

Big Heads and Buddhist Demons: *The Korean Military Revolution and Northern Expeditions of 1654 and 1658*

HYEOKHWEON KANG

Throughout the latter half of the seventeenth century, the Russians and the Manchu Qing quarreled over the fertile Amur River valley of Manchuria. In pursuit of fur and tribute, the Cossacks, Russian frontiersmen, expanded eastward over the Ural Mountains and into the Amur region of Siberia, grinding against Qing borders by the early seventeenth century. They were ruthless colonizers, plundering and ravaging through tributary tribes of the Qing along the river. Inhabitants of the Amur feared them and named them Buddhist Demons (*luocha* 羅刹), evoking the man-eating monsters in Buddhist mythology.¹ The Manchus mobilized troops to deter the Russians but repeatedly proved unsuccessful against their robust ships and deadly firearms. In the battles of 1654 and 1658, a few hundred disciplined musketeers, dubbed Big Heads (*daedyuin* 大頭人)² for their distinctive headgear, turned the tide in favor of the Qing and thwarted Russian intrusion into the inner reaches of the Amur for decades. The Big Heads were Korean musketeers sent to aid the Qing. They played a decisive role in both battles, breaking through Russian ranks with systematic musketry volley fire.

The Chosŏn dynasty of Korea underwent a military revolution in the seventeenth century. Through the experience of repeated foreign invasions and the resulting spread of military technology, Korea evolved into an active gunpowder nation, powered by reforms in military tactics and the adoption of musketeers into the mainstay of its army. Despite the Big Heads' participation in the Amur frontiers under Qing commands, Korea's Northern Expeditions need to be contextualized in the crescendo of military strengthening in Chosŏn, which reached its pinnacle during the reign of Hyojong (1649-1659). The

1 Guo Wenshen 郭文深, "eluosi guojia mingcheng bianqian kao – cong 'luocha' dao 'eluosi'" 俄罗斯国家名称变迁考—从“罗刹”到“俄罗斯,” *Jianghuai Tribune 江淮论坛* 20, No. 3 (2010): 105–108.

2 The title Big Heads (*daedyuin* 大頭人) was given to the Koreans by the Nanais who served both the Qing and the Cossacks. The Nanais, also known as Goldi or Olcha by the Russians, Heijin (黑斤) by the Qing and Gyeon Burak (犬部落) by Koreans, were semi-nomadic people living in the lower Amur who subsisted mainly on fishing. Sin Yu 申瀏, trans. by Park Taegun 朴泰根, *Kugyok Pukchong ilgi 國譯北征日記* (Kyŏnggi-do, Sŏngnam-si: Han'guk Chŏngsin Munhwa Yŏn'guwŏn, 1980), 71.

Korean military revolution of the seventeenth century and its manifestation in the Northern Expeditions of 1654 and 1658 attest to Korean capabilities to successfully adapt to the challenges of the Eurasian-wide, transcultural gunpowder revolution.

Traditional historiography has viewed the Korean army as incompetent and incapable of reform. It was woefully unprepared for the Imjin war of 1592, when the Japanese ripped through Korean defenses and reached the Chosŏn court within twenty days. The Korean court fled once again in 1624, struggling to quell the rebellion of a disgruntled general, Yi Gwal. Hong Taiji's Manchu cavalry trampled over Chosŏn's northern defenses twice in 1627 and 1636, culminating in the Korean king shamefully kneeling before those whom Koreans considered "barbarians." Did Koreans not innovate militarily after having undergone such international shame?

Records of Korean military failures overshadow the deep military reforms that shook Korea to the core during the seventeenth century. The Chosŏn dynasty was transformed through the experience of the Imjin War (1592-1596). In 1593, a year after the outbreak of the war, King Injo issued emergency decrees to institute *Hunryeon Dogam* (訓練都監), a new central army designed specifically to raise musketeers as its mainstay.³ Supported by governmental fiscal support, this army served as a testing ground for new military formations and tactics, including the musketry volley technique. Military manuals containing diagrams for volley techniques were proliferated throughout the 17th century⁴ and state-sponsored military experiments begot innovations in battle formations and tactics.⁵

3 Kim Jongsu 金鍾洙, *Chosŏn hugi chungang kunje yŏn'gu: Hullyŏn Togam ūi sŏllip kwa sahoe pyŏndong* 朝鮮後期中央軍制研究 : 訓練都監 設立의社會變動 [A Study on the Central Military System in the Late Joseon Dynasty] (Seoul: Haean, 2003), 76-77.

4 The *Orientation to the Military Arts* (*Byunghak Jjinam* 兵學指南) is one of the few surviving military manuals from seventeenth century Chosŏn Korea. The earliest known copy is dated 1684 but is allegedly an edition of the original, which some scholars trace back to the mid-seventeenth century. This manual includes a diagram labeled the "Continuous Fire Musket Shot" (*Jochong yunbangdo* 鳥銃輪放圖), which shows the sequence of musketry volley technique used by the Korean musketry squads. *Byunghak Jjinam* 兵學指南, the National Library of Korea, Seoul, Korea.

5 Roh Youngkoo, "Chosŏn hugi pyŏngsŏ wa chŏnpŏp ūi yŏn'gu" [Military Tactical Manuals and Military Strategies Written and Devised in the Late Chosŏn Dynasty] (Ph.D. Dissertation, Seoul National University, 2002), 130-134. Also see Roh Youngkoo, "Gihock nonmun: jeonjaeng ui sidaejeok yangsang; 'Gunsu hyeokmyeongron (Military Revolution)' gua 17~18 saegi chosŏn ui gunsajeok byeonhwa" [Featured Articles : The Historical Aspects of Warfare; "Military

This unsettles the historical foundations of the Military Revolution Model.⁶ Coined by Michael Roberts and further expounded by Geoffrey Parker, the much-debated theory posits that adoption of firearms into European armies required a new way of warfare, a distinctly Western warfare with professional soldiers, broadside ships, robust fortresses, and mobile artillery. These military demands were expensive and taxing, but incessant warfare and interstate competition in early modern Europe made them indispensable. Over time, these pressures expedited state formation and triggered wide-ranging financial and institutional reforms. This revolution allegedly provided Europeans leverage over other peoples of the world. Parker, thus, proposes the Military Revolution Model as “a new paradigm for the ‘rise of the West.’”⁷

A new wave of Asian military historians has contested this paradigm. Historian Sun Laichen argues compellingly that Zhu Yuanzhang, founder of the Ming dynasty, used gunpowder technology to subdue his enemies and established “the first ‘gunpowder’ empire in the early modern world.”⁸ Stephen Morillo posits that the Warring States Period of Japan (戦国時代),⁹ which lasted from the mid-1400s to the early 1600s witnessed an infantry revolution and a rapid adoption of muskets, including the possibility of the development of musketry volley technique.¹⁰ Roh Young-Koo has argued that there are strikingly similar parallels between European and Korean military changes throughout

Revolution" and Joseon Dynasty's Military Reforms in the 17th and 18th Centuries], *Seoyangsa yeongu* 西洋史研究 5, No. 5 (2007): 39-43; and Roh Youngkoo, "Injocho ~ byungja horan sigi jeonsul jeongae [Joseon's Military Tactics from the Early Years of King Injo through the Second Manchu Invasion of 1636]," *Hanguk sahakbo* 韓國史學報 41, No.0 (2010): 175-207.

⁶ See Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West* (Cambridge: Cambridge University Press, 1996); Clifford J. Rogers, Ed., *The Military Revolution Debate* (Colorado: Westview Press, 1995); Donald A. Yerxa, Ed., *Recent Themes in Military History: Historians in Conversation* (Columbia, S.C.: University of South Carolina Press, 2008), 11-48.

⁷ Geoffrey Parker, "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), 387.

⁸ Sun Laichen, "Ming-Southeast Asian Overland Interactions, 1368-1644," Ph.D. Dissertation, University of Michigan Department of History, 2000, p. 75.

⁹ During the Warring States Period (*sengoku jidai* 戦国時代), an epoch of fierce interstate competition from the mid-1400s to the early 1600s, Japan fragmented into numerous states each led by a daimyo, a regional samurai landlord, whose survival depended on effective mobilization of military resources to maintain and expand his domain. The harquebus was introduced to Japan during this time and was quickly adopted.

¹⁰ Stephen Morillo, "Guns and Government: A Comparative Study of Europe and Japan," *Journal of World History* 6, No. 1 (1995), 95-100.

seventeenth and eighteenth century. These military changes also had socio-political consequences such as state centralization, increase in the size of the standing army, and growth of market economy.¹¹

Both sides make a compelling case for their arguments. Europeans certainly took gunpowder technology to another level, enhancing its power and accuracy through the finesse of their scientific culture, whereas the Chinese provided the epoch-making innovation of gunpowder and guns themselves. But, as Tonio Andrade writes, one cannot “directly judge the relative efficacy of European versus Chinese arms” without comparing them directly in battles fought between Europeans and Asians.¹² Andrade studies the Sino-Dutch War (1661-1668), offering an insightful comparison of military tactics, technology and discipline between the Dutch and the Chinese general Zheng Chenggong.¹³ As the “deepest lesson” of Andrade’s book, he proposes that “modernization was a process of interadoption,” and redefines the history of modernity as “a history less of European dominance than of increasingly rapid diffusion.”¹⁴ The military revolution was indeed a polycentric, Eurasian-wide web of challenge-response adaptations, the transnational and universal characteristics of which were truly revolutionary and modern. Rather than having a fixed core-periphery, military revolution took place in different parts of the world and expanded as it drew different military traditions across Eurasia into conversation with one another.

The 1654 and 1658 battles in the Black Dragon River are such precious moments of connected military history. The current scholarship on the Russian-Manchu conflicts in the Amur treats these conflicts as mere prologues to later crises and diplomatic interactions. Scholars such as Ravenstein, Mancall, and Weale produced comprehensive studies on the early Russian interactions with the Qing and their leading up to the Treaty of Nerchinsk (1689), but their works failed to recognize Korean participation or to take Korean sources into account.¹⁵ In Korean scholarship, Pak Tae-gun is the leading academic on the

¹¹ Roh, “Kihock nonmun,” 39-43.

¹² Tonio Andrade, *Lost Colony: The Untold Story of China’s First Great Victory over the West* (New Jersey: Princeton University Press, 2011), 12.

¹³ Zheng Chenggong (鄭成功), also known as Koxinga, was a Ming loyalist military leader in the late 17th century who offered a formidable opposition against the invading Manchus. See Tonio Andrade, *How Taiwan Became Chinese: Dutch, Spanish, and Han Colonization in the Seventeenth Century* (New York: Columbia University Press, 2008).

¹⁴ Andrade, *Lost Colony*, 342-343.

¹⁵ Ernst G. Ravenstein, *The Russians on the Amur; its discovery, conquest, and colonisation, with a description of the country, its inhabitants, productions, and commercial capabilities* (London: Trübner and Co, 1861); Mark Mancall, *Russia and China; their diplomatic relations to 1728* (Cambridge:

Northern Expeditions of 1654 and 1658. He translated into Korean vernacular the *Diaries of the Northern Expedition* (北征日記), a chronicle by Korean general Sin Yu, the commander of the Korean aid troops in 1658.¹⁶ Nevertheless, despite the wealth of sources, the Qing-Russian border conflicts have not been examined with reference to the military revolution debate.

The stories of Big Heads, Buddhist Demons, and Qing Bannermen are also worth being retold. The accounts are overflowing with rich details about peculiar heroes and individuals and extraordinary meetings between different ethnic groups. Korean general Sin Yu was a keen, judicious general who comes across as someone of upright morality. His Confucian moral values conflicted with the uncouth, cunning individuals of the Manchu army such as the Qing commander Sarhuda, whose avarice for war booty led to the death of many soldiers. Sarhuda's army was multi-ethnic, including the agrarian Daur, ¹⁷ whose fertile soil and well-fed crops made the Cossacks salivate, and the Juchers, ¹⁸ who disliked boiled rice and soy sauce¹⁹ and threw themselves to the ground at the sound of gunfire.²⁰ Messengers between the Cossacks and the Qing were the quick-tempered and duplicitous Nanais, or Fishskin Tartars (魚皮鞑子), who served both parties in self-interest. It was they who named the Koreans "Big Heads" and walked around butchering Cossack corpses after the battle of 1658.²¹ Lastly, there was the Cossacks, who were intrepid, free-spirited explorers, experienced in numerous battles and volatile in their allegiance to the Muscovite state. These intractable men were unified under their charismatic leaders, tough and astute officials sent from Muscovy, who

Harvard University Press, 1971); and Putnam B.L. Weale, *Manchu and Muscovite* (London: Macmillan, 1907).

16 Sin Yu, see above.

17 Daur (or Dahurs), a group of "Mongolized Tungus," were agrarian settlers in the upper Amur and Zeya who spoke a Mongolian language. James Forsyth, *A history of the peoples of Siberia: Russia's North Asian colony, 1581-1990* (Cambridge: Cambridge University Press, 1992), 104-105.

18 Juchers, also known as Ducher by the Russians, *Waerka* (瓦爾喀) or *Huerha* (虎爾哈) by the Qing and *Walga* (日可) by the Koreans were Tungusic people who lived in the middle and lower Amur, including the lower reaches of the Sungari river. Sin Yu, 55.

19 *Ibid.*, 129.

20 *Chosŏn wangjo sillok* 朝鮮王朝實錄 (hereafter *CWS*), Kyŏnggi-do Kwach'ŏn-si: Kuksa P'yŏnch'an Wiwŏnhoe [*National Institute of Korean History*], <http://sillok.history.go.kr> (accessed November 15, 2011), *Hyojong sillok*, j. 14 (Hyojong 孝宗 6:4:jeongchuk 丁丑 [1655:4:23])

21 Sin Yu, 98.

brought a team of clerks and assistants to facilitate their duties of leading military expeditions, building fortresses, and managing civil affairs.²²

Russian Intrusion into Amuria

By 1643, when Vasily Poyarkov and his fellow Cossacks were voyaging southward to the Amur, extravagant tales of riches and wonders about the land of the Daurs had been circulating amongst the Siberian Cossacks.²³ These tales portrayed the Amur valley as an agricultural paradise, inhabited by the Daurs who cultivated the soil, herded cattle, and engaged in active trade with Chinese merchants.²⁴ The appeal of these stories was magnified by the conditions the Cossacks were living in, surrounded by permafrost and running short on food and resources.

Poyarkov was an audacious adventurer, a newly appointed Muscovite official in Yakutsk, the vibrant Russian town northeast of Lake Baikal. He was erudite and militarily experienced, eager to pioneer unexplored lands and exploit their riches. Sponsored by the equally enthusiastic voevoda, Peter Golovin, Poyarkov took 132 Cossacks armed with muskets and ammunition, along with a half-pounder iron gun and bountiful other provisions.²⁵

After departing on the 15 June, Poyarkov made slow progress navigating the Aldan River and its tributaries, hampered by the shallows and rapids. After eleven weeks, he still had not reached the Amur and was compelled to establish winter quarters. When spring came and the river thawed, he continued his journey southward, eventually reaching a small Daur village on the Zeya River.²⁶ The Daurs were initially welcoming towards the Cossacks, but their relationship quickly disintegrated as provisions ran out. Poyarkov coerced resources out of another nearby fortified Daur village, which led to a violent backlash from the natives.²⁷ Avoiding further conflicts, Poyarkov and his men sailed south to the intersection of the Zeya and the Amur, from where he voyaged in different directions before returning to Yakutsk in 1646.²⁸

22 Mancall, 14.

23 Weale, 14-15.

24 James Forsyth, *A History of the Peoples of Siberia: Russia's North Asian Colony, 1581-1990* (Cambridge: Cambridge University Press, 1992), 104-105.

25 Mancall, 21.

26 Raventstein, 10.

27 *Ibid.*, 10-11.

28 Weale, 18.

Poyarkov's expedition provided the first Russian account of the Amur and its resources, sparking interest in provincial governors in Yakutsk and the central Muscovite government. His voyage, however, spread alarm and fear throughout tribesmen along the Amur and made subsequent Cossack expeditions more bloody and violent. In 1649, with the new appointment of D. Frantsbekov in Yakutsk, Muscovites reasserted their interest in the Amur. During the summer of 1650, Khabarov and his men sailed from Yakutsk and found that many native villages had been deserted to avoid contact with the Cossacks. Further down the Amur, Khabarov conquered the fortified Daur village of Yakesa, establishing the first Russian settlement on the Amur River. This village, renamed Albazin, became a focal point of Russo-Qing relations later in the century.²⁹

The next year, using Albazin as the new base for expansion, Khabarov sailed down the Amur with over two hundred men and three large cannons.³⁰ On 8 October, Khabarov's ships reached the Guigudar village, which was fortified by a triple line of defensive structures and garrisoned by a Nanai-Jucher army of more than eight hundred, in addition to fifty Manchu cavalymen.³¹ The Russian advantage in firearms was salient in this first skirmish between Khabarov and the Qing. One volley killed twenty Amurian tribesmen, causing the Manchu to flee inland, while the rest of the natives retreated within their fortresses.³² Khabarov's men penetrated the defenses and killed mercilessly, leaving 661 natives dead in their wake and took 243 women and 118 children as prisoners. The war booty included 350 horses and cattle and rich stores of grain. Only fifty-five Russians were killed or wounded.³³

After the battle at Guigudar, Khabarov sailed further down, continuing his brutal conquests against other tribes until reaching a large settlement of Nanai in Achansk (烏扎拉).³⁴ The Nanai, as described in Sin Yu's account, were "quick-tempered savages who didn't even know the calendar and aimed their arrows easily against anybody, even slashing at their family members."³⁵ The

29 Mancall, 24.

30 Ibid.

31 Weale, 20.

32 Ibid.

33 Ibid.

34 Ibid., 21-22.

35 Sin Yu, 72.

Russians suppressed these unruly people and built a formidable fort at Achansk.³⁶

The Manchus were aware of Russian encroachments in the Amur region as early as 1643, when Poyarkov wreaked havoc scrambling for resources in the winter. This time, however, the natives pleaded the Manchus in the Ninggu Tower, a wealthy Qing garrison town in the Mudan River valley, for protection. Commander-in-chief of the Ninggu Tower, General Haise mustered a large force of approximately 2,000 armed with bows and muskets. At dawn on 3 April of 1652, Haise attacked Fort Achansk, breaching its walls with siege guns and storming the fortress. The Russians retaliated fiercely with their cannons and rebuffed the Chinese charge.³⁷ Then, a Russian sortie delivered a fatal blow to the bannermen, supposedly killing seven hundred at a cost of ten according to Khabarov's report.³⁸ While the Qing army greatly outnumbered the Cossacks, Manchus suffered a shameful defeat. The capability of Russians to employ their firearms efficiently and systematically proved decisive against the Manchu. The Manchus, on the other hand, were over-confident in their numbers, attempting to capture the Russians alive.

These Manchu defeats were a wakeup call. Haise was executed for his incompetence. Sarhuda, a formidable general with abundant battle experience and cunning acumen, took his place. Sarhuda was a prized general in the Qing army, having served Nurhaci, Hong Taiji, and Shunzi Emperor in battles against the Ming forces and during the Manchu invasion of Korea in 1636.³⁹ Sarhuda's appointment to Ninggu Tower started an aggressive projection of Manchu power against the Russians. Over the Amur River, shadows of war were looming large as Sarhuda reinforced his troops in Ninggu Tower and sent word to request Korean musketeer troops.

Korean Military Revolution

During the Manchu invasion of Korea in 1636, Hong Taiji regarded the Korean infantry with high esteem, saying:

³⁶ Weale, 21-22.

³⁷ Ibid.

³⁸ Mancall, 25.

³⁹ Arthur W. Hummel, *Eminent Chinese of the Ch'ing Period (1644- 1912)* (U.S. Government Printing Office, 1943), 632.

Although the Koreans are incapable on horseback, they do not transgress the principles of the military arts. They excel in infantry fighting, especially in musketeer tactics, and would be of great use when storming a fortress.⁴⁰

Although the Manchu juggernaut crushed Korean resistance in 1636, Hong Taiji had healthy respect for the capabilities of the Korean infantry and especially the Korean musketeers. But when did Korea become such an effective gunpowder nation?

The Imjin War of 1592-1596 was the first catalyst for Korean military reforms. It was one of the bloodiest wars in the history of East Asia and engaged massive standing armies. According to Kenneth Swope, “more than two hundred thousand regular troupes fought for both the Chinese and Japanese sides, in addition to hundreds of thousands of Korean regulars, volunteer militiamen and monk soldiers.”⁴¹ More important than the sheer magnitude of these clashes were, as Swope emphasizes, the role that firearms played in determining the outcome of the conflict and the resulting technological transfers amongst the belligerents. The Japanese brought with them a formidable way of war, characterized by the efficient use of the harquebus in tandem with different types of close combat units. Having accumulated a plethora of military experiences during their Warring States Period, the Japanese had absorbed the latest musketry technology into the core of their army, which provided a clear edge against the Koreans. The Chinese army was known for its employment of large cannons, which dwarfed Japanese firepower in large set-piece battles, and its Southern troops, an infantry army drilled with the revolutionary tactics of the legendary Chinese general Qi Jiguang.⁴²

The experience of the Imjin War echoed powerfully in the seventeenth century military reforms of Chosŏn dynasty. Introduction of late Ming general Qi Jiguang’s military tactics to Korea was the most significant legacy of the war. In 1593, King Injo issued emergency decrees to establish a new central army known as the *Hunnyeon Dogam* (訓鍊都監). *Hunnyeon Dogam* borrowed

40 *Qingshilu* 清實錄, *Qingtaizong shilu* 清太宗實錄, j. 37, p. 27 (崇德 2:7:renchen 壬辰 [1638:2]) as cited in Liu Jia-Ju 劉家駒, “Qingchu zhengbing chaoxian shimo” 清初徵兵朝鮮始末, *Shi huo yue kan: Zhongguo li shi she hui ke xue za zhi* 食貨月刊: 中國歷史社會科學雜誌 1, No. 2 (1971): 382. All translations are mine.

41 Kenneth Swope, “Crouching Tigers, Secret Weapons: Military Technology Employed during the Sino-Japanese-Korean War, 1592-1598,” *The Journal of Military History*, 69 (1) [2005]: 13-14. See also 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).

42 Swope, “Crouching Tigers, Secret Weapons,” 16-18, 38.

profusely from the infantry techniques of Qi Jiguang, especially from his manual *Ji iiao xin shu* 紀效新書 (*The new book of effective techniques*). Orchestrated by the military specialist Han Kyo and Prime Minister Yu Seong-ryong, reforms started in *Hunnyeon Dogam* and spread to other standing armies and regional armies in Korea. During the war, Han Kyo learned Qi Jiguang's tactics by observing the drills of the Southern Troops and their generals and used this foundation as a springboard for further reforms.⁴³

What made Qi's tactics so revolutionary? Qi Jiguang invented his tactics in response to the Wokou Crisis of the mid-sixteenth century, when Japanese mariners raided the coastlines of Southern China. Qi developed the "Control-the-Ranks Method" (*Sok Oh beop* 束伍法) to organize an infantry army based around commoners, and placed great emphasis on drill to discipline them to fight in tight, mutually supportive formations. Qi also incorporated musketeers into his army, although the extent of their role in his army has yet to be clarified. Qi's methods emphasized infantry tactics and the ability to organize and discipline commoners.⁴⁴

Recruiting commoners and drilling them efficiently to meet the urgent demands of the war was exactly what the Koreans needed. Following the "Control-the-Ranks Method," *Hunnyeon Dogam* recruited from all social classes and organized new conscripts with Qi's stratified troop divisions.⁴⁵ In 1593, the first 500 soldiers were recruited into the *Hunnyeon Dogam*, which increased to 2,000 by the end of the war and was augmented to 4,000 by 1616 and 6,350 by 1658.⁴⁶ Qi's infantry revolution was also imported, as most cavalry units were supplanted with the *SamSuByeong* (三手兵) system, literally "three-unit-soldiers," consisting of a musketeer (*chongsu* 砲手), an archer (*sasu* 射手), and a swordsman or spearman (*salsu* 殺手 [literally, the "killing unit"]).⁴⁷

Koreans, however, did not blindly follow Chinese examples. The Imjin War brought far more pressure for increased firepower and disciplined infantry units than the Wokou crisis. The number of musketeers in proportion to the rest of the army in *Hunnyeon Dogam* was substantially larger than that in Qi's

43 Roh, "Chosŏn hugi pyŏngsŏ," 12-51.

44 Ibid., 36-41.

45 Kim, 114-137.

46 Ibid., 105.

47 Ibid., 78-79.

standard army. The Korean line of command and tactical organization was also more stratified and specialized.⁴⁸

During and after the Imjin War, Korean military reforms were obsessively focused on increasing firepower and introducing musketeers into the Korean army. Koreans believed Japanese technological superiority in muskets was the most significant factor in their defeats. Praising muskets as a divine weapon, King Seonjo was a zealous proponent of muskets. In 1593 and 1594, Seonjo repeatedly ordered Japanese captives to be kept alive so that Korean blacksmiths could learn the Japanese methods of making gunpowder and muskets.⁴⁹ In 1594, Seonjo himself attempted to design a new musket that could supposedly fire rounds in quick succession.⁵⁰ Seonjo was also openly embracive of excellent musketeers and did not hesitate to reward them generously with promotions and gifts that made other types of soldiers envious. For example, while observing drill practices of the *Hunnyeon Dogam* in 1595, Seonjo declared that the musketeers outperformed archers and bestowed thirty horses to the former, enraging the archers, some of whom left the *Hunnyeon Dogam* out of humiliation.⁵¹

Changes in tactical organization were followed by innovations in military formations. As early as 1594, *Hunnyeon Dogam* was experimenting with formations that organized the army into layers of musketeers, archers, and swordsmen/spearmen that advanced and receded, firing and engaging in combat in an orderly fashion.⁵² In 1636, scholar Jeong On (鄭蘊 1569–1641) proposed to King Injo a new military formation called the “Three Layer Formation” (*samcheopjin* 三疊陣), which involved archers and musketeers shooting in volleys.⁵³ By the end of the seventeenth century, military manuals such as the *Orientation to the Military Arts* (*Byunghak Jjinam* 兵學指南), which included drill instructions for musketry volley technique, were widespread.

These new military tactics were soon put to test against the mighty Manchu cavalry. During the Sarhu battle of 1619, Nurhaci and his horsemen crushed Ming forces equipped with matchlocks and cannons. Dispatched to aid

48 Roh, “Chosŏn hugi pyŏngsŏ,” 50.

49 CWS, *Seonjo sillok*, j. 36 (Seonjo 宣組 26:3:byeongin 丙寅 [1593:3:11]).

50 Ibid., j. 44 (Seonjo 宣組 26:11:yimsul 壬戌 [1593:11:12]).

51 Kim, 85.

52 CWS, *Seonjo sillok*, j. 49 (Seonjo 宣組 27:3:gaemyo 癸卯 [1594:3:25]).

53 *Zeungbo munheon bigo* 增補文獻備考, j. 115 as cited in Roh, “Chosŏn hugi pyŏngsŏ,” 123-124.

the Ming, Korean musketeers under the leadership of General Kang Honglip were also slaughtered by cavalry charges after firing only one salvo. However, during the same battle, 500 Korean musketeers serving the Ming officer Du Song on the eastern front were successfully shooting in volleys and taking down many Manchus before their Chinese allies surrendered and obstructed the Koreans' chain of fire. During the Manchu invasion of 1636, although Korean forces succumbed to Hong Taiji in the end, the military revolution that had been gaining ground in Korea did render some decisive leverage against the Manchus. On 4 January, 5000 Qing troops attacked Korean encampments near Namhan Castle, a large mountain fortress to the southeast of Seoul. The Korean army defeated the Qing by dividing into a three layer formation and delivering a constant hail of fire against their enemies. In other decisive battles, Koreans were defeated due to lack of soldiers and insufficient supply of gunpowder more so than the ineffectiveness of their tactics.⁵⁴

The shame of the Korean defeat in 1636 fueled further military expansion, especially under the reign of King Hyojong. Taken captive by Hong Taiji during the Manchu invasion of 1636, Hyojong was determined to take revenge of the Qing when he was crowned in 1649 upon his return. He conceived of grand schemes for *pukbol* ("northern conquest") to reclaim the Manchurian territories that had belonged to Korean ancestors.⁵⁵

The prospects of the barbarian are undeniably headed towards destruction... many subjects suggest I not deal with military matters, but I will persevere because there is no telling when heaven-sent opportunities might present themselves. I will raise 100,000 gunners, whom I will cherish and care for as if they were my children, to make them fearless before death. If, after waiting for a breach in their defenses, we attack swiftly and march through the Manchurian plains, how could righteous heroes in the central plains not rise up and join our ranks?⁵⁶

Hyojong was a martial king. He championed the military over the civil and deplored the derogatory attitudes the Confucian literati exhibited towards militiamen. He himself had a knack for martial arts, frequently riding horses and practicing the sword and the bow.⁵⁷ Hyojong took extensive measures to reinforce *Eo Young Cheong* (御營廳), another central army equipped with firearms that was founded by his father, King Injo, in 1624. He designated *Eo Young Cheong* as the main army division for *pukbol* and increased its numbers to

54 Roh, "Injocho ~ byungja horan," 179-180, 201-203.

55 Yi Gyungchan 李京滌, "Chosŏn hyojongchoui pukbol undong," *Ch'onggye sahak* 清溪史學, No. 5 (1988): 177-259.

56 *Songseo seupyu* 宋書拾遺, j. 7, p. 574 as cited in Yi, 195.

57 Yi, 177-259.

21,000.⁵⁸ Created with emphasis on having superior firepower, *EoYoung Cheong* consisted mostly, if not entirely, of musketeer units since its inception.⁵⁹ In 1655, he boasted the prowess of *EoYoung Cheong* by publicly drilling its new recruits and other regional armies on the beach of the Han River. In attendance were his crowned prince and other *pukbol*-supportive officials, as well as a large multitude of spectators.⁶⁰ Hyojong also aimed to increase soldier numbers in the *Hunnyeon Dogam* to 10,000.⁶¹ Although finances didn't allow him to meet this objective, *Hunnyeon Dogam* did reach its pinnacle in 1658 with 6,350 soldiers, most of whom were musketeers.

During his reign, Korean firearms development continued with the unexpected aid of shipwrecked Dutch sailors. Jan Jansz Weltevree, who was captured in 1626, served as military advisor to Hyojong and transmitted methods of manufacturing cannons. Hendrick Hamel and his fellow Dutchmen who arrived in Chosŏn in 1653 also served in *Hunnyeon Dogam* and imparted their knowledge of musketry tactics and firearms manufacture to the Koreans.⁶² In 1656, with Hyojong's encouragement, blacksmiths in the *Hunnyeon Dogam* reproduced the muskets that the shipwrecked Dutchmen brought.⁶³ Although the records do not elaborate on the details of this enhanced musket, it was most likely a flintlock, an upgrade from the matchlock, which was then widespread in East Asia.⁶⁴

In this buildup of military expansion in Korea, the Qing sent their first request for aid in their fight on the Amur frontiers in 1654. Although the Korean Court was initially reluctant, Hyojong was probably aware that sending troops to aid the Qing on the Amur frontiers would benefit his *pukbol* campaign in the long-term. Because the Qing frowned upon Korean efforts to strengthen the military, Hyojong's *pukbol* plans were often hampered by Qing intervention. When Qing envoys visited Seoul, foreigners such as Hamel Hendrick who were highly regarded for their military expertise had to be hidden lest the Qing demand they be sent to Beijing. A number of officials in the court who had harbored anti-Qing sentiments and argued for military expansion were also

58 CWS, *Hyojong sillok*, j. 8 (Hyojong 孝宗 3:6:kisa 己巳 [1652:6:29]).

59 Roh, "Kihock nonmun," 42-43.

60 CWS, *Hyojong sillok*, j. 15 (Hyojong 孝宗 6:9:mushin 戊申 [1655:9:27]).

61 Kim, 108-111.

62 Roh, "Chosŏn hugi pyŏngsŏ," 156, 168.

63 CWS, *Hyojong sillok*, j. 17 (Hyojong 孝宗 7:7:gapja 甲子 [1656:7:18]).

64 Roh, "Chosŏn hugi pyŏngsŏ," 147.

forced to resign.⁶⁵ Fought under the Qing flag, these expeditions thus provided justification for Koreans to continue their self-strengthening. The Northern Expeditions of 1654 and 1658 should be revisited as an extension of Hyojong's grand schemes of *pukbol*.

The Northern Expedition of 1654

King Hyojong assigned Byeon Geup, the second-in-command of the Hamgyeongdo province, as the leader of the expedition.⁶⁶ One hundred musketeers along with fifty logistics personnel departed from Hoeryeong towards Ninggu Tower. They had crossed the Duman River by 26 March and boarded Qing ships on 21 April.

After the catastrophic Qing defeat under General Haise in 1652, the Qing dynasty flexed its muscles and reinforced defenses in the Ninggu Tower with new forces and appointments. The Manchus also ordered Daur villagers to move to the valley of the Sungari River, away from the Cossacks, which deprived the Russians of food and fur tribute from the natives.⁶⁷

The Manchus' active policy in the Amur pressured the Russians to adapt to a different level of challenges thus far unprecedented in their Siberian expansion. The Cossacks had expanded with an incredible speed eastward due to their overpowering superiority in firearms, which easily defeated Siberian tribesmen. The pattern of their conquest was based on raiding and tribute collection, relying on a few scattered fortresses. However, Manchu military presence in the region required an adaptation of the Muscovite strategy from plundering to a more permanent settlement.⁶⁸ By 1653, Khabarov had returned to Moscow where he presented gifts as evidence of the Amur's riches and showed the Daur and other natives to the Czar, re-affirming Muscovite authorities of the worth in conquering the Amur.⁶⁹ As Khabarov's replacement, another Cossack conqueror, Onifrey Stepanov, was appointed as voevoda. Cognizant of the increased Manchu resistance and the futility of mindless raiding, Stepanov realized he needed to establish permanent settlements to supply and sustain his people.⁷⁰

65 Yi, 177-259.

66 CWS, *Hyojong sillok*, j. 12 (Hyojong 孝宗 5:2:gaehae 癸亥 [1654:2:2])

67 Perdue, 88.

68 Mancall, 26.

69 Weale, 25.

70 Mancall, 26.

The Manchu strategy of removing natives from the Amur River basin was a critical strike against the Russians. Driven by pangs of hunger, Stepanov and his men sailed southward, down the Amur to the mouth of Sungari, where the natives had migrated to.⁷¹ On 28 April 1654, Stepanov and 370 Russians entered the Sungari River and after sailing upstream for three days, encountered a Sino-Korean fleet of about 1,000 men. The Sino-Korean fleet consisted of twenty large ships that could carry seventeen people and of one hundred and forty small boats that could carry five. The Russians brought thirty-nine ships, thirteen of which were substantially larger and more robust than any Chinese ship.⁷² Although Stepanov was greatly outnumbered, the Cossacks were used to this numerical disadvantage, for they had suppressed the vast Qing forces with their firearms. The records of this battle are not very clear, but the Russian fleet, owing to their large size and superior firepower, initially overwhelmed the Sino-Korean allies on the water. However, with Byeon Geup's astute leadership, the musketeers under his command secured a victory for the allies. Byeon Geup had suggested to Sarhuda that he set up trenches on the riverbanks to fire at the Russians from higher grounds. Agreeing to Byeon Geup's suggestion, Sarhuda gave him 300 Daurs and 300 Qing soldiers for support.

Pouring volley after volley into Cossacks who attempted to besiege the trenches, Byeon Geup's forces inflicted heavy losses on the Russians, who eventually retreated. Qing ships pursued Stepanov for the next three days, driving them past the Zeya River, where Stepanov had initially planned to establish a permanent fortress. The Korean troops then helped the Qing build an earthen fortress and returned to Chosŏn via the Ninggu Tower, completing an expedition of eighty-four days.⁷³ This first clash between the Russians and the Sino-Korean allies was not a conclusive victory for the latter. Stepanov's forces were still alive and threatening, and they continued to exert their influences in the Amur for the next few years. However, the Cossacks were certainly taken aback by the unexpected firepower of the Korean musketeers. We learn from

71 *Ibid.*, 27.

72 Park Taegun, "Han-reo in ui cheot mannam gua Chosŏngun ui heokryonggang chulbyeong," 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 Park Taegun, "Heokryonggang sang ui daecheop 'naseon jungbul'" 黑龍江上의 大捷羅禪征伐, *Chayu* 自由 4, No. 102 (1981): 62.

73 Park, "Han-reo in ui cheot mannam," 28.

Sin Yu's account that the Russians were intimidated by the Big Heads, a nickname the Nanais gave the Koreans.⁷⁴

Byeon Geup brought a sample of Russian gunpowder back to Chosŏn and presented it as gift to Hyojong, who rewarded Byeon Geup and his fellow men generously.⁷⁵ Upon Byeon Geup's return, Hyojong inquired enthusiastically after his travels and seemed to be particularly interested in the geography of Amur and the military capabilities of the Russians and the Qing.⁷⁶ The success of Korean musketeers against the Russians in the Amur further sparked Hyojong's *pukbol* campaign.

Sin Yu and the Northern Expedition of 1658

The decisive moment in the early Sino-Russian conflicts was the battle of 1658. In 1655, a large contingent of Qing forces led by Mingan Dali besieged Stepanov's fortress at Kumarsk without much success.⁷⁷ Sarhuda realized that fighting Russians behind their fortified walls was futile and decided to meet them again on the river, similar to the battle of 1654. To reinforce his flotilla, Sarhuda established shipyards in the upper Sungari River in 1657 and embarked on a massive shipbuilding project. Request for musketeers were sent to Korea once more, this time asking for two hundred musketeers and self-sufficient provisions.⁷⁸

General Sin Yu was appointed the leader of this second expedition. An erudite man from a family of elite military status, Sin Yu was a keen, judicious general whose temperament drew a stark contrast with the cunning, avaricious Sarhuda. Sin Yu's diary entries bespeak of his observant, meticulous personality and his consideration for his men and his country.

Sin Yu arrived at Ninggu Tower on May 9th. Having received the news that the Russians were drawing near, the Manchus and the Amurian allies were already busy making preparations. The next day, Sarhuda set sail with the help of the Juchers who provided the Manchus with large, well-crafted ships. The Juchers were also familiar with the currents of the river and helped the

74 Sin Yu, 71.

75 CWS, *Hyojong sillok*, j. 13 (Hyojong 孝宗 5:7:gyeongin 庚寅 [1654:7:3]).

76 Ibid., j. 14 (Hyojong 孝宗 6:4:jeongchuk 丁丑 [1655:4:23]).

77 Mancall, 27. Also see Ravenstein, 29-30.

78 Sin Yu, 14-15.

Manchus navigate the ships.⁷⁹ After five days of voyage, the Sino-Korean allies ran into another group of Juchers who informed them that the Russians had arrived at the mouth of the Amur. The next day, the allies arrived at the mouth of the Sungari River, where villages covered the landscape. Here Sarhuda waited for fifty warships with reinforcements from Beijing and Shenyang.⁸⁰

These newly constructed warships were part of Sarhuda's grand scheme of naval strengthening to face the Russian flotilla. Shipyards were established in the upper Sungari, where the current city of Jilin stands, an area known to be bountiful in lumber resources. The Manchus employed Han Chinese shipbuilding experts to construct large warships that could stand in combat against Russian vessels. Through the experience of the 1654 battle, Sarhuda had witnessed Russian naval prowess. According to Sin Yu's investigation of captured Russian ships, they had enormous bodies with a deck made out of thick planks and enclosed by layers of dense logwood, which was so robust Sin Yu doubted they could be penetrated with *Hongyipao* ("Red Barbarian Cannon" 紅夷炮), the most powerful type of cannon based on English and Dutch models.⁸¹ Although Sin Yu seemed convinced of Russian naval superiority until the end, Sarhuda's undertaking was quite fruitful. Employing six hundred Han Chinese craftsmen and carpenters, his shipbuilding initiative continued for eight months, producing a flotilla of fifty-two ships, forty of which were large and made of thick planks and twelve of which were smaller but of the same design. After completing the construction, the shipbuilders served as mariners in the fleet. The Qing fleet also mounted fifty cannons of various sizes, which were operated by a hundred artillerymen.⁸² Having departed on May 6th, the flotilla made slow progress down the Sungari due to the desiccation of the river.

The Sino-Korean allies waited for fifteen more days at the mouth of the Sungari. While the waiting time before an imminent battle can be anxious and perturbing, this idle time generated an abundance of information in Sin Yu's diaries about the military practices of the allies. Sin Yu's diary provides valuable data about three musketry shot drills that were implemented during this time. A board 1.6 m tall and 10 cm wide was used as target and placed sixty steps from where the shot was fired. Out of the two hundred musketeers, forty hit the mark during the first drill and sixty-five during the second. The Koreans shot

79 Ibid., 67.

80 Ibid., 70.

81 Ibid., 94.

82 Ibid., 82.

three rounds during the third practice, 123 hits in total with two musketeers scoring all three times and thirteen scoring twice. Calculating an average with results from these three drills and two other ones that took place during the expedition, the Koreans scored an average of 25% accuracy, with the highest rate being 32.5% and the lowest 20%.⁸³ During the second drill, the Korean musketeers practiced alongside hundred other Qing musketeers from Ninggu tower. According to Sin Yu's observations, more than half of the Qing musketeers were not proficient in the technique and only a few of them hit the target.⁸⁴

Five days before the arrival of the warships, forty Nanais aboard three ships approached the encampment. Having heard the news of the arrival of a large Qing army, the Nanais, many of whom had served the Russians at Fort Achansk, came to re-align their allegiance with the Qing. Through the migration of these people back and forth from Russian and Qing territories, important military information from both sides seems to have leaked out. Sin Yu thought it was likely that the Cossacks knew the Big Heads were dispatched once again, for many Nanais were gossiping about this. The Nanais also told the Manchus that the Russians were about to surrender, because they had suffered significant losses due to repeated clashes with the Qing and were running short of provisions. Suspecting these informers for their duplicity, the Manchus did not believe this.⁸⁵

The long-awaited reinforcements arrived on 2 June. The combined Sino-Korean forces amounted to 1,400 soldiers, a thousand of whom were infantry units such as swordsmen, spearmen, and archers and four hundred of whom employed cannons or matchlocks.⁸⁶ After two days of re-organization and allocation of soldiers on the ships, the flotilla set sail at daybreak on 5 June. Propelled by an auspicious wind, the allies advanced swiftly towards the junction between the Amur and the Sungari.⁸⁷ On 10 June, the allies sighted Stepanov and his fleet after passing the mouth of the Amur and descending approximately 10 km further down the Amur.⁸⁸

83 *Ibid.*, 73-75.

84 *Ibid.*, 73.

85 *Ibid.*, 77-78.

86 *Ibid.*, 83.

87 *Ibid.*, 84-85.

88 *Ibid.*, 87.

The allies pursued the Russians as soon as they came into sight. Stepanov's fleet raised the sail and swiftly retreated 5 km to line up in defensive formation on the riverbank. The Cossacks were roused to action, attentively watching the Qing fleet's movement. When the allies approached within 500 meters of the Russians, both sides exchanged fierce cannon fire. At this moment, the Qing-Korean allies launched a three-pronged attack on Stepanov, pouring volley after volley of musket balls and arrows upon the Russian fleet as they closed in. The Cossacks, who would also have been firing their flintlocks in volleys, were soon overpowered and broke formation, some hiding in the ships and others abandoning the ships and fleeing inland. When Sin Yu's ship and the rest of the vanguard fleet surrounded the Russian vessels, the musketeers threw their hooks on the enemy ships and jumped over to set fire to them. However, this was halted at once, as Sarhuda wanted the Russian ships captured as booty.⁸⁹

The musketeers who had boarded the enemy ships came under immediate peril as the Cossacks who had been hiding took advantage of the allies' hesitation and retaliated. The rapid succession of Russian musketry fire caused a number of casualties in the Qing forces, killing seven Korean musketeers and many Qing infantrymen and mariners. As the Russians recoiled furiously, Sarhuda had no choice but to use fire-arrows on the Russian fleet, burning seven vessels to ashes. Meanwhile, forty Cossacks who had abandoned the ship and fled inland reclaimed one of the Qing ships that had been deserted and escaped the encirclement. As the Russians were fleeing, the Qing fleet pursued, Sin Yu's ship being the first. The allies caught up with the Cossacks and slaughtered them all. Before long, darkness fell and the allies camped on the opposite bank of the river opposite of the Russians, leaving three ships to guard what remained of the Russian fleet. Later in the night, some Russians managed to escape with a ship.⁹⁰ The battle of 1658 left two hundred and twenty Cossacks, including Stepanov, their commander-in-chief, dead. Qing casualties numbered one hundred and ten deaths and two hundred wounded. Eight Korean musketeers were killed and twenty-five wounded.⁹¹

Conclusion

Despite their small numbers, Korean musketeers undeniably played a decisive role in leading the allies to victory. During the expedition of 1654, Byun Geup's astute placement of musketeers on the riverbank devastated

⁸⁹ *Ibid.*, 87-90.

⁹⁰ *Ibid.*

⁹¹ *Ibid.*, 95, 100

Stepanov's flotilla and earned the Korean musketeers the redoubtable reputation of Big Heads. Further, deconstructing the allies' artillery composition in the battle of 1658 shows that the success of their musketry volley tactics against the Russians can be attributed mostly to the excellence of Korean musketeers. Out of the four hundred men employing firearms, excluding one hundred Beijing gunners who were firing cannons, Koreans had twice as many musketeers as the vast Qing army. In addition, Manchu musketeers lacked proficiency in musketry techniques and paled in comparison to the highly disciplined Korean musketeers.⁹²

Chosŏn emerges as an active, militarily expanding state in the Amur frontiers. Licking its wounds after repeated foreign invasions, Chosŏn adopted new battle tactics, reformed the core of its military system, and projected its expanding military power northwards. Beneath the veil of acting in deference to Qing orders, the dispatchment of Korean musketeers to the Black Dragon River was a manifestation of the *pukbol* movement of Hyojong. Contrary to the traditionalist view of Chosŏn as a militarily passive state, Koreans had been looking for opportunities to step into Manchuria for decades before and after the Amur conflicts. When Nurhaci was temporarily debilitated following his defeat in 1626 against Ming forces, there was agitation in the Korean court around the issue of raising an army of 10,000 to conquer the Liaodong region.⁹³ Witnessing the horror of the Manchu invasions and held captive in Beijing as a Korean prince, Hyojong harbored particular animosity towards the Qing and launched an unprecedented military expansion in anticipation of *pukbol*. New army divisions were created, the size of the standing army was vastly increased, and financial reforms bolstered these expensive undertakings.

Hyojong once said to an official who was concerned about the implausibility of his *pukbol* movement:

Once a grand scheme has been drawn, the devotion to implement it becomes naturally more sincere. If your devotion becomes more sincere, your capabilities will accordingly improve. This is why I have steadfastly advocated for *pukbol*. . . if heaven allows me to live ten more years, I will, success or failure, certainly stage an uprising.⁹⁴

Hyojong didn't live long enough implement his plans. When he died unexpectedly of unknown cause in 1659, *pukbol* lost its momentum. Nonetheless, it re-surfaced in 1674 when the Qing state faltered under the

92 Ibid., 82-83.

93 Roh, "Injocho ~ byungja horan," 186.

94 *Songseo seupyu* 宋書拾遺, j. 7, p. 574 as cited in Yi, 194.

Revolt of the Three Feudatories. Hyojong's grandson, King Sukjong, assigned a special government ministry for *pukbol*, fortified northern defense lines, and increased the size of the standing army. Although the Qing's successful suppression of the revolt also thwarted Chosŏn's plans, Chosŏn was clearly an active military force, a crouching tiger ready to plunge into Northeast China when opportunities emerged.

Korea was an expanding gunpowder nation, a proto-empire striving to find its niche in Northeast Asia. Although Hyojong's *pukbol* movement was hindered by Qing intervention in Korean military affairs, it regained its strength through the experience of the two Northern Expeditions. For one, the expeditions reassured the Koreans of the excellence of their musketeers. Big Heads commanded fear and respect amongst not only the Manchus but also the Juchers and the Russians. Secondly, through these expeditions, Hyojong was also able to send Korean troops to survey Manchuria, which would otherwise have been construed as challenging to Qing hegemony. This brought in valuable information about international relations at the Amur frontiers, the conditions of the belligerents' military power, and the habits and martial capabilities of other ethnic peoples living in the Amur River valley. Finally, clashing with the Muscovite empire – which had superior firearms, siege tactics, and fortress designs – brought stimulus to the Qing-Korean allies. Adapting to the challenges on the frontier, Sarhuda launched a large shipbuilding project, deported Daur natives from areas of contact with Cossacks, and mustered a large multi-ethnic army from the Qing's neighbors. More importantly, technological transfers also emerged from these interactions. Byeon Geup brought back the gunpowder of the Russians and Sin Yu, after weeks of pleading with Sarhuda, was able to return with a European flintlock.⁹⁵

Taking a step back and tracing the technological transfers that shaped this conflict reveals a complex web of military adaptations. The first spark of military revolution emanated in Ming China and spread like fire to its neighboring states. When Europeans took up the baton, fierce inter-state competition relayed gunpowder technology rapidly across the European continent with enhancements and modifications. Military revolution soon bounced back to East Asia. European maritime expansion carried Portuguese cannons and matchlocks to Japan and Dutch sailors to Korea. Through extensive royal support, gunpowder technology fueled the engine of Korean military

95 Yi Kang-chil 李康七, "Chosŏn hyojongcho naseonjungbulgwa pi'a jochong'e daehan sogo" 朝鮮孝宗朝羅禪征伐斗被我鳥銃에 한小考, *Komunhwa* 古文化 20, No. 20 (1982): 15-28.

innovations throughout the seventeenth century and engendered wide-ranging reforms across the Korean army and, even broader, Chosŏn society.

Within Korea alone, the international character of this revolution was conspicuous. In the *Hunnyeon dogam*, Jan Jansz Weltevrete, a Dutch sailor who served as military advisor to Hyojong, commanded other Dutch musketeers, Chinese castaways, and surrendered Japanese soldiers. Weltevrete transmitted sophisticated cannon manufacturing skills to Koreans and Korean blacksmiths enhanced the efficiency of Korean muskets by copying European models brought over by the Dutchmen.⁹⁶ Within half a century of the introduction of muskets into Chosŏn, the Koreans had probably the most professionally drilled musketeers in East Asia.

Military revolution was transnational and contagious. Nothing spread as rapidly as gunpowder technology in the early modern period because nothing was more life threatening and demanding than being held at gunpoint. Because of this infectious nature, military revolution, fueled by challenge-response adaptations, was able to travel back and forth across the Eurasian continent. Through these cross-cultural, multi-national interactions, military revolution rendered different parts of the world increasingly closer and familiar with one another. If we were to argue that military revolution was the catalyst of modernity, it should be the polycentric and universal characteristics of this phenomenon, rather than its culture- or region-specific distinctiveness, that should be considered truly revolutionary and remarkable in global history.

96 Yun Haeng-im 尹行恁, *Seokjaego* 碩齋稿, j. 9 *Haedong waesa* 海東外史, the National Library of Korea, Seoul, Korea, p. 23-24.