler of the *Shiji* acquired and offered comparatively detailed accounts of the tactics, logistics, and strategies being used. Sorting through the *Shiji*'s account of the four campaigns, it is obvious that the adoption of the CSL tactic was highlighted and that there were some common conditions under which this particular tactic was used.

7 See *Shiji*, 130: 3286. There was also another general named Sima Geng 司馬梗 under Bai Qi's command in the battle, but no details are available for identifying his relationship with Sima Jin; see *Shiji*, 73: 2335.

8 *Shiji*, 73: 2334.

**(1) *The Battle of Changping (260 BC)***

The battle was an all-out military confrontation between Zhao and Qin triggered by a struggle for control of the Shangdang 上黨 region located in between the two states.<sup>9</sup> In 262 BC, Qin invaded the Yewang 野王 region of the Han 韓 state and thus isolated neighboring Shangdang. While Qin regarded the annexation of Shangdang as just a matter of time, the Han administrator of the region frustrated Qin's plan by handing over his domain to Zhao.<sup>10</sup> In 260 BC, Qin troops captured Shangdang, forcing refugees to flee eastward and settle with the Zhao army at Changping. From the fourth to seventh lunar months, several skirmishes broke out between the two armies, in which the Qin gained the upper hand. The Zhao army then averted further engagement and stolidly held their positions under the command of the seasoned general Lian Po 廉頗. Such a stalemate was unfavorable to the Qin army since the longer the confrontation lasted, the more likely Zhao would receive reinforcements from other states. The Qin side was eager to break the deadlock, and therefore sent a spy to spread rumors in the state of Zhao, which persuaded the Zhao king, who was impatient with the defensive strategy, to replace Lian Po with Zhao Kuo. On the other hand, the Qin king sent Bai Qi surreptitiously to the front-line to assume the commandership, without letting Zhao Kuo realize that he was facing a cunning and seasoned opponent and thus leaving him more likely to be caught off guard. When Zhao Kuo launched an attack against the Qin forces, General Bai made a feigned retreat to lure the Zhao army to pursue his men and, meanwhile, dispatched 25,000 troops (including 5,000 cavalymen) to the rear of the pursuing forces to cut off the Zhao troops from their camp. The Zhao army was thus split into two and the line of supply was cut off. Being unable to break through, Zhao Kuo had his men build new camps and waited for rescue. The Qin king, however, hemmed in the Zhao army and personally visited the Henei 河內 region to mobilize the local subjects aged fifteen and above and send them to Changping to strengthen the blockade of Zhao's line of supply. It lasted for forty-six days until Zhao Kuo made his failed last assault and died in the mêlée.

**(2) *The Battle of Julu (207 BC)***

The battle occurred in the midst of the civil war that broke out in the last years of the Qin dynasty. On the eve of the battle, the Qin imperial army under the command of Zhang Han 章邯 (d. 205 BC) still managed to defeat the rebels

9 For the long-term background of the Battle of Changping, see Tse 2005, 1-22.

10 Emura Haruki has a delicate analysis of the attitudes of the Shangdang officials and residents towards the conflict; see Emura 2000, 348-55.

scattering across the eastern half of the empire. After a series of successes, Zhang moved his forces to the erstwhile Zhao territories where a Zhao kingdom had now been restored. Zhang deployed two generals to lay siege to the city of Julu, where the self-proclaimed Zhao king and his courtiers were located, while he himself camped in the southern environs and constructed a walled path (*yongdao* 甬道) to guarantee a continual supply of food to the besiegers.<sup>11</sup> In other words, the Qin army had a fortified line of supply. Several rebel armies gathered around Julu, but none of them dared to engage the Qin forces. Xiang Yu 項羽 (232-202 BC), a young warrior who had recently killed his superior and taken over the army originally dispatched to the Zhao's rescue, determined to challenge the Qin army. Following a failed first attack, Xiang personally led his troops for an all-out assault, fighting nine rounds with the besieging army and finally defeating them after cutting their fortified line of supply. The siege of Julu was therefore lifted. This was the battle through which Xiang Yu made his name and established his leadership among the rebels. Zhang Han, unable to save the besieging army, eventually surrendered to Xiang after losing a series of ensuing fights.

### (3) *The Chu-Han Campaign (203-202 BC)*

After the end of the Qin dynasty in 207 BC, the civil war turned into a struggle over the empire between Xiang Yu's Chu and Liu Bang's 劉邦 (256-195 BC) Han. Since 204 BC, the war had devolved into a stalemate as both sides fought back and forth along a frontline in the Henan region without making any decisive breakthrough.<sup>12</sup> Denying the enemy's access to provisions then became an option for tipping the balance. Xiang Yu launched several strikes on, and sometimes captured, the fortified supply line (*yongdao*) between the Han stronghold Xingyang 滎陽 and the granary of Aocang 敖倉, which seriously threatened the supply of the Han army and finally forced Liu Bang to ask for peace.<sup>13</sup> An internal conflict in the Chu leadership stirred up by a Han spy, however, frustrated Chu's effort and gave the Han a respite. Liu Bang then sent his kinsman Liu Jia 劉賈 (d. 196 BC) and ally Peng Yue 彭越 (d. 196 BC) to the Chu territory and severed Xiang Yu's lines of supply. The *Shiji* repeatedly mentions Peng and Liu, with a combination of infantry and cavalry, burning down the Chu supply depots and cutting off the supply to Xiang Yu.<sup>14</sup> There are also records of other generals leading cavalymen to attack Chu's lines of supply

11 *Shiji*, 7: 304 and 307.

12 *Shiji*, 7: 324 and 8: 372-73.

13 *Shiji*, 7: 325, 8: 372-73, and 56: 2055.

14 *Shiji*, 7: 327, 329, 333; 8: 375, 377; 51: 1993; 90: 2592.

in separate operations.<sup>15</sup> The frequent cutoff of the supply lines progressively pushed the Chu army into an extremely difficult situation and led to the final destruction of Xiang Yu.

#### (4) *The Rebellion of the Seven States (154 BC)*

The rebellion broke out in the reign of Han Emperor Jing 景 (r. 157-141 BC), Liu Bang's grandson, as a result of the enduring rivalry between the Han imperial court and the kingdoms ruled by imperial kinsmen, as well as geopolitical conflict between the eastern and western parts of the empire, since the early days of the dynasty. When Emperor Jing tried to weaken the power of the enfeoffed states, seven of them—Wu 吳, Chu 楚, Zhao 趙, Jiaodong 膠東, Jiaoxi 膠西, Jinan 濟南, and Zichuan 淄川—launched a rebellion, assembling a sizable army and marching towards the imperial capital. King Liu Pi 劉濞 (216-154 BC) of Wu even aimed to take the throne himself. Failing to placate the rebels through diplomacy, Emperor Jing resorted to military means and appointed Zhou Yafu 周亞夫 (d. 143 BC) as commander of the imperial army. Meanwhile, the army of the kingdom of Liang, where the ruler was the emperor's younger brother, served as a loyal defender that obstructed the rebels' way to the imperial center. Neither the rebels nor the Liang army could deliver the other a knockout blow. Facing a stalemate, certain insightful generals turned their eyes to the foe's lines of supply. A junior general of Wu advised his lord to outflank the enemy and march swiftly west to capture the important Han granary at Aocang, with which the rebels would not only acquire abundant provisions but also seriously undermine the Han's defensive strength.<sup>16</sup> But the King of Wu and his senior generals regarded it as a bold plan and therefore rejected it. On the other hand, Zhou Yafu avoided engaging the rebels too early before they had lost their momentum; he held back his troops and left the Liang forces to absorb the rebels' thrust.<sup>17</sup> When the time came, Zhou sent mobile troops to the rear of the rebels and cut their supply line. The cutoff caused many rebel soldiers to starve to death, shattered their morale, and eventually triggered a headlong retreat.<sup>18</sup> The Han army pursued vigorously to eliminate the defeated enemy, and subsequently quelled the rebellion.

With the CSL tactic as a thread running through the four cases recorded in the *Shiji*, there were three conditions in common that could give a glimpse of the preconditions for the rise and use of the tactic. First, the CSL tactic was

15 *Shiji*, 95: 2668 and 98: 2710.

16 *Shiji*, 106: 2832.

17 *Shiji*, 106: 2831-32.

18 *Shiji*, 50: 1988, 57: 2076, 58: 2082, and 106: 2834.

introduced when the four campaigns had devolved into stalemate. The tactic was thus used as an attempt to break the deadlock. Its successful execution interrupted or destroyed the material support that the adversary relied upon and subsequently dealt a severe blow to their morale. Second, the campaigns involved large numbers of troops and covered long distances. The belligerents had to provide large loads of food and materials via stable lines of supply to armies campaigning beyond their home territories—living off the enemy's land was only a short-term supplementary measure that would be difficult to continue when the nearby residents fled from the area and left the invading forces nothing to loot. Lines of supply hence served as the lifeline of an army, like the major arteries in the body. At the same time, they became a tempting target for the enemy. Third, the attackers needed an effective tool to implement the CSL tactic, for which they had to divide their own forces and deliver troops with high mobility and long-range attack capabilities, particularly the cavalry, to move speedily to the rear of the enemy, where the lines of supply were generally located.

### The Rise and Use of the CSL Tactic

To be sure, before the introduction of the CSL tactic in the Warring States period, a wide range of tactics were already being used on the battlefield to exploit the weakness of one's enemy. A host of examples, including the outflanking maneuver,<sup>19</sup> ambush,<sup>20</sup> deception,<sup>21</sup> feigned flight,<sup>22</sup> interdiction,<sup>23</sup> nocturnal assault,<sup>24</sup> spying,<sup>25</sup> and poisoning the drinking water,<sup>26</sup> can be found in the *Zuo zhuan* 左傳, the primary record of the warfare of the preceding Spring and Autumn period (770-404/722-468 BC).<sup>27</sup> The CSL tactic was not an entirely

19 *Chunqiu Zuo zhuan zhu*, Yin 隱 5.4: 45.

20 *Chunqiu Zuo zhuan zhu*, Yin 9.6: 65-66 and Xiang 襄 25.8: 1104.

21 *Chunqiu Zuo zhuan zhu*, Huan 桓 6.1: 109-111, Huan 12.3: 134, Zhuang 莊 28.3: 241-42, Xi 僖 25.3: 434-35, Xi 33.1: 495-96, and Xiang 18.3: 1038.

22 *Chunqiu Zuo zhuan zhu*, Huan 9.2: 125 and Xiang 25.8: 1104.

23 *Chunqiu Zuo zhuan zhu*, Xi 33.3: 498.

24 *Chunqiu Zuo zhuan zhu*, Xuan 宣 12.2: 737-43.

25 *Chunqiu Zuo zhuan zhu*, Zhuang 28.3: 241-42 and Xi 25.3: 435.

26 *Chunqiu Zuo zhuan zhu*, Xiang 14.3: 1009.

27 Because of its variegated records of military and diplomatic affairs, the *Zuo zhuan* has long been regarded as a manual of tactics and military casebook in imperial China, as Zhu Xi of the twelfth century pointed out that whoever studied the text seriously would know how to gain advantage and avoid harm. See *Zhuzi yulei*, 83: 2150.

novel or revolutionary concept distinct from those tactics that involved splitting and swinging one's forces around to attack the enemy's flank and rear. It was, however, an innovative device in the sense that it coped with the stalemate arising from the new pattern of warfare, specifically targeted the lines of supply of large armies campaigning over a long distance, and took advantage of the high mobility of the newly formed cavalry. It might therefore not be a coincidence that the first recorded case of using the CSL tactic on the battlefield, that is, the Battle of Changping, took place in the third century BC, since it was only in the Warring States period that the three preconditions gradually came into being.<sup>28</sup>

In the entry entitled "Urgent Battles" (*jizhan* 疾戰) of the Warring States military treatise *Liutao* 六韜 (*The Six Secret Teachings*), there is a supposed dialogue between King Wu of the Zhou dynasty and his chief advisor, the legendary Taigong Wang 太公望, in which the king asks: "If the enemy surrounds us, severing both our advance and retreat, breaking off our supply lines, what should we do?"<sup>29</sup> In another entry entitled "Certain Escape" (*bichu* 必出), the king again asks: "Suppose we have led our troops deep into the territory of the feudal lords where the enemy unites from all quarters and surrounds us, cutting off our road back home and severing our supply lines. The enemy is numerous and extremely well provisioned, while the ravines and gorges are also solidly held. We must get out—how can we?"<sup>30</sup> The two inquiries, "severing both our advance and retreat, breaking off our supply lines" (*duan wo qianhou, jue wo liangdao* 斷我前後, 絕我糧道) and "cutting off our road back home and severing our supply lines" (*duan wo guidao, jue wo liangshi* 斷我歸道, 絕我糧食), are no doubt referring to the CSL tactic, the first discussion of such a practice in the Warring States military texts. Moreover, that it was set in a supposed dialogue asking for a solution or countermeasure might tellingly reveal this particular tactic as a new challenge that military thinkers of that time tried

28 It is not impossible that the CSL tactic might have been used in the Warring States period before the Battle of Changping, but no details have been left. For example, when the third century BC diplomat Su Qin 蘇秦 (d. 284 BC) drew up a plan to persuade the kings of the six states to go against Qin, he proposed that the state of Han could take up the task of severing the Qin supply line (*jue qi liangdao* 絕其糧道) in a grand campaign when the Qin forces moved beyond their home territories. See *Shiji*, 69: 2249.

29 Here I use Ralph Sawyer's translation (Sawyer 1993, 80). For the date and authorship of the *Liutao*, see Sawyer 1993, 35-37.

30 Sawyer 1993, 80.

to address. So, what new challenges did the Warring States military confront? And under what circumstances did the CSL tactic come into the picture?

First and foremost, the CSL tactic was a product of the gradual intensification of warfare during the course of several centuries between the Spring and Autumn and Warring States periods. Tracing certain aspects of the military transformation in the two periods will help us grasp the changes in the practice and pattern of early Chinese warfare and how they gave new types of troops, tactics, and technology ample room for development, which in turn also shaped the new face of warfare.<sup>31</sup> Before moving on to such an investigation, there are a few caveats that should be kept in mind. The remainder of this article will follow the chronological convention of dividing the period from the eighth to third centuries BC into two halves, Spring and Autumn and Warring States, for the purpose of general comparison. The development of warfare, however, unfolded gradually and it is not possible to draw a clear-cut line marking overnight changes in the conduct of warfare and relevant military practices between the two periods. Most, if not all, of the military changes witnessed in the Warring States period did not emerge suddenly from nowhere but were the result of certain cumulative developments from the preceding era; it was only in the Warring States period that those changes became more pronounced. Furthermore, what a modern reader can learn about Spring and Autumn and Warring States warfare relies primarily on the scant records in the received texts, in association with relevant literary and non-literary archaeological findings. The sources, however, are not adequate for reconstructing a full picture of warfare, and the received texts generally hold biases or were even written in later periods, describing events through the lens of the writers' own times rather than that of the period being depicted. The features of warfare of the two periods discussed in this article therefore can be neither detailed nor definitive, and will only be outlined in general principles.

In the early and mid-Spring and Autumn era, when there were still quite a number of competing states and peoples—though dwindling as time went on—waging war against each other frequently, the typical open field battles narrated in the *Zuo zhuan* were usually conducted within a single day or no more than a few days, with limited choice of fields that would be suitable for arraying the troops.<sup>32</sup> Also, given the population composition and size of the Spring and Autumn polities, the usual number of combatants that a state,

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31 For a comprehensive overview of the development of early Chinese warfare, see Yates 1999, 7-46 and Tse Forthcoming.

32 Siege warfare was certainly another kind being conducted at different spatial and temporal scales. Since it does not concern the current study, I will save it for future research.

depending on its strength, could afford and deliver usually ranged from a few thousands to slightly over ten thousand, including both charioteers and infantrymen. This was especially so in the case of chariot warfare, which is conventionally portrayed as the prevailing pattern of Spring and Autumn warfare—following the accounts of the *Zuo zhuan* and the modern interpretation of unearthed chariot remains.<sup>33</sup>

To conduct chariot warfare, the combatants had to spend enormous resources and time for training in driving and shooting to make themselves qualified charioteers or chariot archers and for covering the great expenses incurred by chariots and horses—such as maintaining vehicles and harnessing, feeding, stabling, and shoeing horses, as well as eventually replacing disabled animals and vehicles. It followed naturally that fighting on the chariot became an exclusive privilege of the aristocratic warriors who could afford those costs.<sup>34</sup> In fact, it was a common feature widely seen across ancient Eurasia that a hereditary chariot-driving caste of warriors came hand in hand with chariot warfare, taking advantage of riding in chariots to uphold their elite status and outlook.<sup>35</sup> Simply put, only a limited number of warriors would be engaged in chariot warfare.<sup>36</sup> The battlespace would also be limited to places allowing smooth

33 Lu 1993, 824-38, especially 833.

34 As Ralph Sawyer points out, “military chariots that can be employed at speed represent the fruition of centuries of innovation, experimentation, and improvement, not just in materials and structure, but also in the domestication, breeding, training, harnessing, and controlling of horses with bridles, bits, and cheek pins. Advances in knowledge, technology, metallurgy, and craft skills made it possible, but the chariot’s successful exploitation as a dynamic system equally depended on a continuous interaction between the driver and the horses ... mere possession of a physical chariot, however acquired, without the integral manufacturing and equine knowledge would never have constituted a sufficient basis for it to suddenly flourish as a military weapon in China.” In addition, chariot drivers had to control two or more horses simultaneously and “the horses must be conditioned to absolute obedience ... any lack of focus in the driver or horses easily resulting in disaster for both.” Given such strict requirements, only a select group of warriors were qualified for these driving and fighting tasks. See Sawyer 2011, 343 and 349; also Wu 2013, 45-48.

35 Bulliet 2016, 121-22 and 137. For the social status of those who rode and fought on chariot in early China, see Creel 1970, 273-83.

36 The practical role and function of the war chariot in world history is in fact far from certain. There are different opinions on how a chariot was actually used on the battlefield and how chariots were organized in a formation with each other and other sections of an army. Three major views have been put forward, although general consensus is lacking. The first suggests that the chariot was used to transport the warriors—as the so-called “battle taxi”—to the battlefield, where they dismounted and fought on foot; the second takes the chariot as a mobile missile platform that the charioteers drove into range of the

movement for the chariots. According to the reconstruction of modern scholarship, an ancient chariot battle would begin with two lines of charioteers facing off on a flat plain, where the chariot lines would be widely spread and only one or two vehicles deep so as to have a good view of the enemy and enough room to maneuver. Terrain was therefore crucial, as barriers of forest, swamps, and mountains, as well as fortified positions, not to mention the poorly maintained roads, would be prohibitive to the chariots. The conventional accounts hence depicted the ancillary infantrymen—usually of socially inferior status—accompanying the chariots to help the vehicles out from ruts and holes.<sup>37</sup> Even with the help of foot soldiers, the difficult terrain still imposed insurmountable constraints on the chariots and limited their tactical reach.

A few examples will suffice to illustrate the characteristics of Spring and Autumn field battles mentioned above. In the Battle of Chengpu 城濮 (632 BC), one of the largest in the period, the opposing sides entered the battlefield on the first day of the fourth lunar month, engaged each other on the second, and concluded with a Jin victory on the same day. The Jin army then camped on the battlefield for the following three days and consumed the provisions

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enemy and shot arrows at the target while avoiding close combat; the third proposes that the charioteers would drive directly into the enemy formations and engage their foes at close quarters with long spears or lances. See Archer 2010, 58-61 and Roland 2016, 16-17. In the Chinese historical context, some scholars have tried to provide a hybrid explanation of the use of chariot in early Chinese warfare. For example, Edward Shaughnessy suggested that the role of the chariot in battle evolved from a mobile command platform to a tactical weapon, which gave the Zhou people a decisive military advantage and contributed to their conquest of the Shang state. See Shaughnessy 1988, 212-27. Herrlee G. Creel, however, asserted that the chariot mainly assumed a symbolic role and served as a command post whereas the real fighting was done and won by the infantry. See Creel 1970, 262-76. But there is still too little evidence to answer this question satisfactorily.

For comprehensive studies of the development of the chariot as a vehicle and its associated equipment in early China, see Barbieri-Low 2000, 18-48 and 65-68, and Wu 2013, 57-84, which especially provides a careful study on the symbolic status signified by the chariot.

- 37 The role of the Spring and Autumn foot soldiers in battle is not very clear. As Ralph Sawyer remarks, “how the chariot and any accompanying forces may have been coordinated remains murky and confused. Operationally the crucial question is whether the foot soldiers, if any, were nominally attached or were integrated in some sort of close spatial configuration that would enable the commander to direct them in the execution of basic tactics.” See Sawyer 2011, 366. Some scholars have made admirable attempts to elucidate this matter, but there is not sufficient evidence in the sources to say anything concrete and definitive. See Creel 1970, 284-93 and Lan 1979.

left by the defeated Chu forces, before heading home on the sixth.<sup>38</sup> In the battle, the Jin army fielded an unprecedented number of 700 chariots and was theoretically composed of 2,100 charioteers (3 per cart) and 7,000 ancillary foot soldiers (10 per cart).<sup>39</sup> Even including the allied forces in the total participants on the Jin side might only add several thousand more; if the foot soldiers only played an ancillary role, the number of combatants who actually engaged in combat would be much fewer.<sup>40</sup> Four decades later, the Jin army mobilized 800 chariots in the Battle of An 鞍 (589 BC) against the state of Qi. In the battle, the lord of Qi, who personally led his troops on the battlefield, just barely escaped being captured when his chariot was trapped in the woods, which vividly illustrates the topographical constraints on the chariot.<sup>41</sup>

Jin's full application of chariots in the two battles was at the time record-breaking, but that would be dwarfed by the scale of the Warring States period when potentates reportedly mobilized tens of thousands to hundreds of thousands of troops for a campaign. These numbers are not the actual tallies but rhetorically deployed, and may be more indicative of the relative sizes of the armies than their absolute numbers. The Qin army, for example, reportedly beheaded 80,000 Chu soldiers in the Battle of Danyang 丹陽 (312 BC) and 240,000 Han and Wei 魏 troops in the Battle of Yique 伊闕 (293 BC), killed 450,000 Zhao soldiers (50,000 killed in fighting and 400,000 slaughtered after surrender) in the Battle of Changping, and deployed 600,000 troops to conquer the state of Chu in the late 220s BC. These numbers are very likely exaggerations to a certain degree, but they still offer a glimpse of how much larger the scale of the Warring States campaigns was than that of the preceding era. As the sizes of the armies being fielded turned higher, so did the possibility of protracted operations and the subsequent costs and burdens of maintaining the men at the

38 *Chunqiu Zuo zhuan zhu*, Xi 28.3: 462. For the whole course of the Battle of Chengpu, see *Chunqiu Zuo zhuan zhu*, Xi 27.4: 444-48, Xi 28.1: 451-52, and Xi 28.3: 452-62. For an analysis of a typical Spring and Autumn field battle, see Kierman 1974, 27-56.

39 For the calculation of 10 foot soldiers accompanying one chariot, see Yan Bojun's annotated *Chunqiu Zuo zhuan zhu*, Yin 1.4: 13. Also see Barbieri-Low 2000, 68, for an example of the ratio of chariots to infantry in a ninth century BC battle.

40 Raimund Kolb uses the Battle of Chengpu as an example to calculate the space needed for chariot warfare. Assuming both the Jin and the Chu armies fielded 700 chariots respectively, then given that one chariot occupied about 16 square meters, the two armies would need a field at least 22.4 square kilometers in size just to array their chariots. See Kolb 1991, 185.

41 *Chunqiu Zuo zhuan zhu*, Cheng 2.3: 794-95.

front; the need to solve the problem of adequately supplying one's campaigning forces also became increasingly apparent.

In the Spring and Autumn period, however, the relatively short campaigns and modest number of combatants indicated that the mobilization and logistical support would be operated on moderate scale, without spilling over into the whole country or demanding continual supply from the home base. The Spring and Autumn armies customarily set off with provisions for the expected duration of the campaign and marched with wagons loaded with food and fodder, as well as other tools and everyday items; such a practice could be traced back to at least the late ninth century BC when a bronze inscription documented the capture of five enemy chariots with horses and twenty *dache* 大車, literally big carts, in a battle (understanding *dache* to mean a cargo vehicle).<sup>42</sup> A main army accompanied by baggage trains would achieve, to some extent, logistical self-sufficiency, but also limited itself in distance and speed of movement.

The standard daily marching distance recorded in the *Zuo zhuan* was 30 *li* 里 (12.45 km), with the chariots, foot soldiers, and wagons moving together. When the wagons were fully loaded, they could not move fast. Some evidence from a later period is relevant to this point. In the *Jiuzhang suanshu* 九章算術, a mathematical primer of Han times, two entries note that a wagon could travel 50 *li* (20.75 km) per day when fully loaded, but 70 *li* (29.05 km) when it was empty;<sup>43</sup> an entry in the "Statutes on Government Service" (*yaoli* 徭律) of the *Ernian lüling* 二年律令 of the early Han dynasty excavated from Zhangjiashan 張家山 also states that the daily travel distance of a heavily loaded wagon was 50 *li* and an empty wagon 70 *li*, while on foot it was 80 *li* (33.2 km).<sup>44</sup> Given the development of the road network and conditions, the wagon in Han times might move faster on the standardized road system than in earlier times.<sup>45</sup> No matter whether the wagon could move 30 or 50 *li* per day, it would still slow down the troops, whereas an army marching without wagons could move faster, rushing over 200 *li* (83 km) in a day and night in the extreme case.<sup>46</sup> Needless to say, when campaigns became longer and further away from home in the later Warring States period, the importance of supply lines that connected the army in the field with its home base grew, and the baggage trains that moved slowly

42 This is from the Shi Tong *ding* inscription. For further examination of the nature of the *dache*, see Lu 1993, 834 and Barbieri-Low 2000, 68-70.

43 *Jiuzhang suanshu jiaozheng*, 333 and 341.

44 Zhangjiashan er si qi hao Hanmu zhujian zhengli xiaozu 2006, 64 (strip no. 412).

45 For the development of road network in early imperial China, see Sanft 2014, 101-21.

46 *Hou Han shu*, 65: 2149-50.

along these lines would become a targetable weak spot. Besides the accompanying wagons that carried the provisions, taking supplies from the enemy was another important source for the Spring and Autumn armies. The Jin army refilled themselves with the provisions left by the retreating Chu forces after the Battle of Chengpu, which also means that the Chu army entered the battlefield with supplies. Given the relatively short duration and distance of the campaign and the modest size of the army, living off the enemy or relying on allies would suffice when complemented by the provisions carried by the army. In keeping with this, the *Sunzi* 孫子, a military treatise that had been compiled and edited collectively since the late Spring and Autumn Period, states that “those adept in waging war do not require a second levy of conscripts nor more than one provisioning,” as the ideal army should be fully loaded with provisions upon departure and have their next refill after their return.<sup>47</sup> An example of this was in 594 BC when the Chu king who had besieged a town of the Song state for quite a while found that his army had only supplies for seven days left; he then planned to retreat after using up those provisions rather than calling for a re-supply.<sup>48</sup> In this kind of military operation, the line of supply was unimportant, if not unavailable, and hardly a target for attack.

Furthermore, the military objectives underwent gradual changes during the Spring and Autumn and Warring States periods, with the importance of supply lines varying correspondingly. Under the multi-state geostrategic circumstances of the Spring and Autumn period, most states were closely surrounded by others and therefore preferred to conduct short campaigns so as to be able to respond quickly to any possible multi-front threat. The stronger, more aggressive states gradually expanded their territories at the expense of their contiguous neighbors, making logistical self-sufficiency easily attainable. On the other hand, they would be very cautious about launching military campaigns far beyond their borders, which would require their troops to pass through unfamiliar territories and other, sometimes hostile, polities. When they had to do so, the operation usually had limited objectives aimed at forcing the enemy to retreat, to surrender, to pay homage—even only as lip service—or to reach a peace agreement or covenant.<sup>49</sup> An example of this was Qi's 656 BC expedition, in which the lord of Qi led a coalition force on a brief invasion of Chu territory and then retreated once they had made a covenant with the target country. The distance was long but the operation was short; with the support

47 Griffith 1963, 73.

48 *Chunqiu Gongyang zhuan yizhu*, Xuan 15.1: 368-69.

49 For covenants in the Spring and Autumn period, see Lewis 1990, 43-49 and Weld 1997, 125-60.

of allies en route, the armies only need to carry a few days' provisions instead of relying on a supply line. On some occasions, an expedition passing through a rival's domain would prove catastrophic. In 627 BC, for example, the lord of Qin, despite fierce opposition from his courtiers, dispatched a force to attempt a sneak attack on the state of Cheng 鄭. When the plot was disclosed before the force had reached its destination, the Qin commander turned to attack a small polity called Hua 滑, which was an ally of Jin. The enraged Jin then took revenge when the Qin army was passing through on the way home. Trapped in a mountain pass, the Qin army was annihilated except for a few leading officers. As the entire Qin army was caught at once, it is very likely that they moved with their baggage without using a line of supply.

In the Warring States period, however, only a handful of large regional states survived the internecine struggles of the preceding era, and now they turned on each other, with warfare becoming increasingly annihilative as the rivals were no longer satisfied with merely securing a surrender but aimed to obtain new territories and even carried out massacres to weaken others' military potential in future conflicts. Long campaigns and deep penetration into enemy territories became commonplace. The large conscript armies, constituted of hundreds of thousands of farmers turned soldiers,<sup>50</sup> had grown too big to carry provisions by themselves or to live off local resources only—living off the enemy's land had to depend on seasonal and geographical factors, the availability of local produce, and the local inhabitants' attitude. The protracted and expensive warfare made the logistics of assembling materials and feeding a huge army on the march, sometimes covering a long distance, in a continuous manner become a significant enterprise and an important consideration in making battle plans. In the Battle of Maling 馬陵 (341 BC), according to the *Shiji*, the Qi army under the leadership of Tian Ji 田忌 and the strategist Sun Bin 孫臏 drove a long way into Wei territory as a way to relieve the Wei attack on the Zhao state. In response, the 100,000 Wei troops led by General Pang Juan 龐涓 rushed back to meet the Qi invading force. To lure Pang into his trap, Sun ordered his men to feign retreat and left diminishing numbers of stoves in the camp sites the following three days, deceiving Pang into thinking that the Qi army had been suffering from increasing numbers of deserters. Pang thus speeded up to try to catch the Qi army, only to be ambushed at Maling.<sup>51</sup> Though the authenticity of the battle and its dramatic ending recorded in the *Shiji* are not beyond

50 For the exercise of conscription of able-bodied men in the Warring States Period, see Du 1990, 49-96 and 392-98; Lewis 1990, 54-66.

51 *Shiji*, 65: 2164.

doubt,<sup>52</sup> the use of camp stoves as a trick reveals that feeding the army had become an important factor in calculating one's fighting capability in a battle. Denying the enemy's access to provisions or cutting the enemy off from their supply in a long-distance operation would logically develop into a tactical objective. This was especially the case when a battle devolved into a stalemate, and the damage to the belligerents' society and economy grew exponentially. The CSL tactic then came on the scene as an economical option for breaking the deadlock, starving the enemy out, or forcing a surrender. To effectively carry out the tactic, however, the availability of a force with high mobility was crucial.

In early Chinese warfare, chariots, infantry, and cavalry could be employed as the so-called light troops (*qingbing* 輕兵), that is, the forces with high mobility. The effective use of them, however, depended upon various factors, including terrain and the enemy one had to cope with.<sup>53</sup> In the Spring and Autumn period, chariots were certainly a highly mobile force, but their speed and effectiveness were heavily limited by topographical factors. Since chariots could only be fully used in the flat plains, difficult terrain—such as marshy ground, mountainous areas, woods, narrow roads, and roads in poor condition—would greatly hamper their movement.<sup>54</sup> It would be difficult if not impossible for chariots to exercise long-distance maneuver by passing through difficult terrain to outflank the enemy or to cut the supply lines located at the rear of the enemy force. The light infantry, however, was capable of overcoming certain difficult terrain that impeded the movement of chariots. But the speed of infantry was comparatively low and the fatigue caused by high-speed movement might weaken the fighting capability of the light infantrymen when they finally arrived at the decisive spot. A key component of practicing the CSL tactic successfully was swift action that would deal a surprise attack on the enemy's supply lines; speed was of the utmost importance. As the speed of foot soldiers diminished with the distance, it would undermine the effectiveness of the tactic. Therefore, the ideal tool for carrying out the CSL tactic was the

52 Differing from the *Shiji*, the military treatise attributed to Sun Bin and excavated from the Han tomb at Yinque shan 銀雀山 states that Pang Juan was captured by Sun Bin in the earlier Battle of Guiling 桂陵 (353 BC).

53 There is an oft-quoted comment on the comparative advantages of chariots, infantry, and cavalry in different circumstances made by the Western Han statesman Chao Cuo 晁錯 (d. 154 BC). See *Han shu* 1996, 49: 2279-81.

54 There is a list of difficult terrain for chariot in the "Battle Chariots" (*zhanche* 戰車) section of the *Liutao*, see Sawyer 1993, 101-2.

cavalry, which had become a regular component of Chinese armies by the mid-fourth century BC.<sup>55</sup>

Although the horse was probably domesticated as early as around 4500 BC in Eurasia, mounted warfare emerged much later and the formation of organized cavalry may not have appeared until 900 BC.<sup>56</sup> When horses were first introduced into China in the late Shang period, they were used for charioteering and sacrifice, as elsewhere.<sup>57</sup> But while the chariot was gradually becoming obsolete in combat, the horses were released from the driving yokes and finally organized into cavalry. And here I am in line with Robin Archer, who proposed that cavalry evolved from chariotry as a “rough terrain chariot” aiming to overcome the terrain restrictions, in contrast to past scholarship that commonly viewed cavalry as an entirely separate invention.<sup>58</sup> With the mastery of the techniques of riding and training horses for war, and the adoption of suitable outfit such as trousers and saddle,<sup>59</sup> mounted warfare became possible.<sup>60</sup> The fighting capability of men on horseback before the invention and application of the stirrup has generally been in doubt as it was supposed they were not able to sit tightly on horseback and engage in close combat; it has therefore been assumed that the early cavalymen could only take on other tactical roles such as shooting, reconnaissance, and scouting.<sup>61</sup> But this conventional view may underestimate the capability of light cavalry in ancient warfare. As some scholars have pointed out, Alexander the Great and his Macedonian army, contemporaries of the Warring States Chinese, already made skillful use of cavalry without stirrups, and for well-trained horsemen the saddle was in fact more important for shock combat than the stirrup.<sup>62</sup> The *Shiji* offers a parallel case in China: the tragic warrior Xiang Yu leading his cavalymen, all mounted without stirrups,

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55 Yates 2002, 40.

56 Anthony and Brown 2014, 55-56.

57 Yuan and Flad 2003, 110-13. For an overview of the history of horse in early China, see Creel 1965, 647-58 and Yates 2002, 1-57.

58 Archer 2010, 66-71.

59 For the early relationship between trousers and horseback riding based on recent archaeological findings, see Beck 2014. For the use of saddle in early China, see Goodrich 1984, 279-304.

60 Creel 1965, 649.

61 Yates 2002, 57-66.

62 Bulliet 2016, 125 and Roland 2016, 32. In addition, the late Peter Connolly, a scholar of ancient military equipment, conducted a practical experiment and proved that even in the absence of a stirrup, a professional horseman could use lance or long spear effectively and hit a target with 100% success after serious training. See Connolly 2000, 103-12, especially 107-9.

disarrayed the Han army formations and inflicted quite heavy casualties in his last battle.<sup>63</sup> If the light cavalry before the invention or application of stirrups were capable of close combat, the range of activities that the cavalry could perform would be broadened. And it would be reasonable to dispatch them to attack the enemy's supply lines.

Compared with the chariots and the infantry, it was the cavalry that could overcome more difficult or impassable terrain and, most important, traverse a vast space at the highest speed, thereby giving the interdiction of enemy supply lines more chance of success.<sup>64</sup> In other words, the superior speed of cavalry made it the ideal type of force for outmaneuvering the enemy.<sup>65</sup> Appearing suddenly at a certain spot on the enemy's line of supply, the cavalry's velocity of charge made it a sharp weapon to intimidate and assault the escorts, porters, drivers of the supply wagons, and pack animals, and even use swift attack-and-withdraw as a tactic of harassment on different sections of the enemy's supply line. In the Warring States and early imperial military texts, the cavalry is depicted as a tactical tool capable of performing multiple tasks. In the *Liutao* entry entitled "Equivalent Forces" (*junbing* 均兵), the cavalry are said to be "the army's fleet observers, the means to pursue a defeated army, to sever supply lines, to strike roving forces,"<sup>66</sup> which clearly points out the use of cavalry in carrying out the CSL tactic. The chapter "The Eightfold Division of Formations" (*Bazhen* 八陣) of the *Sun Bin bingfa* 孫臏兵法 (*Sun Bin's Art of Warfare*), which

63 *Shiji*, 7: 334-36. For the history of stirrups in ancient Chinese history, see Dien 1986, 33-42 and Yates 2002, 57-66.

64 There are also certain terrains that hinder the movement of cavalry, see the "Cavalry in Battle" (*zhanqi* 戰騎) section of the *Liutao*, in Sawyer 1993, 103-4.

65 Maintaining war horses during the campaigns cost much, which might also have been a consideration for the commander to use the cavalry to carry out the CSL tactic as an effective and economical way to break the stalemate. For reference, according to the "Statutes on Finance" (*jinbulü* 金布律) of the *Ernian lüling*, the daily ration of *shu* 菽 (beans) for government horses in early Han times was 1.5 *dou* 斗 (2.994 liters), and it was reasonable that war horses would receive more. See Zhangjiashan er si qi hao Hanmu zhujian zhengli xiaozu 2006, 66 (strip no. 425). In the first century BC, the famous Han general Zhao Chongguo 趙充國 pointed out in a memorial that the monthly ration of a war horse was equivalent to the yearly ration of a serviceman in a frontier colony. See *Han shu* 1996, 69: 2987.

66 Sawyer 1993, 99; the *zhanqi* section also points out the strengths of using cavalry in battle, see Sawyer 1993, 102-3.

was attributed to the strategist Sun Bin, also mentions the deployment of cavalry, especially on rugged terrain.<sup>67</sup>

Besides the three preconditions mentioned above, there were also some supporting factors that facilitated the efficient use of the CSL tactic—though there is not sufficient textual data to provide any details. To locate the enemy's line of supply, one had to have a good knowledge of the enemy. Information and intelligence about the enemy could be acquired through spying, which could be practiced in various ways (with the well-known *Sunzi* devoting a chapter to the subject).<sup>68</sup> Reconnaissance, probably carried out by cavalry scouts, was essential to trace the whereabouts of the enemy and their supply lines, which in turn might be indicated on a map to help the tacticians plan their attack routes. Cartography or map reading as a form of military knowledge was, in fact, a topic commonly raised in Warring States texts such as the *Zhouli* 周禮 (*Rites of Zhou*) and the *Guanzi* 管子.<sup>69</sup> It is therefore not difficult to imagine that the commanding general and his staff would consider how a campaign might unfold by plotting its likely course on a map, drawing out both the enemy's supply line and the route for cutting it.<sup>70</sup> They would then divide off the light troops as a separate force and dispatch them to carry out the CSL tactic. The attacker would have to hold the enemy on one hand, and to deliver light troops to outmaneuver the opponent and cut his line of supply on the other. The dispatched light troops had to take care not to be caught or overwhelmed. It is understandable that the operation needed close coordination in temporal and spatial terms, which would therefore made the theater into a multi-layered one—with military campaigns becoming more complicated than those of the preceding ages. Meanwhile, the availability of a reserve force, which should be heavy enough to make an impact on the enemy but also fast enough to react quickly, was essential for a multi-layered theater in general and the CSL tactic in particular. As a matter of fact, employing a reserve force to outmaneuver the opponent was a rather new development in the Warring States period when

67 Lau and Ames 2003, 114-15. On the other hand, a passage preserved in the ninth-century administrative compendium *Tongdian* 通典 and attributed to the *Sun Bin bingfa* lists ten advantages of using cavalry; “the fifth is intercepting enemy provisions, and cutting off his communication lines” and “the ninth is burning his stores, and emptying his markets and his villages.” See Lau and Ames 2003, 179. But it is believed that the passage was written by later generations rather than by Sun Bin as it is not found in the fragments of the *Sun Bin bingfa* excavated from a Han tomb in 1972.

68 Griffith 1963, 144-49.

69 *Zhouli zhengyi*, 2408-9 and 2636; *Guanzi jiaozhu*, 10.27: 529-30.

70 Homer H. Dubs had made some insightful comments on using maps for the purpose of military expeditions in early imperial China, which can be seen in Duyvendak 1939, 211-14.

compared with battles of the previous era, as the deployment of reserve troops emerged with the longer duration and distance of campaigns. The concept and practice of using reserve forces in early Chinese warfare merits further research.<sup>71</sup>

### Concluding Remarks

The CSL tactic, as a new device introduced in the Warring States military campaigns, was a product of the lengthy process of development in early Chinese warfare. Its use was a response to the situation when battle devolved into a stalemate and the cost of sustaining armies grew exponentially as Warring States warfare expanded to an unprecedented scale. The CSL tactic was an attempt to starve the enemy out or even to force a surrender by attacking the enemy's supply line—the line of least resistance. It was an indirect way to achieve victory. To implement the CSL tactic, a force with high mobility was needed to outmaneuver the enemy and therefore deliver a severe blow to the enemy's supply line. The increasing use of cavalry from the Warring States period onward provided an ideal weapon to carry out the tactic. In short, the CSL tactic provided a tactical solution to protracted campaigning with increasing costs by constraining the enemy to fight under disadvantageous circumstances.

Of course, war is an interactive activity with various forms of challenge and response. When one of the belligerents employed the CSL tactic, how could the other side respond? Was there any countermeasure to the tactic?

In the fabricated dialogue in the "Urgent Battles" (*jizhan*) section of the *Liutao*, after King Wu of Zhou asks the Taigong how to escape from the situation with the enemy "severing both our advance and retreat, breaking off our supply lines" (a passage already quoted above), the Taigong replies, "These are the most distressed troops in the world! If you employ them explosively, you will be victorious; if you are slow to employ them, you will be defeated. In this situation if you deploy your troops into martial assault formations on the four sides, use your military chariots and valiant cavalry to startle and confuse their army, and urgently attack them, you can thrust across them."<sup>72</sup> Then in the "Certain Escape" (*bichu*) section, to answer the king's inquiry about what to

71 The concept of holding back a part of the army as a reserve and the redeployment of the reserve took some time to develop among the commanders in ancient warfare in world history, according to Jones 1997, 26.

72 Sawyer 1993, 80.

do when “the enemy unites from all quarters and surrounds us, cutting off our road back home and severing our supply lines,” the Taigong suggests,

If you investigate and learn where the enemy's terrain is empty and vacuous, the places where there are no men, you can effect a certain escape ... Require the soldiers to put wooden gags into their mouths. Then move out at night ... Men of courage, strength, and swiftness, who will risk danger, should occupy the front to level fortifications and open a passage for the army. Skilled soldiers and strong crossbowmen should compose an ambushing force which will remain in the rear. Your weak soldiers, chariots, and cavalry should occupy the middle. When the deployment is complete, slowly advance, being very cautious not to startle or frighten the enemy. Have the Martial Attack *Fu-hsu* Chariots defend the front and rear and the Martial Flanking Great Covered Chariots protect the left and right flanks.<sup>73</sup>

These are the actions that one could take after one's supply lines were cut and the army was in a desperate situation. The essence was to organize an attack to break out. The army whose line of supply had been cut was already in a disadvantageous situation and could only try to assemble the remaining forces to break out from inside. It might or might not succeed, depending on various factors. In the Battle of Changping, for example, Zhao Kuo personally led an attack aiming to break out but met catastrophic defeat. In fact, the side that carried out the CSL tactic was usually well prepared for the enemy's breakout attempts and would even wait for the enemy to give it a try—thus falling into a trap.

On the other hand, a preventative option was available. In the cases of the Battle of Julu and the Chu-Han Campaign, fortified supply lines (*yongdao*) were constructed to protect the transportation of provisions. The fortified supply lines, however, were not as strong as assumed. In both cases, they were attacked and taken by Xiang Yu's armies. Xiang Yu's armies need not have been extraordinarily strong; the fortified supply line as a passive defense measure could still be easily broken by targeting certain spot(s) along the long line of supply.

Limited by the availability of sources, many aspects of the CSL tactic have not been fully discussed here. This article aims to point out the background of the rise and use of the CSL tactic, and through it to reveal the relationship

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73 Sawyer 1993, 80-81.

between the development of military conditions and the invention of new tactics. The analysis of this paper, however, is derived from examples of campaigns conducted mainly in North China, which provides ideal terrain for cavalry. Whether the tactic would attain the same outcome in different environments such as South China, not a favorable ground for cavalry, is a question that might be asked if sufficient data were available. Furthermore, the CSL tactic discussed here was practiced in field battle situations. Siege warfare, in which the besiegers would also try to completely blockade their opponent, cutting off the besieged city from relief forces, line of supply, and line of communication, can be considered as a variant of the CSL tactic. Nevertheless, siege warfare is very different from field battle in nature, and the supply problems for the forces involved were different too. For example, the defenders would practice scorched-earth policy to clear up the surrounding area of the city first and to deny any useful material to the enemy on one hand, and store resources sufficiently enough for the forthcoming attrition on the other. Generally speaking, the defenders could store more food than the besiegers could carry to the site, and the latter would usually exhaust their provisions before the former did (as the aforementioned example of the Chu-Song siege warfare in 594 BC shows). How the line of supply functioned and how the CSL tactic was applied in siege warfare requires another study.

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