

A Korean Military Revolution? Parallel Military Innovations in East Asia and Europe*

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MILITARY historians often write about a “Western way of war,” a military tradition that, in the words of Victor Davis Hanson, “has made Europeans the most deadly soldiers in the history of civilization.”¹ Hanson traces this tradition back to the ancient world. Others are more circumspect, seeing the great divergence between European and non-European military capacities as occurring later, thanks to the much-debated Military Revolution. During the late medieval and early modern period, so proponents argue, the West underwent a unique development, as gunpowder technology set off cascading changes throughout Europe, whose states were locked in constant warfare. Warfare was revolutionized, bringing wide-ranging changes to

* We wish to thank Dr. No Yönggu from the Korean University of National Defense and researcher Kim Pyöngnyun from the Korean Institute for Military History Compilation for inspiring this project. Their impressive scholarship on Chosön military history and enthusiasm for sharing it through personal correspondence have greatly facilitated our research. We also wish to thank Emory University’s SIRE Program (Scholarly Inquiry and Research at Emory), the Fox Center for Humanistic Inquiry, and the Emory History Department for their generous support.

¹ Victor Davis Hanson, *Carnage and Culture: Landmark Battles in the Rise of Western Power* (New York: Doubleday, 2001), p. 5.

society and culture. The Military Revolution provided European colonial powers a clear advantage over the other peoples of the world. As Geoffrey Parker argues, the Military Revolution is “a new paradigm for the ‘rise of the West.’”²

It is a robust and effective paradigm, one of the most productive models in the booming field of global history, but much discussion of the Military Revolution idea has taken place in the absence of good data about non-Western war. Recently a trickle of scholarship has begun to suggest that European warfare was not so unusual within a Eurasian context. Work by Kenneth Swope, Sun Laichen, Peter Lorge, No Yönggu, and Tonio Andrade suggests that the Military Revolution itself actually began in China and redounded to Europe, that East Asian developments show striking parallels with European ones, and that the Military Revolution should perhaps be seen not as a European-specific development, but rather as a Eurasian-wide phenomenon.³

One intriguing aspect of this debate concerns the role of military drill. Hanson suggests that the “Western way of war” rested partly on superior discipline: “Warriors,” he writes, “are not necessarily soldiers. Both types of killers can be brave, but disciplined troops value the group over the single hero and can be taught to march in order, to stab, thrust, or shoot en masse and on command, and to advance and retreat

² Geoffrey Parker, “The Artillery Fortress as an Engine of European Overseas Expansion, 1480–1750,” in James Tracy, ed., *City Walls: The Urban Enceinte in Global Perspective* (Cambridge: Cambridge University Press, 2000), pp. 386–416, p. 387.

³ Sun Laichen, “Ming–Southeast Asian Overland Interactions, 1368–1644,” PhD diss., University of Michigan Department of History, 2000; Sun Laichen, “Military Technology Transfers from Ming China and the Emergence of Northern Mainland Southeast Asia (c. 1390–1527),” *Journal of Southeast Asia Studies*, 34, no. 3 (2003): 495–517; Kenneth Swope, “Crouching Tigers, Secret Weapons: Military Technology Employed during the Sino-Japanese-Korean War, 1592–1598,” *Journal of Military History*, 69, no. 1 (2005): 11–41; Kenneth Swope, *A Dragon’s Head and a Serpent’s Tail: Ming China and the First Great East Asian War, 1592–1598* (Norman: University of Oklahoma Press, 2009); Tonio Andrade, *Lost Colony: The Untold Story of China’s First Great Victory over the West* (Princeton, N.J.: Princeton University Press, 2011); Peter A. Lorge, *The Asian Military Revolution: From Gunpowder to the Bomb* (Cambridge, Mass.: Cambridge University Press, 2008); No Yönggu, “Kihoeok nonmun: Chönjaeng-üi sidaejök yangsang; ‘kuna hyöngmyöngron (Military Revolution)’-kwa 17~18 saegi Chosön üi kunsajök pyönhwa” ‘군사혁명론 (Military Revolution)’ 과 17~18세기 조선의 군사적 변화 [Featured articles: The historical aspects of warfare; “Military Revolution” and Chosön dynasty’s military reforms in the 17th and 18th centuries], *Söyangsa yöngu* 西洋史研究 5, no. 5 (2007): 39–43. See also No Yönggu, “Chosön hugi pyöngsö wa chönpöp üi yön’gu” 朝鮮後期兵書와 戰法の 研究 [Military tactical manuals and military strategies written and devised in the late Chosön dynasty], PhD diss., Seoul National University, 2002, pp. 130–134; and No Yönggu, “Injocho ~ Pyöngja Horan sigi Chosön üi chönsul chön’gae” 인조초~丙子胡亂 시기 조선의 전술 전개 [Chosön’s military tactics from the early years of King Injo through the second Manchu invasion of 1636], *Han’guk sahakbo* 韓國史學報 41 (2010): 175–207.

in unison—something impossible for the bravest of Aztecs, Zulus, or Persians.”⁴ Others have made similar points.⁵

Yet recent work in East Asian military history has made clear that at precisely the time when Europeans were undergoing their “revolution in drill,” there was a resurgence of drilling techniques and manuals in East Asia. Military historians have argued that the famous musketry volley fire technique—a hallmark of Europe’s “revolution in drill”—was independently developed in Japan, and historians of China have found compelling evidence that firearm volley techniques were first employed in China as early as 1387, more than two centuries before they were developed in Europe and Japan.⁶ Chinese military leaders, like the famous general Qi Jiguang in the middle of the sixteenth century, recast Chinese armed forces to eschew cavalry and focus on infantry, as was happening in Europe. In the process they published a slew of military manuals detailing their drilling regimes. These Chinese manuals spread rapidly throughout East Asia in the late sixteenth and early seventeenth centuries, around the time that European military manuals began to be published in profusion.

These are intriguing parallels, but historians have so far made no serious attempt to compare East Asian techniques and manuals to European ones. This article draws on recently discovered Korean military manuals from the seventeenth and eighteenth centuries to show that European drilling regimes—centered around musketry units—had striking analogues in Korea, a country as far removed from Europe as it was possible to get and still be on the same landmass. The very fact of these striking similarities in such far-removed societies should point us toward caution in making grand pronouncements about a “Western way of war,” making clear that there is a need for a truly global military history, and suggesting that there are rich sources out there that remain untapped.

According to the Military Revolution model, Europe’s incessant warfare not only drove the development of advanced cannons, hand-guns, fortresses, and warships, but also brought about a “revolution in

⁴ Victor Davis Hanson, *Carnage and Culture: Landmark Battles in the Rise of Western Power* (New York: Doubleday, 2001), p. 446.

⁵ See, for example, the far more subtle arguments of Geoffrey Parker in *Cambridge Illustrated History of Warfare*, Geoffrey Parker, ed. (Cambridge: Cambridge University Press, 1995), pp. 2–4.

⁶ Sun Laichen, “Military Technology Transfers from Ming China and the Emergence of Northern Mainland Southeast Asia (c. 1390–1527),” *Journal of Southeast Asia Studies* 34, no. 3 (2003): 495–517, p. 500.

drill.” Compared to the bow and arrow, early modern handguns had a low rate of fire. By the end of the 1500s, they could still shoot only once every two minutes. In order to keep up a constant hail of bullets, a musket company had to develop close coordination, taking turns firing and loading. As Geoffrey Parker outlines so beautifully, the first verified use of this technique in Europe occurs in the Netherlands in the 1590s.⁷

William Louis of Nassau championed the idea (see Fig. 1). Influenced by his readings in ancient Roman military literature, he realized that a type of countermarch could provide continuous fire: a musketeer would shoot his gun and then step to the back of his file to reload while the next in line fired, and so on. The Dutch, who were fighting a fierce war against Spain, quickly reorganized their forces so that musket units drilled carefully in this new technique. The first success in combat came at the Battle of Nieuwpoort in 1600, and the technique became a key part of Dutch tactics afterward. Indeed, it was adopted well beyond Holland. The innovation went viral, spreading throughout Europe.

For example, we find in a British military manual from 1616 a particularly clear explanation of the tactic, which describes how the musketeers, who stand in rows called ranks, give fire one after the other:

Two Ranks must always make ready together, and advance ten paces forward before the body, at which distance, a Sergeant (or when the body is great some other officer) must stand, to whom the Musketeers are to come up before they present and give fire, first the first rank. And whilst the first gives fire, the second Rank keep their Muskets close to their Rests, and their pans guarded, and as soon as the first are fallen away, the second presently present, and give fire, and fall after them. Now as soon as the first two Ranks do move from their places in the front: The two Ranks next them must unshoulder their Muskets, and make ready, so as they may advance forward ten paces as before

⁷ See Geoffrey Parker, “The Limits to Revolutions in Military Affairs: Maurice of Nassau, the Battle of Nieuwpoort (1600), and the Legacy,” *Journal of Military History* 71, no. 2 (2007): 331–372; and Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West*, 2nd ed. (Cambridge: Cambridge University Press, 1996), esp. pp. 18–25. But there is intriguing evidence that the technique was used previously by the Iberians and, perhaps, in Italy. See, for example, González de Leon, “Spanish Military Power and the Military Revolution,” in Geoff Mortimer, ed., *Early Modern Military History, 1450–1815* (New York: Palgrave Macmillan, 2004), pp. 25–42; and Martin de Equiluz, *Milicia Discurso, y Regla Militar, del Capitan Martin de Eguluz, Bizcayno* (Antwerp: Casa Pedro Bellerio, 1595 [originally written 1586]), p. 69. Parker considers this evidence but dismisses it as inconclusive. Andrade discusses it in a forthcoming book on the military divergence (to appear in 2014).

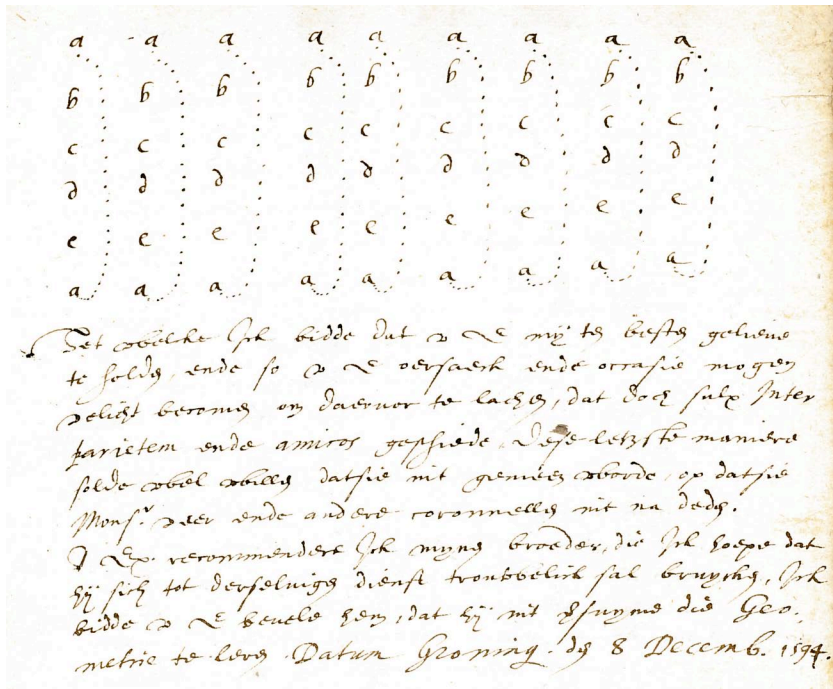


FIGURE 1. Detail of letter from William Louis of Nassau to his cousin Maurice on 8 December 1594. William Louis argued that applying Roman tactics to musketeers could create rotating ranks providing a steady stream of fire. The Hague, Koninklijke Huisarchief, MS. A22-19. Courtesy of the Koninklijke Huisarchief, The Hague.

as soon as ever the two first ranks are fallen away; and are to do in all points as the former. And all the other Ranks through the whole division must do the same by twos, one after another.⁸

In the most standard method of volley fire, the first rank or two of soldiers advanced before the rest of the formation, shot, and peeled

⁸ Captain John Bingham, “The Exercise of the English in the Service of the High and Mighty Lords, the Lords the Estates of the United Provinces in the Low Countries,” in *The Tactiks of Aelian or Art of Embattailing an Army after Ye Grecian manner Englished & Illustrated with Figures Throughout: & Notes upon Ye Chapters of Ye Ordinary Motions of Ye Phalange by J.B. The Exercise Military of Ye English by Ye Order of That Great Generall Maurice of Nassau Prince of Orange &c Governer & Generall of Ye United Provinces Is Added*, by Aegidius Gelius Aelianus (London, 1616), pp. 153–159, p. 156.

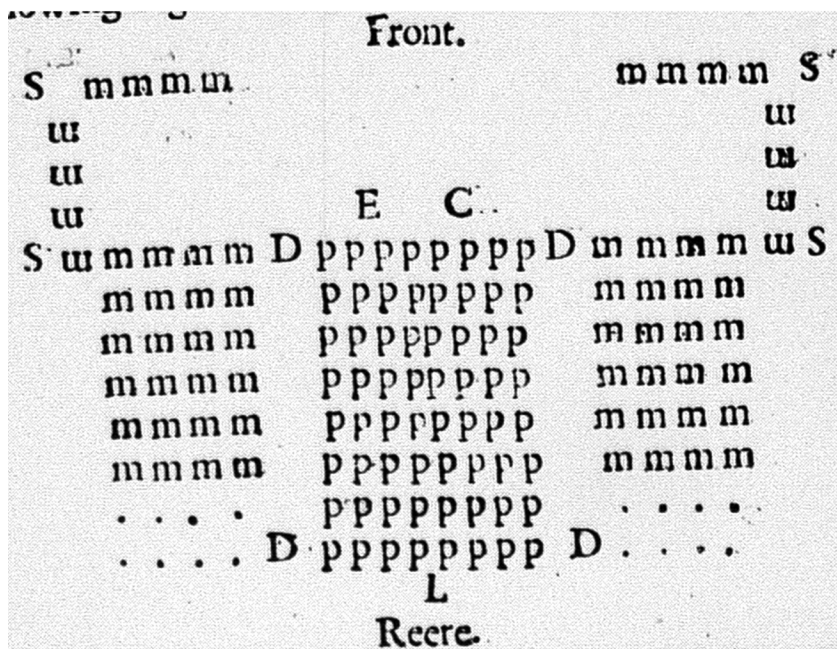


FIGURE 2. This is the first in a series of diagrams in Colonel William Barriffe's book *Military Discipline*. It shows the method "of firings by two ranks, ten paces advanced before the Front: Next, even with the Front: And lastly, even with the last half-files." According to Barriffe, this method of volley fire was the most commonly used and especially useful when the enemy was advancing. From William Barriffe, *Military Discipline* (London: John Dawson, 1643), p. 79. Courtesy of the Huntington Library.

off to the sides of the formation. They then marched around to the back, took up new positions at the rear of the formation and began the process of reloading their muskets. In the meantime, the remaining ranks of musketeers advanced. As each subsequent rank arrived at the front of the formation, it fired its guns and withdrew in turn. Thus the ranks in the formation continually cycled, advancing, shooting, and reloading.

Another British manual, originally published in 1635, written by Colonel William Barriffe, contains detailed diagrams and explanations of how to execute this maneuver. Figure 2 depicts one such diagram from a 1643 edition of the manual. In this example, *m* stands for musketeer, *p* for pikamen, *C* for captain, *D* for drummer, *E* for ensign, *L*

for lieutenant, and S for sergeant. The line of musketeers that is most forward is in the process of firing. The upside down *m*'s are musketeers marching to the back of the formation. The dots depict where the last two ranks of the formation of musketeers had been before advancing forward. They also depict the spaces to be taken up by the ranks that have just fired.⁹

Barriffe describes this method as the most commonly used manner of firing and counsels its use especially when an enemy is charging one's formation. As the enemy gets closer, the reloading soldiers stop advancing between firings, causing the entire formation to begin to cycle backward as each rank takes up its new position at the back of the formation after firing (Fig. 3). In this manner the musketeers end up behind the pikemen, who can prepare to receive the charging enemy with their pikes. This method also ensures that the musketeers can continue to fire even as the enemy gets closer. These diagrams show how pikemen and musketeers served mutually supportive roles in seventeenth-century European armies.

The Germans, French, Swedes, Italians, Spanish, Portuguese, Russians, and so on similarly published their own manuals or translated Dutch ones. Dutch drill instructors were sought throughout Europe, spreading these techniques far and wide. Instructors were in high demand because the techniques required intensive training. Previously, foot soldiers found safety in large, tightly packed formations: big squares of men bunched together to protect themselves against cavalry. But musketeers had to spread out to be effective. They needed to form long, thin ranks five or eight or ten men deep so they could concentrate their fire and avoid being outflanked by cavalry. As Geoffrey Parker notes, "changing a pike square perhaps fifty deep into a musketry line only ten deep inevitably exposed far more men to the challenge of face-to-face combat."¹⁰ It was vital that all the soldiers keep doing what was required of them—firing, moving to the back of the file, cleaning out the muzzle, loading powder, tamping, adding the bullet, tamping again, aiming, firing—and doing all of this with a burning fuse, which they

⁹ William Barriffe, *Military Discipline, or, the Young Artillery Man. Wherein is discoursed and showne the Postures both of Musket and Pike the Exactest Way, &c: Together with the Motions, with much variety: as also diverse and severall forms for the inbattelling small or greater bodies, demonstrated by the number of a single company, with their Reducements; very necessary for all such as are studious in the Art Military: whereunto is also added the postures and beneficial use of the half-pike joined with the musket: with the way to draw up the Swedish brigade*, (London: John Dawson, 1643), pp. 79–82.

¹⁰ Geoffrey Parker, *The Military Revolution*, p. 20.

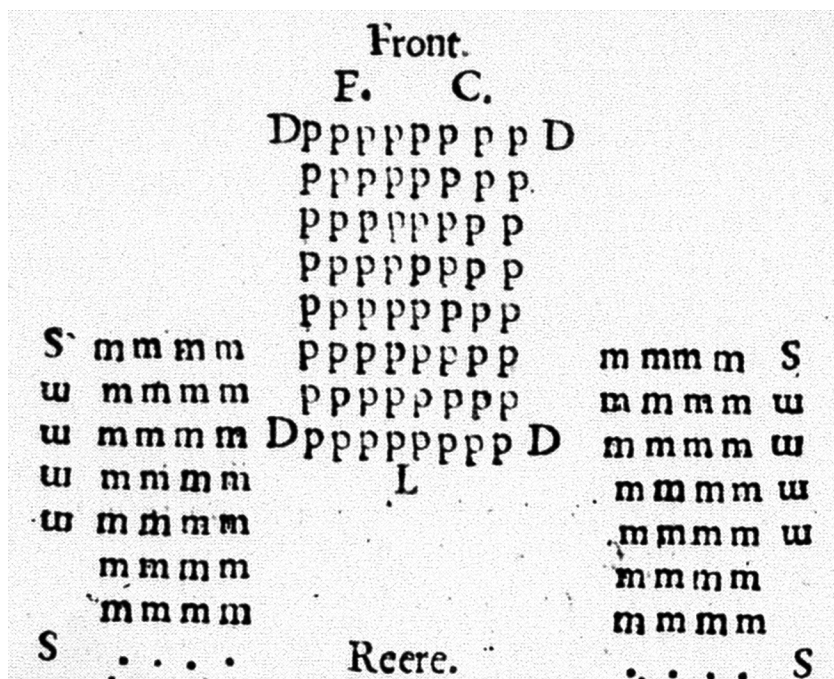


FIGURE 3. This is the third diagram in the same series. This shows how the formation of musketeers has gradually moved backward to allow the pikemen to receive the advancing enemy. From William Barriffe, *Military Discipline* (London: John Dawson, 1643), p. 80. Courtesy of the Huntington Library.

had to keep away from their powder in order to avoid blowing themselves and their neighbors to bits. In battle, they had to carry out these difficult steps while under fire or while cavalry were bearing down on them. Only so long as each man kept doing his job could they act in concert and avoid being routed by enemy forces.

How could one make musket units hold their positions under attack, patiently loading their guns and waiting their turn to fire? Discipline. They needed to be drilled rigorously, carefully, and repeatedly. The importance of drill is noted in many European military manuals. In his manual, Barriffe writes: “No man is borne a Souldier, nor can attaine, to any excellency in the Art Military without practice; But by practice is gained knowledge; knowledge begets courage and confidence; few or none being fearefull to execute what by frequent practice they have

thoroughly learned.”¹¹ Drill transformed a group of men into a cohesive unit that could be relied upon to act as one.

This “revolution in drill,” this “keeping together in time,” to use William McNeill’s phrase, has been considered to be a particularly Western phenomenon, a hallmark of the so-called Western way of war.¹² As Geoffrey Parker writes, “The combination of drill with the use of firearms to produce volley fire, perfected through constant practice, proved the mainstay of western warfare—and the key to western expansion—for the next three centuries.”¹³

Yet was this type of drill really so unusual in world history? Parker, the doyen of the Military Revolution paradigm, is a subtle historian. He’s aware of the rich tradition of Chinese drill. Indeed, his *Military Revolution* begins with an invocation of China’s Warring States period (戰國時代, 475–221 B.C.E.), which he adduces as an early precursor to the European Military Revolution, finding quite similar developments in the two cases, despite the fact that they are separated by two millennia.¹⁴ He is similarly aware of the resurgence in Chinese drill in the sixteenth century. Yet he and others nonetheless believe that the Western military tradition of drill was unusually effective and was one of the factors that made possible the rise of the West over the rest.

In recent years, however, our knowledge of non-European military history has undergone a sort of revolution of its own. Historians of Asia have revised our understanding of the Military Revolution, and one can speak of a school of younger historians that one might call the Asian Military Revolution school, who have shown that the Military Revolution was not a uniquely European phenomenon. Indeed, they argue, the Military Revolution itself began in China. As the historian Sun Laichen writes, “the founding of the Ming dynasty in 1368 started the ‘military revolution’ not only in Chinese but also world history in the early modern period.”¹⁵ Although guns had been invented in China by the mid 1100s at the latest, it was during the 1300s that they became a mainstay of Chinese armies. The founder of the Ming dynasty, Zhu Yuanzhang, incorporated guns into his fighting forces, and it was these guns—and the new tactics they inspired—that helped him win fierce wars against his rivals and found the Ming dynasty in 1368.

¹¹ Barriffe, *Military Discipline*, p. 1.

¹² William H. McNeill, *Keeping Together in Time: Dance and Drill in Human History* (Cambridge, Mass.: Harvard University Press, 1997).

¹³ Geoffrey Parker, ed., *The Cambridge Illustrated History of Warfare*, p. 392.

¹⁴ Geoffrey Parker, *The Military Revolution*, pp. 2–4.

¹⁵ Sun Laichen, “Ming-Southeast Asian Overland Interactions,” p. 31.

As Zhu Yuanzhang consolidated his rule, he aimed his guns at neighboring states. Those neighbors quickly started employing guns of their own, and so the Military Revolution spread out of its Chinese epicenter, eventually reaching Europe. As Sun Laichen argues, “the ‘military revolution’ in China modernized [China’s] military forces and made it a military superpower and the first ‘gunpowder’ empire in the early modern world.”¹⁶ Sun’s conclusions are accepted by other scholars.¹⁷

After the Ming consolidation in the late 1300s and early 1400s, continental East Asia settled into a period of relative peace, and Chinese innovation in gunpowder weapons slowed, but that didn’t mean that East Asia ceased being a place of military innovation. Just as continental East Asia relaxed into the Ming *pax sinica*, Japan devolved into an extended period of internal warfare, which became known as the Warring States period (*Sengoku jidai* 戦国時代) and lasted from the mid 1400s to the early 1600s. In the middle of the 1500s, arquebuses were dropped into this cauldron of violence and were quickly taken up and adapted.¹⁸ Arquebus units became a core of Japanese armies.

The historian Stephen Morillo draws parallels between Warring States Japan and early modern Europe, discerning similar processes of military innovation in each. The warring lords of Japan wanted to maximize the power of their soldiers and minimize their cost. So, just as in Europe, they began eschewing mounted samurai in favor of footmen armed with spears and bows. This required an emphasis, as in Europe, on discipline and drill. “The infantry,” writes Morillo, “could face down and defeat elite cavalry by depending on numbers, discipline, and the cohesion and mobility that training and discipline conveyed.”¹⁹ These infantry units were armed not just with Japan’s famous swords, but also with arquebus muskets. Some claim that Japanese musket forces even developed musketry volley fire independently. Historians have argued for its use in the famous Battle of Nagashino in 1575, but many schol-

¹⁶ *Ibid.*, p. 75.

¹⁷ Kenneth Swope, Peter Lorge, Kenneth Chase, and Tonio Andrade.

¹⁸ Most historians credit Portuguese castaways with introducing the arquebus to Japan, but see Udagawa Takehisa, *Teppo to Sengoku kassen* (Tokyo: Yoshikawa Kobunkan, 2002). Thanks to Daniele Lauro for alerting us to this source. See also Olof G. Lidin, *Tanegashima: The Arrival of Europe in Japan* (Copenhagen: NIAS Press, 2002). Another beautifully illustrated, highly detailed, but, alas, sometimes inaccurate work is Rainer Daehnhardt, *The Bewitched Gun: The Introduction of the Firearm in the Far East by the Portuguese* (Oporto, Portugal: Lello and Irmão, 1994).

¹⁹ Stephen Morillo, “Guns and Government: A Comparative Study of Europe and Japan,” *Journal of World History* 6, no. 1 (1995): 97.

ars have disputed this claim more recently.²⁰ Thomas Conlan writes that it is very unlikely that volley techniques were used in 1575, but he does adduce clear evidence of the practice from 1615.²¹ As we will see, Korean sources point to Japanese use of musketry volley fire in the 1590s. Whether it was developed as early as Nagashino or not, the Japanese and the Dutch invented and used volley fire more or less contemporaneously. Within a span of approximately two decades, volley fire had become an important tactical maneuver in Europe as well as East Asia.

Japanese musket-based bellicosity was exported to the East Asian continent on a small scale in the mid-sixteenth century, as part of the Wokou Crisis, when Japanese mariners often described as pirates (they were, in fact, considerably more than pirates, benefitting in many cases from support offered by Japanese lords) ravaged the coasts of Korea and China. In the mid-sixteenth century, the Chinese developed an effective response to the Wokou, thanks in part to the genius of the famous general Qi Jiguang. To fight against the Japanese, Qi reorganized his forces, eschewing cavalry units and adopting instead infantry units armed with various weapons and drilled to work in tight formations, with different types of units mutually supporting each other. He placed a special emphasis on drill, and it was his troops' ability to act cohesively under fire that made them so effective. They became known as Qi troops and were renowned in China.²²

In the late sixteenth century, Japanese warfare was exported to the continent on a grand scale. The Japanese Invasion of Korea (壬辰倭亂, 1592–1598) has been the subject of increasingly detailed and pathbreaking work. American scholar Kenneth Swope has examined

²⁰ For the use of volley fire at Nagashino see Parker, *Military Revolution*, pp. 140–141. See also D. M. Brown, "The Impact of Firearms on Japanese Warfare," *Far Eastern Quarterly* 7, no. 3 (1948): 236–253, p. 245. The story of volley fire and the use of three thousand musketeers at Nagashino comes from a chronicle written years later that features heavy embellishment, the *Shinchōki*. The more contemporary chronicle that is now seen by many scholars to be the more reliable account is the *Shinchō-Kōki*, written circa 1610. This chronicle mentions neither the use of so many musketeers nor the use of volley fire. While it does frequently mention the use of guns, it speaks of them being fired en masse. See Gyūichi Ōta, J. S. A. Elisonas, and Jeroen Pieter Lamers, *The Chronicle of Lord Nobunaga* (Leiden: Brill, 2011), pp. 34, 42, 222–227. (This is an English translation of the *Shinchō-Kōki*.) See also Jeroen Lamers, *Japonius Tyrannus: The Japanese Warlord, Oda Nobunaga Reconsidered* (Leiden: Hotei Publications, 2000).

²¹ Thomas Conlan, *Weapons and Fighting Techniques of the Samurai Warrior, 1200–1877 AD* (London: Amber Books, 2008), p. 170.

²² It is worth noting that Qi Jiguang employed the musketry volley technique in the mid 1500s, well before William Louis of Nassau implemented it in Dutch armies.

how Japanese infantry forces, organized around handguns and benefitting from tight discipline, swept through Korea at first. Yet, as Swope shows, once Ming Chinese forces entered the war, the Japanese lost their advantage. Chinese Southern Units (南兵), organized according to Qi Jiguang's methods and benefitting from advanced cannons, stopped the Japanese in their tracks. The Japanese seem to have retained an advantage in handgun battles, but they shied away from Chinese cannon units, which were decisively superior. The war ended with Japan's withdrawal in 1598.

The Korean War of 1592–1598 is important for its own sake, and Swope's scholarship is worth reading to follow the developments in detail, but what is particularly intriguing for our purposes is how the Korean War transformed Korea's military apparatus. In 1593, an emergency decree by the Korean king Sŏnjo (1552–1608) created a new type of army, which began a process that revolutionized Korea's armed forces.²³ In a process strikingly similar to European developments, the traditional cavalry-based model was replaced by an infantry-based model, organized around foot soldiers armed with muskets and instructed in rigorous drilling techniques similar to those that were concurrently sweeping seventeenth-century Europe.

Before the Japanese invasion, Korea's armed forces were largely unprofessional and inadequately drilled. Soldiers were often farmers, and their military duties were limited and temporary, based on rotations that accommodated agricultural seasons. Soldiers were also expected to provide their own weapons, horses, and living expenses. But starting in 1593, the year after the Japanese first invaded, the system was thoroughly reformed. At the core of the changes was a new central army known as the Military Training Agency (Hullyŏndogam 訓練都監), a professional standing army that employed salaried men living in the capital and enjoyed fiscal support from special governmental surtaxes. This army was specifically designed around musketeers and consisted mostly of infantrymen, which instigated a broader shift in the Chosŏn military from a cavalry-based to an infantry-based way of war.²⁴ Throughout the seventeenth century, it also published drill manuals and served as a testing ground for new infantry tactics, including the musketry volley fire technique.²⁵

²³ Kim Chongsu 金鍾洙, *Chosŏn hugi chungang kunje yŏngu: Hullyŏn Togam ū sŏllip kwa sahoe pyŏndong* 朝鮮後期中央軍制研究：訓練都監設立과 社會變動 [A study on the central military system in the late Chosŏn dynasty] (Seoul: Haeam, 2003), pp. 76–77.

²⁴ Ibid.

²⁵ No, *Chosŏn hugi pyŏngsŏ*, pp. 130–134.

The officers of the Military Training Agency explicitly adopted the techniques of Qi Jiguang, drawing on his military manuals, the *Ji xiao xin shu* 紀效新書 (The new book of effective techniques) and the *Lian bing shi ji* 練兵實紀 (The veritable record of troop drilling).²⁶ Why Qi Jiguang? Not only was he the most influential military thinker in China, but also troops trained in his methods—the Chinese Southern Units—had played a direct role in beating back the Japanese invasion. They stopped the Japanese in their tracks, the very Japanese who had ripped through Korean defenses. So when it came time to reorganize the Korean military, the Koreans understandably adopted Qi Jiguang's methods.

Inspired directly by Qi Jiguang's *New Book of Effective Techniques*, the Koreans developed a new infantry, using the "control-the-ranks method" (*Sogoböp* 束伍法). There were clearly stratified troop divisions that were designed to facilitate the recruitment and training of commoners. The basic unit was the squad (*dae* 隊), which consisted of eleven men. Three squads made up a banner (*ki* 旗), three banners made up a platoon (*cho* 哨), five platoons made up a company (*sa* 司), and five companies made up the largest unit, a battalion (*yöng* 營). A direct line of command thus linked the higher officers to the closely knit squads of eleven. It was a significant departure from the old Korean line of command, which had only three hierarchies consisting of units of five (伍), twenty-five (隊), and 125 (旅). While the earlier system had ways to expand these hierarchies to cover armies as large as 12,500 soldiers, it was less stratified and thus less conducive to efficient relaying of command.²⁷

Squads themselves could be of various types. One of Qi Jiguang's

²⁶ There are many different editions of Qi Jiguang's works, a situation made particularly confusing by the fact that the most famous work, *Ji xiao xin shu*, comes in two very different versions, one published in 1560 and one published in 1588. A good edition of the latter is Qi Jiguang, *Qi Jiguang Bing Fa: Shi si juan ben 'Ji xiao xin shu' zhu zhi* 戚繼光兵法：——十四卷本《紀效新書》注釋, edited by Fan Zhongyi 范中义, Xu Daji 余大吉, Yuan Zhenlan 袁鎮瀾, and Liu Qing 刘庆 (Beijing: Shi shi chu ban she 時事出版社, 1998). A good edition of the earlier version is Qi Jiguang 戚繼光, *Ji xiao xin shu: 18 juan ben* 紀效新書：18卷本, edited by Cao Wenming 曹文明 and Lü Yinghui 呂穎慧 (Beijing: Zhong hua shu ju 中華書局, 2001). There is a partial translation of the earlier (eighteen-juan) version of *Ji xiao xin shu* into German: Qi Jiguang, *Ch'i Chi-kuang, Praxis der chinesischen Kriegführung*, translated by Kai Werhahn-Mees (Munich: Bernard and Graefe, 1980). A recent edition of the *Lian bing shi ji* is Qi Jiguang 戚繼光, *Lian bing shi ji* 練兵實紀, edited by Qiu Xintian 邱心田 (Beijing: Zhong hua shu ju 中華書局, 2001).

²⁷ Kim Tonggyöng 金東慶, "Chosön ch'ogi chinböp üi paljön kwa kunsä kinüng 조선 초기 진법의 발전과 군사기능 [Development of the Chinböp (Military Formation) and Military Functions in the Early Chosön Dynasty]," PhD diss., Korean University of National Defense, p. 37.

favorite formations was known as the Mandarin Duck Formation (鴛鴦陣). It contained no firearm units, but rather consisted of several mutually reinforcing types of soldiers, each of which had particular abilities that complemented the others: two men with sabers and rattan shields (盾牌手), two men with multiple-tip bamboo spears (狼牙手), four men with long lances (長槍手), and two men with tridents or swords (短兵手).²⁸ They were led by a squad leader (隊長) and supported by a cook or porter who also coordinated logistical support (負責伙食的火兵). The squad was drilled in various maneuvers in which the specialists—the shieldmen, the spearmen, and the swordsmen—played precisely defined roles. Commoners were chosen for the various tasks, depending upon their abilities. Training and drilling were methodical and exhaustive.

Although Qi Jiguang's methods were the inspiration, the Koreans quickly went beyond them. Qi Jiguang died in 1584, a decade before the Japanese invasion of Korea, and he had never encountered a fighting force as large, as well-organized, and as well-armed as the Japanese army that swept across the Korean peninsula. Many of the Japanese forces were armed with muskets. Although the ratio of Japanese musketeers to the rest of the army was probably less than 33 percent, their deadly efficiency as the vanguard in the battlefield was evident to the Sino-Korean allies.

Qi Jiguang knew about muskets, of course. The Japanese pirates he had helped defeat in the 1550s and 1560s had carried them, and his treatises are spotted with discussions of their manufacture, of how many bullets and how much powder they needed, and of how to use them in infantry, cavalry, and chariot warfare. He considered the musket to be a powerful and effective weapon, but there is still much to learn about how he actually employed them in his various commands and to what extent they were at the core of his troops.²⁹ It does seem that dur-

²⁸ It seems that these lance units sometimes wielded fire lances, which is to say lances with metal gunpowder tubes attached to the front that could spew flames and projectiles. Once the gunpowder charge was depleted, the lances were used conventionally. Andrade is currently investigating this topic.

²⁹ There is much disagreement about the extent to which muskets formed a core of his fighting forces. Whereas Jean-Marie Gontier suggests that Qi never used large numbers of handguns, evidence from Qi's later texts, particularly the *Lian bing shi ji* and the fourteen-*juan* version of *Ji xiao xin shu*, suggests that in some of his commands musketeers may have made up a significant portion of his fighting forces, at least within certain divisions (Jean-Marie Gontier, "Qi Jiguang, un stratège de la dynastie Ming [1528–1587]," Institut de Stratégie Comparée, Commission Française d'Histoire Militaire, <http://www.stratisc.org/Gontier%20tdm.htm>, accessed 20 December 2011, section 3 part 3). Many of his most

ing the Japanese invasion of Korea, the Southern Troops trained in his methods did not employ musketeers as their core infantry units. Rather, Southern Troop musketeers were specialized units, used alongside myriad other specialized units, in proportions that appear not to have approached the level of musket use among Japanese forces.³⁰

Chinese and Korean commanders quickly realized how lethal the musket-armed Japanese were, a lethality they ascribed to Japanese discipline. In 1593, for example, Ming general Song Yingchang (宋應唱, 1536–1606) noted that the Japanese employed the musketry volley technique, writing that he feared the Japanese would “break into squads and shoot alternately against us (分番休迭之法).”³¹ In 1595, Korean King Sŏnjo shared the same apprehension, retorting to a scholar-official who underestimated the deadliness of their tactics that “if the Japanese divide themselves into three groups and shoot alternately by moving forward and backward, how can we fight back (若分三運, 次次放砲)?”³²

The allies recognized that Japanese victories were largely based on superior musket units. Praising muskets as a “divine weapon” (神器), King Sŏnjo became a zealous proponent. In 1593 and 1594, he repeatedly ordered Japanese captives to be kept alive so that Korean artisans could learn the Japanese methods of making gunpowder and muskets.³³ In 1594, he went so far as to attempt to design a new musket that could supposedly fire rounds in quick succession.³⁴ The fact that the Korean king himself attempted to design his own musket makes clear how highly the Korean government prioritized the development of musket technology and techniques.

This embrace of musketry was no passing fancy. Thanks to the

intriguing thoughts about muskets are contained in his *Lian bing shi ji, za ji*. The Singaporean scholar Ng Pak Shun is preparing a translation of a part of this text. See Pak Shun Ng, “Etude d’un traité de Qi Jiguang: Un aperçu de la pensée stratégique chinoise pendant la dynastie Ming,” MA thesis, Ecole Pratiques des Hautes Etudes, Faculty of Sciences Historiques, Philologiques et Religieuses, 2012.

³⁰ See Qi Jiguang, 练兵实纪, *juans 1 and 2*. There are many editions of the *Lian bing shi ji*. A particularly good one is Qi Jiguang 戚繼光, *Lian bing shi ji 練兵實紀*, with annotations by Qiu Xintian 邱心田 (Beijing: Zhong hua shu ju 中華書局, 2001).

³¹ Song Yingchang 宋應唱, *Jing lue fu guo yao bian 經略復國要編*: [Fourteen *juan*, *fu tuo wu juan*] (Taipei: Hua wen shu ju 華文書局, 1968), p. 506.

³² *Sŏnjo sillok 宣祖實錄* [Veritable record of King Sŏnjo’s reign], in *Chosŏn wangjo sillok 朝鮮王朝實錄* [Veritable Records of the Chosŏn Dynasty] (Seoul: Kuksa p’yŏnch’an wiwŏnhoe, 1955–1958, *juan 50*, 1594/4/17 [Ulch’uk]).

³³ *Ibid.*, *juan 54*, 1594/8/2 (Kabo), *juan 36*, 1593/3/11 (Pyŏngin).

³⁴ *Ibid.*, *juan 54*, 1594/8/2 (Kabo), *juan 44*, 1593/11/12 (Imsul).

military reforms that the Koreans implemented during and after the war, muskets became a core part of the army. Koreans adapted Qi Jiguang's organizational principles to emphasize concentrated fire-power and linear tactics. In the course of this experimentation, they elaborated their own unique version of the musketry volley technique.

Following the principles laid out by Qi Jiguang fifty years previously, the Korean reforms divided soldiers into three classes of units: the musketeer (*ch'ongsu* 銃手),³⁵ the archer (*sasu* 射手), and the swordsman/spearman (*salsu* 殺手, literally, the "killing unit"). This "three-unit technique" (三手兵) was designed to ensure that each type of unit would complement the others. Muskets were the most deadly and effective units, but they were slow and inaccurate, so they needed protection. Archer and swordsmen/spearmen units were thus fielded alongside them, in the same way that pikemen were used to protect musket units in Europe.

Why did the Koreans keep employing archers? After all, archer units virtually disappeared in Europe as the musket gained ascendancy in the seventeenth century. It is an important question, and the answer boils down to three factors. First, the matchlock musket of the seventeenth century had a slow rate of fire and a disconcerting tendency to misfire, especially when wet. This limitation was a greater concern in the early seventeenth century due to climate changes that led to a sharp increase of precipitation in Korea.³⁶ Thus, archers continued to play a supplementary but essential role, supporting musketeers by interjecting their volleys into the hail of fire if there were interruptions in musket fire. Second, it was impossible to replace all archers by musketeers instantaneously. It took time, particularly as there were fiscal and logistical difficulties in purchasing and distributing muskets on such a large scale.

A third reason for the persistence of bowmen was cultural. Archery was a venerated and noble art in Korea. Chŏng On (鄭蘊, 1569–1641), a Confucian scholar who had keen insight into military matters, proudly remarked on one occasion that Koreans had indomitable musketeers and skilled archers, the combination of which he thought gave them

³⁵ Whereas seventeenth-century Chinese sources usually use the character 砲 for cannons and tend to refer to handguns with the character 銃 (muskets are usually referred to as 鳥銃, at least in southern Chinese sources), Korean sources seem to use the terms interchangeably. To denote cannons, Korean sources tend to use descriptive modifiers "fire" or "big": 火炮手 or 大炮手.

³⁶ Kim Yŏnok 金蓮玉, *Han'guk ūi kihu wa munhwa: Han'guk kihu ūi munhwa yŏksajŏk yŏn'gu* 한국의 기후와 문화: 한국기후의 문화역사적 연구 [Climate and culture of Korea: Cultural-historical study on Korean climate] (Seoul: Ihwa Yŏja Taehakkyo Ch'ulp'anbu, 1985), p. 384.

an edge over both the Japanese and the Manchus. “The Japanese,” he wrote, “are capable of employing firearms but lack skills in archery . . . [while] the Manchus are competent archers but are incapable with firearms.”³⁷ Yet despite the high cultural status of Korean archery, the burgeoning gunpowder revolution in Chosŏn Korea ultimately led archers to be replaced by musketeers.

King Sŏnjo himself intervened in this process. We’ve already noted his enthusiasm for muskets, symbolized by his attempt to design a rapid-fire musket of his own. His support for muskets was public and, sometimes, ostentatious. When reviewing troops, he went out of his way to praise musketeers, rewarding them generously with promotions and gifts. Such actions tended to make archers resentful. After all, archers were recruited from a higher social class than musketeers, who tended to come from the commoner classes. Once, while observing drill practices of the Military Training Agency in 1595, King Sŏnjo declared that the musketeers were five times more effective than archers (古人以鳥銃五倍乎弓矢者, 信哉!) and bestowed a reward of thirty horses on them.³⁸ This would be equivalent perhaps to modern-day soldiers receiving expensive cars as rewards for effective marksmanship. The archers were understandably humiliated. Some resigned in protest.³⁹

As we’ve noted, Koreans seem to have first experienced the musketry volley fire technique when the Japanese used it against them in the invasion of Korea, but when did the Koreans employ it themselves? It seems likely that they began doing so during the war itself, but, alas, clear evidence is elusive. The first mention of Korean musketry volley fire occurs in a drill manual used in 1607 to train new recruits in P’yŏngan, a Korean province in the northwest bordering Manchuria. Only one copy of the manuscript survives today, in the hands of a private collector, but the historian No Yŏnggu cites from it to show the nascent Korean volley technique: “every musketeer squad should either divide into two musketeers per layer or one and deliver fire in five volleys or in ten.”⁴⁰

³⁷ Chŏng On 鄭蘊, *Kugyŏk Tonggye chip* 國譯桐東溪集, trans. by Cho Tonggyŏng (Seoul: Minjok Munhwa Ch’ujinhoe, 2000), pp. 303–304.

³⁸ *Sŏnjo sillok*, *juan* 54, 1594/8/2 (Kabo), *juan* 68, 1595/10/8 (Chŏngmi).

³⁹ Kim Chongsu, *Chosŏn hugi chungang kunje yŏn’gu*, p. 85.

⁴⁰ No Yŏnggu, 16~17 segi choch’ong ūi toip kwa Chŏson ūi kunsu jŏk pyŏnhwa 16~17 세기 鳥銃의 도입과 조선의 軍事的 변화 [The introduction of musket and Chosŏn’s military change from 16th to 17th century], *Hanguk Munha* 韓國文化 58 (November 2012): 124. The Chinese text in the *Orderly Method of En Masse Military Arts* (*Kŭngnye chŏngku* 羣藝正穀) as cited in No’s work reads: 銃手每隊二人一層或一人一層分五次或十次.

Records abound for the next few decades. In a letter of advice to King Injo (1595–1649), the aforementioned scholar, Chŏng On, declared that thanks to the incorporation of musket units and their integration with archers, the Korean army had already surpassed the Japanese. But, he said, the Korean army could yet be improved by adopting a new formation he called the “three-layer formation” (*samch’ŏpjin* 三疊陣). Here he describes how the formation would employ a musketry volley technique: “During battle, even if the enemy charges towards our troops with the crane formation, the first layer of one thousand musketeers should fire, sit down to reload while the rear layer of another thousand musketeers fires next. If the sound of fire does not cease and arrows fall like rain, even a well-armoured cavalry of steel-horses would be obliterated.”⁴¹ It’s significant that Chŏng On doesn’t elaborate on this description, and we believe that this is because he expected his readers would already know about the technique.

Chŏng On’s proposal is noteworthy for making musketeers the core unit. He outlined the creation of an elite army division of eleven thousand soldiers. Of them, four thousand would be elite musketeers, three thousand would be elite archers on foot, two thousand would be mounted archers, one thousand would be close-combat cavalry units armed with flails and glaives, and, finally, one thousand would be swordsmen and spearmen. Musketeers were to be the most numerous unit. Musketeers were also to march at the front of the formation, followed by the foot-soldier archers, the close-combat cavalry, and the swordsmen and spearmen, with mounted archers bringing up the rear. When the enemy was engaged, the musketeers and foot-soldier archers would shoot first, the musketeers firing in volleys. If the enemy survived the bullets and arrows and began to draw near, the battalions behind the musketeers and archers would march forward to protect the musketeers. All of these maneuvers were to be instilled carefully through drill. Although it’s not clear to what extent Chŏng On’s proposal was implemented, his description of a linear formation of concentrated firepower is noteworthy for its clarity and for the pride of place given to muskets.

Evidence becomes even clearer in the following decades, when military manuals elaborated in great detail musketry formations strikingly similar to European volley techniques. Two such are particularly salient: the *Orientation to the Military Arts* (*Pyŏnghak chinam* 兵學指南) and the *Clear Treatise of the Military Arts* (*Pyŏnghakt’ong* 兵學

⁴¹ Chŏng On, *Kugyŏk Tonggye chip*, p. 304.

通). While there is record of the latter manual's publication in 1787, *Pyŏnghak chinam* was an older manual, whose earliest known edition is dated 1649, although it seems likely that there were even earlier editions. These manuals described musketry formations on an intimate level, focusing on squads (隊) of eleven men. A passage from *Pyŏnghak chinam* reads: "When the enemy enters within one hundred paces of range, fire the signaling cannon and blow the conch (*bara* 唳囉) to command the soldiers to rise and be poised for action. Next, play the gong (鉦, notated as 企 in the manuscript) to halt the sound of the conch (*bara* 唳囉) while blowing the double-reed trumpet (*ch'ŏnasŏng* 天鵝聲) to command the musketeers to shoot simultaneously (齊放). Either fire all at once or divide in five shots."⁴² The most important term in this description is the last word, *chebang* (齊放), which literally translates to "firing together." This concept is further expounded in a diagram found in the same manual titled "Continuous Fire Musket Shot" (*Choch'ong yunbangdo* 鳥銃輪放圖), which makes clear how the musketry squads were organized.

The Korean musketry squad (隊) consisted of a squad leader and ten musketeers. The musketeers were drawn up into a line of five pairs, each pair consisting of two men placed next to each other facing forward, with the squad's leader standing in front of the foremost pair. At first, the musketeers kneel with their muskets held against their chests. Then, when the enemy is within effective range, the squad leader blows his conch, at which the first pair of musketeers stands, advances just beyond him, fires, and returns to its original position to begin reloading. The squad leader then blows his conch and the second pair rises, advances just beyond him, and fires. The second pair returns, he blows his conch again, the third pair takes its turn, and so on. By the time the fifth pair fires, the first pair has reloaded, and the volley continues.⁴³

Figure 4 is a snapshot of the midpoint of this sequence: the point when the third pair has advanced to fire. The two circles mark the place that the third pair had been kneeling before it advanced to the front of the formation (the top of the image). They are now standing in front of the squad leader, at the very top of the image, and are labeled with the characters 銃舉放, which means "guns raised and shooting." Behind the squad leader kneel the other pairs of musketeers. The first

⁴² *Pyŏnghak chinam* 兵學指南, 「場操程式」(鳥銃鉞弓齊方), KDCP692, p. 184, the National Library of Korea, Seoul, South Korea. The original text is as follows: 賊在百步之內舉號砲吹唳囉各兵起立鳴企唳囉止舉號砲吹天鵝聲鳥銃齊放或一次盡舉或分五舉.

⁴³ This description is based on the diagrams and the text found in *Pyŏnghak chinam*.

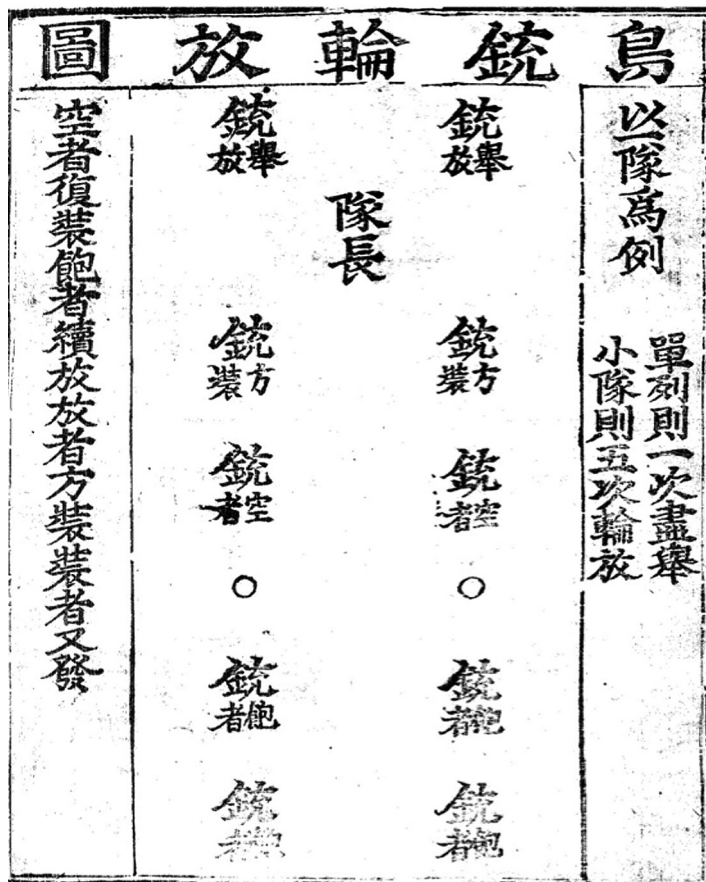


FIGURE 4. This diagram, titled “Continuous Fire Musket Shot” (Choch’ong yunbangdo 鳥銃輪放圖), shows the Korean method of musketry volley fire. From the *Pyŏnghak chinam* 兵學指南, courtesy of the National Library of Korea, Seoul, South Korea, KDCP692, p. 122.

pair has already fired and is reloading, so it is labeled 銃方裝, or “guns being loaded.” Behind them is the next pair, which has also finished firing but has just returned to its position and has not yet had time to start reloading, so it is labeled “guns currently empty” (銃空者). Next come the two circles marking the original location of the pair that is now in front firing, and behind the circles is the next pair of gunners, labeled “full” (飽者), because their guns are loaded and ready to fire. The fifth rank is also labeled “full.”

The army, of course, consisted of many such squads, three in a banner, three banners in a platoon, and so on. Deployed together side by side, these squads would form a long line of musketeers that functioned much like the musketry corps that were revolutionizing battle in Europe. When compared with the images from the European manual written by William Barriffe, the methods seem strikingly similar. There are, of course, key differences between the two manuals, but the overall process in both examples displays a mastery of the same strategy for increasing the efficacy of handguns.

As in Europe, the key to Korean musketeers' effectiveness was drill, drill, drill. Korean manuals manifest a disciplinary ethos as pronounced as that of Europe. Yet it was described in terms of an East Asian cosmography, one that highlighted social order as an aspect of natural order. When Yu Söngnyong, a prominent scholar-official and prime minister of the Chosön dynasty during the Japanese invasion, was asked what was the essence of the military art, he replied:

Military art is just like ritual music. Ritual is when affairs are ordered; music is when material things acquire harmony. Lack of order leads astray, which then disrupts harmony. A million men being commanded in divisions are like the meshes of a fishing net being subordinated to the head rope, isn't this disciplined order? What is, but harmony, an army of one million men that is of one heart, leaving no crevice for vulnerability? If no affair under heaven exists without ritual music, how could military art, an affair of paramount importance, be devoid of ritual music?⁴⁴

To the Koreans, the ideology of the military art sat on an intricate nexus of Neo-Confucian concepts such as social harmony, disciplined order, and ritual music. Yu envisioned a fluid, stratified line of command that expanded and contracted like the mesh of a fishing net when the head rope, a metaphorical command, is pulled up. Rich tropes of cultural and philosophical significance underpin this passage. But what leaps out of Yu's eloquent descriptions is a Korean emphasis on drill and a profound understanding of the importance of military discipline.

Whereas Yu's description was evocative and poetic, Korean military manuals were based on hard-nosed practicality. The first chapter of the *Pyönghak chinam*, for example, explains the use of flags and drums (旗鼓正法) in military drill. "When making a certain command, the

⁴⁴ Yu Söngnyong 柳成龍, *Söae Sönsaeng munjip* 西厓先生文集 (1894), *juan* 15, 雜著, 295c.

signaling-cannon must be fired first to capture the attention of the soldiers. Then, use items such as gong, drum, flags and banners to execute the order. At the sound of the signaling-cannon, all soldiers and officers must immediately become of one heart and discern which color banners are raised and which gong or drum pattern is played.”⁴⁵ Each signaling method, as in the case of the drum, had subtle distinctions in the pattern or form of its presentation that conveyed variegated commands.

Drum is a signal for marching forward. Moving twenty steps forward at each drum beat is known as “point-drum.” Moving one step forward at each beat is known as “fast-drum,” which is to signal hurried pace. When the drum is beaten repeatedly and with a booming resonance like thunder, this is known as “thunder-drum,” which is used to command soldiers to charge against the enemy. It can also be used to signal soldiers to acquire firewood and water, or to start preparations for night encampments. Alternating between the “angled-sound,” produced by hitting the edges of the drum, and the “palace-sound,” produced by hitting the center of the drum, is known as “victory-drum,” which is to indicate all soldiers to return to original positions.⁴⁶

European drilling manuals from the same period also trained soldiers to recognize drum beats. “The drum,” notes William Barriffe, “is the voice of the Commander, the Spurre of the valiant, and the heart of the coward; and by it they must receive their directions, when the roaring Canon, the clashing of Arms, the neighing of Horses, and other confused noise causeth that neither Captain, nor other Officer can be heard.”⁴⁷ In this European manual, six basic drum commands were outlined: one to call the troops to attention, one to prepare to march to a rendezvous point, one to march “either quicker or slower, according to the beat of the Drum,”⁴⁸ one to close ranks and make ready to fight, one to charge, and one to retreat.

While the Europeans had an impressive drill regimen based on the drum, the Koreans, like the Chinese, seem to have employed an even

⁴⁵ Yi Sangjōng 李象鼎, *Pyōnghak chinam yōnūi: Chosŏn hugi kunsu kyobōm* 兵學指南演義: 朝鮮後期軍事教範 (Seoul: Kukpang Kunsu Yōn’guso, 1995), *juan* 1, pp. 23–24.

⁴⁶ *Ibid.*, *juan* 1, pp. 188–189. The Koreans derived this drill from Qi Jiguang’s manual. A nearly identical passage can be found in Qi Jiguang 戚繼光, *Ji xiao xin shu: Shi si juan ben* 紀效新書: 十四卷本, edited by Fan Zhongyi 范中義 (Beijing: Zhong hua shu ju, 2001), p. 19 (in a section titled “Drilling with Drums” (練鼓)).

⁴⁷ Barriffe, *Military Discipline*, p. 4.

⁴⁸ *Ibid.*, 11–12.

more variegated and intricate system of visual and auditory commands that included complex flag signals, cannon shots, horns, and conches. For example, *Pyŏnghak chinam* outlines a particular drilling exercise for musketeer squads:

The company leader (*pachong* 把摠) waves the flag of a color similar to that of the musketeer squad, which is then acknowledged by the platoon leader (*ch'ogwan* 哨官), responded by a banner leader (*kichong* 旗總) who waves his spear-flag, and by a squad leader (*taejang* 隊長) who also waves his spear-flag . . . At the first signal-fire and trumpet blowing, the squad stands in a single rank. Then, followed by the sound of the gong (*na* 鑼), the squad sits down and rests. With another signal-fire and blowing of the conch (*bara* 唃囉), the squad rises. The soldiers shoot simultaneously once when a signal-fire is shot and a single, drawn-out note is blown by a double-reed (*ch'ōnasōng* 天鵝聲). Then, the soldiers immediately re-organize into five ranks and with each signal-fire and blowing of the double-reed (*ch'ōnasōng* 天鵝聲), two soldiers fire by turns five times. When the victory-drum is struck, the squad returns to the open space behind the banner leader (*kichong* 旗總), and sits down to rest with the sound of the gong (*na* 鑼).⁴⁹

As this manual makes clear, drill was systematic.

And what kinds of formations did all these commands serve to instill? One of the hallmarks of European drill is focus on training soldiers to morph into a bewildering variety of formations, each designed for different contingencies. European drilling manuals contain detailed illustrations of such patterns.⁵⁰ East Asian drill manuals contain comparable formations, and at the core of these formations is a principle that Korean scholars have begun referring to as the “layer formation” (*Ch'ūngjin* 層陣).⁵¹ The basic idea, which goes back to Qi Jiguang and

⁴⁹ Yi Sangjōng, *Pyŏnghak chinam yōnūi*, *juan 1*, p. 123.

⁵⁰ For a good example, see the addendum printed with the 1665 edition of William Barriŕffe's manual *Militarie Discipline: Or the Young Artillery-Man, Wherein is discoursed and Shown the Postures both of Musket and Pike, the Exactest way, &c. Together with the Exercise of the Foot in their Motions, with much variety: As also, diverse and several Formes for the Embatteling small or greater bodies, demonstrated by the Number of a single Company, with the Reducements: Very necessary for all such as are Studious in the Art Military. Whereunto is also added, the Postures and Beneficial Use of the Half-Pike joined with the Musket. With the way to draw-up the Swedish Brigade. As also, Mars his Triumph. And in this last Edition is added, Some brief Instructions for the Exercising of the Cavalry, or Horse-Troopes* (London: Gartrude Dawson, 1661), pp. 133–134.

⁵¹ Kim Pyŏngnyun first coined the term *Ch'ūngjin* (層陣), referring to the concept of manipulating soldiers in “layers,” which recurs in Qi Jiguang's manuals such as *Ji xiao xin shu* and in the Korean adaptations *Pyŏnghak chinam* (兵學指南) and *Pyŏnghak'ong* (兵學通). It must be noted that the term is Kim's interpretation based on diagrams of late Chosŏn battle

earlier, is that the soldiers were organized in layers, with different layers specializing in different types of weapons.

The *Pyŏnghak chinam* (兵學指南), for example, lays out in detail a series of formation patterns designed to make use of the strength of musketeers, which is to say the power and range of their projectiles, while also compensating for their weakness, most notably their inability to persevere at close quarters. Musketeers were usually armed with swords but were not so well trained for close-quarter combat as their comrades, the “Kill Units” (殺手).⁵² Consider, for example, the following diagrams outlining the “Make War” drill. These diagrams are significant in that they clearly place the musketeers at the core of the formation. Not only is the labeling of front and rear relative to the musketeer layer, but tactical organization at large is focused on maximizing the effectiveness of the musket layer by providing protection and reloading time for the musketeers, precisely as was done in Europe.

The pattern starts at the point when the enemy is a hundred paces away—just around effective musket range. At that point the conch and trumpet are blown and the musketeer squads begin firing in volleys. When the musketeers exhaust their fire, archers of the “front layer” step before the musketeer squads, shooting fire arrows and normal arrows (see Fig. 5).

If this missile assault fails to rout the enemy and enemy troops approach too close, another command summons the rear layer of “Kill Units” (*salsu*, or 殺手)—that is, swordsmen and spearmen. They march swiftly to the front to protect the musketeers and engage in close combat (Fig. 6).

If the swordsmen and spearmen succeed in driving the enemy back, they withdraw, still facing the enemy, and allow the musketeers to once again give fire (Fig. 7).

formations and that it is not an official nomenclature used in the original manuals. Further explanation can be found in Kim’s article “Han’guksa-e issŏsŏ-ŭi kibyŏng pyŏngjong—changgibyŏng kwa kunggibyŏng ŭl chungsim ŭro” 한국사에 있어서의 기병 병종 - 창기병과 궁기병을 중심으로 [Cavalry in Korean history: Focusing on spear-cavalry and cavalry-archers], *Yukkun Pangmulgwan Hagyejip* 陸軍博物館學藝集 17 (2010): 1-71. Also see Kim Pyŏngnyun, “Chosŏn sidae sugun chinyŏng kwa hamjae mugŭ unyong” 조선시대 수군 진형과 함재 무기 운용, [Naval battle formations and weapon use in Chosŏn], *Kunsa* 軍史 74 (2010), 1-20; and Kim Pyŏngnyun, “Chosŏn sidae hwayak mugŭ unyongsul” 조선시대 화약무기 운용술 [Strategic use of gunpowder weapons in Chosŏn dynasty], *Yukkun Pangmulgwan Hagyejip* 陸軍博物館學藝集 1 (2006): 1-43. There is also a plethora of information on Korean military tactics and system on Kim’s blog, <http://lyuen.egloos.com>, which has been immensely useful for writing this article.

⁵² By the eighteenth century, Koreans excluded “Kill Units” from most of their central armies and replaced them by training musketeers in swordsmanship, similar to the way the Europeans replaced their pikemen with bayonet-armed musketeers around the same time.



FIGURE 5. This diagram, titled “Front Layer Go to War” (前層出戰圖), shows the front layer advancing before the musketeer layer and the rear layer of “Kill Units” (殺手) drawing up behind the musketeers waiting their turn. From the *Pyŏnghak chinam* 兵學指南, courtesy of the National Library of Korea, Seoul, South Korea, KDCP692, p. 128.

This type of “layer formation,” as elaborated in the *Pyŏnghak chinam* (兵學指南) and other military manuals, shows that in Korea, just as in Western Europe, musketeers were increasingly the core of the army. Everything was oriented around them. In Europe, armies incorporated pikemen and musketeers, with pikemen being used primarily as support troops for musketeers when engaging in close combat. The same development occurred in East Asia, particularly in Korea, except



FIGURE 6. Titled “Rear Layer Go to War” (後層出戰圖), this diagram shows how the rear layer of “Kill Units” (殺手) advances to the front of the formation to engage in close combat with the encroaching enemy. From the *Pyŏnghak chinam* 兵學指南, courtesy of the National Library of Korea, Seoul, South Korea, KDCP692, p. 124.

with “Kill Units” filling the role of the pikemen as support and close-combat troops.

This evidence shows that Koreans underwent a musket revolution much like that in Europe, but an important question remains. How might Korean units have compared to European units in combat effec-



FIGURE 7. The “Musketeer Hurriedly Advance and Retreat” (鳥銃急出退回層前圖) diagram shows the rear layer retreating and the musketeer layer advancing once again to the front of the formation. From the *Pyŏnghak chinam* 兵學指南, courtesy of the National Library of Korea, Seoul, South Korea, KDCP692, p. 127.

tiveness? After all, the Military Revolution model suggests that military advances provided Europeans a key advantage abroad, underpinning the expansion of European empires.

It’s a difficult question to answer, but we can offer some hints. In 1654 and again in 1658, Korean musketeers engaged Russian troops in

the Amur River region of Northeast Asia.⁵³ They served as auxiliary troops to the Manchus, a new rising power in North China, and played a decisive role in thwarting Russian incursions into Amuria. At the time, the Muscovite empire was the most fiercely expanding realm in the world, devouring Siberia in the sixteenth century and reaching the Amur frontiers by 1643. Its success can be attributed to a Russian military revolution from the mid sixteenth century to the late seventeenth century, which revamped its armed forces around infantry-based forms of firearms warfare. Together with riverine transportation and Cossack frontiersmen, the Russian military apparatus posed an unprecedented challenge at the Amur frontiers, a threat that was stopped by a combined Manchu-Korean counterthrust.

Throughout the latter half of the seventeenth century, the Manchus and the Russians fought over the hegemony of Mongol-Tungusic tribes in Amuria. The Manchus often had overwhelming numerical advantage, but the Russians seem to have held a technological edge thanks to their guns. The initial Manchu response was weak, as shown in the Siege of Achansk in 1652 when a few hundred Russians, each armed with a musket, allegedly defeated two thousand Manchu bannermen.⁵⁴ However, starting in 1654, a senior Manchu general, Sarhuda, oversaw the situation with an iron fist. He built robust warships and boosted his firearms units with the help of elite Korean musketeers. Sarhuda also relocated native villages away from Russian settlements to deprive them of provisions, which caused the Cossacks to venture southward into the inner reaches of the Amur, where the battle of 1654 took place.

Records for the expedition of 1654 are sparse but are sufficient to suggest that Korean musketeers were crucial. On 27 April, the Russian leader Onifrey Stepanov and his 370 men encountered a Manchu-Korean fleet of about one thousand men, including one hundred Korean musketeers, at the mouth of the Sungari River. In the initial naval exchange, the Russian fleet, which had larger, more robust ships and superior firepower, overwhelmed the Sino-Korean allies. The allies then fled inland after abandoning their ships while the Russians pursued them ferociously. Just as it appeared certain that the Russians had secured a victory, Korean musketeers intervened. At Pyõn Kÿp's ini-

⁵³ Hyeok Hweon Kang is publishing a separate article chronicling those engagements in detail, along with further discussions of the Korean Military Revolution: Hyeok Hweon Kang, "Big Heads and Buddhist Demons: The Korean Musketry Revolution and the Northern Expeditions of 1654 and 1658," *Journal of Chinese Military History* 2, no. 2 (2014): 127–189.

tiative, the musketeers had been stationed earlier on the riverbanks, with a set of trenches and makeshift fortifications established on higher ground. During the battle, Korean musketeers poured volley after volley down into the Russian fleet, inflicting heavy losses. The Russians tried to storm the trenches but were forced to give up. The Manchus and Koreans chased Stepanov's men for the next three days, driving them far to the north and thwarting Russian plans to establish a permanent fortress in the vicinity.

This first clash, however, was not conclusive. Stepanov's forces resumed raiding the Amur over the next few years, and another battle followed in 1658.⁵⁵

By 1658, Korean musketeers were famous in the Amur frontiers for their marksmanship. The Cossacks had begun fearing Korean musketeers since the 1654 battle. Apparently, they were unaware that these fearsome musketeers were Korean, because they referred to them simply as "Big Heads" (*Taeduin* 大頭人), after their distinctive helmets.⁵⁶

The Korean general Sin Yu, who led the second Korean expedition, kept a fascinating diary, which contains much evidence to corroborate the effectiveness of Korean musketeers. For example, he notes that the Manchus prized the Korean musketeers, recognizing their superior marksmanship. Moreover, he records the results of various musketry target drills that were held during the expedition. A narrow board was set up (1.6 meters tall and ten centimeters wide) as a target, and the Koreans scored well: at sixty paces, they averaged a 25 percent hit rate. On some days the accuracy was higher, with the highest daily collective accuracy rate being 32.5 percent and the lowest being 20 percent.⁵⁷ These accuracy rates are low by modern standards, but considering the exceptionally narrow target and the ballistic limitations of a smooth-bore musket, these were in fact very strong results.⁵⁸ According to Sin

⁵⁴ Putnam B. L. Weale, *Manchu and Muscovite* (London: Macmillan, 1907), pp. 21–22. Also see Mark Mancall, *Russia and China: Their Diplomatic Relations to 1728* (Cambridge, Mass.: Harvard University Press, 1971), p. 25.

⁵⁵ Pak Taegün 朴泰根, "Han-Rō in ūi ch'ot mannam kwa Chosōngun ūi Hūngnyonggang ch'ulbyōng" 韓露人の 첫만남과 朝鮮軍의 黑龍江出兵, *Chayu* 自由 17-7, no. 137 (1984): 27. Also see Pak Taegün, "Hūngnyonggang sang ūi taech'ōp 'Nasōn chōngbōl'" 黑龍江上의 大捷羅禪征伐, *Chayu* 自由 4, no. 102 (1981): 62.

⁵⁶ Sin Yu 申瀏, *Kugyok Pukchong ilgi* 國譯北征日記, trans. by Pak Taegün 朴泰根 (Kyōnggi-do, Sōngnam-si: Han'guk Chōngsin Munhwa Yōn'guwōn, 1980), p. 71.

⁵⁷ *Ibid.*, pp. 73–75.

⁵⁸ On the limitations of smoothbore muskets, see Bert S. Hall, *Weapons and Warfare in Renaissance Europe: Gunpowder, Technology, and Tactics* (Baltimore: Johns Hopkins University Press, 1997).

Yu, they also outperformed the hundred Qing musketeers, who barely managed to hit any targets at all during joint drills.⁵⁹

All this practice served the Koreans well on 10 June 1658. The allies sighted Stepanov and his fleet after passing the mouth of the Amur. The Russians were severely outnumbered but had robust ships and about five hundred musketeers. On the other hand, the combined Sino-Korean flotilla carried about 1,400 soldiers with four hundred gunners armed with either cannons or matchlocks—including two hundred Korean musketeers—and one thousand other infantry units such as swordsmen, spearmen, and archers.⁶⁰ After an initial exchange of cannon fire, the Qing-Korean allies launched a three-pronged attack against the Russians, shooting volleys of musket balls and arrows as they closed in. The Russians broke under the disciplined assault. Some hid in the ships. Others fled inland. The allies attempted to capture the Russian ships as war booty, but due to fierce retaliation from enemy musketeers in hiding they had to give up, and instead they burned most of them with fire arrows. It was a complete victory for the allies: the battle claimed 220 Cossacks, including Stepanov, their commander-in-chief. The allies lost 118 men, eight of whom were Korean.⁶¹

Despite their small numbers, the Big Heads played a decisive role in the Amur conflicts by providing lethal musketry fire. In the expedition of 1654, Pyŏn Kŭp's astute use of musketeers on the riverbanks turned the tide of the battle and devastated the Russian flotilla. In the battle of 1658, the allies' advantage was largely due to the Korean musketeers and their consistent musketry fire. In contrast, the Qing gunners were ineffective. The Russian musketeers, of course, might have been effective but they could not stand up against this larger force containing the well-trained Koreans. Moreover, it seems that the Russians were in low morale—they had been suffering a shortage of provisions and there had been mutinies.

To be sure, the scale of these two battles precludes conclusive answers about Korean musketeers' relative aptitude vis-à-vis their Russian counterparts. Moreover, the training and cohesion of the Cossacks in Amur probably paled in comparison to the best Muscovite troops, which boasted salaried harquebusiers called *streltsy* (literally, "shooters"). At the same time, the Big Heads encountered by the Cossacks were themselves not the top Korean musketeers. Professional musketeers from Korea's Military Training Agency would have outperformed

⁵⁹ Sin Yu, *Kugyok Pukchong ilgi*, pp. 73–75.

⁶⁰ *Ibid.*, pp. 83–87.

⁶¹ *Ibid.*, pp. 95, 100.

the Big Heads, although the latter were elite recruits from regional armies. Another caveat for the historian concerns the fact that the role of the Korean troops is sometimes difficult to distinguish from that of other Qing infantrymen, which constituted the vast majority of the allied forces.

This Korean data nonetheless attests even further to the emergence of musketry drilling regimes similar to those that were sweeping through Europe. Korea had its own version of musketry volley fire, which seems to have been at least as effective as the European method. And, just as in Europe, musketeers in Korea became the mainstay of the army, as other units atrophied, so that by the mid seventeenth century Korean fighting forces generally contained a core of musketry units with some other units—primarily swordsmen and spearmen—to protect them, with cavalry as auxiliaries.

What accounts for these striking parallels between Europe and East Asia? One possibility is that muskets, slow to load and relatively inaccurate, naturally pushed their users into developing coordinated firing techniques, at least for gun corps that fought in battlefield formations (as opposed to snipers). The volley fire technique was simply the most effective way to keep up a constant hail of death. Thus, independent invention in East Asia and Europe is quite possible.

It is also possible that the earliest gun volley fire techniques, which were developed in China in the late 1300s, passed to Europe. There is evidence suggesting that the Ottomans were using such techniques before 1594, when they were first described in Europe.⁶² Where the Ottomans learned them is a mystery, but transmission from farther east is a strong possibility.

An independent invention in Korea is also plausible. The Koreans conceived a nascent form of volley technique as early as 1447 when King Sejong the Great, a zealous proponent of science and gunpowder weapons, devised new methods to drill his men in the use of fire barrels: “Divide into squads of five and have four men shoot fire-barrels while one soldier swiftly reloads the barrels with gunpowder. Using varieties of fire-barrels such as the two-gun-barrel, three-gun-barrel, eight-arrow-gun-barrel, four-arrow-gun-barrel and the thin-gun-barrel is confounding because each type of fire-barrel uses varying methods of reloading. Thus, all five members of a squad should carry the same type of fire-barrel to be effective in actual battle. This should be the regular

⁶² Günhan Börekçi, “A Contribution to the Military Revolution Debate: The Janissaries’ Use of Volley Fire during the Long Ottoman-Habsburg War of 1593–1606 and the Problem of Origins,” *Acta Orientalia Academiae Scientiarum Hung.* 59, no. 4 (2006): 407–438.

drill regime.”⁶³ These fire barrels had no lock mechanisms to deliver controlled fire, but the challenges of reloading guns seemed to have sparked this early interest in coordinating volleys.

This is not to say that the Korean musketry volley technique was entirely Korean. The musket was a novelty to the Chōson army, and Koreans probably learned to use it efficiently from the Japanese, who used it to blast through their ranks, and from the Chinese. As we have noted earlier, King Sōnjo welcomed surrendered and captive Japanese soldiers into the Chōson army to learn their musketry tactics and manufacturing methods. Individuals such as Kim Ch’ungsōn (金忠善), a high-ranking Japanese soldier who surrendered, directly instructed Korean soldiers and artisans in the Military Training Agency.⁶⁴ Koreans, of course, also learned from the Chinese as Qi Jiguang’s tactics were the foundation of the Korean drill ethos.

Even more important, the principle of volley fire had long been known, since before the first guns appeared. Crossbows—whose slow loading was similar to that of the musket—were important weapons in ancient China and Korea. Crossbow volley techniques are detailed in Chinese military manuals from the Tang (618–907) and Song (960–1279) dynasties, and there is compelling evidence that early Chinese gun volley techniques were inspired by crossbow volley techniques.⁶⁵

In Korea’s early modern military reforms, such ancient precedents were explicitly mentioned. When Chōng On proposed his “Three-Layer Formation” (*samchōpjin* 三疊陣) to King Injo, he noted that his formation had precedents in crossbow volley tactics that two Chinese brothers (Wu Lin and Wu Jie) used when fighting against the Jurchens in 1131.⁶⁶

There’s also evidence that Korean drilling techniques—and the Korean military manuals themselves—may have been influenced by a man who hailed from the country that first developed volley fire in

⁶³ Sejong sillok 世宗實錄 [Veritable record of King Sejong’s reign], in Chosōn wangjo sillok 朝鮮王朝實錄 [Veritable records of the Chosōn dynasty] (Seoul: Kuksa p’yōnch’an wiwōnhoe, 1955–1958), *juan* 118, 1447/11/15 (Kapchin).

⁶⁴ Kim Sōngi, “Hangwae sayaka (沙也可·金忠善) ūi siljon inmul ro sō ūi ūimi wa p’yōngka,” *Illo ilmun hak* 日語日文學 43 (2009): 255–277.

⁶⁵ See, for example, Li Quan 李筌, *Shen ji zhi di tai bai yin jing* 神機制敵太白陰經 (Shanghai Shang wu yin shu guan, 1937 [originally from ca. 759 c.e.]), *juan* 6 卷六, “Jiao nu tu bian” 教弩圖篇, p. 147. There are good English translations of parts of the *Tai bai yin jing*, but alas both translations focus on the first half of the work, which deals with strategy and philosophy. See Ralph D. Sawyer, trans., *Strategies for the Human Realm: Crux of the T’ai-pai Yin-ching* (Lexington, Ky.: n.p., 2012); and Liu Xianting and Zhu Shida, trans., *Tai bai yin jing*, Library of Chinese Classics Series (Beijing: Military Science Publishing House, 2007). We still await a complete translation of this important work, one that includes its fascinating discussions of weapons, formations, and tactics.

⁶⁶ Chōng On, *Kugyōk Tonggye chip*, p. 305.

Europe: a Dutchman known as Jan Janszoon Weltevree. Weltevree was captured by Koreans in 1626, when his ship had stopped in Cheju to gather provisions on its way to Nagasaki. He lived the rest of his life in Korea, taking a Korean name, Pak Yŏn.⁶⁷

Pak Yŏn acted as military advisor to King Hyojong and worked for the Military Training Agency, the new Korean standing army, in weapons development. Korean sources make clear that he masterminded the manufacturing of the *Hong yi pao* (紅夷砲), an advanced seventeenth-century cannon that Chinese and Koreans gained from the newly arrived northern European powers (*hong yi* means red hair, after the red-haired barbarians, which is to say the English and Dutch).⁶⁸ Similarly, Korean records indicate that Pak Yŏn was ordered to lead a group of Chinese and surrendered Japanese soldiers in the Military Training Agency, essentially a military unit made up of foreigners who were skilled in different aspects of warfare. The Japanese were known for their swordsmanship, the Dutch for their firearms, the Chinese for their cannons, and so on.

Pak Yŏn is a fascinating figure who deserves further study. He became fluent in Korean and seems to have attained such proficiency in the language—which required literacy in classical Chinese—that he managed not only to pass the military examinations but to achieve the highest score in his cohort. It's even possible that he himself helped write the famous military manual *Pyŏnghak chinam*. An influential Korean official wrote that Pak Yŏn was competent, wise, knowledgeable about cannon manufacture, and proficient with military manuals.⁶⁹

Yet, it's doubtful that a Hollander was responsible for introducing the musketry volley fire technique itself. As we've noted, the Koreans described Japanese troops' use of the tactic long before Pak Yŏn arrived in Korea. Equally important, the European method was quite different from the Korean one: European musketeers who'd just shot their guns moved to the back of their file, whereas Korean musketeers who'd just

⁶⁷ Pak was from the Korean surname Pak, and Yŏn was probably from his Dutch name, Jan. He had a nickname, Ho Tan Man (胡呑萬), which he probably gained from Koreans who heard his other captive countrymen referring to him as “hoodfman,” or “hopman,” which means leader. We have done a search of Dutch East India Company indexes for Jan Janszoon Weltevree but have turned up nothing so far, nor does he seem to appear in the ship's logs we have been able to consult.

⁶⁸ See, for example, Huang Yi-lung 黃一農, “Ming Qing zhi ji hong yi da pao zai dong nan yan hai de liu bu ji qi ying xiang” 明清之際紅夷大砲在東南沿海的流布及其影響, *Zhong yang yan jiu yuan ji li shi yu yan yan jiu suo ji kan* 中央研究院歷史語言研究所集刊, 81, no. 4: 769–832; and Huang Yi-lung 黃一農, “Hong yi da pao yu Huang Taiji,” pp. 74–105.

⁶⁹ Yun Haengim 尹行愷, *Sŏkche ko* 碩齋稿, in *Han'guk munjip ch'onggan* 韓國文集叢刊, vols. 287–288 (Seoul: Minjok munhwa ch'ujinhoe, 2002), juan 9, 朴延, p. 148–49.

shot their guns simply returned from the front of their squad to their original position. This may reflect Japanese practice, or it may be a Korean innovation.

If the Koreans had adopted it from the Japanese, this may point to an intriguing divergence from the European practice. Japanese scholars such as Gubota Masashi have argued for Japanese emphasis on marksmanship rather than on en masse infantry drills, which characterized European warfare.⁷⁰ The argument takes into account differences in musket design—whether fired from the cheek or the shoulder—as a technological determinant of the form and extent of musketry drill. Because the Japanese used fowling pieces, which were slow to fire but accurate, they focused on individual marksmanship and valued accuracy over the quantity of volleys. On the contrary, because their European counterparts used shoulder firearms, which fired quickly but were dreadfully inaccurate, they concentrated on developing a form of blanket volley fire that valued fire density over accuracy.⁷¹ The Koreans, having learned from the Japanese, used fowling pieces as well and emphasized individual marksmanship. However, they also learned from Chinese drillmasters such as Qi Jiguang, who, although his troops employed fowling pieces, focused on systematic and rigorous drill similar to that of the Europeans. So perhaps Korean musketeers were a sort of hybrid: excellent marksmen and rigorously drilled infantrymen.

In any case, it's clear that East Asia offers an abundance of evidence about military history that may challenge our understanding of the Military Revolution as a strictly European affair. Was there a “Western way of war,” as Parker and Hanson and others have suggested? Possibly, but to make the case we'd need to take into account more data from the rest of the world. We need to work toward a truly global military history.

There are rich troves of sources for warfare throughout the world, because war generates documents. Victors write about triumphs; losers blame each other for losses; commanders keep files on their troops, write descriptions of their training techniques, muse on their lives in poetry and prose. As more of these sources are explored—and we're at the very beginning of this process—we'll likely come to reexamine many other central preconceptions about European history and world history.

⁷⁰ Kubota Masashi 久保田将至, *Ilbon-ūi kunsu hyōkmyōng* 일본의 군사혁명 [Military Revolution in Japan], trans. by Hō Chinyōng, Park Hongbae, and Shim Hosōp. (Seoul: Yangsōgak, 2010), p. 44–61.

⁷¹ *Ibid.*, p. 53.