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Ming China As A Gunpowder Empire: Military Technology, Politics, And Fiscal Administration, 1350-1620

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Dedicated to my mom.

Abstract of the Dissertation

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This dissertation explores the transformation of Ming China in the gunpowder age. Focusing on the relation between military technology, politics, and fiscal administration, it closely traces the change of the Ming state in association with the gunpowder revolution. Two aspects of institutional change receive special attention. The first aspect is the formation of an absolute authority in the Ming period, a development exhibiting many parallels with the absolute monarchies of other major gunpowder states in Europe and the Islamic world. The second is the modification of the Confucian bureaucratic government. The revolutions in gunpowder technology had a complex impact on the state bureaucracy in China. On one hand, the rise of absolute power in the early Ming period undermined Confucian central bureaucratic tradition, leading to frequent conflicts in court politics as well as divisions in state finance. On the other hand, the changes in the methods of warfare provided a new opportunity for civil officials especially provincial governors to participate in state military affairs. Paradoxically, the middle Ming period witnessed the expansion of the Confucian bureaucracy in the administration of military and frontier affairs. The Ming's establishment of civil dominance over the military, a common feature of modern states, stood at odds with other gunpowder states which were primarily dominated by the military. Analysis of the two aspects together will offer insights into a new paradigm of the state formation of China in the gunpowder age.

Introduction
Rethinking the "Military Revolution": The Transformation of Ming Politics in the Gunpowder Age

China does not quite fit into mainstream theory on the growth of the modern state, which stresses a linear, progressive development in the establishment of central bureaucracy since the early modern period.[1] One of the obstacles to incorporating China into the general discussion of early modern state transformation is that some of the main features attributed to the early modern period in Western Europe, such as the growth of centralized bureaucratic government and the establishment of permanent armed forces, can be dated back in Chinese history to the early imperial dynasties of the Qin and Han periods (221 BCE - 220 CE).[2] In contrast, the early modern period in China, including the late imperial dynasties of the Ming (1368-1644) and Qing (1644-1911), has been viewed as a political "dark" age when personal rule rather than bureaucratic norms prevailed.

The modern state is generally regarded as a Western invention; as Jen Glete puts it, "State formation and military transformation in sixteenth-and seventeenth-century Europe are central parts of the foundation of the modern world."[3] Political developments in China prior to and

[1] In Max Weber's influential theory, for example, bureaucratic rationalization is generally regarded as an important feature of Western rationalism and modernity. See Edward Royce, *Classical Social Theory and Modern Society: Marx, Durkheim, Weber* (Lanham. MD: Rowman and Littlefield, 2015), 112.
[2] For the rise of a bureaucratic empire in early China, see Chun-shu Chang, *The Rise of the Chinese Empire*, vol.1, *Nation, State, and Imperialism in Early China, ca. 1600 B. C. – A. D. 8* (Ann Arbor: University of Michigan Press, 2006-2007), 40-64.
[3] See Jan Glete, *War and the State in Early Modern Europe: Spain, the Dutch Republic, and Sweden as Fiscal-Military States, 1500-1660* (London: Routledge, 2002), 1. The reasons behind the varied paths that major powers in the West and other parts of the world followed in the early modern period in both the short and long terms have generated hot debates among scholars. See Leonid Grinin and Andrey Korotayev, *Great Divergence and Great Convergence: A Global Perspective* (Cham, Switzerland: Springer, 2015). For a revisionist view of the economic divergence between China and Europe, see Kenneth Pomeranz, *The Great Divergence: China, Europe, and the*

during the same period, however, are not often considered closely relevant to the modern state. Rather than seeing China as a static state before the coming of the Westerners, this dissertation will demonstrate that China experienced a political transformation in the late imperial period that was part of the broader transformation of Eurasian states in association with revolutions in military technology after the invention of gunpowder weaponry, which actually first appeared in China in the 800s.[4] It stresses that many Eurasian states actually experienced a period of political convergence in association with the gunpowder revolution.[5] Most scholarly discussions of the political effects of the gunpowder revolution in other Eurasian states have focused on a much later period, beginning in the sixteenth century with the appearance of fiscal-military states in Western Europe and major gunpowder empires in the Islamic world.[6] This dissertation examines the transformation of China in the early stages of the gunpowder age, as early as the fourteenth century, when guns and cannons were not yet a decisive factor on the battlefield but were deployed along with other weaponry. Accordingly, this study of the most important early participant in the gunpowder age will provide a new perspective for the study of the dynamics between military technological innovation and state formation.

Making of the Modern World Economy (Princeton: Princeton University Press, 2012). For a revisionist view of a military divergence between China and the West, see Tonio Andrade, *The Gunpowder Age: Chine, Military Innovation, and the Rise of the West in World History* (Princeton: Princeton University Press, 2017).

[4] For an early discussion of China's reaction to the West, and the "impact and response" theory, see Teng Ssu-yu and John King Fairbank, *China's Response to the West: A Documentary Survey, 1839-1923* (Cambridge, Mass.: Harvard University Press, 1979).

[5] It become a growing consensus that, as D.E. Mungello notes, "the view of China and the West as fundamentally different belongs far more to the period 1800-2000 than to the earlier period 1500-1800." See D.E. Mungello, *The Great Encounter of China and the West*, *1500-1800*, 4th ed. (Lanham, Md.: Rowman & Littlefield Publishers, 2013),12-13.

[6] For discussions of gunpowder technology and politics in Europe, see William H. McNeill, *The Pursuit of Power: Technology, Armed Force, and Society Since A.D. 1000* (Chicago: University of Chicago Press, 1982); Carlo M. Cipolla, *Guns, Sails, and Empires: Technological Innovation and the Early Phases of European Expansion, 1400-1700* (New York: Minerva Press, 1965). See also William H. McNeill, *The Age of Gunpowder Empires, 1450-1800* (Washington, DC: American Historical Association, 1989).

The "Military Revolution" Debate

Military historians have long observed the revolutionary changes in gunpowder technology and military tactics in early modern Europe. But not until Michael Roberts' work in the 1950s did a growing scholarly interest begin to be paid to the larger societal and institutional effects of gunpowder technology and military strategy on state formation in the early modern period.[7] The "Military Revolution," as Roberts suggests, not only was a revolution in tactics and strategy but also reflects a dramatic increase in the scale of armies and a transformation of the state.[8]

Following Roberts' work, the term "Military Revolution" has developed into a major concept that helps to explain the transformation of states in Western Europe in the early modern period. For example, Geoffrey Parker attributes the rise of Western countries as global empires between 1500 and 1750 to the advantages they enjoyed in their military technology.[9] Other scholars have started to pay close attention to changes in military and fiscal aspects of states caused by the military revolutions in Western Europe.[10] Not all the Western states, however, experienced this revolution in the same way. Spain, as I. A. A. Thompson argues, did not develop into a fiscal state in spite of the Military Revolution in Europe.

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[7] Michael Roberts, "The Military Revolution, 1560-1660," in *The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe*, ed. Clifford J. Rogers (Boulder: Westview Press, 1995), 13-29.
[8] For more about the scholarly debate on the Military Revolution, see Clifford J. Rogers, ed., *Military Revolution Debate*.
[9] Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West, 1500–1800* (New York: Cambridge University Press, 1988). For further discussion of gunpowder technology, see also McNeill, *Pursuit of Power;* and McNeill, *Age of Gunpowder Empires.* For overseas expansion of the West and its military technology, see Cipolla, *Guns, Sails, and Empires*.
[10] For discussions of the development of fiscal state in the gunpowder age, see Glete, *War and the State*. The case of Spain is debated, for example, by I. A. A. Thompson, who stresses that unlike the British and France, Spain did not develop into a fiscal state in the gunpowder age. See I. A. A. Thompson, "'Money, Money, and Yet More Money!' Finance, the Fiscal-State, and the Military Revolution: Spain 1500-1650," in Rogers, *Military Revolution Debate*, 273.

Whereas these scholars studying the effects of the gunpowder revolution on state formation have focused on European experiences, Marshall G. S. Hodgson in his three volumes of *The Venture of Islam: Conscience and History in a World Civilization* argues that the rise of the major empires in the Islamic world, including the Ottoman, Safavid, Mughul, and Sa'did empires, generally stemmed from their control of gunpowder technology since the sixteenth century.[11] Hodgson's observation of the major gunpowder empires in the Islamic world has further implications for the study of early modern world history since it does not focus exclusively on European history. Nonetheless, most research on the West and the Islamic world has stressed the positive effect of the gunpowder revolution on state building.

Although rich scholarship has been generated on the gunpowder states in Western Europe and the Islamic world, little scholarly attention has been paid to the political transformation of China in association with the gunpowder age. The reason is that, until recently, China was not generally regarded as a gunpowder power.[12] It has long been recognized that China invented the first gunpowder weapons as early as the 800s, yet few historians considered gunpowder weaponry to have played an important role in warfare or state building in the ensuing centuries.[13] But in the past decade there has been an emerging consensus among scholars who work on military history that China also used various gunpowder weapons frequently in battles after its

[11] Looking from a non-Eurocentric perspective, Hodgson is also interested the question of why the Islamic gunpowder empires collapsed while the empires of the Occident seemed to succeed. See Marshall G. S. Hodgson, *The Venture of Islam: Conscience and History in a World Civilization, vol. 3, The Gunpowder Empires and Modern Times* (Chicago: University of Chicago Press, 1974).

[12] In early scholarship, gunpowder weaponry was not seen as a significant factor in the rise of Ming state. For example, Edward Dryer asserted that the kind of weapons that Zhu adopted were mostly catapults that launched flaming projectiles. See Edward Dryer, "1363: Inland Naval Warfare in the Founding of the Ming Dynasty," in *Chinese Ways in Warfare*, ed. Frank A. Kierman, Jr. and John K. Fairbank (Cambridge, MA: Harvard University Press, 1974), 221, 358.

[13] Joseph Needham believes that the spread of gunpowder technology to Western Europe happened in the second half of the thirteenth century. See Joseph Needham, *Zhongguo gudai kexue* 中国古代科学, trans. Li Yan 李彦 (Hongkong: Xiangguang zhongwen chubanshe, 1999), 49.

early invention of gunpowder. Peter Lorge, for example, has provided an extensive study on the development of gunpowder weaponry technology in China.[14] Tonio Andrade, in his recent book *The Gunpowder Age: China, Military Innovation, and the Rise of the West in World History*, offers a comprehensive evaluation of the development of military technology in China compared with that in the West. Andrade argues that as an inventor and possessor of various gunpowder weapons, China still enjoyed a military parity with Western states during what he calls the Age of Parity (1550-1700); furthermore, he claims that the "Great Military Divergence" between China and the West appeared only in the nineteenth century.[15] In other words, China was a major gunpowder power for a long period before it was finally overtaken by the West in the nineteenth century.

Building on the work of Lorge and Andrade, this dissertation will explore not the development of military technology per se, but rather how China experienced the gunpowder age. It will pay close attention to political changes in China during the gunpowder age, especially focusing on the first gunpowder empire in China, the Ming state. Whereas most scholarly analysis of the gunpowder age has been focused on periods after the sixteenth century, this dissertation argues that the early stages of the gunpowder age are equally critical for the investigation of the political impact of the gunpowder revolution. Situating China within the general transformation of Eurasian states in the gunpowder age, this dissertation also proposes a new view of early modern world history.[16] The answer to the question asked by Hodgson, that is,

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[14] See Peter Lorge, *The Asian Military Revolution: From Gunpowder to the Bomb* (Cambridge: Cambridge University Press, 2008).

[15] China invented firearms as early as the Song period and used them extensively on the battlefield in Ming times and afterward, therefore having experienced the gunpowder revolution earlier than other regions. For a discussion of early gunpowder technology in China, see Andrade, *The Gunpowder Age*, 4-5. For a discussion of the origin of Europe's knowledge about gunpowder, see Jack Kelly, *Gunpowder: Alchemy, Bombards, and Pyrotechnics: The History of the Explosive That Changed the World* (New York: Basic Books, 2005), 20-25.

[16] For a discussion on the rethinking of the Great Divergence, see Pomeranz, *The Great Divergence*.

why gunpowder powers in the Islamic world collapsed while those of the Occident seemed to succeed, should probably be sought not just in the sixteenth century but in periods as early as the thirteenth and fourteenth centuries.

As we will see, the utilization of both gunpowder weapons and cavalry in the early Ming period greatly contributed to the expansion of the imperial territory. The imperial troops, which were reformed under the Yongle emperor (1403-1424), enjoyed an advantage that lasted for more than a century, creating a military regime on par with other gunpowder-cavalry empires such as those of the Ottomans and the Mughals. The advantage of such tactics was only overcome in the sixteenth century with the invention of the classical muskets and cannons in Europe that started to wield unparalleled force. In this sense, the true gunpowder revolution did not begin until the sixteenth century, but its early stage was equally important for the formation of major military powers in Asia before the rise of European powers.

During the first two centuries of the Ming dynasty, when gunpowder weapons such as guns and cannons were not yet a decisive factor on the battlefield as they would be in the sixteenth century, the way China deployed this weaponry to develop a large empire reveals a much more complex dynamic between military change and state formation. Whereas China, like many Eurasian states, experienced the rise of absolute power in association with the imperial control of gunpowder weaponry and the military, it also witnessed a subsequent establishment of civil domination that departed from the model of most other contemporary gunpowder states where military power was still predominant.

The Transformation of Ming China in the Early Stages of the Gunpowder Age

Scholars in China and abroad have generally agreed that the late imperial period, or the last two dynasties, the Ming and Qing, witnessed the height of autocratic power.[17] The rise of autocratic control in the Ming and the unprecedented power of the emperor's personal agents, the eunuchs, as the following chapters show, were closely associated with the establishment of imperial control of military technology in the early Ming period. As discussed in chapter one, the political system of Ming China went through fundamental changes. Unlike other gunpowder powers in which bureaucratic apparatuses were built along with the rise of autocratic power, in the Ming state the monarchic system, along with its gunpowder weaponry administration, developed separately from the well-oiled Confucian central bureaucratic system. Eunuchs' role in the supervision of gunpowder and other positions provided them with unprecedented power in military and political affairs. The central bureaucratic government, however, played only a secondary role in the decision making of the state, and civil officials, who attained their posts through demonstrated mastery of the Confucian canon, were mostly excluded from participating in military affairs.

Although the Ming state was a rising autocratic power, possessing a military fiscal apparatus resembling that of other gunpowder states, its political culture was also shaped by China's strong Confucian bureaucratic tradition. Previous scholarship has clearly identified the increasing influence of Confucian officials in state politics following the reigns of the powerful

[17] See Qian Mu 錢穆, *Guoshi dagang* 國史大綱 (The General History of China) (Taibei: Lianjing chuban shiye gongsi, 1994), 746-750. See F. W. Mote, "The Growth of Chinese Despotism – A Critique of Wittfogel's Theory of Oriental Despotism as Applied to China," *Oriens Extremus* 8, no.1 (1961). Like the so-called absolute power in association with European monarchy in the early modern period, the Ming emperor was not all-powerful in every aspect of control. See Sarah Schneewind, *A Tale of Two Melons: Emperor and Subject in Ming China* (Indianapolis: Hackett, 2006), xv.

early Ming emperors Hongwu (1368-1398) and Yongle. Edward Dryer, for example, attributes many early Ming political developments to the nomadic influence of the Yuan Dynasty (1271-1368) and changes in later periods to the rise of Confucian officials.[18] In *The Great Wall of China: From History to Myth*, Arthur Waldron also observes the revitalization of the tradition of idealized foreign and domestic policies, and he relates this to the rising class of southern literati (Confucian officials) in the sixteenth century.[19] These officials have generally been portrayed as having a conservative attitude toward the military because of their Confucian ideology, as opposed to the imperial pursuits of the emperor.[20]

The ideological factor alone, however, does not account for different views that Confucian officials themselves often held concerning their approaches to the military. In fact, a large number of civil officials played active roles in military affairs during the middle Ming period and afterward, advocating aggressive military approaches when dealing with frontier affairs. Why did these officials choose an aggressive standpoint in spite of criticism from their fellow Confucian officials? Although these officials were easily judged as evil opportunists by their political opponents at court, they did not express their military opinions purely based on power calculations. Rather, these officials tended to have a better understanding of actual military and frontier conditions, and their opinions were courted heavily in connection with the

[18] See Edward Dryer, *Early Ming China, A Political History, 1355-1435* (Stanford: Stanford University Press, 1982), 174. See also David M. Robinson, *Martial Spectacles of the Ming Court* (Cambridge, MA: Harvard University Asia Center, 2013), 13.
[19] See also Peter Lorge, *War, Politics and Society in Early Modern China, 900-1795* (London: Routledge, 2005), 119; Arthur Waldron, *The Great Wall of China: From History to Myth* (Cambridge: Cambridge University Press, 1990), 178.
[20] For the military conduct of the Ming Emperor in the late Ming period, see 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). The Ming after its middle period is often portrayed as militarily inward looking under the growing influence of civil officials, and the revival of military vigor during the Qing dynasty is likewise attributed to the Manchus' nomadic traditions. See Peter C. Perdue, *China Marches West: The Qing Conquest of Central Eurasia* (Cambridge, MA: Harvard University Press), 507.

decisions of the military. The growing participation of civil officials in state military affairs changed the nature of the state. Unlike Europe, where the age of gunpowder is generally regarded as critical for the growth of the bureaucracy that came along as a response to absolute power, Ming China witnessed a contest between the imperial autocratic system and the Confucian bureaucratic system. The incompatibility of these two systems reveals itself through political as well as the financial divisions in the Ming state.

Rather than celebrating a positive causal relationship between the gunpowder revolution and state formation, this dissertation proposes a new dynamic between military technological innovations and state development in the early modern period. Although bureaucratization is regarded as one of the key features of early modern development in Western Europe (as Edward Royce puts it, "The process of modernization, for [Max] Weber, is a process of bureaucratization"), the study of Ming China in the gunpowder age suggests that bureaucratization was not necessarily associated with early modern experiences in China.[21] Quite the contrary, the revolution in military technology had a rather complex impact on the rational bureaucratic and chancellor-ministerial traditions of China that had been practiced long before the Ming dynasty.[22] The kind of despotism of the rule of the Ming founder, as F. W. Mote comments, was "wholly unreasonable in terms of Chinese society and of the needs of Chinese government."[23] The study of the political transformation of China in the gunpowder age thus

[21] See Royce, *Classical Social Theory*, 112.
[22] For the Confucian officials' political disagreements, see John Dardess, *Blood and History in China: The Donglin Faction and Its Repression, 1620-1627* (Honolulu: University of Hawai'i Press, 2002. See also Ray Huang, *1587, a Year of No Significance* (New Haven: Yale University Press, 1981).
[23] See F.W. Mote, "The Growth of Chinese Despotism – A Critique of Wittfogel's Theory of Oriental Despotism as Applied to China," *Oriens Extremus 8*, no. 1 (1961): 19-25.

helps to shed light on the other side of the story, the side effect of technological impact on society, which has often been less stressed in previous scholarship.

In recent decades, studies of early modern European history have also called into question earlier interpretations of absolute monarchy and the political impact of the Military Revolution.[24] For example, rather than celebrating the positive political effects of the military revolutions, Brian M. Downing argues that the so-called "Military Revolution" had rather negative influences on political changes in Western Europe, and as he notes, the rise of military-bureaucratic absolutism in association with the gunpowder revolutions actually became the main threat to medieval constitutionalism and a liberal political outcome.[25] Downing's insights could be applied to China, where the Military Revolution had a negative effect on Confucian bureaucratic governance in the late imperial period. But unlike Downing's work, which traces the root of modern political development to the medieval European experiences, my dissertation proposes a much broader foundation for modern political practices by bringing Chinese bureaucratic experiences into the general transformation of states in the early modern period. As Andrades pointed out, the military revolution took place during the time when Confucianism was firmly ensconced. What, then, was the relationship between Confucian bureaucracy and the military revolution? The present dissertation will look into changes in Ming bureaucratic system in the gunpowder age and its impact on the state building of China.[26] Unlike European states, the deeply ingrained Confucian bureaucratic machine expressed strong criticism against absolute monarchy, striving to maintain its relative autonomy from the very beginning. Civil dominance

[24] For the new orthodoxy on absolute monarchy, see Johann P. Sommerville, "Early Modern Absolutism in Practice and Theory," in *Monarchism and Absolutism in Early Modern Europe*, ed. Cesare Cuttica and Glenn Burgess (Pickering & Chatto, 2014), 119.
[25] Brian M. Downing, *The Military Revolution and Political Change: Origins of Democracy and Autocracy in Early Modern Europe* (Princeton: Princeton University Press, 1992).
[26] See Andeade, *The Gunpowder Age*, 299.

over the military from the middle Ming period marked the formation of new ways of governance and points to the possibility of a political trajectory that was close to that of the so-called modern politics found in Europe and US.

There were, of course, still limits on the triumph of bureaucratic rationality over a personal rule. Under the contest between the two, political and fiscal divisions constantly haunted the dynasty, leading to a weak state when other major gunpowder empires seemed to utilize their resources more effectively under a growing centralized control. Seeking an understanding of the political reality of the Ming state, this dissertation does not aim to explain why Ming China failed to develop into a fiscal-military state like other major contemporary gunpowder empires, but rather stresses what China achieved in the political realm and its larger implications for state building in a military age. In other words, Ming China served as an excellent case to show a complex dynamic between the military revolution and bureaucracy- and empire-building in the early modern period.

Sources and Approaches

Extensive research on the politics of the Ming period has been undertaken both in China and abroad. These studies have mostly focused on the details of political, fiscal, or military institutions.[27] Few have systematically explored the evolution of the state as a complex organization driven by wars or other imperative administrative problems. This study departs

[27] For discussions of political institutions in the Ming, for example, see Charles O. Hucker, *Chinese Government in Ming Times; Seven Studies* (New York: Columbia University Press, 1969); Hucker, *The Ming Dynasty: Its Origins and Evolving Institutions*. (Michigan: University of Michigan, 1978); Hucker, *The Censorial System of Ming China* (Stanford, Calif.: Stanford University Press, 1966); Edward Farmer, *Early Ming Government: The Evolution of Dual Capitals* (Cambridge, Mass.: Harvard University Press, 1976). For discussions of military and frontier affairs, see Kenneth Swope, *The Military Collapse of China's Ming Dynasty, 1618-44* (New York: Routledge, 2013); Arthur Waldron, *The Great Wall of China* (Cambridge University Press, 1990). For fiscal aspects, see Ray Huang, *Taxation and Governmental Finance in Sixteenth-Century Ming China* (Cambridge University Press, 1974).

from that course of research and examines the evolving nature of the Ming state as an analytical framework in understanding late imperial Chinese history.

To conduct such an inquiry and to explore the dynamics between the imperial autocracy and the Confucian bureaucracy, this study utilizes traditional sources such as *Ming shilu* (Veritable records of the Ming dynasty) and *Ming huidian* (Collected statutes of the Ming state) in a new way by tracing multiple voices behind the official compilations. Whereas major changes at the constitutional level were seldom explicitly written down after the early Ming period, there were always complementary cases and exemplars listed during each new edition at varied periods of the dynasty. To supplement the examination of these official texts, this study incorporates local sources including gazetteers, private historical accounts, and collected writings of scholar-officials.

Outline of the Chapters

Focusing on the relation between military technology, politics, and fiscal administration, the following chapters closely trace the political transformation of the Ming state in the gunpowder age. Two aspects of institutional change receive special attention. The first aspect is the formation of an absolute authority in the Ming period, a development exhibiting many parallels with the absolute monarchies in Europe and the Islamic world. The second is the transformation of Confucian, bureaucratic government in the face of this growing autocratic power in the new era. Analysis of these two aspects together offers insights into the relation between absolutism and bureaucracy. In addition, the fiscal capacity of the gunpowder state was critical for its dealing with new frontier challenges in the gunpowder era. Accordingly, much of the discussion that follows will examine changes in the central financial system that complicated the power negotiations of the central government.

The first chapter examines the tactics that the Ming founder, Zhu Yuanzhang, used when deploying various gunpowder weapons in the final battles against his major rivals. It also discusses how the emperor, after taking the throne, gradually built a separate inner court that exclusively managed the manufacture of powerful gunpowder weaponry. With the imperial monopoly of gunpowder weaponry, the emperor established an autocratic, centralized political system that had a lasting influence on late imperial China. Whereas the first Ming emperor kept most of the political and military authority under his own control rather than entrusting it to the Confucian bureaucratic government, his immediate successor and grandson, the second emperor, known by his reign name Jianwen (1399-1402), reversed this trend by following the conventions of Confucian political traditions. The brief revival of Confucian government influences during the reign of the second emperor soon ended in a civil war led by the emperor's uncle, the usurper and the third emperor known by his reign name Yongle. Claiming to return to the policies of the first emperor, the Yongle emperor continued to consolidate his firm control of political and military power. He also made innovations in military tactics by combining the use of gunpowder weaponry with cavalry, and by establishing gunpowder-equipped units as well as other imperial troops that were stationed in the capital city of Beijing under the management of eunuchs and military officials. The concentration of imperial forces in the capital city also established a new military tradition in which the emperor would be responsible for defending the borders.

Chapter two explains the formation of dual financial systems that were managed separately by the inner court and the bureaucratic government, especially in the Zhengtong period (1435-1449), with the increasing commutation of local taxes in kind into payments in silver and gold, payments originally reserved exclusively for the palace treasury in the early Ming period. Unlike in early Ming times when the central finance was under the uniform control

of the emperor, in the middle Ming the central bureaucracy began to share a portion of the commutations of the land tax that was reserved for the frontiers. This dual financial system was sustained through the practice of various commutation rates on the grain tax for the palace treasury (imperial coffers) and the state treasury (bureaucratic coffers) respectively. Increased access to funding in the middle Ming period allowed civil officials in the central government more freedom and power in the management of military matters and the use of gunpowder weapons on the frontiers.

The third chapter analyzes the changing role of Confucian officials in military affairs during the mid-Ming period. In spite of the fact that the state military had been exclusively managed by the emperor and his eunuchs with the assistance of military officials in the early Ming period, civil officials who were sent from the central government to manage taxes and provisions on the frontiers in the mid-Ming began to be more frequently involved in military affairs. What had originally been a temporary arrangement of sending central officials to inspect local taxation and other affairs became a more permanent duty, and temporary provincial assignments became fixed positions. These provincial officials gradually joined the group of military officials and eunuchs who often received royal rewards and were granted military positions for their sons or grandsons. The resulting gap between the group of civil officials who participated in military affairs and the rest of the Confucian officials, who had little access to real frontier situations and gunpowder weapons, became larger as the Ming empire entered further into this gunpowder age. Moreover, with the rise of civil officials to prominent positions in state military affairs and central politics, the Ming developed a civil dominance over the military at a time when most other gunpowder states were dominated by the military.

Chapter four provides a case study of Ming court politics through a close observation of the Purges of Frontier Officials (*fengjiang zhi yu* 封疆之獄). The purges affected the fates of some forty bureaucratic officials including those of high rank in the early Jiajing period (1522-1566). A close look at the court conflicts among Confucian officials reveals that the "conservative" Confucian ideology has been too heavily emphasized in explaining the frontier approaches of the late Ming period. The Confucian officials themselves had rather different opinions about the emperor's power as well as about frontier policies based on their varied experiences in military and in frontier affairs. Moreover, rather than taking the purges as the single reason for the Ming's loss of Hami (Kumul), the closest oasis city on the Silk Road to the Ming, this chapter suggests that the flow of gunpowder weaponry technology and knowledge and the spread of Ottoman weaponry in Asia played a part in shaping the Ming northwestern frontiers.

The last chapter explores Confucian officials' efforts to engage gunpowder weaponry on the frontiers in the late Ming period. Unlike early Ming times when powerful gunpowder weapons were kept tightly controlled by the emperor and the inner court under the close supervision of eunuchs, from the mid-Ming period onwards frontier officials started to request more gunpowder weapons on the frontiers. The emperor's monopoly of gunpowder weaponry technology could no longer be sustained, especially after the inflow of new technology to East Asia from the West in the middle of the sixteenth century. The application of gunpowder weapons on the frontiers by the Confucian officials, however, was constrained by the tight budget of the bureaucratic government facing unprecedented frontier crises in a new stage of the gunpowder age. The occurrence of large-scale pirate invasions in the coastal areas as well as costly wars with new powers such as Japan, which also began to employ Western gunpowder

weaponry in the late sixteenth century, contributed to the growing expenditures of the central government. Meanwhile, divisions in the central financial system limited the state's capacity to cope with such challenges. Reform of commercial and mine taxes ordered by the Wanli emperor (1573-1620) in the late sixteenth century benefited the emperor's personal income more than it did the state, creating chaos in the tax collection process in the provinces. In the face of increasing competition for financing between the bureaucratic government, on the one hand, and the emperor and the inner court, on the other, the Ming state failed to establish a uniform fiscal system to deal with the military challenges of the gunpowder age.

Chapter 1
Early Ming Politics: Court and State in the Gunpowder Age

The replacement of the Yuan dynasty by the Ming in the fourteenth century is generally regarded as a critical event for the recovery of Chinese politics and culture from nomadic influences.[1] A closer observation of early Ming institutions, however, suggests that the founding emperor, Zhu Yuanzhang, learned as much from Mongol practices as from Chinese traditions, especially in terms of the military.[2] But neither Chinese nor Mongol conventions seem to explain the unprecedented authority that the emperor began to enjoy in the Ming period. Scholars have generally agreed that the late imperial period of China, constituting the last two dynasties of the Ming and Qing, experienced an age of heightened autocratic power, or perhaps even despotic power.[3] Why did the Ming emperors have a greater control of the state than their predecessors? The personalities of individual emperors, particularly that of the founding emperor, have been noted in the establishment of a strong personal rule during the early Ming period. Emphasizing personal factors might explain the authoritarian rule of one or two emperors; however, this explanation fails to account for the underlying factors in the structural and institutional changes

[1] As the founder of the Ming dynasty, Zhu Yuanzhang, stated in a 1367 decree that it was his mission to eliminate "barbarian" influences from China. See *Ming Taizu shilu* (Veritable records of emperor Taizu), 26/10a-11b. For a discussion of Zhu Yuanzhang's restoration of Chinese governance, see also Edward L. Farmer, *Zhu Yuanzhang and Early Ming Legislation: The Reordering of Chinese Society Following the Era of Mongol Rule* (Leiden: Brill, 1995), 18–32.

[2] For the dominant role of military nobles and officials in early Ming court politics and its link to the Mongol tradition, see Edward Dryer, *Early Ming China: A Political History, 1355-1435* (Stanford, CA: Stanford University Press, 1982). For the military system of the Yuan dynasty, see also Ch'i-ch'ing Hsiao, *The Military Establishment of the Yuan Dynasty* (Cambridge, MA: Harvard University Press, 1978).

[3] Qian Mu 錢穆, *Guoshi dagang* 國史大綱 (The general history of China) (Taibei: Lianjing chuban shiye gongsi, 1994), 746-750. See F. W. Mote, "The Growth of Chinese Despotism – A Critique of Wittfogel's Theory of Oriental Despotism as Applied to China," *Oriens Extremus* 8, no.1 (1961). Like the so-called absolute power in association with European monarchy in the early modern period, the Ming emperor was not all-powerful in every aspect of control. See Sarah Schneewind, *A Tale of Two Melons: Emperor and Subject in Ming China* (Indianapolis: Hackett, 2006), xv.

that sustained or consolidated personal rule in the early Ming period. As we will see in this chapter, the Ming emperors established a new monarchical system by setting up an autocratic-centered military-fiscal apparatus separate from the Confucian central bureaucracy.

The present chapter offers a new perspective on the changes of the Ming political system by situating the transformation of early Ming politics within the gunpowder age. The rise of autocratic power was closely associated with the imperial control of gunpowder weaponry in the Ming period. In fact, China was not alone in experiencing the growth of absolutism during this gunpowder age. Scholars who work on other regions also have noticed the heightening of the monarch's power in Western Europe and in the Islamic world in the early modern period in association with the gunpowder revolution.[4] Since it was the inventor of gunpowder weaponry, China seems to have experienced the "gunpowder age" much earlier than other regions.[5] Unlike other gunpowder powers in which bureaucratic apparatuses were built along with the rise of autocratic power, in the Ming state, the monarchic system, along with its gunpowder weaponry administration, developed separately from the well-oiled Confucian central bureaucratic system. In this new era, unlike its role in previous Chinese dynasties, the Confucian bureaucracy now

[4] Nicholas Henshall, *The Myth of Absolutism: Change and Continuity in Early Modern European Monarchy* (London and New York: Longman Publishing, 1992), 80-81. For a general observation of royal absolutism in Europe, see also Mark Konnert, *Early Modern Europe: The Age of Religious War, 1559-1715* (Peterborough, Ont.: Broadview Press, 2006). For a new evaluation of the absolute power in Europe, see Brian M. Downing, *The Military Revolution and Political Change: Origins of Democracy and Autocracy in Early Modern Europe* (Princeton: Princeton University Press, 1992). For the politics of gunpowder empires in the Islamic World, see Marshall Hodgson, *The Venture of Islam: Conscience and History in a World Civilization* (Chicago: University of Chicago Press, 1974).

[5] As Tonio Andrade observes, early forms of gunpowder weapons such as gunpowder arrows, gunpowder pots, gunpowder caltrops, gunpowder fire bombs, appeared and spread widely as early as the Northern Song Period (960-1127). As he further notes, pellet guns were invented during the 1200s in China and played a central role in the civil wars that ended the Yuan regime. The founder of the Ming, as Andrade claims, was a gunpowder emperor who took full advantage of the weaponry in his battles against his major rivals. See Tonio Andrade, *The Gunpowder Age: China, Military Innovation, and the Rise of the West in World History* (Princeton: Princeton University Press, 2016), 32-54. For the application of gunpowder weapons in the Song-Yuan battles, see also Li Tianming 李天鳴, *Song-Yuan zhanshi* 宋元戰史 (A history of Song-Yuan wars) (Taibei: Shihuo chuban she, 2010), 1933-1935.

played only a secondary role in managing state affairs, and civil officials were often excluded from participating in military and frontier affairs.[6] Moreover, not only did civil officials face strong competition for political influence from eunuchs (personal servants of the emperor), but they also found that high-ranking positions in the central government did not guarantee them a close relationship with the emperor. Rather, the emperor often chose various low-ranking scholars from the Hanlin Academy, the imperial center for scholarly studies, as his personal consultants and advisors on state affairs.[7] In other words, the central civil bureaucracy became merely one of several branches that served the emperor.

Most scholarly discussions on the political impact of the Military Revolution in Eurasia focus on a period much later than the fourteenth and early fifteenth centuries. Nevertheless, in China, at the outset of the gunpowder age when early firearms played a growing and significant but not yet decisive role, the Ming emperors' attempts to establish control of powerful weaponry generated serious political consequences, which fundamentally changed the trajectory of political history of China. The present chapter will first describe the tactical use of early gunpowder weaponry in the battles that Zhu Yuanzhang, the founding emperor of the Ming dynasty, fought against his major rivals and the role of such weaponry in facilitating his final takeover of China. It will then look into the emperor's establishment of an imperial monopoly of gunpowder weaponry, especially by placing the manufacture of powerful gunpowder weapons under the control of the inner court, which operated separately from the Confucian bureaucracy, or outer

[6] Gu Cheng argued that the frontier regions were not under the management of the Confucian bureaucratic government but rather the emperor. See Gu Cheng 顾诚, *Yinni de jiangtu: weisuo zhidu yu Ming diguo* 隐匿的疆土: 卫所制度与明帝国 (Beijing: Guangming ribao chuban she, 2012).

[7] The grand secretaries had relatively little experience in other offices. James B. Parsons observes that 95 of 157 (61%) individuals grand secretaties appear in their positions without having held offices at lower lever. See Parsons, "The Ming Dynasty Bureaucracy: Aspects of Background Forces" in *Chinese Government in Ming Times*, ed. Charles O. Hucker (New York: Columbia University Press, 1969), 223.

court. Discussion will then turn to the recovery of Confucian political conventions after the first emperor and the following civil war between Zhu Yuanzhang's successor and grandson, Zhu Yunwen, and one of Zhu Yuanzhang's younger sons, Prince of Yan Zhu Di. After taking the throne, Zhu Di, who is mostly known by his reign name as the Yongle Emperor, not only updated the technology of gunpowder weaponry, but made innovations in military tactics by effectively coordinating the gunpowder-equipped troops, cavalry, and other units within the imperial camp. During his reign, the Yongle emperor's personal control of political as well as military power was further consolidated by the concentration of imperial troops, including the gunpowder units, in the capital city under the close supervision of eunuchs. The few powerful gunpowder weapons that had been distributed to the frontiers occasionally were also placed under the control of eunuchs assigned to the frontier. The rise of the eunuchs' prestige and power and the decrease of the Confucian officials' influence at court were largely the result of the imperial monopoly of gunpowder weaponry and military affairs that was gradually established in the early Ming period.

The Rise of the Ming Dynasty in the Early Stages of the Gunpowder Age

The turbulent last years of Yuan rule featured intense court conflicts among royal nobles and military officials, as well as numerous local uprisings, especially in regions that were affected by frequent natural disasters.[8] Among the people who rose up and started to challenge the Yuan regime, Zhu Yuanzhang, the son of a poor peasant family who was orphaned by a famine in the Huai River plain, stood out and quickly established himself as a regional commander after joining one of the local rebel groups. After capturing Nanjing as his base in

[8] See Hsiao Ch'i-ch'ing, "Mid-Yuan Politics," in *The Cambridge History of China*, ed. Denis Twitchett and Herbert Franke, vol.6, *Alien Regimes and Border States, 907-1368* (Cambridge: Cambridge University Press, 1994), 490-560.

1356, Zhu became a strong competitor for the position of highest sovereign of China. Although Zhu's rise to power became a legendary story, the details of his military accomplishments will not be stressed here. What is important for our purposes is Zhu's use of gunpowder weapons, which played a significant role in his victories against other rivals during the final stages of his conquest of China.[9] Whereas early scholars, most notably Edward Dryer, asserted that the kind of weapons that Zhu adopted were mostly catapults that launched flaming projectiles, Tonio Andrade in his recent book, based on a thorough study of early Ming battles, claims that Zhu adopted various gunpowder weapons in his major naval battles against his rivals.[10] Andrade notes that the early gunpowder weapons were mainly used for the purpose of causing fire. Although this may have been the case in naval warfare, in fighting on land firearms were also used frequently for direct attack, especially after Zhu Yuanzhang's reign, during the 1399-1402 civil war and the subsequent northern campaigns under the Yongle emperor.

Even in the naval battles between Zhu Yunzhang and his major rival Chen Youliang, firearms were utilized for direct attack under certain circumstances. For example, in 1363, after Hongdu, the strategic location and provincial capital of Jiangxi, had been surrounded by Chen Youliang's army for some 85 days, Zhu Yuanzhang finally came to lift the siege and

[9] The first mention of Zhu Yuanzhang's usage of the weapons in *Ming Taizu shilu* was in June 1363 when his general used *huochong* 火銃 to defend the city of Hongdu (洪都) (Nanchang) from attack by his major rival, Chen Youliang. *Ming Taizu shilu*, 12/3a-5a. Zhu's acquisition of gunpowder weapons seems to be confirmed by an incident in July 1364 when gunpowder stored in the Zhongqin building in Nanjing was ignited and exploded. Also see Song Lian 宋濂, *Song Lian quanji* 宋濂全集 (Beijing: Renmin wenxue chuban she, 2014), 330-331.

[10] See Dryer, *Early Ming China.* Also see Edward Dryer "1363: Inland Naval Warfare in the Founding of the Ming Dynasty," in *Chinese Ways in Warfare*, ed. Frank A. Kierman, Jr. and John K. Fairbank (Cambridge, MA: Harvard University Press, 1974), 221, 358. Recent scholarship has witnessed a growing interest in the development of gunpowder weaponry technology in China. Tonio Andrade for example, observes closely the gunpowder technology in Ming China. And it has been a general consensus that gunpowder weapons started to be used extensively on the battlefield in the late periods of the Yuan dynasty, which was filled with numerous local uprisings and wars. Tonio Andrade has provided the most thorough observations on Zhu Yuanzhang's adoption of gunpowder weapons in the battles. See Andrade, *The Gunpowder Age: China, Military Innovation, and the Rise of the West in World History.* See also Sun Laichen, "Military Technology Transfers from Ming China and the Emergence of Northern Mainland Southeast Asia (c. 1390-1527)," *Journal of Southeast Asian Studies* 34, no. 3 (2003): 498.

encountered Chen's huge fleet on Poyang Lake.[11] Seeing that Chen's three-decked galleys were all connected to each other, unfavorable for advancing or withdrawing, Zhu then divided his fleet into eleven units, with firearms and crossbows arranged in lines on the ships. He ordered that when they came close to the enemy's fleet, firearms should be fired first, then crossbows. And only after arriving at the enemy's fleet should they start hand-to-hand combat. In this battle, the firearms, like traditional weapons, were primarily used for the purpose of attacking the enemy head-on. Although the burning of the enemies' fleets in the following battles was remarkable, Zhu's adoption of gunpowder weapons seemed not have been confined to just one approach.[12]

Zhu's use of gunpowder weapons in the naval battles seems to match the kind of strategies mentioned in the only extant military book on gunpowder weaponry from the time, *Huolong shenqi zhenfa* (The tactical manual of the divine fire dragon engines) reputedly compiled by Jiao Yu.[13] For example, this book mentions that the kind of gunpowder weapons used in naval battles should be different from those used in land battles. For a naval battle, to conduct a charge, weapons such as *fafen* and *langji* should be used to attack the enemy in the front; in random and chaotic arrays; weapons such as "fire arrow" and fireballs should be used to burn the sails; and, to guard the rear, a good number of firing arrows and stones should be set.[14] Lastly, as the book states, the troops would be invincible if they had a general who could adapt to

[11] Dreyer, *Early Ming China*, 48. *Mingshi*, 1/9b. *Ming Taizu shilu,* 12/3a.
[12] For details of the naval battles, see *Ming Taizu shilu*, 12/5a-6b. Also see Song Lian, *Ping han lu*, 28/8b-9a; *Dictionary of Ming Biography, 1368-1644*, ed. L. Carrington Goodrich (New York: Columbia University Press, 1976), 187. See also Andrade, 58-64.
[13] This book was reprinted in the Ming several times in different versions because new kinds of weapons were added into the book and published under different names, such as *The Book of the Fire Dragon* (*Huolongjing* 火龍經). As a result, there have been debates about whether the book was a fake. Earlier comments that the book did not exist in the early Ming period, however, are not based on an original copy of the book but on later editions. These comments have been challenged by Tonio Andrade, who observes that the book was partly written in the 1200s, and the kind of technology in the book existed in the early Ming. See Andrade, *Gunpowder Age*, 52.
[14] We do not know precisely what *fafen* and *langji* were at this time, although it is clear that they were two different types of gunpowder weapons.

changes.[15] While there are still scholarly debates on whether the book is a later compilation or an early Ming creation, the adoption of various tactics in the use of gunpowder weapons by Zhu Yuanzhang can be confirmed by other chronicles.[16] In this early state of the gunpowder age, the effective tactics engaging the weapons according to specific circumstances were more critical than the use of the weapons themselves. This is especially true in the battles against the most flexible force at the time, cavalry, as shown in the civil war between the imperial troops and forces loyal to Prince of Yan, as well as the military campaigns against the nomads.

As we see, although early forms of gunpowder weapons were not yet a decisive factor on the battlefield, they became an integral part of Zhu Yuanzhang's general military forces. After taking the throne, Zhu ordered that ten percent of the troops should be equipped with guns.[17] During the warfare that marked his rise to power, Zhu was not the only contender for power who had access to gunpowder weaponry. Fang Guozhen, a pirate and regional warlord who controlled the coastal area of Zhejiang, for example, used gunpowder weapons in defending Shaoxing against the attack of Zhu's forces in 1359.[18] While it is not clear how military technology spread in this era, it is obvious that gunpowder technology was not monopolized by a single person or

[15] See Jiao Yu, *Huolong Shenqi zhenfa* (The tactical manual of the divine fire dragon engines). In the following battles, Zhu utilized his gunpowder weapons to cause fire and then burn the enemies' ships. On August 30, 1363, for example, Zhu's general, Yu Tonghai, was said to have burned over twenty enemy warships using cannons and taking advantage of favorable winds. On the next day, Zhu again gathered his fleet and encountered Chen Youliang. Seeing that Chen's ships were connected to each other, Zhu Yuanzhang ordered his subordinates to prepare seven boats carrying reeds with gunpowder inside, with human figures bundled in grass wearing armor and holding halberds. When the boats reached Chen's warships following the favorable winds, hundreds of ships caught fire and were burned. Over 2,000 were killed in the following attacks. After several such battles, Chen retreated to an anchorage. When he attempted to escape with his hundreds of warships, however, he was struck and killed by an arrow. Chen Youliang's defeat might have been unexpected for many of his contemporaries. His huge warships were so much more powerful while Zhu Yuanzhang's fleet had fewer ships that were much smaller. But Zhu seems to have overcome this disadvantage with speed and flexible tactics utilizing gunpowder weapons. See *Ming Taizu shilu*, 12/ 5a-6b. Also see Song Lian, *Pinghan lu*, 28/8b-9a.

[16] See, for example, *Ming Taizu shilu*, 12/5a-6b, and Song Lian, *Ping han lu*, 28/8b-9a.

[17] *Ming Taizu shilu*, 129/7a.

[18] Li Huguang 李湖光, *Da Ming diguo zhanzheng shi: Da Ming longquan xia de huoqi zhanzheng* (Nanjing: Feng huang chu ban she, 2010), 100. For the use of gunpowder weapons by the Xia force in Sichuan against Zhu Yuanzhang, see *Ming Taizu shilu*, 63/3b-4a.

by the state in the late Yuan period. This situation soon changed after Zhu Yuanzhang founded the Ming dynasty and became the emperor. Probably realizing the power of gunpowder weapons in his earlier battles, the founding emperor developed strict laws against private manufacture and use of gunpowder weapons. For official production, Zhu also made constant changes in the bureaus that were responsible for the manufacture of gunpowder weapons.

The Establishment of the Inner Court and the Political Control of Gunpowder Weapons

With the founding of the Ming dynasty in 1368, initially all firearms were manufactured by a state bureau, in the outer court, called the Imperial Money Vault (Baoyuan ju 寶源局). The earliest Ming cannon that exists today has a mark of this institution and a manufacture date of 1372.[19] But in 1376, under the order of the emperor, a separate institution called the Office of Imperial Armaments (Bingzhang si 兵仗司) was established to produce all weapons, both traditional and gunpowder weapons.[20] This office later developed into a large service bureau and was renamed Bingzhang ju (兵仗局), generally translated as the Palace Armory.[21] It is important to note that this translation was applied to the early period when the bureau was still placed under the administration of the Ministry of Works, one of the six ministries of the central bureaucratic government, or outer court, and all its supervisors were selected from among the bureaucratic officials (*liuguan* 流官).[22] But this arrangement soon changed In *Zhusi zhizhang*

[19] The first available Ming firearm was made in Nanjing, which is preserved at the Military Museum of the Chinese People's Revolution, Beijing.
[20] *Ming Taizu shilu*, 108/2a.
[21] The name Bingzhang ju was recorded in *Ming Taizu shilu* as late as 1384. See *Ming Taizu shilu*, 161/6b-8b. See also Hucker, *A Dictionary of Official Titles in Imperial China*, 382. For a discussion of the intuitional changes in the fourteenth year of the Hongwu period, see Huang, 79 and *Zu xunlu* 祖訓錄 (Ancestral instruction). For an English translation of *Zu xunlu*, see Edward L. Farmer, *Zhu Yuanzhang and Early Ming Legislation* (New York: Brill, 1995), 134.
[22] *Ming Taizu shilu*, 161/6b-8b.

(Handbook of government posts, 1393), which explains different sectors of the bureaucratic government, the Bingzhang ju was no longer listed under the Ministry of Works.[23] Changes in the functions of this bureau were also confirmed by the fact that in 1395, when Zhu adjusted the ranks and duties of the servants, including female servants and eunuchs in the palace, he placed the Bingzhang ju under the management of eunuchs.[24] Moreover, unlike in earlier times when the Bingzhang ju produced all kinds of weapons, now it was only responsible for producing weapons for the imperial troops directly controlled by the emperor. By the 1390s, once this institution came under the management of eunuchs, and thus was effectively shifted from the outer court to the inner court, the common English translation the "Bingzhang ju" as "Palace Armory" is more appropriate.

Besides the Office of Imperial Armaments, a separate armory called the Bureau of Armaments (Junqi ju 軍器局) was set up as late as 1380 and administered by the Ministry of Works, hence, within the civil bureaucracy, or outer court. This armory produced weapons for the general troops, as mentioned before, ten percent of which were equipped with guns.[25] It has not been specified what kind of guns were used. According to *Da Ming huidian* (Collected statutes of the great Ming), besides traditional weapons, the state armory triennially produced a

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[23] Ibid., 6/2. *Zu xunlu* is supposed to be a permanent guide to the bureaucratic system. The Hongwu emperor made the Bingzhang ju 兵仗局 belong to inner court. See also Huang Zhangjian 黃彰健, "Lun huangming zuxunlu ji mingchu huanguan zhidu" 論皇明祖訓錄記明初宦官制度, *Zhongyang yanjiu yuan shiyu suo jikan* (July 1, 1961), 79.

[24] Ibid., 241/7b; Zhu Guozhen 朱國禎, *Huang Ming dazheng ji* 皇明大政記 (Notes on great matters of Ming administration), 6/10a.

[25] See *Da Ming huidian* (Collected statutes of great Ming), 193/1a-b. *Da Ming huidian* is a collection of official statutes of the Ming dynasty. It was first submitted to the throne in 1497, and after revision, officially issued in 1509. The original version contains 180 *juan*, but was elaborated into 228 *juan* after two revisions made during the Jiajing (1522-1566) and the Wanli (1573-1619) reigns. See also *Ming Taizu shilu*, 129/ 7a. Based on this information, Li Huguang suggests that about ten percent of the total military soldiers were equipped with firearms, the total number of which was more than 110,000. See Li Huguang, *Da Ming diguo zhanzheng shi*. There were also Junqi ju in the provinces.

fixed number of only two types of gunpowder weapons, 3,000 handheld guns (*shouchong* 手銃) and 3,000 "bowl-mouth [sized] guns" (*wankou chong* 碗口銃).[26] Although the outer court's Ministry of Works still produced these two types of gunpowder weapons after the first emperor, by placing the Palace Armory under the management of the inner court, which produced a great amount of gunpowder weapons, the founding emperor started to establish direct imperial control over gunpowder weapons. When new gunpowder technology was developed in the Yongle period, and more powerful weapons such as "miraculous [fire] lances," "miraculous guns," and "general guns" started to be produced, these new weapons were placed under the exclusive management of the inner court and were used mainly by the emperor's personal forces: the Imperial Bodyguard (*jinyi wei* 錦衣衛) and the Palace Guards (*weizi shou* 圍子手).[27]

With the acquisition of a critical role in the manufacture of powerful gunpowder weaponry, the inner court managed by eunuchs started to expand greatly. The number of servants for the imperial household during the early part of the reign of the founding Ming emperor was quite limited, and most of them were women. But from the late 1380s, with the growth of the number of eunuch servants, the palace expanded quickly. Besides performing daily service for the emperor, the eunuchs also took on critical roles in the coordination of the outer court and the

[26] *Da Ming huidian*, 193/1a-b. As Andrade observes, most of the early Ming gunpowder weapons were relatively small with only a few exceptions. The reason that the Ming did not develop many large weapons, as Andrade argues, is mainly attributed to the thick city walls that were not easily penetrated by the early firearms. See Andrade, 97-102, 108-114. This chapter, however, proposes a different hypothesis that the imperial monopoly of large-sized gunpowder weapons might be the main reason why these large weapons were not as widespread as small-sized weapons. The monopoly of large gunpowder weaponry might have also affected the technological innovation, as compared to Western Europe. For more about the different types of Ming gunpowder weapons, see also *Xuanfu zhenzhi*, which lists that in Xuanfu there were 14 *great general cannon*s, 479 *miraculous cannons*, 958 bronze cannons, 2161 *miraculous guns*, 57 bowl-mouth cannons, 4,223 miraculous lances, 1,045 iron cannons among many other weapons. Bowl-mouth cannon, the gunpowder weaponry that was produced by the state armory beside hand guns, seems not a significant firearm compared to other weaponry produced by the Palace Armory. See *Xuanfu zhenzhi*, 5/43b-44a.

[27] Ibid., 292: 5a-b. See Zhong Shaoyi, ed., *Zhongguo gudai huoyao huoqi shi* (A history of gunpowder and firearms in China) (Beijing: Zhongguo shehui kexue chuban she, 1995), 70. For the names of the weapons, see Andrade, 56.

bureaucratic government. Most importantly, managing the manufacture of large and powerful gunpowder weaponry as well as supervising, and after the Yongle period (1403-1424), the use of gunpowder weapons in the capital city and on the frontiers provided eunuchs with a prominent role in the military as well as in politics. In spite of the fact that Zhu Yuanzhang had always been wary of eunuchs, based on his reading of accounts of evil eunuchs in earlier dynasties, his own eunuchs started to enjoy great power. As Shih-shan Tsai comments, "By the 1380s, eunuchs not only had become imperial instruments for political purges and surveillance, but in fact also functioned as an embryo of Ming tyranny."[28]

The eunuchs' growing power in the Ming period was attributable not just to their proximity to the emperor, but to their role in managing the emperor's most powerful weapons in the gunpowder age. As a matter of fact, a good number of influential eunuchs, rather than staying in the capital city, served for long periods of time on the frontiers.[29] The roles of eunuch servants in the Ming court can be compared to the functions of slave soldiers or the service elites of Muslim empires. Besides the military, eunuchs also started to manage a large section of the state revenues in the form of commutations of taxes into payments in silver and gold that were managed exclusively by the inner court. Initially, the Inner Storehouse (Neifu ku 內府庫 1367, Chengyun ku 承運庫 1373) served the function of both the state treasury and the treasury of the inner court.[30] In 1384, the founding emperor changed the arrangement so that the Inner Palace Storehouse (Nei chengyun ku 內承運庫) was used only as the emperor's personal treasury, and

[28]Henry Shih-shan Tsai, *Perpetual Happiness: The Ming Emperor Yongle* (Seattle and London: University of Washington Press, 2015), 31.
[29] For a discussion of the formation of intimate interest groups among eunuchs, see Li Jun, "La mingxia: Mingdai huanguan zhengzhi quanli zhi chuancheng yu paixi shengcheng" (La mingxia: the inheritance of eunuch's political power and formation of political factions in the Ming dynasty), *Shixue yue kan* 2 (2015), 30-41.
[30] Ibid.

the Outer Storehouse (Wai chengyun ku 外承運庫) was used as the state treasury.[31] The taxes-in-kind (primarily grain) were stored in the Outer Storehouse managed by the Ministry of Revenue, but taxes in other forms were sent to the Inner Palace Storehouse.[32] According to *Da Ming huidian*, in the middle of his reign, the emperor ordered that gold, silver, jade, and ivory from all the provinces, cloth from Zhejiang and Fujian provinces as well as from Changzhou, Zhenjiang, Huizhou, Ningbo, and Yangzhou prefectures, and silk from Shanxi province be sent to the Inner Palace Storehouse.[33] In effect, this order shifted resources from bureaucratic control to direct imperial control. The acquisition of a large amount of the state revenue by the Inner Palace Storehouse meant that the inner court started to play a critical role in central finance.

The institutionalization of the ranks and services of the eunuchs in 1395 indicated the final formation of an inner court in the Ming period.[34] The increase of autocratic power and the expansion of the inner court was quite a new phenomenon in the dynastic history of China.[35] As Sabine Dabringhaus observes, the formation of an "inner-outer court dualism" served as the foundation of the heightened autocratic power in late imperial China as the emperors could play different groups at court off one another and thus safeguard their power.[36] The establishment of

[31] *Ming Taizu shilu*, 161/8b. Also see Su Xinhong 苏新红, "Mingdai Hongwu shiqi de neiku zhidu" 明代洪武时期的内库制度, in *Gudai wenming* 6, no. 1 (2012).
[32] *Da Ming huidian*, 30/1.
[33] Ibid.
[34] For the institutionalization of the eunuchs' agencies, see Tsai, *Perpetual Happiness*, 32.
[35] Wittfogel, for example, characterizes Chinese traditional government as oriental despotism and attributes it to the "rationality coefficient of hydraulic society" from a very early period. His theory of oriental despotism is criticized by F.W. Mote for lacking historical specificity about Chinese society. See F. W. Mote, "The Growth of Chinese Despotism – A Critique of Wittfogel's Theory of Oriental Despotism as Applied to China," *Oriens Extremus* 8, no.1 (1961), 5.
[36] Dabringhaus further notes that the practice of a bifurcated system of governance, like the establishment of an inner-outer court dualism in the Ming, helped to concentrate the control of power by the emperor at the top. The Ming emperor's use of eunuchs against the traditional bureaucratic literati elite and the Qing's reliance on Manchu and Mongol nobles as counterweights in power struggles at court also enhanced the emperor's control. See Dabringhaus, "The Monarch and Inner-Outer Court Dualism in Late Imperial China," *in Royal Courts in Dynastic States and Empires*, ed., Jeroen Duindam, Tülay Artan and Metin Kunt (Brill, 2011), 266-268.

an inner court alongside the outer court was not just for the sake of power manipulation, but was closely related to the emperor's desire to control powerful gunpowder weapons through his personal agents in this gunpowder age. With the establishment of the inner court, central political power became more centered on the monarch than it had been in earlier Chinese dynasties.

The formation of the inner court fundamentally changed the nature of the central government. Personal monarchy was central to the government of early modern European states such as France and England, where the personal wishes of the monarch counted heavily and thus made his household or his court the central institution and the center for both domestic and foreign policy.[37] Similarly, during the Ming period in China, the placement of critical state functions in the inner court to control gunpowder weapons as well as a large section of state revenue in the form of commutations, as will be discussed in the following chapter, greatly compromised the power and responsibility of the central bureaucracy. The inner court operated by the eunuchs certainly had its own institutional routines, but personnel staffing and promotion relied heavily on the arbitrary authority of the emperor.[38] This personal-centered system was in constant conflict with the values and practices of the outer court or bureaucratic government throughout the late imperial period. Besides setting up the inner court, the emperor also changed his central bureaucratic government, or his outer court, to consolidate his personal control.

Reorganization of the Central Government during Zhu Yuanzhang's Reign

During his rise to power and the early years of his reign, Zhu Yuanzhang established a central bureaucratic government following previous dynasties. When Zhu was still a local contender for power aspiring to the highest sovereignty, he had already set up some government

[37] Henshall, *The Myth of Absolutism*, 80-81. See also Konnert, *Early Modern Europe*.
[38] Ibid.

institutions following those of the Yuan dynasty, which helped to enhance both his influence and his credibility as a legitimate ruler. After founding the dynasty, he claimed to recover Chinese traditions following great dynasties such as the Han and Tang. Under the typical Confucian central government that could be traced back to the Han dynasty (206 BC–220 AD), a Secretariat was designated as the top office, followed by six ministers in subordinate positions who managed the six ministries of Personnel, Revenue, Rites, War, Justice, and Works. These officials were mostly Confucian scholars who were either recommend or selected through the civil service examination, which was installed in 1371.[39]

Meanwhile, as a counterpart of the civil government, a military apparatus headed by the chief military commission was established to administer the professional military training of all military forces and lead them on major campaigns, as well as to manage military districts and garrisons in the provinces and on the frontiers.[40] Positions for military corps were made hereditary, and the people who filled these positions were chosen from registered military households.[41] Unlike the Chinese tradition in which civil officials enjoyed a dominant role over the military, in the early Ming period the military nobles and officials seemed to enjoy more prestige and power at court. Edward Dryer in his celebrated book, *Early Ming China: A Political History*, attributes this military dominance to Yuan nomadic traditions. "The predominant role played by the Yuan-inspired Ming military elite in political decision making," Dryer asserts, "gave the early Ming part of the dynasty a military character reminiscent of such Turco-Mongolian empires as the Ottomans or the Mughals, rather than of the native Chinese

[39] Zhang Tingyu, et al., eds., *Mingshi* (Ming history) (1736; reprint, Beijing: Zhonghua shuju, 1974), 2/25.
[40] Hucker, *A Dictionary of Officials Titles in Imperial China*, 569.
[41] For a discussion of the military households in the Ming, see Michael Szonyi, *The Art of Being Governed: Everyday Politics in Late Imperial China* (Princeton: Princeton University Press, 2017), 76-77.

dynasties."[42] Dryer is right in emphasizing the influences of Yuan military traditions; we should not, however, exaggerate the power of the military nobles and officials at court as they were often as vulnerable to imperial whim as were high-ranking civil officials, and they often ended up facing political purges and persecutions in the early Ming period.

Moreover, unlike the Yuan court, military nobles and officials never posed a real threat to the emperor's personal power in the Ming court. It was the emperor who actually took control of both military power and the civil administrative authority, especially after the purges of 1380 when he decided to abolish the upper echelon of the central government, the highest positions of both the Secretariat of the civil bureaucracy and the Chief Military Commission of the military bureaucracy.[43] Now all six executive ministries were designated the highest level of central government administration, directly responsible to the throne. And the emperor became his own minister of all state affairs.[44] The despotic rule of the Ming founder, as Mote points out, was totally unreasonable in terms of the needs of Chinese government.[45] Unlike the royal courts in Western Europe, where members of the imperial household often took on formal administrative roles in the absence of an elaborate bureaucracy, in Ming China the inner court was created for the sake of keeping powerful gunpowder weapons under the tight control of the emperor in spite of a fully established and well-functioning Confucian bureaucracy. The practice of autocratic power, however, came into conflict with the Confucian bureaucratic government practices and

[42] Dryer, *Early Ming China*, 5.
[43] For the details of the purges and the political changes at this time, see Dryer, 100-106. For a discussion of Huang Zongxi, a late Ming and early Qing thinker's criticisms of Zhuang Yuanzhang's rule, see Jiang Yonglin, "Denouncing the 'Exalted Emperor': Huang Zongxi's use of Zhu Yuanzhang's Legal Legacy in Waiting for the Dawn," in *Long Live the Emperor! Uses of the Ming Founder across Six Centuries of East Asian History*, ed. Sarah Scheewind (Minneapolis: Society for Ming Studies, 2008), 245-267.
[44] See *Zuxun lu*.
[45] Mote argues that the kind of total terror or despotism of the rule of the Ming founder was attributable to "the twin influences of growing authoritarianism in government and in society, and his individuality to his policies and personal characters." See Mote, "Growth of Chinese Despotism," 19-25.

values. In the reign of Zhu's successor, Zhu Yunwen, who is known as the Jianwen emperor, civil officials in the bureaucratic government already started to express their strong opinions and their wish to return to the classical government.[46]

Gunpowder Weaponry in the Civil War (1399-1402)

Many of Zhu Yuanzhang's political legacies were not carried on by his successor and grandson, Zhu Yunwen, who reigned as the Jianwen emperor. Unlike the founding emperor, the Jianwen emperor was not a military man, but was raised in the palace and educated mainly by Confucian scholars.[47] He showed a great interest in Confucian proprieties. The political model for the young emperor was that of the Zhou dynasty (11th to the 3rd century BC) following the ancient classic, *Zhouli* (Rites of the Zhou).[48] During his reign, the Jianwen emperor reversed the balance of power between the outer court and the inner court by restraining the power of eunuchs and entrusting Confucian officials with state affairs, including those of the military. For example, he assigned civil officials such as the Minster of War, Qi Tai, and the Hanlin Academician, Huang Zicheng, with the formulation of military affairs. And in 1399, the emperor promoted all the ministers in the six ministries to the first rank, equal to that of the military nobles.[49]

Another approach that Zhu Yunwen and his civil officials tried to change was the use of imperial princes to guard the frontiers. In 1398 the sons of the founding emperor and the uncles of the newly enthroned emperor controlled a large number of armed forces on the frontiers and

[46] It has been generally believed that eunuchs abused the power that belonged to the emperor. For example, see Yu Huaqing 余华青, *Zhongguo huanguan zhidu shi* 中国宦官制度史 (A history of the Chinese eunuch-officials system) (Shanghai: Shanghai renmin chuban she, 1993), 47-50. It seems that in the Ming, the emperor designated the power to the eunuchs.
[47] He was an emperor who cherished civil governance (*wenzhi* 文治) over martial accomplishment (*wugong* 武功), as shown by the regnal title Jianwen ("Establishment of Civil Merit"), which contrasted with that of his grandfather Hongwu ("Overflowing Martial Accomplishment").
[48] Ibid., 555.
[49] Xia Xie, *Ming tongjian* (Comprehensive mirror of the Ming dynasty), 12/ 561.

other important bases in the provinces. This princely power was viewed as posing a potential or real threat to the emperor and the central court.[50] Most of the princes were thus put under imperial investigation and, as a result, the prince of Gui, who was found guilty, committed suicide, and the Princes of Qi and Dai were demoted to commoner status.[51] Prince of Yan Zhu Di, however, decided to take the initiative and rebelled against his nephew in 1399.[52]

At first glance, the imperial forces enjoyed a great advantage over the forces of the prince of Yan as the imperial troops, led by Marquis Geng Bingwen, numbered about 300,000.[53] In the first stage of the civil war, the prince of Yan had only about 8,000 cavalry.[54] Besides a huge number of troops, the imperial forces could also utilize various kinds of gunpowder weapons. But the encounter with the cavalry forces of the prince of Yan was affected by many factors, as shown in battles between the prince of Yan and the imperial force.

In September 1399, the prince of Yan first attacked the city of Zhending.[55] The siege lasted for two days but did not succeed. Realizing that attacking the city was probably the worst

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[50] *Ming Taizu shilu*, 51/ 6. Yancheng was an important strategic garrison against Mongols on the northern frontiers. In the fourth month of the second year of the Hongwu reign (1369), Yuan general Yesu 也速 attacked Tongzhou, and approached Beiping. In the fourth month of the third year of the Hongwu reign (1370), Zhu Yuanzhang decided to install his eight sons as princes in important bases of bastions in a hope they would defend the borders of the state from incursions of Mongols and to protect the dynastic interests of the royal family.

[51] Xia Xie, *Ming tongjian*, 12/ 550.

[52] In the self-justifying letters he submitted to the court, the prince of Yan insisted that princedoms were what the first emperor established to protect the state, and it was the ill advice from Qi Tai and Huang Zicheng that made the young emperor change the progenitor system.

[53] The marquis, Wu Jie, Wu Gao, Commander-in-Chief Geng Huang, and Regional Military Commissioner Sheng Yong and Ping An also marched via different routes at the same time. See Xia Xie, *Ming tongjian*, 550

[54] *Ming Taizong shilu*, 2/6a. The forces in total were about 100,000 men. See *The Cambridge History of China*, ed. Denis Twitchett and John K. Fairbank, vol.7, *The Ming Dynasty, 1368-1644* (Cambridge: Cambridge University Press, 1997), 196. As the prince resided at Yancheng, Beiping, the former capital of the Yuan dynasty, Zhu Di first took the city from the control of Ming garrison soldiers with his princely guards from inside the city wall. He had a personal force that he could rely on. Since Emperor Hongwu expected his sons to perform the duty of defending the frontiers, he increased the number of military escort of the Imperial Princes gradually. In 1372, each princely establishment had the Military Command of Escort Guard, three Guards, which were divided into five Battalions, two Battalion commanders, as well as two Wei zi shou, each with one Battalion Commanders. In 1377 the number of escorts of the Princely Establishment of Yan increased from 1,364 to 2,627.

[55] See Wang Chongwu, *Fengtian Jingnan jizhu* 奉天靖難記注 (An annotation to Fengtian jingnan), 1/56-58.

plan, and would lower the morale of his soldiers, the prince decided to withdraw.[56] The attack on Beiping (modern-day Beijing), the main base of the prince of Yan, by the imperial forces, did not succeed either.[57] As Andrade observes, Chinese walls were generally very thick and strong so that the early guns and cannons could hardly make a breach.[58] It is worth noting that just as the city of Nanjing was reinforced, given the consideration of an attack of gunpowder weapons, the walls of Beiping probably experienced similar reinforcement during the reign of the first emperor. Because it was the most important strategic garrison on the northern frontier, constant repairs and maintenance had been made in the late-fourteenth century. For example, the founding emperor ordered his general Xu Da to conduct the repair and extension of the city wall and moat at Beiping.[59] And another prominent general, Li Wenzhong, received imperial instructions to repair the princely palace in Beiping in spring 1376.[60] Li Wenzhong was said to have paid great attention to the defense capability of the walls as well as gates of the city.[61] The fortifications and walls of Beiping proved to be strong enough to withstand the siege of the imperial troops so that it stood firm until Zhu Di could return and relieve the siege.[62]

When the siege of the base of the prince of Yan was not successful, the imperial troops could only hope to defeat the prince on the open battlefield. In May 1400, General Li Jinglong, leading as many as 600,000 imperial troops, encountered the prince's army by the banks of a

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[56] *Ming Taizong shilu* (Veritable records of the Taizong Emperor), 3/1-4. Also see *Fengtian jingnan jizhu* 1/55. A month later, the prince decided to march toward the princedom of Ning 寧, where his half-brother, Zhu Quan 朱權 stayed. He tried to force Zhu Quan to join him.
[57] While the prince of Yan was out of the city, Li Jinglong, the leader of the imperial army, advanced to the walls of Beiping in November, but the siege failed. See Xia Xie, *Ming Tongjian*, 12/357. See also *Dictionary of Ming Biography, 1368-1644*, 358.
[58] Andrade, *Gunpowder Age*, 72.
[59] On January 19, 1371 he received orders from the Hongwu Emperor for a drill of the soldiers in Beiping. *Ming Taizu shilu*, 53/ 2.
[60] *Dictionary of Ming Biography, 1368-1644*, 885.
[61] Tsai, 29. For more about Li longjing's siege of the city, see *Ming Taizong shilu*, 4/1.
[62] *Ming Taizong shilu*, 4/ 1.

stream called Baihegou in central Beizhili.[63] During this battle, the sky suddenly turned so dark that people could barely see. Not only did the imperial soldiers lose the target of the enemy, but they also became an easy target in the dark when they launched firearms. The prince of Yan and his men took this chance and attacked wherever they saw bright light of armors in the flashing lights of firearms, but they still suffered greatly from the explosive gunpowder weapons hidden underground. The horses were said to be pierced apart when caught by the explosions. Both sides then retreated.[64]

In April 1401, at the Jia River, the prince of Yan again confronted imperial forces led by the general Sheng Yong, who placed weapons such as fire chariots (*huoche* 火車), firearms (*huoqi* 火器), powerful crossbows (*qiangnu* 強弩), and battle shields (*zhandun* 戰楯) in an array at the front. The prince of Yan attempted to attack the imperial troops from the rear but achieved little. The following day, a strong northeast wind suddenly appeared, which blew dust everywhere so that the two armies could barely see each other within a short distance. The prince of Yan again took this chance, attacking Sheng from both the left and right sides.[65] The imperial troops suffered a great loss. Many were killed and all of the military equipment and supplies were captured. Sheng had to retreat to Dezhou.[66] In the following battle, with another imperial

[63] Ibid., 6/ 4-5. At the time, Li Jinglong, Hu Guan, and other generals gathered the troops together with a total number of 600,000 soldiers, which claimed to be one million, drawn up in array and waiting in combat readiness. Zhu Di was brave enough to speed into the enemies' array with only several tens of cavalry followed by the officers and men.
[64] See *Ming Taizong shilu*, 6/5. Also see Xia Xie, *Ming tongjian*, 566-579. The comments made on *yikefeng* (一窠蜂) were not complete. During the following battle the next day, Zhu was in dangerous situations several times but finally escaped and was saved by his son Zhu Gaoxu. However, bad luck again hit the imperial army when a whirlwind (or cyclone) suddenly appeared, breaking the royal troops' flag of the General-in-Chief. The array was scattered. Zhu Di and his cavalrymen detoured to the rear of the enemy, took advantage of the wind to set fire, and burned the camp of the enemy with smoke rising into the sky. With the death of many generals, the royal troops fled in great confusion.
[65] Xia Xie, *Ming tongjian*, 575; also see Wang Chongwu, 3/142.
[66] Xia Xie, *Ming tongjian*, 575.

general, Ping An, the prince of Yan first suffered greatly under the fire of gunpowder weapons and the shooting of arrows, but he was again saved by the sudden appearance of a strong wind, the power of which could uproot trees and houses. It was said that 60,000 imperial soldiers were killed in this battle. While the prince's military achievement was quite remarkable, his base did not expand much. Whenever a town or a city was occupied, it soon fell back into the hands of the imperial troops.[67] Learning that the capital city, Nanjing, was short of military forces, the prince of Yan decided to change his earlier strategy and instead march directly to Nanjing.[68] In March 1402, he arrived at Xuzhou, but when the siege of the city again failed, he chose to march to Suzhou. During this period, the prince also started to make use of cannons in his battles.[69] It is not clear when the prince acquired firearms, but the earlier capture of military equipment from the imperial troops might have been his major soure of supply.[70]

In April, the prince of Yan blocked the grain supplies of the imperial troops led by He Fu.[71] Because of the lack of provisions, He Fu ordered before the battle that when the imperial troops heard the sound of cannons fired three times, they should immediately break through the siege and get provisions at another place by the Hai River. However, it was unlucky for the imperial troops that at this time the prince adopted the same signal, the three-time-sound of the cannon, as the starting signal for attack. The result was disastrous. Taking the enemies' signal for retreat, the imperial troops, instead of fighting, started to flee through the gates. Taking

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[67] Ibid., 580-81.
[68] Ibid., 594. the prince of Yan had conducted his campaign for three years, but he achieved little. Whenever a town or a city was captured, it soon returned to the hands of the court when the prince left.
[69] *Ming Taizong shilu*, 9/7a/119.
[70] According to *Huangming dazheng ji*, Zhu seemed to have utilized some gunpowder weapons as early as 1401. When Beiping, the base of Zhu was surrounded, his subordinate, Liu Jiang, was ordered to relieve the siege. The strategy Liu suggested was that he would use pao (firearms) as signals and let his soldiers at the rear continue to set fire, so that people from far and near would assume that the main army arrived. The strategy worked well and was adopted in one of the devisive battle against the imperial troops in 1402.
[71] Ibid., 586.

advantage of this situation, the prince's forces then destroyed the imperial troops led by Sheng Yong.[72] This defeat was fatal for the court. Ten days later, the prince of Yan arrived at the Jinmen gate of the capital city, Nanjing, where the general Li Jinglong and others opened the gate and surrendered to the prince.

As we see from these battles, gunpowder weapons played a critical role in the land battles, but the use of these weapons depended as much on proper military tactics as on favorable natural conditions. Facing the more flexible strategies that the cavalry forces could provide the prince, the imperial troops perhaps relied too heavily on the gunpowder weapons, which might have accounted for their failure, especially when weather conditions changed. Moreover, the imperial troops suffered from poor leadership since many capable generals had been persecuted during the late years of the first emperor while the prince of Yan was well known for his military talents and achievements in conducting years of fighting against the nomads on the frontiers.[73] After taking the throne, the prince of Yan, Zhu Di, who is known by his reign name, Yongle, made innovations to the military tactics of the imperial troops by combining gunpowder forces and cavalry, and thus established a new imperial military camp in the capital city under the close supervision of eunuchs and the emperor, as discussed below.

Yongle: Integration of Gunpowder Weaponry with Cavalry in the Northern Campaigns

After becoming emperor, Zhu Di designed special arrangements to use the sequence of various weapons, including firearms, in a new way to fight against the nomads. Having fought the Mongols for many years as a frontier prince, the emperor continued to pay close attention to

[72] *Ming Taizong shilu*, 3/1.
[73] Poor leadership might be related to the purges in the late Hongwu period. Some generals who had followed Zhu Yuanzhang, such as Geng Bingwen, were already in their sixties. For the discussion of the purges of military officials in the Hongwu period, see Dryer, *Early Ming China*, 162.

Mongol affairs on the northern frontier. The Mongol Khan, Örüg Temür (Guilichi 鬼力赤), did not make peace with the Ming court and even poisoned the prince of Hami, Engke-Temur, previously installed by the Yongle emperor. When the Mongol Kahn was killed by his chief minister Aruytai (Alutai 阿魯台) and replaced by one descendant of the imperial Yuan house, Bunyasiri (Benyashili 本雅失里) in 1408, the Yongle emperor sent envoys to the north to propose peace, but his proposal was rejected and his envoys were killed.[74] In 1409, the Yongle emperor ordered his trusted general, Qiu Fu, to lead approximately 100,000 imperial troops into the steppe. Qiu, however, greatly underestimated the enemy and was drawn into a trap and perished together with many other Ming generals. The Ming imperial army thus suffered a great loss.[75] The Yongle emperor was shocked by this, and for the reason that he could not find a better military general, the emperor decided to lead the campaign himself in the following year.[76]

After a good preparation in the winter, the emperor set off in March 1410 to pursue the Mongol forces. The imperial troops first chased Bunyasiri's forces to the Onon River and then continued the pursuit of Aruytai.[77] In the battle, the Yongle emperor used firearms and cavalry in a sequence to fight against the nomads. As he was ordered, the Earl of Anyuan, Liu Sheng 柳升, fired "miraculous guns" (*shenji rui* 神機銳) at the front. According to Ming records, the enemy was terrified by the sound of the weapons and then retreated.[78] As the emperor stated clearly, describing the strategy for the imperial order for a following battle, "The main troops should

[74] *Dictionary of Ming Biography*, 12.
[75] *Ming Taizong shilu*, 95/2. See also *Dictionary of Ming Biography, 1368-1644*, 13.
[76] Xia Xie, *Ming Tongjian*, 15/699.
[77] Ibid., 15/705. Also see *Ming Taizong shilu*, 105/1b-2b. Aruytai had rejected the plea for united action and departed on learning of the size and strength of the Zhu Di's troops. Zhu Di found Aruytai's trail along the Khalka River, and on July 10, 1410, he encountered and defeated Aruytai in a valley on the upper course of the Taor River at Jinglu zhen (靖虜鎮).
[78] Wang Shizhen 王世貞, *Yanshantang bieji* 弇山堂別集 (Separate collection of deep mountain studio) (Beijing: Zhonghua shuju, 1985), 65/1215.

cross the river first, but hundreds of cavalry will hide in the willow woods of Hequ. Tens of soldiers holding firearms should go behind. When the enemy arrives, first lure them into the ambush. Then set off firearms. When the hidden cavalry hear the sound of the firearms, they should come out immediately."[79] The plan proved effective.

In contrast to the general impression among historians that early firearms were not quite useful for fighting against nomads, the Yongle emperor always stressed the importance of gunpowder weapons in these campaigns.[80] According to an imperial decree to Liu Sheng in 1413, the emperor stated, "Powerful firearms and cannons are sharp weapons for troops. They are indispensable in military operations, which must be practiced thoroughly and then must be applied in turns of events."[81] To prepare for a campaign against another Mongol chief, Mahmud, who was the leader of the strongest contingent of the Oirat, a Western Mongolian tribe, the Yongle emperor in 1414 ordered the Palace Armory to produce powerful guns and cannons (*shenji chongpao* 神機銃炮) and armor in addition to other weapons.[82]

In June 1414, the Yongle emperor again led imperial troops into the steppe fighting against the Oirat. He adopted a tactic similar to that of the earlier campaign. Seeing that the enemy had split into three columns, he ordered the cavalry to challenge the enemy first. When the Mongols came to fight, he commanded Liu Sheng to fire guns and cannons, which killed

[79] *Ming Taizong shilu*, 105/3a.
[80] As William Urban notes, in "Eastern Europe and much of East central Europe, where geography lent itself more to raids by nomads than to defense by knights and local militias… firearms were rare there until the development of the wheel-lock pistol and the flintlock musket," see Urban, *Small Wars and Their Influence on Nation States: 1500 to Present Day* (London: Frontline Books, 2016), 20.
[81] Ibid., 144/1b.
[82] Ibid., 150/1a. Mahmud had been made King of Shuning by the Yongle emperor and supported Yongle's campaigning against Bunyasiri and Aruytai of the eastern Mongols. But as Zhu Di bestowed on Aruytai presents and a title, trying to restore Aruytai's influence for the purpose of counteracting the might of the Oirat, Mahmud decided to use military force against the Ming, and in 1413 he came to to Kerulen River with 30,000 troops.

hundreds. The emperor then personally led crack cavalrymen to attack the enemy. The Mongols were defeated and pulled back.[83] The imperial troops continued to pursue them and captured several. Mahmud and others escaped.

As we see, during the early northern campaigns, in the 1410s, the Yongle emperor combined cavalry and gunpowder troops effectively in his military strategies. The new tactics were also adopted in his later campaigns.[84] In August 1421, when the emperor decided to take the field again, he ordered Liu Sheng to command the cavalry and infantry of the central units, the Palace Guards (Daying weizi shou 大營圍子手) and the Firearms Division (Shenji ying 神機營); in addition he ordered Chen Mao and others to command the emperor's cavalry and the Mongol cavalry who pledged loyalty to the Ming court and had been incorporated into the imperial force.[85] In June 1422, the emperor was stationed at Qingping zhen, and ordered the five armies of the Great Camp to come out and form a phalanx to advance, with gunpowder troops and cavalry in proper order.[86] At this time the military strategy of the imperial troops became mature and laid the foundation for the new structure of the imperial troops.[87]

The emperor could not find the Mongols in this campaign and had to return in vain in 1424. A new military system, Three Great Training Divisions (San da ying 三大營), comprising

[83] *Ming Taizong shilu*, 152/ 1b-2a.
[84] During 1421-1424, Zhu Di again led three campaigns against the nomad leader Aruytai, who took advantage of the temporary weakness of the Oirat after their wars with the Ming court and killed Mahmud later in 1415 or early 1416. See *Dictionary of Ming Biography,* 1037. For a brief discussion of cavalry, infantry and the use of cannons in the Ming troops, see also *Zhongguo lidai junshi zhidu* 中国历代军事制度 (History of the military institutions in China) (Beijing: Jiefang jun chuban she, 2006), 429-433.
[85] *Ming Taizong shilu*, 239/1b.
[86] Ibid., 250/1a.
[87] The cooperation of the five armies, gunpowder troops and cavalry in the campaigns was clearly stated in the decree in 1424. The emperor ordered that if the enemy came, first attack with firearms (*shenji chong* 神機銃), which should be followed by powerful crossbows. See *Ming Taizong shilu*, 272/1b-2a.

the Division of the Five Armies (Wujun ying 五軍營), the Division of the Three Thousand (Sanqian ying 三千營), and the Firearms Division (Shenji ying 神機營), was installed in 1424 in his new capital Beijing with an auxiliary counterpart in Nanjing, now designated as the southern capital.[88] Concentrating the main imperial forces in the capital city, the Yongle emperor also established a new frontier approach of *tianzi shoubian* (天子守邊), which literally means the emperor would protect the borders.[89] This new system no longer sustained the idea of the first emperor about building a self-supporting military force; now the imperial troops in the capital city received salaries directly from the central treasury.[90] The establishment of the imperial military units in the capital city consolidated the emperor's control of the military as well as gunpowder weapons. It led to a new frontier approach that relied heavily on the capital force rather than those on the frontiers in the early Ming period.[91]

Yongle: The Vietnam Campaign and Innovations in Gunpowder Technology

Besides the northern campaigns, military tactics combining gunpowder weapons with cavalry were also used during campaigns in a state across the Ming empire's southern frontier, Annam (Dai Viet). In the late fourteenth century, the royal family of Annam, the Tran, declined in power; the queen's father, Ho Quy Ly (ca. 1335-ca. 1407), proclaimed himself king in 1400 and in the following year enthroned his second son, Ho Han Thuong (Hu Di 胡奊 in the Chinese

[88] Instead, soldiers from regional places came and received training in the capital city. For more discussions, see Peng Yong 彭勇, *Mingdai banjun zhidu yanjiu-yi jingcao banjun wei zhongxin* 明代班軍制度研究－以京操班軍為中心, 188. See also Edward Farmer, *Early Ming Government: The Evolution of Dual Capitals* (Cambridge, MA: Harvard University Press, 1976).

[89] For a discussion of this approach, see Shang Chuan 商传, *Yongle Huangdi* 永乐皇帝 (The Yongle Emperor) (Beijing: Beijing chuban she, 1989), 261.

[90] It is worth noting that, after the Yongle period, frontier garrisons that had been set up in the reign of the first emperor received less imperial attention as well as fewer resources. The living conditions of the soldiers on the frontiers became even worse.

[91] Under this situation, the frontier areas became more vulnerable to nomadic incursions in the later Ming period.

histories).[92] Ho Quy Ly changed the named of the country to Dai Bgu (Da Yue in Chinese) and established a Ho dynasty after his surname.[93] As the territorial expasion intensified the relations of the Annam with neighboring powers, as well as with the Ming state.[94] The Yongle emperor sent a decree to the king of Annam in 1404 to blame him for Annamese attacks northward in Siming Prefecture of the Ming's Guangxi Province and southward in Champa (Zhancheng 占城), a tributary state of the Ming.[95] In March 1405, receiving a report from a local chief of Ningyuan Prefecture in Yunnan that his territory was attacked and occupied by the Annamese, the Yongle emperor again sent envoys to the King of Annam, whom he assumed still to be a member of the Tran house, to inquire about these attacks.[96] In April 1406, learning that the Ho family had killed the former king and usurped his throne, the Yongle emperor decided to intervene through a military campaign.[97]

In May, to prepare the campaign, the emperor also ordered the Prince of Shu to select 5,000 soldiers from the guards, and ordered the Regional Military Commissions in Yunnan, Guizhou, and Sichuan to select 70,000 cavalry to be trained in Yunnan under the marquis of Xiping, Mu Sheng.[98] In June, the emperor ordered the Palace Armory to produce some 10,000 firearms (*chong* 銃) and 125,000 arrows to prepare for frontier use, most likely for the campaigns against the Hos.[99] The military tactic of coordinating gunpowder weapons with

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[92] Zheng Xiao, *Huangming siyi kao* 皇明四夷考 (Treatise on the four barbarians) (reprint, Taibei: Taiwan huanwen shuju, 1968), 464. For the rise of Ho Quy Ly, see also Kathlene Baldanza, *Ming China and Vietnam: Negotiating Borders in Early Modern Asia* (Cambridge, United Kingdom: Cambridge University Press, 2016), 60-64.
[93] For the changes of surname from Le to Ho, see Baldanza, *Ming China and Vietnam,* 62.
[94] In September 1404, the Champa king sent an envoy to the Ming court, who reported how Annam had attacked their locals, forcing Champa to be their tributary state, occupying some of their territory. See *Ming Taizong shilu*, 33/4b.
[95] Ibid., 33/4b-5a.
[96] Ibid., 39/1b-2a; 58/2b-3a.
[97] Ibid., 53/2a.
[98] Ibid., 53/5a-b.
[99] Ibid., 54/5a.

cavalry is indicated by an imperial decree in September to the commander of the imperial troops of the Annam campaign and the duke of Chengguo, Zhu Neng:

> If Mu Ying arrives at Jialing before the marquis of Xiping, you should send cavalry first directly against the enemy. The number of cavalry should be increased gradually from hundreds to thousands day by day, and fires and cannons shoud be sent day and night in order to deceive and hamper the enemy. At the same time, you should march secretly toward the upper reaches of the Fuliang river and rendezvous with the marquis of Xiping, taking the enemy by surprise; success can thereby be achieved.[100]

The coordination of the generals who commanded different military units including cavalry and gunpowder units was clear in the campaigns. In November 1406, the Ming troops arrived at Jilingguan, a pass near the border between Annam and China's Guangxi. The Annam troops built fortresses and established several moats, putting bamboo stakes in them to stop cavalry and infantry. The Ming army, about 30,000 strong, divided and surrounded Jilingguan, using firearms, darts, and crossbows to resist the enemy. The enemy discarded their arms and fled.[101] In January 1407, the earl of Xincheng, Zhang Fu (張輔), and Fu Sheng laid siege to Duobang City. According to the Ming records, Duobang City was high and steep. The Annamese set up several moats beneath the city with bamboo stakes secretly put inside. There were stakes outside the moats too. The high part of the city was well guarded. After the Ming troops attacked and entered the city, the Annam soldiers drew up in an array, driving elephants in front of them through the city. To defend against the elephant attack, Ming General of Firearms (*shenji jiangjun* 神機將軍) Luo Wen (羅文) used gunpowder weapons at the flanks. The elephants trembled and were injured by firearms and arrows. They all fled, and the Annam troops collapsed; their leaders were killed in the battle.[102] Ho Quy Ly and his sons, Ho Nguyen Trung

[100] Ibid., 58/1a.
[101] Ibid., 60/4b.
[102] Ibid.,62/3a-b. Also see Xia Xie, *Ming tongjian*, 660.

and Ho Han Thuong, grandsons and other relatives were captured in June 1407 and sent to Nanjing.[103]

Proclaiming that Annam was pacified, the Yongle emperor ordered that Annam be annexed to the Ming as a new province.[104] Due to the fact that the Annamese continued to practice guerrilla tactics and avoided pitched battles directly with the Ming forces, it took the Ming court much longer to quell a later rebellion than to conquer Annam. Unlike in the early period of the war, when the Ming troops marched via land routes, in the later stages of the fighting, warships with gunpowder weapons were the most reliable instruments for the Ming troops. The major reason might be that in earlier campaigns, the Ming troops attacked and conquered major cities and major forts, while in later campaigns, when the Vietnamese escaped, boats were more flexible for chasing them. And some forts were near water transportation, accessible via ships. Nonetheless, the Ming troops adopted gunpowder weapons in both land and naval battles in the Annam campaign.

While the Ming chronicles did not mention the use of firearms by the Annamese, they probably did use certain gunpowder weapons in the battles as well.[105] After the initial stage of fighting, some captured Annamese became firearms experts at the Ming court. Sun Laichen observes that the Annamese learned about gunpowder weapons from the Ming state and used

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[103] *Ming Taizong shilu*, 67/2a-b. Also Xia Xie, *Ming tongjian*, 672. See Baldanza, *Ming China and Vietnam*, 65.
[104] For example, in 1408, a former Tran official, Tran Nguy, rose up and proclaimed for himself leader of the kingdom of Dai Viet. See *Ming Taizong shilu*, 82/ 5a-b. Only in 1409, after the Ming sent another campaign led by the general Zhang Fu, was he defeated and captured. See Xia Xie, *Ming tongjian*, 683. *Ming Taizong shilu*, 84/4b-5a.
[105] Li Bin has provided a close observation of the Annam gunpowder technology and argues that the Ming learnt new devices, such as *dianhuo yaocao* 点火药槽 and *huomen gai* 火门盖, from the Annam. See Li Bin 李斌, "Yongle yu Annan de huoqi jushu jiaoliu" 永樂朝與安南的火器技術交流, in *Zhongguo gudai huoyao huoqi shi yanjiu* 中國古代火藥火器史研究, ed. Zhong Shaoyi (Beijing: Zhongguo Shehui kexue chuban she, 1995), 147-158.

weapons extensively in their territorial expansions.[106] They also made innovations including a new ignition device based on Ming technology.[107] As mentioned earlier, when Annam leader Ho Quy Ly was captured and sent to the Ming court, his sons also accompanied him. The oldest son, Ho Nguyen Trung (Hu Yuancheng 胡元澄 in Chinese), was said to be good at making firearms, and he was ordered by the Yongle emperor to manufacture firearms inside the palace in Beijing.[108] Ho Nguyen Trung was even given a family name Chen by the Yongle emperor. In 1436 he was granted the official title of senior vice-minister of works.[109] During the Jingtai reign (1450-1456), he was promoted to be the post of left vice-minister of personnel.[110] His son, Shulin, was also good at making firearms and later served as vice-minister of works.[111] Members of Chen's family were not the only Annamese who helped to produce firearms for the Ming emperor. According to one source, after the Annam campaign, the Yongle emperor ordered that Annamese who could make gunpowder weapons should be sent to the court together with their families.[112] It was probably because of them that the official history of the Ming, *Mingshi*, mistakenly asserts that the Firearms Division (Shenji ying) was established during the Vietnam campaigns. It may be because that, after the Yongle emperor established the Firearms Division (Shenji ying), the term *shenji* (miraculous guns) became widely known.

As we see, the Yongle emperor utilized both gunpowder weapons and cavalry in the Vietnam campaigns, and it was because of his effective usage of both tactics in battle that he was

[106] See Sun, 509-510. See also Baldanza, 64.
[107] For a discussion of innovations in gunpowder technology of Annam, see Li Bozhong 李伯重, *Huoqiang yu zhangbu: zaoqi jingji quanqiu hua shidai de Zhongguo yu shijie* 火枪与账簿: 早期经济全球化时代的中国与东亚世界 (Beijing: Shenghuo, dushu, xinzhi sanlian shudian, 2017), 130-131.
[108] See also Wang Shizhen, *Yanshantang bieji*, 10/180.
[109] *Dictionary of Ming Biography*, 800.
[110] Wang Shizhen, 10/180.
[111] Ibid. See also *Qinding wenxian tongkao* 欽定續文獻通考 (Imperially commissioned encyclopedia of historical works), 42/9.
[112] Li Wenfeng, *Yue Qiao Shu* 越峤书.

able to expand the imperial territory to such a great extent. The imperial troops, which were reformed under the Yongle emperor, enjoyed an advantage that lasted for more than a century, creating a military regime on par with other gunpowder-cavalry empires, such as those of the Ottomans and the Mughals. The advantage of such tactics was only overcome in the sixteenth century with the invention of the classical muskets and cannons in Europe that started to wield unparalleled force. In this sense, the true gunpowder age did not begin until the sixteenth century, but a transition period was equally important for the formation of major military powers in Asia before the rise of European powers.

The Yongle Emperor and his Military Eunuchs

After the establishment of Firearms Division, the Yongle emperor designated Armory-inspecting Eunuchs to be in charge of the gunpowder unit in the capital city as well as on the frontiers.[113] Because of the critical role that gunpowder weapons played on the battlefield, it was not a surprise that eunuchs enjoyed great prestige in both military affairs and frontier affairs.[114] While many eunuchs, in an informal capacity, had accompanied the Yongle emperor on his northern campaigns, some of them started to be sent to frontiers serving as regional commanders.[115] For example, in 1410, eunuch Ma Jun was sent to inspect Gansu and to discuss military affairs with Huang Hu who served as the defense commander and marquis of Xining. Afterwards he reported to the emperor. This case is believed to mark the point when eunuchs

[113] *Mingshi*, 89/2177. Zheng He was the first eunuch to serve as *zhenshou* 鎮守 in Nanjing. For studies of Zheng He's overseas voyages during the Yongle period, see Louis Levathes, *When China Ruled the Sea: The Treasure Fleet of the Dragon Throne, 1405-1433* (New York: Simon & Schuster, 1994), 177.
[114] When Zhu Di decided to send an army to Vietnam, he ordered Bingzhang ju (the Palace Armory) to produce 10,000 *chong* 銃 (presumably large gunpowder weaponries) and 125,000 arrows to prepare for battles on the frontiers in 1406. See *Ming Taizong shilu*, 54/ 5a.
[115] For example, in the eighth year of the Yongle reign, the eunuchs Wang An, Wang Yan, Sanbao and Tuotuo, were in the camp of the commander in chief. Wang Shizhen, *Yan Shantang bieji*, 90/1727.

began to serve in the position of military defense commanders.[116] Though the position was still temporary at this time, it became fixed after the Yongle period and in the Xuande period (1426-1435), all garrisons along the northern frontier, including Datong, Jizhou, Xuanfu, Shanxi, Shaanxi, and Yansui, had eunuchs serving as defense commanders. In Liaodong, Xuanda, Ningxia, and Gansu, there were also eunuchs with the title, supervisor of gunpowder weapons (*Jianqiang* 監槍).[117] These eunuchs who supervised gunpowder weapons on the frontiers made sure that powerful gunpowder weapons were placed under the tight control of the inner court. They also became influential local power-holders representing the emperor.

The designation of eunuchs as military commanders on the frontiers was critical for the Ming imperial administration of its frontier territories.[118] By sending eunuchs as military commanders in the frontier garrisons, the Yongle emperor placed military and frontier affairs under his direct rule. With the aid of eunuchs, the emperor thus established an effective control over state military affairs. Whereas, initially, eunuchs were appointed to the post of regional military commander, in subsequent reigns their roles gradually expanded and became the de facto territorial governors on the frontiers, as in 1507 the Zhengde emperor ordered that these eunuch commanders participate in the judicial and civil affairs.[119]

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[116] Like Wang An and others, a good number of the eunuchs who performed important military duties in the Yongle period had non-Chinese origins. See also Xia Xie, *Ming Tongjian*, 633. Jiang Shoucheng 姜守誠 has discussed about two eunuchs named Bai Yu 柏玉 and Wu Zhu 武住 who managed a gunpowder unit Shenji ying in Huai'an garrison for about twenty years. According to the inscriptions on their tombs, the two were selected during the Hongxi reign (1424-1425). Jiang Shoucheng, "Mingdai zhaohuasi chuangjian yange kao," *Chengda lishi xuebao* 49 (2015), 147-212.

[117] For the discussions of eunuchs in the borderland, see Hu Dan, "Mingdai 'jiubian' zhenshou neiguan kaolun," 明代九边内官考论 *Zhongguo bianjiang shidi yanjiu*, no.2 (2009).

[118] Gu Cheng notes that half of the Ming territories were managed by the civil bureaucratic government while the other half, the local and frontier military garrisons, were placed under the military apparatus. See Gu Cheng, 'Ming diguo de jiangtu guanli tizhi," *Lishi yanjiu*, no.3 (1989), 141-142.

[119] *Mingshi*, 16/201. For a discussion of the role of eunuchs on the frontiers, see Qi Chang, *Gongnei chaoting yu bianjiang: Shehuishi shiye xia de Mingdai huanguan yanjiu* 宫内、朝廷与边疆: 社会史视野下的明代宦官研究 (Beijing: Zhongguo shehui kexue chubanshe, 2014), 33-73.

It is worth noting that, besides these military duties, eunuchs also preformed other critical roles for the emperor such as reporting information both within and outside of the government.[120] In 1412, the Yongle emperor had to stress to officials in the Censorate that he sent eunuchs only to inquire about those local officials who might have harmed commoners, but did not designate any formal position for them. The emperor ordered that eunuchs' interference in the affairs of the officials not be allowed.[121] But in 1420, in spite of criticism voiced by his officials, the emperor established a palace eunuch agency called the Eastern Depot, headed by eunuchs who used the imperial bodyguard as the Depots' policemen to inspect treasonable offenses of any kind, as well as secret businesses of officials and commoners.[122] The secret nature of the agency was indicated from the fact that it was not recorded in any of the official chronicles or statutes.[123] The Eastern Depot was not subject to any government supervision but was primarily responsible to the emperor. The agency caused great fear among the people and the bureaucratic officials. Besides collecting information, eunuchs also began to engage in economic activities.[124] For example, in 1403, a eunuch named Qi Xi was designated as the superintendent of the maritime trade in Guangdong.[125] In addition to Guangdong, Maritime Trade Supervisorates (市舶提舉司) in other provinces, such as Fujian and Zhejiang, were also headed by eunuchs. As the eunuchs began to be assigned more public tasks, the inner court became a semi-public institution but was

[120] Xia Xie, *Ming tongjian*, 648. For a general observation of eunuchs' participation in the military in local regions, see also Xiao Lijun 肖立军, *Mingdai shenzhen yingbing zhi yu difang zhixu* 明代省镇营兵制与地方秩序 (Tianjin: Tianjin guji chuban she, 2010), 253-268.
[121] *Ming Taizong shilu*, 130/3a.
[122] For detailed discussions of the Easter Depot under eunuchs, see Tsai, *The Eunuchs in the Ming Dynasty*, 97-101.
[123] Wang Shizhen, *Yan shantang bieji*, 90/1727.
[124] *Ming Taizong shilu*, 46/1a.
[125] 1602 *Guangdong tongzhi* 廣東通志 (Guangdong provincial gazetteer), 6/10a. For eunuchs' participation in economic administration, see also Wang Chunyu 王春瑜 Du Wanyan 杜婉言, ed. *Mingdai huanguan yu jingji shiliao chutan* 明代宦官與經濟資料初探 (Historical materials on Ming eunuchs and economy, preliminary edition) (Peking: Zhongguo shehui kexue chuban she, 1986).

responsible only to the emperor without any bureaucratic check. With the expansion of the inner court in controlling the military and the revenue, an autocratic-centered military-fiscal system gradually emerged in the early Ming period that was separate from the Confucian bureaucratic systems.[126] Under the Yongle reign, Confucian officials were excluded from the administration of large gunpowder weapons and the role of the central bureaucracy, or the outer court, was reduced to being merely one of several supportive branches of the imperial system.

The Yongle Emperor and Confucian Officials

Like his father, the Yongle emperor also made adjustments to the central bureaucracy to better serve his autocratic designs. As the prince of Yan, his usurpation of the throne after the civil war meant abrupt termination of the brief revival of Confucian political ideals in the Jianwen period. Many civil officials certainly felt the fundamental changes in politics and chose to take their own lives following the death of the Jianwen emperor; in contrast, only one military official did so did so.[127] The loyalty of civil officials towards the Jianwen emperor was not just personal. It was also based on shared values of the Jianwen emperor and his civil officials in restoring classical Confucian political conventions.

Unlike the Jianwen emperor, who entrusted policy formation to his ministers, the newly enthroned Yongle emperor selected some low-ranking scholars from the Hanlin Academy as his personal consultants.[128] Edward Dryer notes that the Yongle emperor entrusted his plan to

[126] For a discussion about fiscal-military states in Europe, see also Christopher Storrs, *The Fiscal-Military State in Eighteenth-Century Europe: Essays in Honor of P. G. M. Dickson* (London: Taylor and Francis, 2016). For further explanation about the fiscal-military state as a methodological concept, see also Agustin Gonzales Enciso, *War, Power and the Economy: Mercantilism and State Formation in 18th century Europe* (New York: Routledge, 2017), 30-32.

[127] Xia Xie, *Ming tongjian*, 606. Many capable generals who had been nurtured in the frontier campaigns since 1372 were either imprisoned or executed in the finals years of the Hongwu reign.

[128] *Ming Taizong shilu*, 37/200. For biographical information about the Grand Secretaries from the Hanlin Academy, see also Lei Li 雷禮, *Neige xinshi* 內閣行實 (Biographies of the office-holders in the Grand Secretariat) (Taibei: Ming wen shu ju, Minguo 80 [1991]). For a general discussion of the officials from the Hanlin Academy serving as

eunuchs and generals rather than to civil officials, and he attributes this practice to two contradictory ideologies: the imperial ideology and the Confucian conservative ideology.[129] The politics of gunpowder, however, suggests that the lack of involvement of Confucian officials in the state military in the early Ming period was more due to the imperial purpose of the monopoly of gunpowder weapons by the inner court. The designation of critical duties to eunuchs was not because of the civil officials' conservative ideas about military affairs, but rather because of the emperor's arrangement to keep the technology and weaponry under his control. While high-ranking officials in the central government played more limited roles in the decision making of the state than they had enjoyed in previous dynasties, from the middle of the Ming a growing number of civil officials did begin to play more assertive roles in the military and on the frontiers, as discussed in chapter three.

The claim that the civil officials would naturally oppose the emperor's military conduct is not supported by the fact that, even in the early Ming, a few civil officials who were trusted by the emperor still played important roles in the military. For example, Huang Fu was designated the provincial administration commissioner of Annam affairs between 1407 and 1424.[130] When military officials doubted whether Huang Fu should be granted this task for the reason that he had served during the Jianwen reign, the emperor rejected such an idea and continued to trust Huang Fu with the affairs in Annam.[131] In 1440, Huang Fu was appointed the director of military

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secretarial consultants for the emperor, see Wang Qiju 王其榘, *Mingdai neige zhidu shi* 明代内阁制度史 (A history of the Grand Secretariat in the Ming period) (Beijing: Zhonghua shuju, 1989); for the Yongle period, see also Zhu Hong 朱鴻, *Ming Chengzu yu yongle zhengzhi* 明成祖與永樂政治 (Emperor Chengzu and the politics in the Yongle period) (Taibei: Guoli Taiwan shifan daxue lishi yanjiusuo, Min guo 77 [1988]), 164-174, and Dryer, *Early Ming China,* 174.

[129] Dryer, *Early Ming China*, 173-174.

[130] *Dictionary of Ming Biography,* 653.

[131] *Ming Taizong shilu*, 56/ 6b. In 1407, Huang Fu was appointed as administration and surveillance commissioner, when the name Annam was changed to Jiaozhi. See *Dictionary of Ming Biography*, 653.

affairs at Nanjing, a position that was held jointly by a grand eunuch and one or two military nobles.[132] There were other civil officials who were sent by the emperor to assist the military commanders. For example, Ma Jun (馬儁) was promoted to the secretary in the Ministry of War and sent to serve as a military consultant during the Annam campaigns.[133] As a matter of fact, after the mid-fifteenth century, a growing number of civil officials began to engage frequently in state military affairs, and started to challenge the imperial autocratic monopoly of gunpowder weapons especially during their service on the frontiers.

Conclusion

In the early stages of the gunpowder age, taking advantage of gunpowder weapons, the Ming founder Zhu Yuanzhang defeated his major rivals, establishing a new dynasty. Under his reign, he started to entrust the manufacture of powerful gunpowder weaponry to his inner court managed by eunuchs. He also made constant adjustments in the central bureaucracy to fit his personal rule.[134] The establishment of an inner-outer court dualism under the first emperor of the Ming dynasty marked a fundamental change in the relations between the emperor and the Confucian bureaucracy. The authority that the first emperor established in controlling the political and military apparatus was largely inherited by the prince of Yan, Zhu Di, the son of the first emperor and a usurper-victor after a brief period of the revival of Confucian conventions during the reign of the second emperor, Zhu Yunwen. Zhu Di, the Yongle emperor, continued to consolidate his control by formalizing the practice of designating grand secretaries from the Hanlin Academy as his personal advisors, as well as assigning critical tasks to eunuchs, especially in the supervision of the newly established gunpowder troop, Shenji ying, or Firearms

[132] *Dictionary of Ming Biography, 1368-1644*, 656.
[133] *Ming Taizong shilu*, 86/7a.
[134] For Zhu Yuanzhang's revisions of village administrative policies, see Sarah Schneewind, "Visions and Revisions: Village Policies of the Ming Founder in Seven Phases," *T'oung Pao* 87 (2002): 317-359.

Division. He also innovatively transformed the imperial military system by establishing an effective coordination between gunpowder troops and cavalry forces, and by relying on this strategy he established an extensive empire. The active frontier ventures in the early Ming period did not simply follow a nomadic tradition of the Yuan dynasty, but rather were closely associated with the building of a gunpowder empire in the early gunpowder age. The coordination of early gunpowder weaponry and cavalry forces contributed to the rise of major gunpowder powers in Asia before the rise of such powers in Europe.

Moreover, Confucian officials' disentanglement from military affairs of the state in the early Ming period was not a result of their conservative Confucian ideology, but rather a consequence of the imperial monopoly of military affairs as well as the expansion of the inner court. Unlike Europe, where the age of gunpowder is generally regarded as critical for the growth of bureaucracy that came along as a response to absolute power, Ming China witnessed the rise of an autocratic system separate from the already well-established Confucian bureaucratic organizations. The incompatibility of the two systems led to fundamental divisions in politics as well as in finance, and these divisions constantly haunted the Ming dynasty until its final years, as shown in the following chapters.[135]

[135] For a discussion of the new orthodoxy on absolute monarchy, see Johann P. Sommerville, *Early Modern Absolutism in Practice and Theory*, 119.

Chapter 2
Funding a Gunpowder State: Inner-Outer Court Contestation over Land Tax Commutations

Whereas its military technology and achievements placed the Ming state among the big gunpowder powers, its fiscal development is generally viewed as backward compared to that of other gunpowder empires. The Ming state seemed to fail to establish an effective fiscal system to help maximize the extraction of resources from local society.[1] Ray Huang attributes this low fiscal capacity to the practice of under-taxation established during the reign of the first emperor as well as to the Confucian government's pursuit of a uniform development of different regions.[2] Although Ming fiscal problems have been understood as the result of fiscal concepts imposed from above, the Ming taxation system was also well known for its great complexity in local situations that often deviated from the central design.[3] Through a close examination of varied commutation rates of the land taxes collected in the provinces and earmarked for use on the frontiers, the capital city Beijing, Nanjing, and other regions, this chapter will shed light on the growing division in central finance of the Ming state after the middle of the fifteenth century. It

[1] For a discussion about the fiscal military state and its limitations, see Martin J. Daunton, *Trusting Leviathan: The Politics of Taxation in Britain, 1799-1914* (Cambridge: Cambridge University Press, 2007), 32-43.
[2] Ray Huang, "The Ming Fiscal Administration," in *The Cambridge History of China*, ed. Denis Twitchett and Frederick W. Mote, vol. 8, *The Ming Dynasty, 1368-1644*, Part 2 (Cambridge: Cambridge University Press, 1998), 113. For more discussions on the Ming pursuit of good governance and its effect on taxation, see also R. Bin Wong, "Taxation and Good Governance in China, 1500-1914," in *The Rise of Fiscal States: A Global History, 1500–1914*, ed. Bartolomé Yun-Casalilla and Patrick K. O'Brien (Cambridge: Cambridge University Press, 2012), 356.
[3] The under-taxation policy made by the first emperor, like his other legacies, was certainly not followed strictly by his successors, and in reality the local land tax was leveled at a very broad range. Regional differences could easily be found from province to province, from prefecture to prefecture, and even within a single county or a village. For tax rates at different provinces, see, for example, 1737 *Jiangnan tongzhi* 江南通志 (Provincial gazetteer of Jiangnan), 68/36a-37b; 1597 *Jiangxi sheng dazhi* 江西省大志 (Jiangxi province gazetteer), 1/49a. For variations within a country, see, for example, 1517 *Jianchang xianzhi* 建昌縣志 (Jianchang county gazetteer) 4/11b-12b.

suggests that the contest between the outer court/civil bureaucracy and the inner court over tax revenues greatly affected military and frontier policies of the Ming state.

As we will see, with the large-scale monetization of grain tax into silver in the Zhengtong period (1435-1449), the emperor started to control a large section of state revenues in silver stored in the Palace Treasury, while at the same time the outer court managed a part of state revenues in commutations that were originally reserved for frontiers. The balance between inner court and outer court control over state revenue changed in association with the varied commutation rates aimed for different granaries. Whereas monetized revenues provided both the inner court (emperor, eunuchs) and the outer court (central bureaucracy) more fiscal freedom, the growing divisions in central finance affected the state's capacity to fund gunpowder wars, as discussed in later chapters. Whereas previous studies often focus on the practice of commutations in the sixteenth century, this chapter stresses that the commutations in earlier periods are equally important for the development of the fiscal system of the Ming state.[4]

Since the Ming empire was an agrarian state, the land tax provided the largest item of the state revenues; the land tax consisted of the ordinary land tax (*tianfu* 田賦), the corvée labor service that was related to it (*chaiyi* 差役), material-tribute (*shanggong wuliao* 上貢物料), and rents from government land (*zu* 租).[5] Because of its importance for military and frontier funding,

[4] For studies on commutations in the sixteenth century, see Ray Huang, *Taxation and Governmental Finance in Sixteenth-Century Ming China* (Cambridge: Cambridge University Press, 1974), 39; See also Liang Fangzhong 梁方仲, *Liang Fangzhong wenji: Mingdai fuyi zhidu* 梁方仲文集明代賦役制度 (Collected Works of Liang Fangzhong: Land tax and corvée system in the Ming period) (Beijing: Zhonghua shuju, 2008), 12.

[5] For a general discussion of the Ming land taxes, see Ray Huang, "Fiscal Administration During the Ming Dynasty," reprinted from *Chinese Government in Ming Times: Seven Studies*, edited by Charlies O. Hucker (New York, Columbia University Press), 85. See Tang Wenji 唐文基, *Mingdai fuyi zhidu shi* 明代賦役制度史 (A history of the tax and corvee service in the Ming) (Beijing: Zhongguo shehui kexue yuan, 1991), 53-68. also Zheng Xuemeng 郑学檬, *Zhongguo fuyi zhidu shi* 中国赋役制度史 (History of the tax and corvee service system in China) (Shanghai: Shanghai renmin chubanshe, 2000), 502-505.

as well as its early practice of commutating, the present study only focuses on the ordinary land tax, including portions of it designated as *cunliu liang* (存留糧, the tax retention), and *qiyun liang* (起運糧). The latter consisted of the land tax for frontiers (*bianliang* 邊糧) and the tax for the capital city (*jingliang* 京糧), part of which was transported via the Grand Canal and was thus named the tribute grain tax (*cao liang* 漕糧).[6] Whereas the land tax constituted various items paid in kind, such as wheat, husked rice, cotton, silk, and tea, the basic assessment of the general tax unit was the picul (*shi* 石) of grain.[7] Most silver commutations were also computed from the grain assessment. This chapter thus mainly uses the grain tax as the basic land tax item.

Depending on whether a portion of the land tax was designated as an item for "tax retention" (*cunliu liang* 存留糧) or an item "transported out" (*qiyun liang* 起運糧) to frontiers and the capital city, varied surpluses were attached to them. In the early Ming period, most land taxes were paid in kind, collected and transported by the local people. No extra transportation fees were paid to the government. Under the design of the founding emperor, the collection of the land tax aimed to be simple, with minimal interference from higher officials. Village communities, each consisting of 110 households as a *li* (里), or tithing, were given the autonomy to collect and deliver the grain tax. A villager would be chosen as tax captain (*liangzhang* 糧長), collecting the grain tax, sorting, packing and delivering the land tax to the designated official

[6] The large-scale commutation of the corvée labor service started in the sixteenth century. See Liang Fangzhong, "Mingdai yitiaobian fa nianbiao" 一条鞭法年表 (Chronicle of the Single Whip Method), in Liang Fangzhong, *Jingji shi lunwen ji*, 485-576. The land taxes were divided into "staying-in" and "checked out" revenues, including those delivered to frontier posts directly by commoners, in grain delivered at Nanjing, and tribute grain tax to Beijing, various commutations as well as miscellaneous. For their specific numbers, see Ray Huang, "Fiscal Administration During the Ming Dynasty," 90.

[7] A picul (*shi*) equals to 71.6 kg or 156.75 lb.

granaries.[8] This arrangement, however, was soon challenged, especially when the Yongle emperor moved the capital city from Nanjing to Beijing, farther away from southern provinces where the empire's most productive lands were located. Local people in the southern provinces now had to transport their tax over long distances to the new capital city. To facilitate the distribution of revenue, a growing portion of the land tax began to be monetized, that is, paid in commutations as silver, silk, and gold. There was no uniform commutation rate that applied. This chapter explores major factors that contributed to the variations of commutation rates of the grain tax into silver in the provinces. This deficiency in the tax collection system would greatly affect the Ming government's ability to manage its military and frontier affairs. The varied commutation rates across different locales in the empire serve as a window into the complexity of the Ming tax system as well as the fiscal deficiency in central finance. The varied commutation rates might also explain the extreme difficulties of tax reforms attempted by the central government in the face of persistent political divisions in the late Ming period. As we will see, in spite of the fact that the emperor attempted to establish tight control of the military through the monopoly of gunpowder weapons, the management of provisions for the frontiers and military garrisons enhanced the economic and administrative power of the bureaucracy or outer court, and this in turn further challenged the imperial monopoly of gunpowder weaponry, as shown in the following chapters.

Previous studies of Ming taxation have often focused on the first century or after the sixteenth century in an age of silver; this chapter, however, suggests that the financial change that took place in the middle period signaled a major transformation of the nature of the state.

[8] *Da Ming huidian*, 20/1a-b; 28/1a-b. See also Ray Huang, *Taxation and Governmental Finance in Sixteenth-Century Ming China*, 34.

Unlike in the first century of Ming rule, when central finance was under the uniform control of the emperor while the civil bureaucracy did not have a say in financial decision making, in the mid-fifteenth century the central bureaucracy began to share a portion of the commutations of the land tax. As an increasing number of commutations of the grain tax entered the National Silver Vault, under the management of the bureaucratic government, civil officials in the central government began to enjoy more freedom and power in the management of state affairs and especially in the management of military and frontier issues that had been exclusively reserved for the emperor, eunuchs, and military nobles in the first century of the Ming. The growing role of civil officials in military affairs will be further discussed in the following chapter.

This chapter will first investigate the commutations of large-scale land taxes, which entered the Palace Treasury exclusively during the Zhengtong period. It will then look into the specific commutation rates of the land tax that entered the Palace Treasury. After the Zhengtong period, while the emperor's income in silver grew rapidly, the monetary income of the emperor started to be set at a specific amount when its commutation rate was fixed at a relatively low rate. The discussion will then turn to the commutation rates of the land taxes for the National Silver Vault managed by the central bureaucracy and major factors such as the collections and surcharges that contributed to different commutation rates at counties.[9] Lastly, it will discuss the commutation rates of the land tax reserved for local use in an age of silver.[10] The practice of varied commutation rates for different granaries characterized the complexities of the Ming tax system

[9] According to Ray Huang, unlike surcharges that covered the handling lose of the taxes and additional service, the surtaxes normally involved hay, hemp, and raw silk, which was collected with grain payments. See Huang, *Taxation and Government Finance in Sixteenth-Century Ming China* (London: Cambridge University Press, 1974), 40.
[10] For a discussion of the fiscal crisis and frontier expenses of the Ming in its later period, see Lai Jiancheng 賴建誠, *Bianzhen liangxiang: Mingdai zhonghou qi de bianfang jingfei yu guojia caizheng weiji 1531-1602* 邊鎮糧餉:明代中後期的邊防經費與國家財政危機 1531-1602 (Taibei: Zhongyang yanjiu yuan, 2008).

since its middle period. The study of the commutation rates will show that the division in central finance did not just exist at the central level, it was associated with the local practice of assessments, forms of payments, and the collection on each plot land. It also meant that any tax reform would be extremely difficult without the removal of the precondition of the political division between the inner and outer court in the center. This financial situation would affect the state's capacity to produce enough gunpowder weapons to meet its demand on the frontiers as well as its ability to continue to fund the gunpowder wars, especially in times of crisis after the middle of the sixteenth century. While there were no major changes at the constitutional level, we can still see that the specific portions in the control of the state revenues were constantly negotiated. The contest for control over finances and the contest for the control over gunpowder weaponry were two aspects of a broader contest for power between the inner court and the outer court. The fiscal-military operations of the state, unlike in other empires, were not under a uniform control.

Large-scale Commutations of Land Taxes during the Zhengtong Reign

As early as the Hongwu period, the emperor arranged for the Palace Treasury controlled by the inner court to manage the revenue that was paid in the form of commutations such as gold, silver, and silk, while the Ministry of Revenue, one major branch of the outer court's Confucian bureaucracy for financial management, administered mainly the land taxes that were paid in kind. Though commutations of the grain tax into silver, silk, and other forms began as early as the reign of the first emperor, the amount of the commutations was not very significant.[11] Starting from the Zhengtong reign, a growing amount of land taxes began to be commuted into silver to solve the problem of the grain transportation for payment of officials'

[11] See Lü Bi 呂毖, *Ming gongshi* (Palace history of the Ming), *juan* 2.

salaries after the capital had moved from Nanjing to Beijing in 1421. In this year, the emperor ordered that officials who accompanied him to Beijing would receive their salaries in both money and rice. As for rice, each month they would only receive 0.5 *shi* at Beijing, and the rest would be paid from the granaries in Nanjing.[12] Three years later, the portion of officials' salaries paid in rice was raised to 1 *shi* per month. But this part comprised only a small amount of an official's total salary. For an official who held the highest rank of 1a, his annual salary was about 1,044 *shi* of grain, among which 331 *shi* would be paid in kind.[13] Even for official with the lowest rank, 9b, 42 *shi* of his annual rice salary of 62 *shi* would be paid in kind.[14] The portion of officials' rice salaries paid in kind had to be received from the granaries in Nanjing. This posed a problem for the officials and their families who now lived in Beijing.

On April 8th, 1436, the minister of revenue, Huang Fu, who had served as the director of military affairs at Nanjing as mentioned in Chapter One, raised the problem concerning salary payments for military officials. As Huang stated, all the military officials who resided in Beijing received their official salaries in grain from Nanjing. But since they were not capable of carrying the grain back to Beijing due to the long distance, they had to sell their pension cards to others at low prices in Beijing rather than exchange the cards for grain in Nanjing. The families who received official salaries became destitute and homeless. Huang here perhaps exaggerates, but officials in Beijing certainly faced more straightened financial circumstances after the removal of the capital city away from the most fertile arable lands of the empire, the Jiangnan area. To solve the problem, Huang proposed that the distant counties located in the Jiangnan area pay their

[12] *Da Ming huidian*, 39/9a-b.
[13] *Da Ming huidian*, 39/1b.
[14] Ibid., 39/7b.

taxes in silver, cloth, or silk, which could be transported to Beijing and used to pay the monthly salaries for the military officials in Beijing.[15]

Huang Fu's concern was shared by many other officials during this time. Zhou Quan, the right-vice censor-in-chief, who supervised the grain storage in Nanjing, for example, also submitted a memorial in September of the same year stating that the military officials in Beijing suffered a great loss when they had to sell their pension cards at low prices of no more than ten percent of the total value.[16] Zhou proposed that places where no water transport could reach located in four provinces - Zhejiang, Jiangxi, Huguang, and the Southern Metropolitan area - should pay taxes not in kind (grain) but in cloth, silk roll, or silver, and could be used to pay official salaries in Beijing.[17] Meanwhile, Zhao Xin, the vice minister who had been sent to inspect local conditions of Jiangxi Province, argued that the local people could benefit from the tax conversions into other kinds of payments. According to Zhao, the people who lived in remote mountainous regions had to use silver or silk to buy grain in order to fulfill tax duties for Nanjing. When the price of grain was high, their expenses were huge. Zhao requested that these places should pay taxes in cloth, silk, or silver, which could be transported to Beijing to pay official salaries. Hearing these proposals, the Zhengtong emperor asked whether his ancestors had adopted the same practice. Minister Hu Ying (胡濙) confirmed that in the Hongwu period, the land taxes in Shaanxi and Zhejiang had been ordered to be converted to paper money, gold, silver, or silk. Knowing this, the Zhengtong emperor approved the practice of the tax commutations.[18] But the implementation of this policy required further discussions at court.

[15] *Ming Yingzong shilu* (Veritable records of emperor Yingzong), 15/9b-10b.
[16] Ibid.,11/ 5a.
[17] *Ming Yingzong shilu*, 21/6b.
[18] Ibid.

In November 1436, the emperor ordered the Ministry of Revenue to discuss in detail the salary for military officials in Beijing. Two options were given by the ministry: one was that a high-ranking official (*tangshang guan* 堂上官) would be sent to Nanjing to handle the specific issue of official salaries. Together with officials in the Ministry of Revenue in Nanjing and the investigating censors, they should figure out the exact amount of the salaries, sell the items according to the market price, and then pay the salaries in Beijing at their original value. The second option was to convert the land taxes from the provinces of Zhejiang, Jiangxi, Huguang, Nanzhili (the Southern Metropolitan Area), Liangguang, and Fujian into silver. Each *shi* of grain should be converted to 0.25 taels of silver, which could be sent to Beijing to buy grain (probably from merchants) and then used to pay officials' salaries.[19] The Zhengtong emperor approved the latter proposal, but he maintained that it was only an expedient measure and would not be a common practice.

In February 1439, as the Ministry of Revenue reported, in the previous year it had been decided that the taxes in Zhejiang designated for transport to Nanjing would be paid in silver. The part reserved for local use would be paid in grain. But because a serious drought had occurred and people there did not have enough to eat, Wang Lun (王瀹), the right-vice minister of revenue, then requested that the taxes reserved for local use also be converted into silver.[20] Wang further requested that since there was plenty of grain stored in the official granary in Quzhou Prefecture, Zhejiang, except for the 33,400 *shi* of grain reserved for the salaries of civil

[19] *Ming Yingzong shilu*, 23/7b.
[20] Ibid., 51/1b.

and military officials, the rest should be sold to commoners, the silver from which then could be sent to the capital city.[21]

Besides the grain tax, other types of taxes also started to be collected in silver. For example, in June 1437, the vice minister of works, Zhou Chen, who was sent to inspect the Nanzhili, stated that in the prefecture of Huizhou, where people produced no silk, they had to buy raw silk to weave and then pay their summer silk tax in kind. Zhou requested that each *pi* of silk roll should be converted to 0.5 taels of silver, which could be used to pay the salary of military officials in Beijing.[22] The emperor approved this request for a year, and maintained that people should follow the previous practice during the next year. As we see, the measures taken to solve the salary payment for military officials in the capital city were often combined with the solution of relieving local suffering and burdens. It was probably for this reason that many requests for tax commutations began to be submitted. For example, places such as Chun'an county in Zhejiang, Fanchang county in Nanzhili, Ji'an and Yuanzhou prefectures in Jiangxi, four garrisons in Huguang, Huai'an prefecture in the Southern Metropolitan Area, Yunnan, some counties and prefectures in Xi'an, seven prefectures and sixteen counties in Jiangxi, eleven counties including Haizhou in Huai'an prefecture, Xinchang, and Gao'an Shanggao in Jiangxi submitted requests for converting local taxes from grain into silver and other means of payment in the Zhengtong period when their harvests were bad.[23] These commutations made in the Zhengtong period mainly entered the Palace Treasury controlled by the inner court.[24]

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[21] Ibid.

[22] The *pi* 匹[疋] was normally 1.8 x 40 *chi* 尺. 1 *chi* was 12.5 inch in the Ming period. See Endymion Porter Wilkinson, *Chinese History: A Manual* (Cambridge, Mass.: Harvard University Press, 2000), 238.

[23] For example, see *Ming Yingzong shilu*, 23/7b. See also 1511 *Da Ming huidian* (reprint, Tokyo: Kyûko shoin, 1989), 37/42b-43a/423.

[24] Ibid., 23: 7b. See also 1511 *Da Ming huidian* (1511 ed.), 37/42b-43a/423.

Besides these commutations of the land taxes, the Zhengtong emperor also began to place other revenues under his direct control. In May 1438, the emperor further ordered that four former state granaries, Jia (甲), Yi (乙), Bing (丙) and Ding (丁), originally managed by the central bureaucracy, or outer court, be placed under the management of eunuchs.[25] In the same period, the emperor ordered that the converted tax in cloth collected from throughout the country be sent to the Jia granary.[26] Besides the land tax in the form of commutations, paper money collected in and outside the capital cities was also sent to the Palace Treasury. In the following year, seeing that the paper money collected annually all went to the Palace Treasury in the capital of Beijing and the southern capital of Nanjing, the Ministry of Revenue requested that only those taxes levied on cargo alongside rivers and paper money collected by the metropolitan government offices in both capitals be sent to the Palace Treasury while the rest collected by local government offices be allowed to be used by the Ministry of Revenue, the remnant of which could be sent to treasuries in the capital city, most likely the Palace Treasury, by the end of the year.[27] Nevertheless, the emperor started to accumulate a large portion of the state revenue in the inner treasury. Besides personal use, this revenue was mostly spent on paying salaries for military officials, as mentioned earlier, as well as on reward money for military merits, which served to reinforce personal loyalty to the emperor. It is worth noting that while the emperor was responsible for paying the salaries of military officials, this payment started to be occasionally shared by the outer court's state treasury, especially after the sixteenth century.

[25] *Ming Yingzong shilu*, 42/3a.
[26] Ibid.
[27] *Ming Yingzong shilu*, 54/4a-b. The share of the customs was always negotiated. For discussions about the collection of customs duties and the portion that went to the Palace Treasury, see Ray Huang, *Taxation and Governmental Finance in Sixteenth-Century Ming China* (Cambridge: Cambridge University Press, 1974), 10.

Unlike military officials, civil officials in the central government did not enjoy the privilege of receiving salaries in silver from the Palace Treasury. In the Hongwu and Yongle period, according to the founding emperor's example, both civil and military officials received salaries in grain. The Ministry of Revenue was responsible for calculating the final amount and transporting the grain for autumn grain taxes to the granaries of each government office.[28] There was no difference in means of payment for civil and military officials. But after the Zhengtong period, military officials began receiving their salaries in silver directly from the emperor, as well as royal rewards for military merit in imperial campaigns. Only in the Jingtai period (1450-1456) did civil officials receive their salaries in silver like their fellow military officials. This period coincided with the rising influence of civil officials in state military and frontier affairs. Ming court records list the amount of silver used to pay official salaries during the Zhengtong reign as follows: in 1439 the total amount for salaries of military officials (excluding military nobles) was 124,312 taels of silver while that of civil officials was 3,589 taels of silver each quarter of the year.[29] This practice probably continued throughout the Jingtai period. According to the report of the Ministry of Revenue, in 1455 a total of 1,520 civil officials would be paid 3,550 taels of silver, and a total of 31,790 military officials would be paid 124,670 taels of silver.[30] However, when the Zhengtong emperor took back his throne by a palace coup, naming his second reign Tianshun (1457-1464), he again ordered that civil officials receive their salaries in grain following the former practice of the Zhengtong period.[31]

[28] *Da Ming huidian*, 29/2a.
[29] *Ming Yingzong shilu*, 230/9a.
[30] Ibid., 250/9a-b.
[31] See *Da Ming huidian*, 39/11b.

As we see, when a growing amount of the land tax started to be commuted and paid in silver in some of the southern provinces in the Zhengtong period, the commutations solved the problem of salary payments for the military officials in the new capital city, Beijing. The payment in commutations helped to reinforce the personal loyalty of military officials and confirmed the emperor's control of state military affairs. In other words, the commutations of the land taxes reinforced autocratic control of the state. And it was probably for this reason that the emperor would agree to the practice of commutating the land tax in local areas in the first place.

Fixing Commutations of the Grain Tax for the Palace Treasury

In the Zhengtong period, some counties in the southern provinces of Zhejiang, Jiangxi, Huguang, Guangdong, Guangxi, Fujian, and the Southern Metropolitan Area started to pay their grain tax in commutations.[32] It is worth noting that, at this time, few places beyond these provinces had ever paid tax in commutations of silver or had been approved to do so. Since commutations of the grain tax in counties needed to receive approval from the central government and ultimately the emperor, even if local places had collected their tax revenue in silver, without official approval they would still have had to buy grain to pay the revenue.[33]

The exact amount of the taxes and the local places that paid their grain taxes were recorded in the 1511 *Da Ming huidian* (Collected Statutes of the Ming Dynasty). As we can tell from Table 1, by the fifteenth year of the Hongzhi reign, 1502/3, the total amount of the commutations of the grain tax from seven provinces was about 960,375 taels of silver excluding that of Guangxi as that commutation rate is not included.[34] If the commutation rate in Guangxi was the

[32] *Ming Yingzong shilu*, 23/7b. See also 1511 *Da Ming Huidian*, 37/42b-43a/423.
[33] *Ming Yingzong shilu*, 109/1b-2a.
[34] See 1511 *Da Ming huidian*, 24/1b-21a/ 272. For commutations of the grain tax in Guangxi, see *Yingzong shilu*, 14/5b; 118/3a-b. See also 1531 *Guangxi tongzhi* 廣西通志 (Guangxi province gazetteer), (reprint, Guiyuan shuju, 1891), 19/1b.

same as the rate in the other seven provinces, 0.25 taels per *shi* of grain in the Hongzhi reign, the total amount would be precisely 961,375, or nearly one million, taels of silver.[35]

Table 1 The Amount of the Commutations for the Capital Granary (1511)

Place name	The amount of Summer Grain tax for commutation (*shi*)	The amount of Fall Grain tax for commutation (*shi*)	The exchange rate in silver per *shi* (tael)
Zhejiang	80,000	600,500	0.25
Huguang	0	72,000	0.25
Jiangxi	60，000	970,000	0.25
Fujian	0	364,000	0.25
Guangdong	0	400,000	0.25
(Nanzhili) Suzhou	30,000	766,000	0.25
(Nanzhili) Songjiang	60,000	0	0.25
(Nanzhili) Changzhou	90,000	256,000	0.25
(Nanzhili) Huizhou	22,000	71,000	0.25
Guangxi	40,000*		

Sources: 1511 *Da Ming huidian*, 272-282, 24:1b-21a; 423-424, 37: 43b-44a.

For the compilation information of *1511 Da Ming huidian*, see Yuan Ruiqin 原瑞琴, *Da Ming huidian yanjiu* 大明會典研究, 82-86.

[35] Liu Ruoyu 劉若愚, *Zhuozhong zhi* 酌中志 (reprint, Haishan xian guan congshu, 1846), 16/31b.

The specification of the amount of the commutations from each province as well as the fixation of the commutation rate in the official statute served more purposes than simply recording the taxation quota for individual provinces. It also made clear the amount that the emperor could have. When the land tax in other regions started to be commutated into silver, this official statute helped to make clear that these new commutations would be sent not to the Palace Treasury but to the state treasury. The compiling of these statutes to a certain extent challenged the emperor's income in written form. In fact, by referring to these statutes, civil officials maintained that the total amount of the commutations for the Palace Treasury was about one million taels and should be no more than that. After the middle Ming period, this amount of the commutations that entered the Palace Treasury was designated by a specific name: Gold Floral Silver. While Gold Floral Silver was not mentioned in the 1511 *Da Ming huidian*, the name became frequently used in the sixteen century to distinguish this silver from other commutations that entered the National Silver Vault.[36] With the insistence on a fixed commutation rate for the Palace Treasury written in the official statutes, the 1511 *Da Ming huidian*, bureaucratic officials successfully set a limit on the income of the emperor although they still did not have a say about the spending of this amount of state revenue, and throughout the following years of the Ming dynasty they constantly debated the nature of this amount as part of the state's public revenue rather than the emperor's private income. It is worth noting that besides the amount of Gold Floral Silver, starting from the Zhengde period (1506-1521), the Ming emperors increased their

[36] Liu Ruoyu, 16/31b. Noa Grass suggests that tax commutation that was perceived as public revenue in the fifteenth century came to be seen as private imperial possession in the sixteenth century. But she has not distinguished the commutations that entered different repositories. See Grass, "Revenue as a Measure," 136, 154. Many scholars have observed that Gold Floral Silver was mainly used for the expenditures of the inner court except for the salaries of military officials. See Yu Weiming 郁維明, *Mingdai Zhou Chen dui jiangnan diqu jingji shehui de gaige* 明代周忱對江南地區經濟社會的改革 (The economic and social reforms in the lower Yangzi region undertaken by Zhou Chen in the Ming dynasty) (Taibei: Taiwan shangwu yinshu guan, 1987), 57. For a discussion of early Ming finance, see Huang, "Ming Fiscal Administration," 107.

income through other means, such as establishing imperial estates, receiving private tribute from the eunuchs, or directly demanding money from the state treasury, which aroused strong criticism from bureaucratic officials in the outer court.

Tax Commutations for the National Silver Vault

Whereas a large portion of the state revenue paid in commutations entered the Palace Treasury, a separate state treasury, the National Silver Vault (Taicang 太倉), was established in the capital city in 1438 to store tax commutations that were specially reserved for the frontiers.[37] This practice followed the Hongwu rule that grain taxes from Suzhou and other prefectures in the Southern Metropolitan Area and Shandong would be directly sent to the northern frontiers.[38] It was for this reason that the revenue for the frontiers remained under the management of bureaucratic officials rather than the inner court.

Like the conversion of the grain tax to the Palace Treasury in the Zhengtong period, frequent requests had been submitted to pay the tax in the form of commutations due to the difficulty of transporting the grain to frontier regions. The soldiers then could receive the commutations as salary payments and then buy grain from merchants when grain produced locally along the norther frontier was insufficient to support the garrison forces. In July 1442, provincial officials in Guizhou and Huguang submitted a request that the taxes for the provisions of the frontier officials and soldiers be converted into silver and cloth, which was more convenient for transportation. In reply, the Ministry of Revenue decided that only half of the grain revenue for certain garrisons would be converted into silver. In addition, the prefectures

[37] In May 1438, the National Silver Vault was established in Beijing to store grain-tax-in-silver from prefectures such as Suzhou and Changzhou in Nanzhili (the Southern Metropolitan Area) at first. *Ming Yingzong shilu*, 42/1a.
[38] See *Da Ming huidian*, 28/14a-b. For Suzhou's grain tax in commutations to frontiers, see also *Ming Yingzong shilu*, 84/6a.

and counties that were close to Guizhou should pay taxes in the form of cloth, about 100,000 *pi*, to provision the garrisons in Guizhou. The ministry also agreed that if transporting cloth was too heavy and people were willing to pay in silver, they would be allowed to do so.[39]

Besides the grain tax for frontier garrisons (*bianliang*), after the Zhengtong reign, the grain for the capital city and the tribute grain taxes (*caoliang*) also started to be commuted into silver, and this part of the revenue also entered the National Silver Vault.[40] For example, in 1475, due to the lack of enough granaries in the capital region, it was ordered that half of the grain tax that had been transported by the military corps (*zhiyun liang* 支運糧) be commuted into silver, which should be sent to the National Silver Vault.[41] Besides the river-transport grain tax for the capital city, in the same year it was agreed that the grass tax from Datong and Xuanfu as well as from Shanxi, Henan, Shandong and the Northern Metropolitan Area would be commuted into silver.[42] In 1484, because the waterway was too shallow and the transport of grain was delayed, it was ordered again that a portion of the grain tax be paid in silver and sent to the National Silver Vault.[43] With the increasing commutations of these taxes, the burueacratic government

[39] *Ming Yingzong shilu*, 93/5a-b.
[40] For a general study of river-transport grain tax in the Ming, see Bao Yanbang 鮑彥邦, *Mingdai caoyun yanjiu* 明代漕運研究 (A study of tribute grain transport in the Ming period) (Guangzhou: Jinan daxue chu ban she, 1995); Ray Huang 黃仁宇, *Ming dai de caoyun* 明代的漕运 (The Grand Canal during the Ming Dynasty, 1368-1644) (Xiamen: Lujiang chuban she, 2015). See also Huang, "Ming Fiscal Administration," 106-171. For a study of the grain tax in specific regions, see Cheng Liying 程利英, *Ming dai bei zhi li cai zheng yan jiu* 明代北直隶财政研究 (A Study of the Financial Administration of the Northern Metropolitan Region in the Ming) (Beijing: Zhongguo she hui ke xue chu ban she, 2009); Lai Huimin 賴惠敏, *Mingdai nanzhili fuyi zhidu de yanjiu* 明代南直隸賦役制度的研究 (Taxes and labor service in the Southern Metropolitan Area during the Ming period) (Taibei: Taiwan University, 1983). For a close observation of Ming finance before the sixteenth century, see Noa Grass, "Revenue as a Measure for Expenditure: Ming State Finance before the Age of Silver" (master's thesis, University of British Columbia, 2015). These studies have investigated the Ming taxation and the grain tributes, but often do not distinguish the commutation for the National Silver Vault from that for the Palace Treasury.
[41] *Mingshi*, 78/4a-5a. In this commutation, each *shi* of the grain tax (*zhenghao* 正耗) was converted into 0.508 taels of silver, much higher than that of Gold Floral Silver. Yang Hong 楊宏, *Caoyun tongzhi* 漕運通志 (A comprehensive record of the Grand Canal and other water ways for the grain transport), 8/28a.
[42] The commutation rate was 0.85 taels per *shi* with the exception of Shanxi Province, which paid at the rate of 0.8 taels of silver per *shi*. See 1511 *Da Ming Huidian*, 37/45a/ 424.
[43] Each *shi* of grain was converted into 0.5 taels of silver. 1511 *Da Ming Huidian,* 25/15b-16a/289-290.

started to manage a growing portion of state revenue in silver and therefore enjoyed relatively more fiscal freedom in managing local affairs.

Factors for the Varied Commutation Rates of the Tribute Grain Tax for the National Silver Vault

Although more revenue was collected in silver, the commutation rates of the revenue for the state treasury varied from one locale to another in the provinces. As we have seen, a uniform central financial administration discontinued when the commutations entered the Palace Treasury and the National Silver Vault separately. And this division in central finance was sustained in the provinces through varied commutation rates applied to the revenues for the two treasuries. When the revenue for the Palace Treasury was commuted at 0.25~0.3 taels in the Zhengtong period, this rate was not a reflection of the market price of grain, but rather followed an example set up earlier out of the consideration of offering tax reliefs to the local people. In the Hongwu period, when the land tax was first commuted into other forms of payment, the commutation rate into silver was first decided as 0.5 taels per *shi* of grain in 1385. But this rate did not last long. In 1397, a new rate was decided as 0.25 taels per *shi*.[44] The rate of the grain commutations made in the Zhengtong era seemed to follow this earlier practice. The maintenance of a relatively low commutation rate of the land taxes for the Palace Treasury, about 0.25~0.3 taels per *shi*, in each province meant that total state revenues decreased.[45] When this part of revenues entered the

[44] For cases of commutations, see 1511 *Da Ming Huidian*, 37/41a-b/ 422. The year in *The Veritable Records* was different from that of the 1511 *Da Ming Huidian*. According to *The Veritable Records*, in 1397 in the thirtieth year of the Hongwu reign, the commutation rate in silver was 0.5 taels per *shi*. Mingshi records that in 1376 in the ninth year of the Hongwu reign, the commutation rate into silver was 1 taels per *shi* of rice and 0.5 taels per *shi* of grain, and in 1397 in the thirtieth year of the Hongwu reign, the commutation rate in silver was 0.5 taels per *shi*. See *Mingshi*, 78/3a-b.

[45] Yu Weiming, 53-54.

Palace Treasury, it gradually shifted from public revenues into a private income of the emperor. The bureaucratic government lost the management of a big part of the state revenue.

The relatively low commutation rate of Gold Floral Silver was sustained throughout the late Ming period. According to a gazetteer of Wu County compiled in the late Ming period, the commutation rate of Gold Floral Silver was still 0.25 taels per *shi* in Wu County in the Wanli period.[46] Unlike the fixing of the commutation rate for the inner court's Palace Treasury at a relatively low rate, the grain tax in other regions that started to be paid in silver and entered the outer court's National Silver Vault was commutated at varied rates, which were closer to the market price of grain but also reflected the transportation costs and other surcharges added into the tax quota.

One of the main factors that affected the commutation rates of the land taxes that were delivered to the frontiers and the capital city, Beijing, was the surcharges in association with the continuance in the collection of the transportation fees of the land tax. When the capital city was still located in Nanjing, which was in the Jiangnan area where most fertile lands were located, the transportation cost was not high. Commoners were responsible for delivering the land tax to designated granaries in the capital city. Liaodong was the only northern place that required a large amount of grain from the south, which the military corps mainly transported by sea routes.[47] This situation began to change, however, when the capital city was moved from Nanjing to Beijing after 1421. Besides a large amount of grain revenue that had to be transported from the southern provinces to the capital city to pay the salaries of both civil and military officials and soldiers and to cover the expenses of the expanding palace complex, a great amount

[46] *Wuxian zhi* 吳縣志 (Gazetteer of Wu county) (Chongzhen era of the Ming dynasty, 1933).
[47] Yang Hong, *Caoyun tongzhi*, 1/3b-4a.

of the revenue had to be sent farther to the northern frontiers where numerous military garrisons were located and frequent campaigns were conducted. In order to meet the challenge, the Yongle emperor turned to a more reliable transportation method via the Grand Canal, abandoning the sea-transport after 1415.[48] In the same year, the emperor ordered that people in Jiangxi, Huguang, and Zhejiang deliver the tribute grain tax to the granaries in Huai'an along the canal, which would then be taken over and further carried by the military corps to Beijing and Tongzhou.[49] During this time, commoners paid no fees to the military corps, who received their travel allowance from the state.[50]

However, the arrangement could not continue, and, partly because military units were often assigned to other duties, civilians were again ordered to transport the tribute grain tax themselves to Beijing in 1418.[51] Except for what was reserved for local use and the two capital cities, a total amount of about 500,000 *shi* of the tribute grain tax from Zhejiang, Huguang, and Jiangxi provinces, and prefectures in Nanzhili, had to be transported by local people to the granaries in the capital region: in Beijing, Tongzhou, and Hexiwu (Tianjin). The burdens for transporting the tribute grain were huge as the local people had to rent boats, overcoming all the difficulties during the trip such as traversing big rivers and passing circuitous rapids and shallows. Each year, they would set off in October but could only arrive at home again in August or September

[48] In the 1960s Ray Huang explored the grain transportation in his thesis. See Huang, "Grand Canal during the Ming Dynasty" (Ph.D. dissertation, University of Michigan, 1964). Yang Hong, *Caoyun tongzhi*, 8/2b.
[49] At the time, Huai'an (淮安), Xuzhou (徐州), Linqing (林清), and Dezhou (德州) each had a granary along the Grand Canal. The military units from Zhejiang and the Southern Metropolitan Area transported the grain tax from Huai'an to Xuzhou; the units from the capital garrison further carried the grain tax from Xuzhou to Dezhou, and the units from Shandong and Henan would transport the grain tax from Dezhou to Tongzhou. See *Mingshi*, 79/10.
[50] For a discussion about military units that were responsible for transporting the grain tax, see Huang, "Grand Canal during the Ming Dynasty, 81-84. See also Yang Hong, *Caoyun tongzhi*, 8/2b; 1508 *Gusu zhi* 姑蘇志 (Gazetteer of Suzhou Prefecture), 15/9b; Bao Yanbang, 6.
[51] *Mingshi*, 79:10; Yang Hong, *Caoyun tongzhi*, 8/3a-b.

of the following year, which greatly disturbed the cultivation of the lands and their living.[52] The cost of the trip to the capital city was very high. For one *shi* of grain, usually two or three *shi* had to be collected to cover the trip. According to the 1506 gazetteer of Suzhou, in the Hongwu reign the total amount of the tax quota for Suzhou prefecture in the Southern Metropolitan Area was 2,140,000 *shi*; however, with the increase of an extra amount of allowances (*jiahao* 加耗), the quota rose to 3,000,000 *shi* in the Yongle reign.[53] There were numerous reports about local tax delinquencies and delays and about people fleeing to other regions.[54]

In 1429, under the proposal of a military grain transport commander, Chen Xuan (陳瑄), and the minister, Huang Fu, the former transport practice was reinstalled. It was ordered that civilians in Jiangxi, Huguang, and Zhejiang would transport the tribute grain tax of about 1,500,000 *shi* only to one of the granaries along the Grand Canal, Huai'an. Likewise, civilians from the middle Yangtze prefectures would transport the tribute grain tax of about 2,200,000 *shi* to Linqing in Shandong Province.[55] Based on their distances and the amounts of the tribute grain tax, about 10 percent to 30 percent of the shipment would be given to the military corps. This practice was soon followed by other regions.[56]

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[52] Yang Hong, *Caoyun tongzhi*, 8/28b.
[53] 1508 *Gusu zhi*, 15/7a-7b.
[54] Martin Heijdra suggests that regional divisions and various tax quotas and rates drove internal migrations from high quotas to low rates areas. See Martin Heijdra, "The Socio-Economic Development of Rural China during the Ming" in *The Cambridge History of China*, ed. Denis Twitchett and Frederick W. Mote, vol.8, *The Ming Dynasty, 1368-1644, Part 2* (Cambridge: Cambridge University Press, 1998), 435. This chapter argues that not just tax quotas fixed in the Hongwu reign caused immigration but various commutation rates of the grain revenue were also a major factor.
[55] Other prefectures including Zhen (鎮) Huai (淮), Yang (揚), Feng (鳳), Tai (太), Chu (滁), He (和) and Xu (徐) also were related to this migration.
[56] In 1429, civilians from Shandong, Henan, and Beizhili (the Northern Metropolitan Area) would transport the grain tax to granaries in the capital city. Shortly it was ordered that the grain tax from Nanyang (南陽), Huaiqing (懷慶) and Ru'ning (汝寧) would be shipped to Linqing; the grains from Kaifeng (開封) Zhangde (彰德) and Weihui (衛輝) would be shipped to Dezhou. The grain tax from Shandong and Henan was ordered to be shipped to Dezhou. *Mingshi*, 79/2b-3b.

In 1431, under the proposal of Chen Xuan, the court ordered a further change in the transportation of the tribute grain. As ordered, people in the Jiangnan region would stop transporting the grain tax to Linqing and other granaries; instead they would pay an extra amount of allowance fees to the military corps, who would transport the tax to the capital city.[57] For specific amounts of extra allowances, it was decided that for each *shi* of the tribute grain, Huguang would pay an extra amount of 0.8 *shi*, Zhejiang and Jiangxi would pay 0.7 *shi*, the Southern Metropolitan Area would pay 0.6 *shi*, and the Northern Metropolitan Area 0.5 *shi*.[58] The further the distance to the capital city, the higher the transportation fee that was collected.

The amounts of allowances were adjusted in the following years. According to an order in 1479, the extra fees paid to cover transportation fees were listed as follows: people in Huguang, Zhejiang, and Jiangxi provinces would pay 0.4 *shi* extra for 1 *shi* of the tribute grain; those in prefectures such as Yingtian and the Southern Metropolitan Area would pay 0.25 *shi*; and people in Shandong and Henan would pay 0.15 *shi*. Compared to the transportation fees of the grain tax earlier in the Xuande reign, the transportation fee at this time was much lower.[59]

The transportation fees began to be commuted into silver. In 1484, the prefecture of Songjiang took the initiative to commute the transportation surplus into silver under the proposal of the prefect Fan Ying (樊瑩).[60] In 1486, the Ministry of Revenue decided that remote mountainous counties in Jiangxi and Huguang Provinces could pay grain revenue in silver at the rate of 1.1 taels per *shi*, which would be used for transportation fees for the military men.

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[57] *Ming Xuanzong shilu* (Veritable records of emperor Xuanzong), 84/10a-b. See also *Mingshi*, 79/2b-3b; Yang Hong, *Caoyun tongzhi*, 8/7a-b.
[58] *Ming Xuanzong shilu*, 84/10a-b.
[59] *Gusu zhi*, 15/1a. Bao Yanbang, 224.
[60] Even Xi Shu has mentioned *qingji* (輕資) in the Chenghua reign, but since the source was republished in the Jiajing reign, it might be a record of a later practice. See, Xi Shu 席書, *Caochuan zhi* 漕船志 (A record of the Grand Canal and the canal ship) (xuanlantang congshu 53), 4/5b.

Moreover, for each *shi* of the tribute grain, an extra amount of allowance of 0.05 *shi* for the river transport of the tribute grain would be paid.[61]

In 1522, it was ordered that in Jiangxi, Huguang, and Zhejiang provinces, the total amount of added fees was 0.76 *shi* per *shi*, in which 0.4 *shi* would be collected in kind as transportation fees, and the remaining 0.36 *shi* would be commuted into 0.18 taels of silver, which would be sent to the National Silver Vault. Likewise, places in Nanzhili and Luzhou Prefecture would pay 0.66 *shi* extra fees per *shi*, of which 0.4 *shi* would be collected in kind as the allowance for transportation fees, and the remaining 0.26 *shi* would be commuted into 0.13 taels of silver. Prefectures in Beizhili would pay 0.56 *shi* extra fees per *shi*, of which 0.4 *shi* would be collected in kind as the allowance for transportation fees, and the remaining 0.16 *shi* was commuted into 0.08 taels of silver. Prefectures in Henan and Shanxi would pay 0.41 *shi* extra fees per *shi*, of which 0.25 *shi* was collected in kind as the allowance for transportation fees while the remaining 0.16 *shi* was commuted into 0.08 taels of silver. The part of the extra allowance that was commuted into silver was named *qingji* (輕賫).[62]

As we see, the total amount of extra allowance being levied did not change much from that of the year 1479, but the major difference was that part of the transportation fees started to be commuted into silver, which entered the National Silver Vault.[63] The continuing collection of the transportation surplus was ambiguous when most local taxes began to be collected in commutations, which did not require high transportation fees. As early as the year 1489, it was

[61] *Ming Xiaozong shilu* (Veritable records of emperor Xiaozong)*,* 106/5a-b; Yang Hong, *Caoyun tongzhi*, 8/41a.
[62] Under this order, regardless of the distances to the capital city, the amount of the fee to the military corps from Jiangxi, Huguang and Zhejiang prefectures in the Southern Metropolitan Area (Nanzhili) and the Northern Metropolitan Area (Beizhili) was 0.4 *shi* for each *shi* of the grain tax. See 1737 *Jiangnan tongzhi* 江南通志, 68/36a-37b.
[63] *Ming Xiaozong shilu*, 117/4b.

agreed that 147,734.7 *shi* out of the annual quota of 4,000,000 *shi* of the river-transport grain tax would be commutated into silver.[64] Nevertheless, the practice of collecting transportation fees was sustained. The annual amount of transportation surplus collected amounted to as much as 445,000 taels of silver, which became an important source of revenue for the government.[65]

Because of the extra transportation fees, the commutation rates of the grain tax after the late-fifteenth century, as we see, had a quite broad range. In fact, the rates sometimes had to be adjusted in counties and prefectures under various circumstances. For example, in the Chenghua period (1465–87), Jianchang prefecture in Jiangxi paid its tribute grain in commutations at the rate of 1.2 taels per *shi*.[66] Regarding this, in 1515/6, the tenth year of the Zhengde reign, the grand coordinator and censor-in-Chief, Yu Jian (愈諫), and the touring censorial inspector, Xu Zan (徐讚), gathered officials to discuss collecting the revenues for the Nanjing granaries in commutations to solve the deficiency of the local province. As they stated, the annual salaries for the civil and military officials as well as teachers at community schools in Jiangxi province required about 530,000 *shi* of grain, but only 450,000 were in reserve. Since the annual supply was not enough and there was no way to make up the deficit, the officials proposed that in light of earlier cases, the annual revenue of 470,000 *shi* for the Nanjing granary should be collected as follows: 30 percent of the revenues would be collected in kind, 70 percent of the grain tax would be collected in silver at the rate of 0.7 taels per *shi* of grain, of which 0.5 taels of silver would be

[64] Wang Zaijin 王在晉, *Tongcao leibian*, 2/9a, 139. For each province, the quotas both in kind and in commutations were listed as follows: the total amount of river-transport grain tax for Shandong and Henan provinces was 70,000 *shi* each, within which 20,000 *shi* was paid in commutations at the rate of 0.8 taels per *shi*, and 50,000 *shi* was paid in commutations at the rate of 0.6 taels per *shi* respectively. For Huguang, 37,734.7 *shi* of the grain revenue was commuted at the rate of 0.7 taels per *shi*, which entered the National Silver Vault. See also Wang Zaijin, 2/12a-b/145-146.
[65] *Mingshi*, 79/8b.
[66] 1517 *Jianchang xianzhi* 建昌縣志, 4/20b-21a.

sent to the Ministry of Revenue in Nanjing, and the remaining 0.2 taels would be stored locally to make up for the rice deficit mentioned above. After the deficit had been resolved, revenue should be paid in kind again. It was further ordered that no extra fees should be paid for any wastage in melting silver into ingots.[67] As we see, at this time the commutation rate was 0.7 taels of silver, somewhat lower than 1.2 taels that had been paid in the Chenghua reign.[68]

Like the counties in Jiangxi, in Cili County in Huguang province, high commutation rates were also adjusted upon request. According to the 1574 gazetteer of this county, when the commutation rate was set as 1.5 taels per *shi*, the military households and powerful landlords defied the order. Tax delinquency, thus, was huge. The county magistrate submitted a request that each *shi* be commutated into 0.9 taels of silver, which was approved. But the taxes for the frontiers that had been transported by civilians were commuted into just 0.5 taels of silver.[69] These commutation rates were further modified. The tribute grain tax for Yangzhou granary was adjusted to 0.6 taels per *shi* according to a later rule made by an official surnamed Ouyang. The tax for Nanjing was also adjusted as follows: the unpolished rice for officials' salaries was commuted at the rate of 0.7 taels per *shi*. Unpolished rice and beans for the Directorate of Education were commuted at 0.4 taels per *shi*.[70] As we see, the practice of varied commutation rates of the grain tax in the provinces led to further complications in tax collection. Instead of following the ideal of a uniform rule, the collection of taxes and distribution of tax burdens were often subject to the unique arrangements that individual magistrates made. The lack of a uniform

[67] Ibid., 4/11b.
[68] Ibid. The two counties Nacheng and Xincheng of the Jianxi province for example, paid 1.2 taels in the sixteenth year of the Chenghua reign.
[69] 1574 *Cili xian zhi* 慈利縣志 (Cili county gazetteer).
[70] 1547 *Jiangyin xianzhi* (Jiangyin county gazetteer), 5/21a-22a.

income and expenditure control continued to be a problem for the Ming state throughout the dynasty.

Commutations Rates of the Land Taxes in the Age of Silver

Due to different commutation rates, the gazetteers of the counties and provinces often maintained the most complicated categories of land tax items as well as wide-ranging commutation rates of the grain taxes delivered to frontier granaries and other regions. For example, the 1562 gazetteer of Hongya County, Sichuan, describes varying commutation rates for grain shipped to granaries outside the county during the sixteenth century. Tax grain shipped to the Yanjing and Zhenxi Garrisons were converted at 1.1 taels of silver per *shi* of grain, whereas for the granary of Diexi Battalion, rice was commutated at a much higher rate of 2.2 taels per *shi*, and for the granary of Hanhu Si it was commuted at 1.36 taels per *shi*. For other granaries commutation rates were much lower, just 0.3 taels per *shi* for the granary of Fengji in Guizhou Province and 0.6 tales per *shi* for the granary of Guangfeng in Chengdu Prefecture. Rice for Ministry of Works at the capital city was also commuted at 0.6 taels per *shi*.[71] It is worth noting that when the grain tax reserved for local use also began to be commuted in the late Ming period, people often had the highest commutation rates in spite of the fact that the transportation rates would cost the least. For example, according to the provincial gazetteer of Jiangxi, while the tribute grain for the capital was commuted at the rate of 0.25 taels per *shi*, grain for local granaries was commuted into silver at the rate of 0.6 taels per *shi*.[72]

[71] The gazetteer also records the adjustment of the commutation rate by the local officials. As it mentions, following an order of an official surnamed Pan, each *shi* of rice was commuted at about 0.64 taels per *shi*, which was thought convenient to local people. This rate probably serves merely as the basic commutation rate excluding transportation surplus fees. 1562 *Hongya xianzhi* 洪雅縣志 (Hongya county gazetteer), 3/2a-3b.
[72] 1597 *Jiangxi sheng dazhi*, 江西省大志 (Jiangxi province gazetteer), 1/49a.

Local gazetteers in the Zhengde period (1506-1521) contain little information about the commutations of the land tax reserved for local usage. But starting from the Jiajing period (1522-1566), local gazetteers began to have detailed records about commutations of the grain tax for local usage in silver as well specific commutation rates. This trend of commuting the grain tax reserved for local usage might have been accelerated by the inflow of huge amounts of silver that came from Mexico and Japan to China in the late sixteenth century.[73] It has been the consensus generally that the availability of a large amount of silver led to high prices of commodities in the market and inflation in the Ming state.[74] The inflow of silver might also have affected the exchange rates of the commutations made at this time. If the commutation rates of the locally reserved taxes were closer reflections of the market price of grain at the time, the fixing of the exchange rates of Gold Floral Silver as well as those of the commutations for the state treasury would indicate that the total revenue the state received was decreasing.

The practice of varied commutation rates had a far-reaching effect on local society.[75] Unlike in the Zhengtong period, the commutations of the land tax were not always favored afterwards, especially under high commutation rates. In the Zhengtong period, local officials seemed to enjoy certain flexibilities in requesting that local taxes be paid either in commutations or grain. But this kind of flexibility became lost when the quota of commutations became fixed. Because the commutations were regarded as a critical source of revenue for the central state, they were less likely to be changed even in times of crisis. For example, when the Jingtai emperor upon his

[73] In late sixteenth century, a huge amount of silver from Mexico and Japan entered Ming China. See Dennis O. Flynn and Arturo Giráldez, "Born with a 'Silver Spoon': The Origin of World Trade in 1571," *Journal of World History* 6, no. 2 (1995): 203.
[74] See Valerie Hansen and Kenneth R. Curtis, V*oyages in World History, Brief* (United Kingdom: Cengage Learning, 2015), 359. J. P. Geiss, "Peking under the Ming, 1368-1644" (dissertation, Princeton University, 1979), 165.
[75] Not all prefectures in the Southern Metropolitan Area (Nanzhili) paid the river-transport grain tax, for example, Huizhou Prefecture and Chu Prefect 滁州 and He Prefecture 和州. See Bao Bangyan.

enthronement ordered the remission of 30 percent of the taxes in the state for the next year, his minister, Jin Lian (金濂), refused to obey his order and insisted that only taxes in grain be remitted whereas converted taxes in silver, cloth and silk should be collected as usual. Jin had to excuse his action by saying that silver, cloth and silk were not written into the decree. If all the taxes were remitted, the state would be in short supply.[76]

The practice of various commutation rates could lead to local abuses in distributing tax burdens. As the grand coordinator and censor-in-chief, Sun Sui (孫燧), stated, when the commutations were specially made for government land (*guantian* 官田) and the households that were in poverty, the magistrate, however, did not have the right person but had to rely on village heads and clerks who often manipulated and inverted the light and heavy burden. In order to reduce these abuses, the magistrates had to manage the collection carefully. Sun suggested that the commoners should be notified about the amount of the revenue both in kind and in commutations as well as the specific commutation rate.[77]

In order to manage the differences in the commutations, in the middle of the sixteenth century, the Jiangyin magistrate started to distribute both tax quotas and an extra amount of allowance more equally among local people. Under this practice, government lands that originally had much higher tax quotas would pay only the land tax with no extra allowance added; private lands that had lower tax quotas would pay an extra amount of allowance at the rate of 0.12 *shi* per *shi*. In terms of the commutation rate, it was arranged that government lands all paid in commutations at the rate of 0.33 taels per *shi* (a lower rate than the market price)

[76] *Mingshi*, 160/4359-4360.
[77] 1517 *Jianchang xianzhi*, 4/11b-12b.

while private lands mostly paid the tax in kind.[78] In this way, the tax burden was distributed more equally among the locals. As Leif Littrup has observed extensively, the tax reform in other regions such as Shandong Province also was concerned with distributing tax burdens more fairly among the local people.[79] The fact that tax reforms in the sixteenth century tended to focus on redistribution of tax burdens within specific provinces, counties and prefectures rather than building up a consistent state taxation system was closely related to the varied commutations rates in practice and the fundamental divisions in central finance. As we see, under a divided central finance and the practice of varied commutation rates for different granaries and treasuries in the provinces, the Ming tax system became complicated and almost impossible for a uniform state expenditure and income management. [80] This deficient fiscal system was almost fatal, especially in times of frequent wars in the late Ming period in a new, more dangerous phase of the gunpowder age.

Conclusion

After the early Ming period, the Ming state experienced fundamental changes in its central financial system. Whereas the emperor received a considerable portion of the commutations of the grain tax in silver, the fixing of the commutation rate at about 0.25 taels per *shi* meant that the emperor's personal income was set at a specific limit. With a growing number of commutations of the grain tax in silver and other income that was reserved for the frontiers entering the National Silver Vault, under the management of the bureaucratic government, civil

[78] 1547 *Jiangyin xianzhi*, 5/20b-21a.
[79] Leif Littrup has investigated the distribution of the tax in Shandong. See Littrup, *Subbureaucratic Government in China in Ming Times: A Study of Shandong Province in the Sixteenth Century* (New York: Columbia University Press, 1981). See also Bao Yanbang, *Mingdai caoyun yanjiu*, 6.
[80] For the government's reassessment of land in the Jiajing and Longqing periods, see Wang Yuquan 王毓銓 ed., *Zhongguo jingji tongshi Mingdai jingji juan* 中国经济通史明代经济卷 (Chinese economic history: the Ming dynasty) (Beijing: Zhongguo shehui kexue chuban she, 2007), 98-99.

officials in the central government began to enjoy more freedom and power in the management of state affairs and especially in the management of military and frontier issues, which had been exclusively reserved for the emperor, eunuchs, and military nobles in the early Ming.[81] It is worth noting that the policies concerning the commutation rates in the provinces were often proposed by the centrally appointed civil officials, men who constituted the outer court. Besides their management of local taxation, these civil officials also began to play a more assertive role in state military and frontier affairs.

Whereas the bureaucratic government started to take on the responsibility of managing military and frontier tasks, it should be kept in mind that the central revenues did not increase along with economic prosperity and flourishing trade in local society in the age of gunpowder.[82] The total revenues from the land taxes actually diminished as the commutation rates went far below from the actual market price of grain in an age of silver. The shortage of resources generally strained the central bureaucracy's capacity to handle its inland and frontier challenges especially facing growing wars in a new, more dangerous phase of the gunpowder age in the sixteenth century. Unlike major gunpowder states in Western Europe, the Ming state failed to develop an effective fiscal system due to the divisions of the central finance between the inner and outer court.[83] The attempt to renovate military technology and the military institutions under

[81] Han-sheng Chuan and Lung-wah Lee have examined the annual expenditure of silver taels of the Taicang vault after the mid-Ming period, the increasing number of which shows the growing annual income of the National Silver Vault, Taicang, from the Zhengde reign onwards. See Quan Hansheng 全漢昇 Li Longhua 李龍華, *Ming dai zhong ye hou Taicang sui chu yin liang de yan jiu* 明代中葉後太倉歲出銀兩的研究 (The annual expenditure of silver taels of the Taicang Vault after the Mid-Ming period) (Hongkong: Xianggang Zhongwen daxue Zhongguo wenhua yanjiu suo, 1973).

[82] For a discussion of commercial development, see Timothy Brook, *The Confusions of Pleasure: Commerce and Culture in Ming China* (Berkeley: University of California Press, 1998).

[83] The Ming does not follow the four "ideal types" in the evolution of fiscal regimes: tribute, domain, tax, and, ultimately, fiscal state, but seems to have these elements altogether at the same time. For discussions of fiscal state, see Richard Bonney ed., The *Rise of the Fiscal State in Europe c. 1200—1815* (Oxford University Press,1999). See also Bartolomé Yun-Casalilla and Patrick K. O'Brien ed., *The Rise of Fiscal States: A Global History, 1500-1914* (New York: Cambridge University Press, 2012).

the management of bureaucratic government, as we will see, faced great fiscal constraints in an age of silve and gunpowder.

Chapter 3
Masters of Both Pen and Sword: The Rise of *Dufu* Officials in the Middle Ming Period

> *The Chinese emperor tried to be as non-military as possible. The Son of Heaven was neither general nor judge but purely and simply Son of Heaven. Militarism was viewed with deep suspicion by the scholar gentry and in their view the use of force betokened a lack of virtue, a culpable failure on the part of the emperor to maintain social harmony.*
>
> S.A.M. Adshead[1]

Adshead's observation of the non-military features of the Chinese empire does not seem to apply to the Ming state in its early period. As discussed in Chapter 1, in the early gunpowder age, the Ming emperor often served as the highest military leader, conducting imperial campaigns on the battlefield.[2] Confucian bureaucratic officials from the central government played only a secondary role in decision making in state military affairs.[3] At the local level, military affairs in the provinces as well as on the frontiers were exclusively managed by hereditary nobles and officials in the military system.[4] This military dominance in the early Ming gave way to a civil dominance in the middle Ming period when the central bureaucratic government began to play a growing role in the management of state military affairs in the capital city, in the provinces, and on the frontiers.

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[1] S. A. M. Adshead, "Dragon and Eagle – a Comparison of the Roman and Chinese Empires," *Journal of Southeast Asian History* 2, no. 3 (October, 1961): 11-22.

[2] For a discussion about the direct rule of the Ming emperor, see Edward Dryer, *Early Ming China: A Political History, 1355-1435* (Standford, CA: Stanford University Press, 1982), 132. While the central bureaucratic government was primarily concerned with civil affairs within the inland provinces, the military territories within the provinces as well as a large number of frontier garrison territories were managed by the hereditary military officials under the close supervision of frontier eunuchs. For a discussion of Ming military administration in the provinces, see Li Xinfeng, *Mingdai weisuo zhengqu yanjiu* 明代卫所政区研究 (Research on the weisuo system of the Ming dynasty) (Beijing: Beijing daxue chuban she, 2016), 92.

[3] *Da Ming huidian*, 124/1a-b. A few officials including Huang Fu, as mentioned earlier, were involved in military tasks.

[4] For discussions of heritable military positions in the Ming, see Liang Zhisheng 梁志胜, *Mingdai weisuo wuguan shixi zhidu yanjiu* 明代卫所武官世袭制度研究 (Research on the system of inheritance of Ming garrison military officials), (Beijing zhongguo shehui kexue chuban she, 2012), 36-37.

A feature of this shift seemed to be the Battle of Tumu in 1449, during which the imperial campaign led by the Zhengtong emperor against the Mongols met a disastrous defeat and the emperor himself was captured.[5] After this dramatic event, civil officials enjoyed a greater influence in state military affairs. The Battle of Tumu is commonly regarded as a watershed of Ming military policies, which turned more conservative and inward looking. And this change has been generally attributed to the rising influence of civil officials at court and their so-called conservative Confucian ideology concerning the military.[6] This overly simplified assertion, however, fails to explain why civil officials rose to prominence in court in the first place and their actual roles in state military affairs.

Chapter 1 has refuted a link between the conservative Confucian ideology of civil officials and their limited participation in military matters during the early period. The present chapter carries this argument further by calling into question ideological explanations for civil officials' military conduct in the middle Ming period and the pervasive negative evaluations of their influence in state military affairs. Whereas civil officials have been generally blamed by historians for having a negative impact on state military affairs, there is little scholarly study of their actual participation in the military except for a small number of the highest-ranking civil officials at court, such as the ministers in the six ministries as well as the secretaries in the Grand

[5] For detailed observations of the Battle of Tumu, see also Frederick Mote, "The T'umu incident of 1449," in *Chinese Ways in Warfare*, ed. Frank A. Kierman, Jr. and John K. Fairbank (Cambridge, MA, 1974), 243-72.
[6] In terms of the changes in Ming politics and military strategies after the early Ming period, Edward Dyer in his influential book attributes them to the rise of Confucian government. Though Dryer did not further discuss the Confucian government after the early Ming period, his assumption has been generally accepted and carried on in the study of the Ming state in its middle and later periods. See Dryer, *Early Ming China,* 174. For example, Arthur Waldron suggests that the revitalization of the tradition of idealized foreign and domestic policies was in relation to the rising class of southern literati (Confucian officials) in the sixteenth century. See Waldron, *The Great Wall of China: From History to Myth* (Cambridge: Cambridge University Press, 1990), 178. Likewise, Peter Lorge maintains that the whole period of 1435-1610 marked an "imperial collapse" with civil officials dominating government. See Lorge, *War, Politics and Society in Early Modern China, 900-1795* (London: Routledge, 2005), 119.

Secretariat. The growing influence of civil officials in military affairs was certainly not limited to a few highest-ranking officers at court who could influence decision making. The present chapter looks into the impact of civil officials on state military affairs by focusing on the activities of the centrally delegates who became critical provincial officials handling both civil and military tasks in provinces and on the frontiers. Collectively known as *dufu* officials, the supreme commander (*zongdu*) and grand coordinator (*xunfu*), sent from the central bureaucratic government started to conduct frequent military campaigns, manage military-agricultural farms, train soldiers, and discipline hereditary military officials.[7]

The growing influence of civil officials in military affairs was accompanied by changes in the larger social-economic context. As Chapter 2 has shown, through the variations made on tax commutations, the central bureaucratic government accumulated a large amount of revenue in the form of silver, which provided greater freedom for spending. The designation of central delegates to provinces in the first place was related to the urgent problem that the state faced in association with the *tuntian* (屯田, military-agricultural farm) system.[8] Whereas the previous chapter observes the problem solving related to grain tax collection and transportation at the local level, the present chapter shifts attention to the ways in which the requirement of managing military-agricultural farms as well as the territories that were originally placed under the military system led to further expansion of central bureaucratic state control.

[7] *Da Ming huidian* lists both supreme commanders (*zongdu*) and grand coordinator *xunfu* under the same category *dufu* (督撫). See *Da Ming huidian*, 209/4b. The term *dufu* became more commonly used in the Qing period, as Hucker notes, as a combined, abbreviated reference to governors-general (*zongdu*) and governors (*xunfu*). See Hucker, *Official Titles*, 539.

[8] For the origin of the institution of "Land cultivation by troops stationed" (*jun tun*) in early China, see Chun-shu Shang, *The Rise of the Chinese Empire*, vol. 2, *Frontiers, Immigration & Empires in Han China, 130 B.C. – A.D. 157* (Ann Arbor: University of Michigan Press, 2006-2007), 16-18.

Scholarly research on Ming politics has mostly focused on fixed institutions such as the ministries, the Censorate, and the Grand Secretariat. Focusing on these stable institutions is understandable as they provide a general observation of Ming politics from the top. This institutional research, however, tells little about how the central government managed local affairs. The focus on the formation of a critical administrative provincial echelon, the *dufu* system, will help to fill in the gap and illustrate the coordination between the central state, on the one hand, and provinces and frontiers, on the other. An exploration of the the evolution of the *dufu* system will reveal how the mid-Ming state maintained control of local areas in changing circumstances.[9]

For the purposes of the present study, analysis of *dufu* officials in the Ming involves three critical aspects. First, it sheds light on the changing relations between civil and military authorities in the Ming.[10] The establishment of civil dominance in the Ming state was a departure from the model of most other contemporary gunpowder states where military power was predominant. Second, as *dufu* officials gradually evolved into residential provincial and frontier administrators rather than just central delegates temporarily assigned under military contingencies, their changing roles indicated a fundamental transformation in the provincial administration of the Ming. The subject of the *dufu* officials is worthy of full exploration for its

[9] For specific discussions of the Regional Military Commissions, see for example, Yang Yang, *Mingdai Nu'er gan dusi jiqi weisuo yanjiu* 明代奴儿干都司及其卫所研究 (Research on the dusi and weisuo of Ming Nurgan) (Zhengzhou: Zhongzhou shuhua she), 1982.

[10] This kind of civil dominance was quite unique in the context of the early modem states as the people who enjoyed high power in politics often had military backgrounds, for example, the high military officials at court of the Ottoman empire and the military nobles at courts of Europe. See Baki Tezcan, *The Second Ottoman Empire: Political and Social Transformation in the Early Modern World* (Cambridge: Cambridge University Press, 2012). See also Matthew Romaniello and Charles Lipp, *Contested Spaces of Nobility in Early Modern Europe* (Berlington, VT: Ashgate, 2011). The other premodern state that is generally claimed to have a tradition of civil dominance was the United States. In terms of the civil influence on the military, the Ming state also departed from the Song practice. As a contemporary Ming observer stated, the role of the Ministry of War of central government resembled more of a Tang model rather than following its closely the Song Dynasty's practice. For an observation of the features of Ming military institutions, see Lei Li 雷禮, *Guochao lieqing ji* 國朝列卿紀, 47/1a-2a.

own sake and also for the sake of shedding light on the transition to provincial administration in the Qing period.[11] Third, the study of *dufu* officials provides a different perspective on the expansive role of the central bureaucratic government in the middle Ming period when it is generally assumed that the state since the middle Ming was shrinking. Whereas each of the *dufu* officials was assigned a specific area of primary duty, they served as agents for the central bureaucratic government to expand its control of military garrisons. The *dufu* sytem, a mid-Ming innovation, contributed to the stability of the Ming state because these officials served as critical coordinators between the central and the local, between the Confucian bureaucratic system and the autocratic system. There were still constraints, of course, in the political influences of *dufu* officials as compared to that of the autocracy, but their rising power to a certain extent altered the political trajectory of late imperial China.

The present study of *dufu* officials is based exclusively on primary sources. In view of the complexity of the subject and the large-scale of regions it covers, I do not intend to write a full account of *dufu* officials in every single province and frontier area. Rather, I seek to lay the basic idea of the *dufu* officials' participation in the military during the gunpowder age, and, in the process, to raise some questions concerning the expansion of bureaucratic state control in the provinces and frontier territories. This chapter consists of three sections, beginning with an exploration of the early participation of central civil delegates to provinces and frontier territories. Their duties included the management of military provisions, supervision of military-

[11] For the specific territories under grand Coordinators and supreme commander, see Jin Runcheng 靳润成, *Mingchao zongdu xunfu xiaqu yanjiu* 明朝总督巡抚辖区研究 (Research on the zones of jurisdiction of supreme commanders and grand coordinators in the Ming dynasty) (Tianjin: Tianjin guji chuban she, 1996). For the civil and military territorial administrations of the Ming state, see Guo Hong 郭红 and Jin Runcheng 靳润成, *Mingdai xingzheng quhua tongshi: Mingdai juan* 中国行政区划通史明代卷 (Shanghai: Fudan daxue chuban she, 2007). See also *Da Ming yitong wenwu zhusi yamen guanzhi* 大明一統文武諸司衙門官制 (Taibei: Taiwan xuesheng shuju, 1970). For a discussion of Qing governors, see R. Kent Guy, *Qing Governors and Their Provinces: The Evolution of Territorial Administration in China*, *1644-1796* (Seattle: University of Washington Press, 2010).

agricultural farms, and other tasks, and these duties in turn led to more important military assignments. The second section focuses on the establishment of civilian dominance over military affairs; a crucial figure in this development was Yu Qian, who came to prominence after the Battle of Tumu in 1449. The final section examines the *dufu* officials' growing political influence at court and their ambiguous position between the autocratic-centered and bureaucratic systems, focusing on the *dufu* officials' receiving of noble ranks and inheritable military posts for their descendants – privileges that had been reserved for military officials and eunuchs in the early Ming period.

The Early Participation of Civil Officials in Local Military Management

In the early Ming period, military affairs were exclusively managed by hereditary military officials or supervised by military eunuchs while the bureaucratic government was primarily concerned with civil administration.[12] Besides Ministry of War officials, who were mainly responsible for supervising military personnel and managing the horses, the only bureaucrats from the central government who were closely involved in the military apparatus were the investigating censors for the inspection of military and local affairs.[13] It is worth noting that while investigating censors were subordinate to the censor-in chief, they reported directly to the emperor rather than to their direct superior authority. In other words, the central civil bureaucracy played only an indirect role in the management of state military affairs in the early Ming period. The military apparatus managed not only the daily training of soldiers but also a large number of territories including many garrison military-agricultural farms in inland provinces and on the frontiers. Following the ideal of self-sufficiency of the troops under the

[12] *Ming Xuanzong shilu*, 39/6a-7a.
[13] The ministry was primarily concerned with three duties, personnel management, checking the number of the military force, and managing the supply of horses. *Ming Xuanzong shilu*, 39/5a-b.

founding emperor, garrison soldiers and their families in various garrisons were ordered to till land to feed themselves besides taking regular training during peaceful times. In reality, the management of the military-agricultural farms became extremely difficult.[14] The conditions of local garrison soldiers on military-agricultural lands had deteriorated since the early Ming period, especially after the Yongle period when capital troops replaced the frontier and local soldiers as the main base of the imperial forces. Under this new military approach, garrison soldiers did not receive as many resources as before, and their conditions became even worse when a large amount of the garrisons' land started to be amassed by high military officials without effective supervision. There were numerous cases in which soldiers deserted their posts because of the abusive treatment from higher military officials at local garrisons.[15]

Facing this problem, the Xuande emperor started to send civil officials from the central bureaucracy to handle the tasks of military-agricultural farms in the provinces. On September 9, 1430, the emperor first decided to appoint lower-ranking officials from the ministries to manage specific military-agricultural farms.[16] A few days later, he decided instead to designate an official from each of the ministries to manage the grain tax as well as its transportation. The six officials who had been selected at this time included Zhao Xin (趙新), the right-vice minister of personnel, who was sent to Jiangxi; Zhao Lun (趙倫), the right-vice minister of revenue, who

[14] The seeds and tools were provided by the state, but these military farms were often subject to a higher tax rate than commoner's lands, which could be a huge burden for the military households and people who tilled the lands. Zhan Ruoshui 湛若水, *Gewu tong* 格物通, 83/13a/745. About one fifth of Ming households were registered in the military system; see Yu Zhijia, *Weisuo junhu yu junyi: yi mingqing jingxi diqu wei zhongxin de yanjiu* 卫所、军户与军役: 以明清江西地区为中心的研究 (Bejing: Beijing daxue chuban she, 2010), 2.

[15] For observations of the abuses in association with the military-agricultural lands in Jiangxi Provinces, see Yu, *Weisuo junhu yu junyi,* 98-123. For the observations of life in the guards, see Michael Szonyi, *The Art of Being Governed: Everyday Politics in Late Imperial China* (Princeton: Princeton University Press, 2017). For discussions of the provisions for garrison soldiers, see also Zhang Jinkui 張金奎, *Mingdai weisuo junhu yanjiu* 明代卫所军户研究 (Garrisons and military households of the Ming dynasty) (Beijing: Xianzhuang shuju, 2007), 112-142.

[16] *Ming Xuanzong shilu*, 69/6a

was sent to Zhejiang; Wu Zheng (吳政), the right-vice minister of rites, who as sent to Huguang; Yu Qian (于謙), the right-vice minister of war, who was sent to Henan and Shanxi; Cao Hong (曹弘), the right-vice minister of justice, who was sent to prefectures and counties in Beizhili and Shandong; and Zhou Chen (周忱), the right-vice minister of works, who was sent to Nanzhili and prefectures such as Suzhou and Songjiang.[17] This imperial order is generally viewed as the origin of *xunfu* (grand coordinator) assignments to local areas.[18] Given the existence of the earlier order, the grain taxes that these officials managed should have included those of the military-agricultural farms. Besides managing the grain tax, the Xuande emperor also assigned these civil officials the related tasks of placating local residents and offering relief, as well as military duties such as putting down rebels.[19] One of the officials, Zhao Xin, for example, was said to have captured rebels in Yongxin county together with the provincial officials in Huguang and Jiangxi.[20] These central delegates seemed to be in a better position to cope with such tasks, especially when military actions had to be conducted across provincial boundaries.[21]

The practice of sending civil officials from the central government on short-term tours of duty to the provinces continued in the early Zhengtong period under the promotion of some high-ranking civil officials at court.[22] In February 1435, upon the enthronement of the Zhengtong

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[17] *Ming Xuanzong shilu*, 70/3a-b. See also Tang Hezheng 唐鶴徵, *Huangming fushi lun* 皇明輔世論, 177-194.
[18] Zhang Zhelang 張哲郎, 15-16. The date of sending these officials is generally viewed as the starting point for the establishment of the *xunfu* institution. See Zhang Zhelang, *Mingdai xunfu yanjiu* 明代巡撫研究 (Research on Ming grand coordinators), 212.
[19] Ibid.
[20] *Ming Xuanzong shilu*, 102/8b.
[21] It was not rare for the temporary designation of central delegrates to handle military tasks that extended throughout several provinces. For example, in March 1446, a Censor, Liu Hua (柳華), was appointed to supervise soldiers in Fujian, Zhejiang, and Jiangxi and fought rebelling miners there. See *Mingshi* (Beijing: Zhonghua shuju, 1974), 136.
[22] As Kent Guy observes, the Ming *xunfu* officials were irregularly appointed, serving in a constantly changing administrative environment. In the Qing period, *xunfu* became regularly appointed provincial officials who had both military and civilian assignments. See Guy, *Qing Governors and Their Provinces*, 6.

emperor, who was about nine years old, Minister of War Yang Shiqi (楊士奇) submitted a memorial to the court stating that due to famine in the four provinces of Jiangxi, Huguang, Henan, and Shandong, people who had not registered in the household system might band together and commit crimes. The court, under the dominance of Yang and other high civil officials, decided to send both civil and military officials to defend these regions from potential turmoil. It was noted that this seemed to be the first time that these four provinces had ever required a military grand defender, not to mention one from a civil background. Now under this new contingency, together with military officials, four civil officials were appointed to defend the provinces as well as drill the soldiers and also suppress any rebellion immediately when it occurred.[23]

Besides protecting these four inland provinces, some civil officials started to be assigned to aid with the tasks in the frontier military garrisons at this time. In April 1435, three civil officials from the central bureaucratic government, Xu Xi (徐晞), Chen Yi (陳鎰), and Luo Hengxin (羅亨信), were sent to defend places along the northern frontier in Shaanxi, Gansu, and Ningxia, where they were to train garrison soldiers together with military officials.[24] These designations, as stated clearly in the imperial decree, were meant to be temporary, and all of these officers were supposed to return to their original posts as soon as their duties were

[23] *Ming Yingzong shilu*, 1/16b-17a. When city walls collapsed, they were supposed to send soldiers to fix the problem. For the rest of the tasks, except for those that had been proclaimed in writing by the court, they were not to use any soldier or commoner for service or collect anything (from the local inhabitants).
[24] *Ming Yingzong shilu*, 3/3a-b; 6/1b. These officials were under the leadership of a military noble whos served as a defense commander.

finished.[25] In 1439, for example, one such official, Wang Ao (王翱), together with other military officials, returned to the capital after pacifying several hundred bandits in Guangxi and Jiangxi.[26]

In spite of occasional military assignments, the task of managing garrison military-agricultural lands was regarded as a top priority.[27] For example, when one of the officials recommended Yu Qian to be designated as the military consultant (*canzan jiwu* 參贊軍務) in Xuanfu and Datong, the emperor rejected this proposal and stated that the civil task of *tuntian* (military-agricultural farm) was no easier.[28] Another official, Ding Xuan (丁璇), the right-assistant censor-in-chief, who had been initially assigned the task of superintending the drilling of soldiers in garrisons in Yunnan, was switched to the more urgent task of managing the stored grains in 1440.[29] In short, in the 1430s and 1440s civil officials from the central bureaucratic government still played a limited role in imperial military operations. Whereas some of these officials continued to perform military duties later in the Zhengtong period, their assignments were often based on earlier military merits they had accumulated, such as the case with Wang Ao, who personally participated in military campaigns, or were upon the recommendation on military officials. For example, Kou Shen (寇深) was designated in 1446 as military

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[25] *Ibid*.
[26] *Ming Yingzong shilu*, 58/2b. Wang Ao was ordered to lead campaigning in Songfan 松藩 in the next year. See *Ming Yingzong shilu*,66/5b.
[27] Among about twenty of the officials sent to the provinces, fourteen officials were designated Military Consultants. In 1435, Xu Xi (徐晞) was sent to inspect frontiers as *zhenshou* together with other military officials in Lintao and other places of Gansu including Lintao after being promoted to the right-vice minister. For example, see *Ming Yingzong shilu*, 3/3a-b; 5/1a; 13/6b-7a; 33/2a.18. For these officials (*zhenshou* or *canzan junwu*), their personal participation in military actions was rather limited. The task of providing provisions and payments for garrison soldiers who were constantly on the move was more than an administration challenge. See David M. Robinson, "Banditry and the Subversion of State Authority in China: The Capital Region during the Middle Ming Period (1450-1525)," *Journal of Social History* 33, no. 3 (2000): 541. Thomas Nimick observes that the disappearance of the granaries in local regions resulted in raids by armed bandits, which would cause the increase of military expenditure. See Thomas G. Nimick, *Local Administration in Ming China: The Changing Roles of Magistrates, Prefects, and Provincial Officials* (Minneapolis, MN: Society for Ming Studies, 2008), 150.
[28] *Ming Yingzong shilu*, 40/9a-b.
[29] Ibid., 74/1a.

superintendent (*tidu junwu*), a position that had been reserved only for military officials and eunuchs in earlier times. This appointment came about mainly because of a recommendation by a military official, who submitted a memorial attesting that Kou was a man of great resources and martial skills.[30]

Nevertheless, the experiences of these central delegates in the provinces as well as on the frontiers provided them with knowledge of military affairs that previously had been exclusively managed by the military system. When delegates from the central civil bureaucracy took on the management of local affairs in the provinces and on the frontiers as a temporary solution, they tended to stay for abnormally long periods in their posts due to the difficulties of their tasks. For example, Yu Qian, who had been assigned in the early Xuande period as mentioned earlier, was said to have stayed for about four years and later served as the grand coordinator of Shanxi and Henan for about fourteen years in the following Zhengtong period. While Yu's total of eighteen years' service in Shanxi was quite abnormal, he was certainly not the only central official who served for a long time in a local place.[31] Another official, Chen Yi, for example, after having stayed on the frontier for about six years, was briefly recalled in 1441 when the court recognized that he had served in this frontier area for such a long time without a replacement.[32]

Long periods of service seem not only to have provided these civil delegates with firsthand experience in local and frontier military affairs, but also to have given them access to gunpowder weapons that had been tightly kept secret by the inner court. As discussed previously, most of the powerful gunpowder weapons were reserved in the capital city, but, with imperial

[30] Ibid., 142/6b-7a.
[31] Wang Shizhen, *Yanshantang bieji*, 4/75-76.
[32] *Ming Yingzong shilu*, 75/2b. It was decided that the civil officials such as *zhenshou* should take turns on the frontiers. But it seems only after the Zhengtong period did these duties became fixed posts that replacement and switching become regular. See also *Ming Yingzong shilu*, 52/7b; 134/9b.

approval, some had been occasionally distributed to the frontiers as well as to strategic locations.[33] While inland provinces had a limited number of powerful gunpowder weapons, frontier garrisons possessed far greater numbers of these weapons. For example, in 1446, it was ordered that 500 bronze hand cannons (*chong* 銃) and 400 small cannons (*wankou chong*) be sent to Datong and Gansu; 500 hand cannons (*chong*) and 200 cannons (*pao*) to Xuanfu; 300 hand cannons and 100 cannons to Miyun; 400 cannons to Liaodong; 100 cannons to Ningxia, and 400 cannons to Dushi. These weapons certainly provided a good source of knowledge for the civil officials assigned to the frontiers in spite of the fact that these weapons were still under the close supervision of frontier eunuchs. For example, Yang Yiqing (楊一清) once tested various "general cannons" at Dingbian Battalion and commented that among all the firearms that had been produced, the "grand general cannon," "second general cannon," and "third general cannon" were most powerful ones.[34] Another official, Luo Hengxin, who had been designated as the grand coordinator in Datong and Xuanfu, commented in a memorial to the court in 1442, "Firearms are the only thing that northern Mongols feared in our state. Since the Hongwu reign, frontiers have received miraculous guns, miraculous arrows, and fire lances and whenever these weaponries get damaged, they are permitted to be repaired. In recent years, however, only the storehouse in the capital city has received such weaponries. Frontiers have more and more damaged firearms, while receiving fewer new ones."[35] With the experience and knowledge of local military affairs, these civil officials played a critical role in the defense of the state in times of crisis after the Battle of Tumu in 1449.

[33] Yang Yiqing later mentioned in his memorial that he had not known the power of gunpowder weaponry until he served in frontier garrisons and tested some cannons there. See Yang, *Yang Yiqing Ji*.
[34] *Huang Ming jingshiwen*, 118/22b-23a/1128-1129.
[35] *Ming Yingzong shilu*, 99/11a-b.

Dufu Officials after the Battle of Tumu

In September 1449, when the Zhengtong emperor, who was now twenty-three years old, decided to take to the field and lead the imperial troops into the steppes to fight against the Mongols, his efforts ended in a disastrous defeat at the hands of the Mongols, and he was captured by the enemy. A lack of experience as well as poor military strategy contributed to this total failure. The military disaster threatened the state with the great danger of an immediate Mongol invasion. Refusing to pay a ransom for the return of the Zhengtong emperor, the court decided to install his younger brother, Zhu Qiyu (朱祁鈺), as the emperor under a new reign name Jingtai. The Jingtai emperor soon appointed Yu Qian, who had served on the frontiers for long periods, as the minister of war as well as the supreme commander in charge of all state military affairs.[36] Though Yu Qian had not performed any military duties before, years of experience on the frontiers seemed to have prepared him well to defend the capital city and the state against the Mongols.[37]

To defend the capital city, Yu Qian, together with the military officials, designed specific military strategies to use against the Mongols, taking full advantage of gunpowder weapons.[38] In a memorial to the court in October 1449, Yu told how he and Shi Heng (石亨), the earl of Wuqing, defeated the enemy outside the gate of Desheng in the capital city. As Yu reported, he ordered soldiers to hide beforehand in the empty houses, and when more than ten thousand of the enemy approached, they were hit hard by miraculous cannons and firearms (*shenpao huoqi*) and retreated.[39] In another report in July 1450, Yu Qian stated that he and the eunuch Cao Jixiang placed firearms such as miraculous guns and general cannons, bowl-mouth guns, and porcelain

[36] For biographical information about Yu Qian, see *Mingchen jingji lu*, 37/1a-6b.
[37] *Mingshi*, 4357.
[38] *Ming Yingzong shilu*, 193/8b-10b.
[39] Ibid., 184/12b.

cannons (*cipao*) outside of the city beforehand.[40] Under Yu and other military officials, the capital city stood firm throughout the invasion of the Mongols.

Being a military leader himself, Yu Qian also recommended a growing number of civil officials to handle military tasks locally and on the frontiers.[41] Yu certainly was not the first official who had advocated for civil officials' participation in military affairs. Rather than representing an ad hoc adjustment in the Battle of Tumu, civil officials seemed opportunistically to have used the event to assert a greater role in military affairs. As early as 1440, Wang Ji, the minister of war, had asked to send civil officials from the Ministry of War to the provinces of Huguang, Sichuan, Yunnan, and Guizhou to prepare for the Luchuan campaign against the Shan leader, Si Renfa (思仁發).[42] His proposal, however, was not approved by the Zhengtong emperor.[43] It was actually during the Jingtai period that Wang Ji's similar proposal for sending civil officials to supervise military affairs was finally approved by the court.[44] As we see, rather than representing an ad hoc adjustment in the Battle of Tumu, civil officials used this emergency to assert a greater role in state military affairs.

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[40] *Ming Yingzong shilu*, 193/16a-17a.
[41] *Da Ming huidian*, 128/1a.
[42] The Shan people gained dominance in the Maw (or Luchuan) River valley and established many tribal states in the region stretching from the Brahmaputra to the Mekong. In the early years of the Ming period, then ruling chieftain, Si Lunfa (思倫發), expanded and had border disputes with the Burmese, Annam, and the Ming state. Si Lunfa apparently managed to acquire the technology of manufacturing firearms from the Ming state. In 1413, Si Renfa (思仁發) resumed the expansion business again, the conflicts of which lasted even into later Ming times. See *Ming Taizong shilu*, 57/ 2a-b/838. See also L. Carrington Goodrich and Chaoying Fang, ed., *Dictionary of Ming Biography* (1368-1644), 1209.
[43] However, rejecting his proposal, the emperor instead ordered the earl of Xiangcheng (Li Long 李隆) to train them all together, and maintained that Mu Ang (沐昂) was still responsible for Yunnan; therefore, no other officials were necessary.
[44] Stating that the military officials in the garrisons were not the right people, but were often careless and greedy, using strong soldiers in private service while ordering old and weak ones to drill, and a great number of them did not know the military strategies well, Wang requested that civil officials from the Ministry of War be sent to Huguang, Sichuan, Yunnan, and Guizhou. Together with provincial officials and regional inspectors, they should select strong soldiers trained by military officials to be transferred back from Luchuan regularly.

Facing an immediate threat of Mongol invasions into Taiyuan, the capital of Shanxi province, a strategic position as a gateway to the capital city Beijing, Yu Qian proposed that some high-ranking civil officials be sent to defend Shanxi in 1450. The emperor agreed and assigned Luo Tong (羅通), the right vice censor-in-chief to the task. Besides military duties, Luo was also ordered to manage military provisions.[45] Luo Tong was initially not willing to take a post for which he was required to perform two tasks. He requested that other officials accompany him and handle both the military and the grain tasks. His request, however, was rejected. In terms of military duties, Luo was ordered to work together with the eunuch Huai Zhong (懷忠) and a vice regional military commissioner, Wang Liang (王良).[46]

Like Luo Tong, a growing number of civil officials started to be assigned critical military tasks in addition to their civil ones in the 1450s. And some civil officials were assigned pure military tasks as supreme sommander in local areas. For example, Wang Lai (王來), who had served as the grand coordinator in Henan, was designated as the supreme commander of both Huguang and Guizhou Provinces in charge of pacifying Miao rebellions in 1450.[47] One year later, Wang was assigned the concurrent duty of the grand coordinator as well.[48] In August 1452, Wang Ao, who had served as the military superintendent as mentioned before, was designated the supreme commander of both Guangxi and Guangdong provinces on the recommendation of

[45] It was assigned because at an earlier time, the marquis of Changping had requested that one high civil official together with military officials be sent to help with transporting grains to Datong. The Jingtai emperor also assigned this task to Luo Tong. *Ming Yingzong shilu*,193/14a-15a. For Luo Tong's proposal, also see Yu Qian, "wei jianyan shi," in *Huangxun, mingchen jingjilu* (Taiwan shangwu), 15a-20b.
[46] Yu Qian responded that since the state was facing an eventful year, he would not hesitate to go. Since he was familiar with the affairs in Shanxi, it was better to designate him to lead the army and devise strategies to protect the place, or only send Tong to guard the place; the task of transporting grain could be assigned to officials in Shanxi. See *Ming Yingzong shilu*, 193/14a-b.
[47] Ibid., 196/6b-7a.
[48] Ibid., 207/8a.

Yu Qian.[49] The position of the wupreme commander in Guangxi and Guangdong became more of a permanent position after Wang Ao. The assignment of supreme commander was subsequently established in other localities, especially in the Jiajing period.

As civil officials assumed more military duties on the frontiers in the Jingtai reign, tensions and disputes over authority and leadership started to arise between civil and military officials. In the second year of the reign, a military official named Wu Huai (吳淮) and others from garrisons in Datong accused a centrally sent civil official, Nian Fu (年富), who served as the left vice censor-in-chief, of overstepping of his authority. According to Wu, it was Earl of Dingxiang, Guo Deng (郭登), who had received the imperial order in the first place to be a defense commander. But when Nian arrived, relying on the title of censor, he not only sat with Guo, but also signed official documents. Whenever orders were to be issued, Nian did not consult with Guo but was instead obstinate in his ideas. Hearing the accusation, Yu Qian defended Nian. As Yu maintained, since Nian Fu held the rank of 3a as the Military duperintendent (*tidu*), all military affairs should be under his leadership, and all officials should be under his command. Yu further stated that since a censor-in-chief was an inspector who had no subordinate relationship with military nobles, Nian was supposed to sit on the left side (more prestigious than the right side) of the commander. Citing the example of Wang Ao, who had sat on the left side of the military officials, assuming full authority in issuing orders and deciding rewards and punishments in Liaodong, Yu insisted that Nian Fu should follow Wang's case.[50] It should be noted that, unlike Wang Ao, Nian seemed to have no significant previous military

[49] Wang Ao was sent to deal with the troubles of Guangxi together with Regional Military Commissioner Huang Hong in 1452. It seems that, earlier on, the military official Huang Hong was responsible for military affairs in places such as Guangxi. Huang was there in the early Xuande period. See *Siming fu zhi* (Siming prefecture gazetteer) (Nanning: Guangxi renmin chubanshe, 2011), 274-276.
[50] Yu Qian, "Wei chen bing wu shi," in *Ming chen jingji lu*.

merits, and his designation as the military superintendent was mainly due to the new practice of the Jingtai period under Yu Qian's dominance.[51] After this event, civil delegates from the central government started to enjoy higher authority and status than military officials, who became subordinates of the former.

Besides taking on the management of provisions and of military-agricultural farms, *dufu* officials also assumed the authority of inspecting and checking local military officials. As mentioned earlier, previously only investigating censors from the Censorate could inspect military officials and affairs in the military territories; in 1458 under the proposal of Xu Zi (許資), the Jingtai emperor ordered that the civil officials who served as grand defenders in Shaanxi be switched to a position in the Censorate.[52] After this, most *dufu* officials began to hold a joint position in the Censorate, which provided them the authority of inspecting military officials in the provinces and on the frontiers.

When an increasing number of civil officials started to take on important military assignments, like the eunuchs, their capacities for conducting military activities seemed to be never seriously questioned. As central delegates, their positions certainly provided them with greater authority above that of regional officials. Compared to the use of traditional weaponry such as crossbows, in this new gunpowder age, physical strength seemed to be less of a factor in evaluating one's military capacities. Eunuchs and civil officials, who were generally regarded as weak in strength, did not seem to be in a disadvantageous position. While eunuchs enjoyed their

[51] *Ming Yingzong shilu*, 267/2a-2b; 312/7a.
[52] As Xu mentions, the assignments for these officials sometimes interfered with the duties of regional inspectors who had been sent to tour all localities in provinces and regions, checking files, auditing accounts, and accepting complaints from the people. It was difficult for officials from branches other than the Censorate to cooperate with regional inspectors, *Ming Yingzong shilu*, 233/7b. For the regular duty of censors, see Hucker, *Official Titles*, 253.

eminence in the military through exclusive control of powerful gunpowder weapons, civil officials could often justify their roles based on their wits in military strategy, a kind of knowledge that was passed down through various military books as well as direct experience. In fact, a good number of *dufu* officials, such as Wang Yue, stood out for their military wit in commanding the battles.

It is worth noting that with the rise of civil officials in military matters, in military careers a growing emphasis started to be placed on literacy. Since the early Ming period, unlike highly educated civil officials who had been selected through competitive civil service examinations, military officials obtained their hereditary positions from their forefathers and thus were not subject to any literacy check. The illiteracy of military officials was often used as an excuse to justify the appointment of civil officials as military consults in the Xuande period. The lack of literacy tests for military officials certainly does not mean that military men lacked the wit to formulate their own battle strategies. But literacy played a growing role in the evaluation and promotion of military officials. As a matter of fact, under the proposals of some *dufu* officials, more schools began to be established in the garrisons for the general education of young children from militarily households. Under this growing emphasis on literacy, military men adjusted their training to the extent that some were criticized by their contemporaries for having pursued their literacy study so far that their military training had been affected.[53] Nevertheless, in the middle and late Ming period, some military officials, such as Qi Jiguang (戚繼光), became known for

[53] For comments on *ru jiang* (Confucian generals), see Wei Huan 魏煥, *Huangming jiubian kao* 皇明九邊考 (Notes on the northern bordrs of the Ming imperium) (reprint, Taibei: Taiwan huawen shuju, 1968), 32-33. See also Huang Xun, ed., *Mingchen jingji lu* 名臣經濟錄 (Collection of statecraft writings by prominent Ming officials) (reprinted, Taibei, Shangwu yinshu guan), 302.

their high literary achievements and the military books that they produced, as well as for new military formulations and strategies that they designed.

The middle Ming period witnessed a change in the relation between the civil and the military as the boundary between the two was no longer as strict as in the early Ming period. Previously when civil officials took on high military positions, they often had to quit their civil posts in the central bureaucratic government. For example, in the early Zhengtong reign, Wang Ji (王驥), the minister of war, who was granted the noble title of the earl of Jingyuan for the military merits he had accumulated in conducting imperial campaigns in Yunnan in 1437 and 1441, had to relinquish the post of minister of war.[54] Wang was actually the first bureaucratic civil official who shifted from the civil bureaucratic system to the military system.[55] The renouncing of his civil post as minister of war meant that civil and military affairs were still separate spheres in the earlier period. With an increasing number of civil officials beginning to assume military responsibilities after 1449, however, civil officials who participated in military duties no longer had to switch to positions in the military system. The differences in earlier military positions, such as *zhenshou* (grand defender) and *canzan* (military consultant), and civil

[54] After the campaign in 1437, Wang Ji was designated Minister at court of Judicial Review concurrently, receiving a second salary for his military merits. *Ming Yingzong shilu*, 41/1b. In 1441, Wang Ji was again appointed the supreme commander to deal with Yunnan's affairs, leading the imperial expedition against the Luchuan chieftain, Si Renfa. Luchuan had obtained the technology of making gunpowder as early as in the Hongwu reign and started to expand its territory. It had frequent border disputes with the Annam as well as with tribes in southern Yunnan. As in earlier times, the Ming court decided to send a punitive expedition against Si Renfa. Ibid., 75/6a. In this battle, Wang Ji personally participated in the military action. According to a memorial submitted by Wang, when the imperial troops laid siege, he was responsible for the siege of the northWestern gate while the eunuch Cao Jixiang and other commanders were responsible for the other gates. In a memorial, Wang mentioned the military merits of other civil officials in this campaign, stating that he had sent civil officials including Li Fen and Hou Jin to go back and forth to supervise military operations. Wang Ji 王驥, "Luchuan zoujie shu 麓川奏捷疏," in *Huang Ming jingshi wenbian* 皇明經世文編, 28/207.

[55] *Ming Yingzong shilu*, 164/5a-b. In June, 1443, Wang Ji was designated again the supreme commander to lead an expedition against Si Renfa together with Jiang Gui, 蔣貴, the marquis of Dingxi, as the commander (*zongbing guan* 總兵官). In April, 1448, for a third time, Wang Ji led the imperial troops as the supreme commander on an expedition against Si Renfa with Gong Ju (宮聚), the vice commissioner-in-chief as the commander (總兵官).

posts, such as *xunfu* (grand coordinator), were not as significant as in earlier periods.[56] The civil dominance established in the Jingtai period further changed the nature of the state.

The Ups and Downs of *Dufu* Officials in the Tianshun Period (1457-1464)

The assignment of *dufu* officials became more of a permanent practice after a brief recession in the Tianshun period following the return of the former Yingzong emperor from his Mongol captivity. When the Yingzong emperor took his throne back after a palace coup in 1457, naming his second reign Tianshun, he immediately recalled all civil officials who serving as grand coordinator or grand defender in local areas and on the frontiers. The emperor told the officials of the ministries of revenue and war that he had newly retaken the throne, so everything would follow the old practice. Since grand coordinators and military superintendents in all regions had been added temporarily, they would all be recalled and frontier provisions as well as military and civilian affairs would be handled by regional commanders and others instead.[57]

As a result of this new order, the *dufu* officials were recalled. Some were switched to other government branches. For example, Wang Hong (王竑), the vice censor-in-chief, became the administration vice commissioner in Zhejiang. Liu Guangheng (劉廣衡) became the left vice-minister of justice. Other *dufu* officials, such as Nian Fu and Ma Ang (馬昂), were simply dismissed.[58] One official named Han Yong (韓雍) was imprisoned for his improper usage of gunpowder weapons. Han had served as the grand coordinator in Jiangxi when he was called back and was designated as the provincial surveillance commissioner of Shanxi. In August 1458,

[56] It is probably the reason why Xia Xie's *Ming dufu nianbiao* 明督撫年表 listed them all, including *xunfu* 巡撫, *canzan* 參贊 and *zongdu* 總督 etc. Earlier studies have been focused on fixed officials' titles such as *xunfu*. But this chapter follows *Ming dufu niabiao*, and any civil official who took on military duties either as *canzan*, *zhenshou* or *zongdu* will be taken into analysis.
[57] Ibid.,274/17b-18a.
[58] *Ming Yingzong shilu*, 275/4b-5b.

however, the prince of Ning accused Han of firing cannons and holding swords and knives to make a big display.[59] Elsewhere he was also charged for having his soldiers equipped with firearms and serving as guards for his son during a trip. While Han's behaviors certainly looked improper in the eyes of the prince, they were not against any specific law. The emperor simply judged that Han was light-minded (*qingbo wuzhuang* 輕薄無狀) and ordered him put into prison. Han was soon dismissed.

It is worth noting that when these civil officials were recalled from the provinces, eunuchs continued to manage military affairs and supervise gunpowder weapons on the frontiers. When an investigating censor, Jia Ke (賈恪), proposed to recall eunuchs as well from frontiers such as Xuanfu and Datong and the provinces such as Zhejiang following the case of Grand Coordinators, the emperor did not approve this.[60]

Probably realizing the important role of the civil officials in managing local affairs, the emperor soon changed his mind, and again sent civil officials, with the title of censor, to manage affairs in some frontiers and the provinces. In 1458, three provincial officials, Rui Zhao (芮釗), Chen Yi (陳翌), and Wang Yu (王宇), were promoted from the posts of administration vice commissioner to those of right vice censor-in-chief, and grand coordinator on the frontiers of Gansu, Ningxia, and Xuanfu respectively. Some former grand coordinators also recovered their position. For example, in 1460, the emperor also designated Han Yong as the grand coordinator for Datong and Xuanfu.[61]

[59] Ibid., 280/12a.
[60] Ibid., 274/21a.
[61] Ibid., 347/4b.

Unlike in earlier periods, the tasks of these officials were primarily civilian duties. In terms of military affairs, the imperial decree was rather vague and simply stated that these officials should discuss military affairs with military officials.[62] Nevertheless, some civil officials continued to serve as military consultants or supreme commanders in imperial campaigns.[63] In fact, the *dufu* officials' participation in military affairs became more of a regular practice after the Tianshun reign. Moreover, unlike earlier periods when central delegates served for abnormally long periods of time in local regions, the terms of these frontier offices began to be fixed. There were no longer abnormally long assignments in local regions, as had been the case with Yu Qian; the *dufu* officials began to be sent and switched regularly like other officials in the bureaucratic system.[64] It also became a routine practice that the recommendations of *dufu* officials, like those of other high-ranking officials in the central bureaucratic government, were based on the opinions of a group of recommenders constituting all major high civil officials from the central government rather than on the will of the emperor alone. This group recommendation made it more certain that people who had the most relevant experience and merits in military affairs would be chosen to serve in critical military positions such as supreme commander.

The influence of these *dufu* officials was not limited to provinces or frontiers. As early as 1435, the Ming court decided that all grand coordinators would meet in the capital city every August.[65] This practice was discontinued only briefly in the early Tianshun period, but with the reappointment of grand coordinators, the emperor again ordered that they come to the capital to meet every eighth month of the year.[66] *Dufu* officials played a significant part in decision making

[62] Ibid., 321/3a.
[63] For example, Wang Jian (王儉) had led the army together with military officials to campaign in Guizhou. Ibid., 275/15a-b; 329/3b.
[64] Ibid., 207/3b-4a.
[65] *Ming Yingzong shilu*, 9/7a-8a.
[66] Ibid., 304/2b-3a.

in state affairs when a majority of the highest-ranking posts in the central government, especially in the Ministry of war, and in the Ministry of revenue, as well as the Censorate, started to be selected from the group of *dufu* officials since the Jingtai period.[67] When these officials rose to high positions in the central government because of their accumulated civil and military merits in local areas and on the frontiers, their opinions started to carry more weight in court politics. It is equally interesting to note that in the middle of the Ming period, the term "masters of both pen and sword" (*wenwu shuangquan* 文武雙全) started to be used more frequently to refer to high-ranking officials in the Ming court.[68] These *dufu* officials, who played a critical role in coordinating the central bureaucratic government and the the provinces, the civil and military territorial administrations, the frontiers and the court, contributed to the very stability and vigor of the mid-Ming state. The rise of *dufu* officials, however, did not mean a total triumph of Confucian bureaucracy over imperial autocracy. Instead of directly challenging it, the *dufu* officials, like military officials, were integrated into the autocratic system through the grants of noble titles for themselves or heritable military positions for their descendants by the emperor.

Royal Grants of Nobility and Heritable Military Posts to Civil Officials

According to the *Great Ming Code*, "civil officials shall not be designated as dukes or marquises (Wenguan buxu feng gonghou 文官不許封公侯)," except for "those who, during their life time, become grand councilors from generals, eliminate great calamities, and are thoroughly loyal to the dynasty and thereby are designated by the titles of marquis or duke."[69] In early Ming times, it was extremely rare for any official with a civilian background to be ennobled.[70] In the

[67] As Wang Shizhen commented, it became common that censors were assigned *dufu* positions. Wang listed a good number of high-ranking officials who had previsouly served as *dufu*. See Wang, *Yanshantang bieji*, 4/60-61.
[68] Ibid.
[69] For the translations of *the Great Ming Code*, see Jiang Yonglin, *The Great Ming Code / Da Ming lu* (Seattle: University of Washington Press, 2005), 53.
[70] Ibid. See also Edward L. Dreyer, *Early Ming China: A Political History, 1355-1435*, 82-83.

middle Ming period, it became possible for a civil official to be granted nobility for his merits in military campaigns. Wang Ji, for example, was bestowed the title of Earl in 1442. Besides Wang three other civil officials, Wang Yue, Xu Youzhen (徐有貞), and Wang Shouren (王守仁), most commonly known as Wang Yangming and famous as a leading figure in the Neo-Confucian School of Mind as well as a territorial official, were granted nobility for their military merits in the middle Ming period.[71]

For other officials who had lesser merits in military conduct, their sons or grandsons often received a military position. For example, in 1450, upon the death of the minister of war, Hou Jin (侯璡), his son was granted the position of hereditary battalion commander in the Embroidered Uniform Guard (*jinyiwei*) because of Hou's earlier merits in managing military affairs. Yu Qian's son also received vice battalion commander status in 1451. Yu tried to refuse this royal favor, but the emperor insisted on this grant.[72] Likewise, in 1454 the minister of punishment in Nanjing, Yang Ning (楊寧), submitted a request for a title for his one-year-old son as a reward for his earlier military exploits. Yang's request was approved, and his son was made the vice battalion commander of Xin'an Weisuo in Zhili.[73] This practice continued after the Jingtai period. For example, in the Tianshun period, the son of Wang Ao received the title of the vice battalion commander in the Embroidered Uniform Guard in 1457.[74] And Lu Ju (陸矩), a former right-assistant censor-in-chief, submitted a similar request to the court for his campaigning in Fujian and Yan'an, and his son was also given a position in the Embroidered Uniform Guard in

[71] Wang Shizhen, *Yanshantang bieji*, 6/110.
[72] *Ming Yingzong shilu*, 206/2b-3a.
[73] Ibid., 246/7a.
[74] Ibid., 282/4b-5b.

the same year.[75] As a matter of fact, a majority of civil officials who participated directly in military campaigns received this kind of favor. When later civil officials, such as Yang Tinghe (楊廷和), refused a noble title for themselves or military posts for their descendants, some officials even suggested that instead of granting military positions, civil posts should be made hereditary; this proposal was rejected by Yang and others.[76] With their refusal to accept royal patronage, these officials actually showed a strong preference for bureaucratic perks over a personal favor by the emperor. In the late Ming period, no civil official was ever granted a noble title. This change was probably not due to fewer military merits that civil officials achieved, but rather to the formalization of the civil officials' involvement in state military affairs. Unlike an emperor-centered system, where royal rewards and patronage served to reinforce a personal connection and loyalty to the emperor, the Confucian bureaucratic rationality relied more on regular promotions and routine advancements through the bureaucratic ladder.

In the late Ming period, civil officials still competed at court with powerful eunuchs, who remained unchecked by the bureaucratic system. And *dufu* officials continued to defend their legitimacy in leading imperial campaigns and in their decision making in military affairs in the Chenghua period (1465-1487).[77] The rise of *dufu* officials in state military affairs, nevertheless, altered not only the early military system and frontier approaches, but also the political landscape of provinces and frontier areas, which became more substantial geographic entities rather than divided territories under separate civil and military administrations. The integration of the local

[75] Ibid. The son of the former minister of rites Hu Ying 胡濙, and the grandson of the minister of personnel, Cao Nai (曹鼐), both of whom died in the Battle of Tumu, were granted a position in the Embroidered Uniform Guard.
[76] Wang Shizhen, *Yanshantang bieji*, 6/111.
[77] For example, high-ranking civil officials such as Ma Wensheng (馬文升) still had to request leadership positions in the military campaigns and the management of state military affairs. See Ma Wensheng, *Maduansu zouyi*. See also Tang Hezheng, 517-518.

territories including the frontiers under a uniform administration of central bureaucratic government entailed the expansion of bureaucratic state control. As an increasing number of state territories were now placed under the bureaucratic government, more remote frontier regions, like Hami, which had been closely linked to the court through the tributary system and bonded by royal rewards and relations with the emperor, became more ambiguous regions for the state administration, as discussed in the following chapter.

Conclusion

The evolving of the *dufu* system from ad hoc assignment to into permanent positions in the provinces and on the frontiers signaled a fundamental change in the territorial administration of the Ming dynasty. Incorporating most territories, both the provinces and frontier regions, under a uniform bureaucratic administration brought them under a closer central control.[78] With *dufu* officials serving as the middlemen between the military and civil domains, and between the local and the central government, a new geographical order took shape in the Ming, which laid the groundwork for territorial administration in the later Qing period and in China today.

The rise of *dufu* officials altered the relation between the civil and the military. Quite contrary to the stereotype of conservative attitudes toward military affairs, these civil officials participated actively in state military affairs both in the provinces and on the frontiers. It was not uncommon that *dufu* officials were often blamed by their contemporaries for initiating

[78] With the rise of *dufu* officials in the territorial administration of inland provinces and frontier areas, the middle Ming also witnessed the appearance of a growing number of provincial gazetteers. It seems that the provincial gazetteers did not appear until the Jingtai period except for two in Yunnan Province that were compiled during the reign of the first emperor. The appearance of these provincial gazetteers helped to shape the political and geographical concepts of local landscapes. For a table of the dates for the compilations of the provincial gazetteers in the Ming period, see Zheng Yalu, "Mingdai shengzhi de bianzhuan yu yanjiu jiazhi" (Research on the editing and value of provincial records of the Ming dynasty) (master's thesis, Tianjin shifan daxue, 2014), 32. See also Joseph Dennis, *Writing, Publishing, and Reading Local Gazetteers in Imperial China, 1100-1700* (Cambridge, Massachusetts: Harvard University, 2015).

unnecessary military campaigns to gain personal credit.[79] With an increasing number of civil officials managing military tasks, a once-clear boundary between the civil and military spheres in the government started to blur, and the relationship between *wen* (civil) and *wu* (military) was redefined both in reality and in concept. The establishment of civil dominance in the Ming state was a departure from the model of most other contemporary gunpowder states. It also points in a direction a political development that was closer to modern institutions. There were still limitations in bureaucratic development. Through the grants of inheritable military positions, the *dufu* officials were integregrated into the power web of the autocracy. There was a growing gap between conventional Confucian bureucrats and *dufu* officials in terms of frontier approaches and political standpoints. Moreover, the further frontier regions such as Hami were still beyond the administrative and military capacity of the bureaucratic states. With the rise of *dufu* officials in state military affairs, they also started to envision a different frontier approach that took full advantage of powerful gunpowder weapons on the frontiers rather than keeping them in the capital city. Due to their efforts, the inner court's monopoly of gunpowder weapons started to loosen in the sixteenth century, and so did the autocratic control of the state.

[79] Xu Chongxi 許重熙, *Xianzhang waishi xubian*, 1.

Chapter 4
Court and Frontier: The Hami Crisis and the Inflow of Ottoman Muskets

In 1521 a Muslim official named Sayyid Ḥusain (寫亦虎仙) from Hami (Kumul), the closest oasis city to China on the Silk Road and a frontier garrison established in the Yongle period, was imprisoned, charged, and executed in Beijing for a close relation with evil eunuchs and for treason under the order of Senior Grand Secretary Yang Tinghe (楊廷和).[1] Yang had briefly gained control of the court after the death of the Zhengde Emperor in 1521. This order was one of many new policies that Yang was determined to carry out to curtail the power of eunuchs as well as that of the emperor. However, the trial was reopened by the court after the enthronement of the new Jiajing emperor, and it was argued that the execution of Sayyid Ḥusain had led to further invasions by the Turpanians and the final loss of Hami. Issues related to the frontier and the loss of Hami, as well as the trial itself, generated hot debates, leading to a series of purges known as the Purges of Frontier Officials (*fengjiang zhi yu* 封疆之獄). These purges affected the fate not only of Yang's family but also of some forty officials including several high-ranking frontier officials at court in the early Jiajing period.[2] This chapter will investigate the relation between the purges and the loss of Hami Garrison in the Jiajing period and shed light on the limits of the central bureaucracy in the control of the farthest borderlands.

[1] For Yang Tinghe's new policies, see Yang Tinghe 楊廷和, *Yang Wenzhong sanlu* 楊文忠三錄 (reprint, Taibei: Taiwan shangwu yinshu guan, 1983), 4/30b-31a. For an elaborate discussion on Yang's reforms, see also Tian Shu, *Jiajing gexin yanjiu* 嘉靖革新研究, 60-65.
[2] See *Yupi lidai tongjian jilan* (reprint, Taibei: Taiwan shangwu yinshu guan, 1994), 108/43b-44a.

The purges have been generally regarded as a political tool in response to court conflicts especially The Great Ritual Controversy in the early Jiajing period and unrelated to frontier conditions.[3] This chapter suggests that events happening on the frontiers were closely linked to the power struggles and the politics of the court. Instead of moral judgement, this chapter provides a more complicated picture behind the political disagreement among Confucian officials and looks into the varied methods of the bureaucratic government in trying to deal with the remote borderlands such as Hami Garrison.

This chapter situates changes on the Ming northwestern borders within a new phase of the gunpowder age in which the flow of foreign weapons, such as Ottoman muskets, in central Asia had an impact on the geopolitics of this region. It will show a close link between court politics and the Hami crisis when the latter became a focal point during a court crisis in the early Jiajing period. The purges of frontier officials associated with the Hami issue also serve as a window on the contest between imperial autocracy and Confucian bureaucracy over the management of frontier and military affairs.

The Ambiguous Role of a Frontiersman, Sayyid Ḥusain

As mentioned earlier, the Yongle emperor bestowed upon the Mongol leader of Hami the title Prince of Zhongshun as well as a gold seal.[4] But since the Zhengtong period, the city was attacked and occupied several times by the Mongols, first the Oirats led by Esen and then the Turpanians. In 1473, the Turpan (Turfan) leader attacked Hami, capturing the gold seal and the city leader, driving the local people to flee to other regions. Like some other Hami residents,

[3] This court event was also closely associated with another major ritual debate between the emperor and his majority civil officials and thus is generally regarded as a political tool of the emperor. It is closely related to the ritual debates, and together they serve as a window to observe court conflicts between the emperor and his Confucian officials.

[4] Ma Wensheng, "*Xingfu hami ji*" (The recovery of Hami), in *Jin xian huiyan* 今獻彙言, ed. Gao Mingfeng, 5/1b.

Sayyid Ḥusain had taken refuge in Suzhou (a garrison town at Gansu) when the Turpan leader attacked and occupied Hami city.[5] Sayyid Ḥusain was one of the influential people of Hami and he offered tribute several times to the Ming court on behalf of Hami.[6] After the death of the Zhongshun Prince at the hands of the Turpanians in 1488, Sayyid Ḥusain served as an envoy from the Ming court, urging the Turpanian leader to return both Hami city and the seal. Sayyid Ḥusain seems to have handled the task well, and in 1491 the Turpanians returned both. Sayyid Ḥusain was thus promoted to Assistant Commander by the Ming court.[7] In 1512-13, as one of the three commissioners-in-chief of Hami appointed by the Ming court, Sayyid Ḥusain accompanied the brother of Manṣūr (1484-85 to 1545-46), the Chief of Turpan back to Turpan.[8]

Sayyid Ḥusain's rise in prominence in the Ming court was, however, related to a later accusation against him for mishandling envoy tasks. In 1515, when the Turpanians again attacked and occupied Hami, the supreme commander, Peng Ze (彭澤), designated Sayyid Ḥusain to serve as an envoy to Manṣūr. In an official report to the Ming court, Sayyid Ḥusain

[5] The Ming sources record that the people of Hami several times escaped from the invasions of the Turpanians in other places of the Ming such as Kuyu and Suzhou. The earliest invasion mentioned is in 1473, when the Turpan Sultan Ali invaded and occupied Hami, and the *huihui* of Hami, Maheima (马黑麻), escaped and settled in Gansu. See *Ming Xianzong shilu*, 115/1b-2a. In 1474, the leader of Hami, Tuotuobuhua (脱脱卜花), was appointed assistant commander and temporarily settled in the city of Kuyu (now the city of Suoyang). Hami Garrison town was resettled in Kuyu Valley in 1477. Only in 1482 did Hanshen and the Ming recapture Hami. In 1488, Hanshen was killed by the Turpan leader. See *Xinfu hamiji*, in Chen, *Mingdai Hami Tulufan Ziliao Huibian*, 168. Yamulang, the Regional Military Commissioner of Hami, recaptured Hami in 1489. See Chen, *Mingdai Hami Tulufan ziliao huibian*, 171.Sayyid Ḥusain was the nephew of a former assistant commander of Hami, Saiyisalong (賽亦撒隆), and this personal connection might have contributed to Sayyid Ḥusain's serving as envoy. See *Ming Xiaozong shilu*, 65/4a.

[6] It seems that Sayyid Ḥusain accumulated much wealth through illegal trade of his private goods when he served as envoy to the Ming court. Several sources mention that when he was an envoy, Sayyid Ḥusain brought not only tribute to the Ming, but also his goods for private trade, which was against the Ming law. See *Ming Wuzong shilu* (Veritable records of emperor Wuzong*)*, 43/2b-3a.

[7] See Yan Congjian, *Shuyu zhouzi lu* 殊域周咨錄 (Comprehensive record of information about foreign places), 12/416.

[8] Some sources have suggested that Sayyid Ḥusain stayed there longer than he should have. It is said that Manṣūr intended to invade China, so he retained Sayyid Ḥusain and other Hami envoys sent by the Ming. See Yan, *Shuyu zhouzi lu*, 13/437. Also see *Ming Wuzong shilu*, 107/1a.

stated that he had spent all the gifts from the Ming court that he brought and that only with great difficulty did he get Manṣūr to return the golden seal (of Hami), but not the city of Hami. In return, Manṣūr demanded 1,000 *pi* of silk, and Huozhetazhi Mansur's right-hand man, demanded 500 *pi*.[9] Because of various reports that the Ming received, Sayyid Ḥusain was discovered to have cheated the court. A report from a Turpan captive on January 4, 1518, stated that Sayyid Ḥusain had manipulated the situation for his personal interests. According to this report, Sayyid Ḥusain wanted to make himself the prince of Hami. He tried to win the favor of Manṣūr by requesting to marry an aunt of Manṣūr, a request that Manṣūr accepted. But when Sayyid Husain found the aunt was too old, he wanted to marry the daughter of Manṣūr instead. Manṣūr then got angry and intended to kill Sayyid Ḥusain. Sayyid Ḥusain asked Huozhetazhi to speak for him and then escaped punishment by promising to give 1,000 *pi* of silk as mentioned earlier.[10]

Sayyid Ḥusain was soon captured and sent to the capital for further investigation. Not only was he able to escape punishment, but also he subsequently became a trusted intimate of the Zhengde Emperor.[11] It was said that Sayyid Ḥusain could achieve such results by bribing a favored eunuch of the Zhengde Emperor, Qian Ning (錢寧), who was a general at the time. Even though some sources have suggested an intimate relation between Sayyid Husain and the emperor, it was more likely that Sayyid Ḥusain served as a valuable source of information about the northern borders and the Turpanians as well as about central Asia for the emperor, who had

[9] See Yan, *Shuyu zhouzi lu*, 13/437-438. In 1476-77, the Ming cast a new city seal of Hami and gave it to Hanshen 罕慎, the *dudu* at that time, because the old one was captured by the Turpanians. See *Ming Xianzong shilu*,159/2a. But according to Shen Chaoyang, it was Peng Ze who tried to buy the city and the golden seal from Manṣūr but did not get the seal. See Shen Chaoyang, *Huangming jialong liangchao wenjian ji* 皇明嘉隆兩朝聞見紀 (Minutes of the Imperial Jiajing and Longqing administrations) (Taibei: Xuesheng shuju, 1969), 46.

[10] See Wang Qiong's memorial, "wei chachu jiuzhu mouni huiyi yi jing difang shi," in *Jinxi benbing fuzou*, in Chen, *Mingdia Hami Tulufan Ziliao Huibian*, 267.

[11] See *Ming Wuzong shilu*, 37/7b-8a.

great interest in the military campaigns and frontier issues. Just as in the Mughal court, many Central Asian men also received patronage in the Ming court.[12]

Upon the death of the Zhengde emperor, however, Sayyid Ḥusain was soon put into prison on the charge of treason, along with an accusation of maintaining close friendships with evil eunuchs of the Zhengde Emperor. The deeper reason might be Yang Tinghe's distrust of Sayyid Husain that with great knowledge of China, he would cause a great deal of trouble in the borderland if released.[13]

In 1524, three years after the death of Sayyid Ḥusain, the Turpan leader Manṣūr besieged the Ming garrison town of Suzhou and attacked Ganzhou with twenty thousand cavalry.[14] Upon hearing this, Yang Tinghe quickly ordered the dispatch of some high officials in court including Minister of War Jin Xianmin (金獻民), and Palace Eunuch Zhang Zhong (張忠), to march westward leading imperial troops to fight Manṣūr. When the troops arrived in Suzhou, the Turpanians had already retreated because Chen Jiuchou (陳九疇), the grand coordinator of Gansu, had successfully defended of the city, probably relying on the gunpowder weapons there.[15] Yang Tinghe and other officials defined this military campaign as a success, especially because of the report that Manṣūr had been killed in this battle. Jin Xianmin, Chen Jiuchou, and other officials received high rewards for this campaign. To a certain extent, Yang Tinghe's firm determination in this military campaign does not coincide with the prevailing impression among

[12] For more information on activities of central Asian men in the Mughal court, see Richard C. Foltz, *Mughal India and Central Asia* (Karachi: Oxford University Press, 1998), 114-123.
[13] See *Mingshi*, 329/8523 (Beijing: Zhonghua shuju, 1975).
[14] Manṣūr (1484-85 to 1545-46), who attacked the Ming northwestern borders several times, was the Chief of Turpan and occupied part of Eastern Moghulistan. See L. Carrington Goodrich and Chaoying Fang, eds., *Dictionary of Ming Biography, 1368-1644* (New York: Columbia University Press, 1976), 1037.
[15] See *Mingshi*, 329/8524. The use of gunpowder weapons can be told by the fact that Chen requested 10,000 *jin* of sulfur from the capital city in November 1524. See *Ming Shizong shilu*, 44/1b.

current scholars that the Ming state mainly relied on defensive strategies such as building fortifications after the Battle of Tumu.[16]

Hami and the Purges of Civil Officials (March, 1527 - April, 1528)

The campaign ordered by Yang Tinghe soon became a target of attack at court. On March 13, 1527, an imperial bodyguard of the emperor named Wang Bangqi (王邦奇), who had lost his position because of Yang Tinghe's reform, submitted a memorial to the Jiajing emperor, stating that the attack from Turpan was mainly due to Yang Tinghe's execution of Sayyid Ḥusain. In this memorial, Wang Bangqi blamed both Yang Tinghe and Peng Ze for the loss of Hami.

This memorial generated hot debate at court. Besides the execution of Sayyid Ḥusain, three other issues were under imperial investigation. First, most of the officials received promotions and rewards without a single fight so would not have seen this military action as professionally necessary; secondly, the cost of the campaign was enormous, about 140,000 taels of silver from the National Silver Vault, compared to the fact that not a single battle took place.[17] Thirdly, the report of the death of Manṣūr during this campaign turned out to be false, which was further confirmed by the fact that the Ming court and the Jiajing emperor still received letters from the Turpanians signed with Manṣūr's name. Moreover, this campaign did not stop further attacks by the Turpanians. The following fall, Manṣūr invaded Suzhou again and retreated only in the face of the regional defense.[18] All of these issues, together with the execution of Sayyid

[16] Frederick Mote, for example, argues that the Ming state turned militarily conservative and inward looking, especially after the Battle of Tumu. See Frederick W. Mote, "The T'umu Incident of 1449," in *Chinese Ways in Warfare*, ed. Frank A. Kierman, Jr. and John K. Fairbank (Cambridge, MA: Harvard University Press, 1974), 243-72. Peter Purdue, a representative scholar, holds the view that aggressive campaigns the Ming launched in its earlier period ended with the Battle of Tumu of 1449. See Peter C. Perdue, *China Marches West: The Qing Conquest of Central Eurasia* (Cambridge, MA: Belknap, 2005), 52.
[17] See *Ming Shizong shilu*, 43/12a.
[18] See *Mingshi*, 329/8524.

Ḥusain, continued to generate a heated debate in court, which led to a series of investigations of these court officials who advocated for the Hami campaign.

At this time, Yang Tinghe had already resigned because of his disagreement with the newly empowered Jiajing emperor in the Great Ritual Controversy, as discussed later. However, he still had influence at court. When Yang Tinghe's friends and relatives tried to cope with this issue, they were the first ones to be put under investigation. As Wang Bangqi's subsequent memorial accused, "the grand Secretaries, Fei Hong (費宏) and Shi Yao (石瑤), who belonged to Yang Tinghe's party, tried to cover for Yang Tinghe. The son of Yang Tinghe, Yang Dun (楊惇), who served the secretary of war, also hid old documents so that the memorials would contradict each other and would be of no value for clarifying the situation. The adopted son of Yang Tinghe, the reader-in-waiting, Ye Guzhang (葉桂章), as well as the son-in-law of Yang, the senior compiler, Yu Chengxun (余承勛), and Peng Ze's brother and others did not return the documents."[19] In response to this charge, the Jiajing emperor ordered that Yang Dun and others be put into prison and then ordered court officials to make a joint judicial investigation.

Some officials who tried to speak for Yang Tinghe were also put under investigation. A friend, the supervising secretary in the Office of Scrutiny for Rites, Yang Yan (楊言), who sent a memorial to defend Yang, was also put into prison. The marquis of Zhenyuan, Gu Shilong (顧仕隆), and some other officials replied that Wang Bangqi's attack was groundless. The emperor blamed Gu Shilong for playing favorites. Yang Tinghe's son, Yang Dun, was stripped of his official title and reduced to the position of a commoner. Yang Yan was transferred out of the

[19] See *Ming Shizong shilu*, 73/1b-2b.

capital. Yu Chengxun was made to stay at home and officially charged with malingering absenteeism. Others were released.[20] The purges, however, did not end with the punishment of these officials. The Jiajing emperor ordered the grand coordinators and supreme commanders to examine and report on this frontier issue.[21] All the potential problems concerning Yang Tinghe's 1524 campaign were put under investigation.

The first issue to be clarified was whether Manṣūr had been killed in the campaign. The minister of War, Wang Shizhong (王時中), suggested that officials should be sent to the border to investigate this issue. However, Yang Yiqing persuaded the emperor that the official translator should not be sent due to the long distance.[22] Opinions against Yang Tinghe and some high-ranking frontier officials involved with the earlier campaigns began to be brought up. On September 2, 1527, Right Vice Minister of Rites and Right Chancellor of the Hanlin Academy Gui E (桂萼), who was one of the most trusted officials of the Jiajing emperor, submitted a memorial in which he argued that the Turpanians had invaded Gansu in 1524 (three years after the execution of Sayyid Ḥusain) not for loot but to vent their grievances about Sayyid Ḥusain's death. According to Gui E, Chen Jiuchou had overstated the severity of the Turpanians' invasion to shock the court. Consequently, the court officials decided to send a large number of soldiers to fight the Turpanians, but this decision only made the commoner's lives utterly miserable (probably by increasing the burden of their labor-service or tax to the state). Gui E further stated

[20] Ibid. Wang Bangqi did not get what he desired. He was demoted one degree lower to platoon commander.
[21] Ibid.
[22] Ibid., 83/15a-b. See also Yang Yiqing, "Lun Wang Bangqi zhichi dachen zoudui" 論王邦奇指斥大臣奏對, in *Yang Yiqing ji*, 830-831.

that this military action was the result of Yang Tinghe's wanting to establish the guilt of Wang Qiong (王瓊), his rival and the former minister of war, during the Zhengde reign.[23]

All Offices of Scrutiny and Circuits remained silent. The emperor was not convinced by Gui's words at this time, but he maintained that he had his own idea about people's relative guilt.[24] Chen Jiuchou had already been arrested in February 1528.[25] In April, the Jiajing Emperor ordered that the Ministry of War together with Three Judicial Offices discuss both the merit and the guilt of the officials concerned with the Gansu issue. Minister of Justice Hu Shining (胡世寧), in his memorial clarified this issue. He first defended Chen Jiuchou, saying that without the effort of Chen Jiuchou, Suzhou would have been in danger.[26] He further stated, "The reports arrived saying that Jiuchou reacted rashly and led the barbaric enemy to penetrate. But in the end he could resist them. Besides the merit, he readily believed the rumor and then reported that the leader of Turpan had already been killed. This guilt should not be forgiven."[27] In his memorial, Hu Shining also listed in detail the merits and faults of other members related to the case:

> Minister of War Jin Xianmin robbed other's credit and got rewards and promotions. The supreme commander and censor-in-chief, Peng Ze, planned and operated unsuccessfully, which later caused hardship. But he once got back the seal. His credit should not be ignored. Other regional military officials followed Chen Jiuchou's case. They include the grand coordinator and censor-in-chief of Gansu, Li Kun (李昆), the grand defender palace eunuch, Xu Xuan (許宣), the assistant commissioner-in-chief, Shi

[23] *Ming Shizong shilu*, 79/3b-4a.
[24] Ibid.
[25] Ibid., 84/8b.
[26] Since Zhongshun Prince Baiya 拜牙 had gone to the side of Turpan, Hami had already been subjugated to Turpan control. Other ethnic groups had nowhere to stay. One kind of *huihui* (Muslim group) had long been attached to Turpan. *Halahui* 哈喇灰 and Uighur, two other ethnic groups, fled and became attached to Suzhou for a long period. The Turpanians only tried to sow discord by saying that they attacked Suzhou because of Chen Jiuchou. They had premeditated the invasion for a long time. Without the effort of Chen Jiuchou, Suzhou would have been in danger. Jiuchou was the one whom the Turpanians hated the most. See Goodrich and Fang, *Dictionary of Ming Biography*, 1037.
[27] *Ming Shizong shilu*, 86/6b-7b.

> Yong (史鏞), the assistant regional commander, Jiang Cunli (蔣存禮), vice regional commander, Zhao Zhen (趙鎮), the assistant regional commander and Yunmao mobile corps commander Wang Jue (王爵).
>
> The responsibilities of the superintendent palace eunuch, Zhang Zhong, and the assistant commissioner-in-chief, Hang Xiong (杭雄), are similar to that of Jin Xianmin.
>
> With regard to the false report of Manṣūr's death, several people besides Chen Jiuchou should be responsible for it. They include regional military commissioner Wang Fu (王輔), who falsely reported the death of the leader of Turpan. Other people such as Censor Lu Wenzhi (盧問之), who executed barbarian prisoners without authorization in order to prevent changes, should also get punishment according to the law.
>
> Lastly, the improper rewards and promotions should be corrected. The grand defender palace eunuch, Dong Wenzhong (董文忠), and the sons and nephews of Jin Xianmin, Zhang Zhong, and Hang Xiong, who were falsely given promotions because of the meritorious services rendered by their forefathers and all other assistants who got promotions or salary increases, all should be investigated thoroughly.[28]

The false report of Manṣūr's death, the improper rewards that people got after the campaign, and unsuccessful plans before the campaign became the reasons for the punishment of these high-ranking frontier officials. The Jiajing emperor accepted Hu Shining's opinions. In the end, the emperor judged that Chen Jiuchou should be exiled to the furthest border. Peng Ze was stripped of his office; Li Kun, Xu Xuan, Shi Yong, Jiang Cunli, and Dong Wenzhong were demoted by two degrees. Assistants were investigated and their salaries reduced. Only Jin Xianmin and Hang Xiong were allowed to wait for judgment until the death of Manṣūr could be investigated clearly.

At this time the Jiajing emperor was still not clear about the information concerning Manṣūr. According to Persian sources, Manṣūr went westward during this time, which made things more complicated.[29] One event worth noting is that shortly after the punishment of Yang

[28] *Ming Shizong shilu*, 86/6b-7b.
[29] Turpan or Turpan was a regime within the area of Yelibali [Ilbalik]. On the relations between the Ming state and Turpan, see Morris Rossabi, "Ming China's Relations with Hami and Central Asia, 1404-1513: A Reexamination of Traditional Chinese Foreign Policy" (PhD diss., Columbia University, 1970). For a brief biography of Manṣūr, see Haydar Mīrzā, *The Tarikh-i-Rashidi of Mirza Muhammad Haidar, Dughlat: A History of the Moghuls of Central Asia*, trans. E. Denison Ross (New York: Barnes and Noble, 1972), 123-129.

Tinghe's group of men in the purges, Yang Tinghe met his final fall from grace and was stripped of his honorable title and became a commoner. He died the following year. [30]

Afterward, the former minister of war of the Zhengde reign, Wang Qiong, having been put into prison and exiled to the frontiers by Yang Tinghe during his brief control of the court, gained his title back and served as the supreme commander of Shanxi and Gansu. Yang Yiqing, another high frontier official untouched by the purges, remained at court. A scholar who has worked on the purges, Hu Jixun, suggests that Wang Qiong was the one behind the trials and that he possibly asked Wang Bangqi to send the memorial in order to regain his office.[31] But Hu and scholars treat the purges merely as a political conflict between parties without explaining fundamental differences in various court officials' understandings of frontier issues, except for factors such as the personalities and native-place loyalties of Yang Tinghe and his followers.

In contrast to the saying that the purges of high-ranking frontier officials led to the failure of the Ming state on the frontiers in the early Jiajing reign, the control of frontier policy in fact soon reverted to former officials in the Zhengde reign. Continuing rather than rupture, characterizes the frontier policies of the Ming from the Zhengde reign through the early Jiajing reign. It is clear that only those high frontier officials including Peng Ze and Chen Jiuchou, who gained their offices briefly during the time when Yang Tinghe was in charge of the court, lost power. Former frontier officials like Wang Qiong, who was prominent under the Zhengde emperor, regained their power after the trials in the early Jiajing reign. It was actually not a coincidence that in the year 1528, shortly after the end of the purges, the emperor gained his final

[30] See Goodrich and Fang, *Dictionary of Ming Biography*, 1545.
[31] Hu Jixun, *Da liyi yu mingting renshi bianju* 大礼议与明廷人事变局 (Beijing: Shehui kexue wenxian chubanshe, 2007), 295.

success over people who had opposed him in the Great Ritual Controversy concerning the proper titles for his birth parents. The link of the two court events in the early Jiajing period needs to be revisited.

The Great Ritual Controversy and the Purges

When the Zhengde emperor died in 1521 without any child, one of his cousins, the heir apparent of a vassal prince, Zhu Houcong (朱厚熜), was chosen to succeed the throne under the arrangement that the new emperor should reign as an adopted son of his late uncle, the Xiaozong emperor. Yang Tinghe made this proposal. The newly enthroned Jiajing emperor, however, only agreed that the Xiaozong emperor be honored as his uncle and tried to elevate his birth father posthumously to the status of emperor. This disagreement aroused great debate among court officials. Yang Tinghe and other officials emphasized external norms and historical precedents. With the support from several officials such as Zhang Cong (張璁), who argued that human feelings should be followed, the Jiajing emperor insisted on position despite opposition from the majority of his officials in court led by Yang. [32] The debate rose to its climax when one hundred and thirty-four officials gathered at the Zuoshun Gate to prostrate themselves after the court morning audiences. The arrest of all these officials was, however, followed by harsh sentences. Those holding the fourth grade of bureaucratic rank, about 86 people, had their salary confiscated, while those of lesser rank were given thirty lashes each, which resulted in the death of sixteen.[33]

Unlike these protesting officials, a few high-ranking officials such as Yang Yiqing and Wang Qiong gave the emperor firm support in this ritual debate. It was not a coincidence that the

[32] For the ritual debates, see Carney Thomas Fisher, "The Great Ritual Controversy in Ming China" (Ph.D. dissertation, University of Michigan, 1977), 112.
[33] Ibid, 170-171.

two camps of officials in the Great Ritual Controversy largely corresponded with the two factions of officials in the purges following the in Hami crisis. Partisanship based on region or philosophical schools, factors most frequently stressed in historical scholarship, are certainly not enough to explain different standpoints of the court officials.[34] While Yang Tinghe's rivals had attacked him for forming cliques and playing favorites among people from his native province, Sichuan, the issue of regional background does not seem powerful enough to explain the political divisions of the court at this time. It is true that one of the high officials, Jin Xianmin, who was punished in the Purges, was from Sichuan. However, other members of the so-called Yang party did not come from Sichuan. For example, Peng Ze was a native of Lanzhou, in Shaanxi Province, and Chen Jiuchou was a native of Caozhou, in Shandong Province.

The court struggles revealed the fundamental disagreements among the Confucian officials both in court politics an in frontier policy. As mentioned earlier, when Yang Tinghe briefly had control over the court and state affairs during the Zhengde-Jiajing transition, he soon put Wang Qiong, the former minister, into prison because of Wang's close relation with evil eunuchs. He also immediately released from prison Chen Jiuchou and Peng Ze, who had been accused of mishandling the Hami issue by Wang Qiong. [35]

The failure of Yang Tinghe's frontier management reflected the limits of the central bureaucracy to handle the farthest borderlands including Hami. Based on observations of the deficiency of central finance, court officials might not have had sufficient resources to handle

[34] Harry Miller suggests that the conflicting views of sovereignty in the schools of legalism and Confucianism were the underlying reason for the court partisanship in the late Ming period. See Harry Miller, *State Versus Gentry in Late Ming Dynasty China, 1572-1644* (New York: Palgrave Macmillan, 2008).
[35] Peng Ze's position in the Great Ritual Controversy is very ambiguous. Some scholars such as Hu Jixun think Peng Ze disagreed with the emperor while other scholars think Peng was on the other side. See Hu, 308.

frontier emergencies at this time without the support of the emperor.[36] For example, according to Wang Qiong's memorial on June 15, 1517, when the court sent high-ranking officials in and out of the court to fight against the invasion of the Turpanians in Suzhou, the Zhengde Emperor disbursed more than 500,000 taels of silver from the Palace Treasury.[37] The silver for Yang Tinghe's and Jin Xianmin's campaign, as mentioned earlier, about 140,000 taels, was much less than that of the Suzhou campaign, however, and mostly came from National Silver Vault. Since Jin and other officials returned without a single fight, it is impossible to calculate whether this single source from the National Silver Vault was enough for a frontier campaign. Nevertheless, criticism of the expedition of Jin Xianmin for wasting vast amounts of silver without fighting a battle was a constant in court. And Wang Qiong's attack on Peng Ze and Chen Jiuchou was not totally groundless since the court had spent so much money on frontier affairs but had gained no substantial successes when the Turpanians invaded Suzhou.

The Flow of Ottoman Muskets in Central Asia

While many contemporaries blamed the Ming's loss of Hami on the purges, about 70 years later in the Wanli period (1573-1620), a Ming court official, Zhao Shizhen (趙士禎), published a book, *Shenqi pu* (Treaties on firearms) attributing the reason for the Ming's military failure in its campaigns to Turpan's acquisition of *lumi* muskets from the Ottomans. According to Zhao Shizhen, his grandfather, Zhao Xinglu (趙性魯), who had served as the vice minister of the court judicial review in the Jiajing reign, once told him:

> I heard that in the former (Jiajing) reign, the Turpanians took possession of Hami. China dispatched high officials and recruited tens of thousands of soldiers to go and reinforce (Ming frontier guards) via different

[36] For a discisson of the factors for fiscal deficit of the Ming state in the sixteenth century, see Ray Huang, *Taxation and Governmental Finance in Sixteenth-Century Ming China* (London: Cambridge University Press, 1974), 44-46.
[37] See Wang Qiong, *Jinxi benbing fuzhou*.

> routes. It was because the Turpanians borrowed the great weaponry from *lumi* (the Ottomans) that the Heavenly (imperial) troops could not succeed. In the end Hami was annexed by the Turpanians.[38]

Zhao Xinglu was said to have traveled to the capital city during the time of the Hami crisis and the purges. In 1529, for his literary talent and excellent skill in the art of calligraphy he was selected to join the Historiographers' Institute and prepare for the compilation of *Da Ming huidian*. In 1531, the Jiajing emperor ordered him to write out in his calligraphy on the walls of the West Palace two poems from *Shijing* (the Classic of Poetry) in the West Palace. It was said that the emperor was so satisfied with this writing that Zhao Xinglu was promoted be an usher on the staff in the Court of the State Ceremonial and to serve in the Proclamations Office.[39] We do not know whether Zhao Xinglu had knowledge about Ottoman firearms mainly because he was able to access court archives and documents as a member of the compilers of *Da Ming huidian* in the Historiographers' Institute or simply because he was close to the Jiajing emperor. Though he did not publicize his opinions about the Hami issue, his knowledge apparently passed down to his grandson, Zhao Shizhen.

Like his grandfather, Zhao Shizhen was excellent in calligraphy and was thus selected to serve as Secretariat Drafter in Wenhua Hall of the Palace. As a young man, it was said that he was interested in frontier affairs and had a reputation for his unconventional and lofty aspiration.[40] Besides his literary circle, Zhao Shizhen had a wide circle of military friends, among whom was the famous Ming military strategist, Vice Regional Commander Qi Jiguang

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[38] See Zhao Shizhen 趙士禎, *Shenqi pu* 神器譜 (Treatise on firearms), *juan* 2. For the exact meaning of the term *lumi*, some scholars believe that *lumi* means *rumi,* which refers to Byzantine in earlier times but to Turkey in the Ming period. See Joseph Needham and Robin D. S. Yates, *Science and Civilization in China*, volume 5, *Chemistry and Chemical Technology,* part 6*, "Military Technology, Missles and Sieges"* (Cambridge: Cambridge University Press, 1994). Also See Ma Jianchun 马建春, "Ming Jiajing Wanli chao lumi chong de chuanru zhizao ji shiyong" 明嘉靖、万历朝噜嘧铳的传入、制造及使用, in *Huizu yanjiu* no.4 (November, 2007), 70-76.

[39] Jiang Zhun 姜准, *Qihai suotan* 岐海瑣談 (reprint, Shanghai: Shanghai shehui kexue yuan chuban she, 2002), 29.

[40] Liu Ruoyu 刘若愚, *Zhuozhong zhi* 酌中志 (Beijing: Beijing guji chuban she, 1998), 18.

(戚繼光).[41] Qi Jiguang himself adopted the Western musket known in Chinese as *niaochong* (鳥銃) and wrote several books on firearms, discussing how to combine them in the disposition of troops.

Like Qi, Zhao Shizhen was very interested in *niaochong* musket and had a concern about the constant invasions of Japanese pirates along the coastal areas of China including his hometown in Zhejiang Province. In his book *Shenqi pu*, he describes various gunpowder weapons including those from the Westerners:

> Since the beginning of unrest on the coastal frontiers, I have paid close attention to firearms. I've learnt about *chongfeng dachong* (衝鋒大銃, the big cannons), which included *Sanjiangjun* (三將軍, a kind of early bombard of the Ming) in frontier garrison towns distributed by the court, *Folangji* (佛郎機, Frankish cannons) and the altered form of *folangji* by Qi Jiguang, *Hudunzi pao* (虎墩子砲), and *Xiyangfan niaochong* (西洋番鳥銃, Westerners's muskets), which were shown to me by Mobile Corps Commander Chen Yin (陳寅) when he arrived at the capital city. The muskets from the Westerners were a bit longer than muskets from Japanese pirates. When a trigger was pulled, a bullet was discharged. It used one *qian* (錢) of powder, and eight *fen* (分) of lead shot. Its system was easy and convenient (to use), but it reached only about fifty to sixty steps farther than old *niaochong*.[42]

Zhao Shizhen knew plenty of information about different kinds of contemporary firearms. Comparing all these gunpowder weapons, Zhao comments that the Ottoman musket (*niaochong*) is the best: "Its mechanical device is much handier than the Japanese musket, and when trying it, its range and power are several times greater than the Japanese musket."[43]

Zhao Shizhen's comments also indicated the coming of a new period of the gunpowder age when gunpowder weaponry technology advanced greatly in other regions. As has been well noted, since the invention of early firearms in China, the knowledge of firearm technology had spread to neighboring states of China and further westward to the Ottomans and Europe, where

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[41] Ibid. Qi Jiguang and his troops (Qijia jun 戚家軍), as discussed in the following chapter, had won many battles fighting against the Japanese pirates, and together with Regional Commanders Liu Xian (劉顯) and Yu Dayou (俞大猷), finally wiped out all the pirates in Pinghai Guard in 1563.
[42] Zhao Shizhen, *Shenqi pu*, *juan* 2.
[43] Ibid.

new firearms were produced. As Carlo M. Cipolla has observed, gunpowder technology developed in various parts of Europe and improved quickly because of frequent wars among European powers and the demand for greater weapons in the face of thicker walls and fortresses.[44] Likewise, Gábor Ágoston observes that gunpowder weaponry technology was improved in the Ottoman Empire and the sultans of the Ottomans employed cannoneers to produce guns on a regular basis.[45] Gunpowder weaponry certainly played a major role in the great expansion of Western powers.[46] And likewise, relying on this large number of gunpowder weapons, as Giancarlo Casale notes, the Ottomans rivaled not only contemporary European states but also wielded great power in the Indian Ocean.[47]

During this age of exploration, it was not a coincidence that Ottoman military weaponry technology was encountered in the Ming court. Zhao stated that he learned the method of producing *lumi* muskets from an Ottoman official, Duosima (朵思麻), who had served as an official in charge of gunpowder weapons for the Ottomans and who later lived in Beijing. It is worth noting that in this new age, with the coming of better gunpowder weaponry technology, Ming China no longer enjoyed a monopoly of the best weaponry technology in Asia. In fact, the spread and circulation of gunpowder technology had a huge impact on the outcome of military encounters between early modern forces. China began to engage in more frequent frontier

[44] Carlo M. Cipolla, *Guns, Sails, and Empires: Technological Innovation and the Early Phases of European Expansion, 1400-1700* (New York, Pantheon Books, 1966).
[45] Gábor Ágoston, *Guns for the Sultan: Military Power and the Weapons Industry in the Ottoman Empire* (New York: Cambridge University Press, 2005), 178.
[46] For discussions of the gunpowder technology and politics in Europe, see William H. McNeill, *The Pursuit of Power: Technology, Armed Force, and Society Since A.D. 1000*; Carlo M. Cipolla, *Guns, Sails, and Empires: Technological Innovation and the Early Phases of European Expansion, 1400-1700*. See also William H. McNeill, *The Age of Gunpowder Empires, 1450-1800*.
[47] See Giancarlo Casale, *The Ottoman Age of Exploration* (Oxford: Oxford University Press, 2010).

conflicts with coastal pirates as well as in costly wars in Korea with the Japanese, who started to equip themselves with Western gunpowder weapons.[48]

In fact, the main purpose of his *Shenqi pu* was to promote the practice of using Ottoman muskets against Japanese pirates.[49] Zhao Shizhen maintained that the improvement of gunpowder weapons and the use of more advanced weapons were critical if the Ming state wanted to stop further attacks from Japanese pirates. When some people asked that since *lumi chong* was far more ruthless, what if Japanese pirates also adopted it, Zhao Shizhen commented as follows:

> People are always content with old practices, and the Japanese pirates have already trusted *niaochong*, and it is their advanced technology, so how come they are willing to change abruptly. They are already sufficient to subdue us. Why would they make an effort to change? Let us look at the usage of arms today. Even without any reliable device to subdue enemies, we are not willing to learn and practice. If we could do it (adopt the *lumi chong*) urgently, even if the pirates soon follow our practice, they are still latecomers.[50]

Zhao Shizhen hoped to keep up with the best gunpowder weaponry of his day. Not satisfied with simply recording the production method of the Ottoman musket, Zhao Shizhen actually personally produced one. He also invented other kinds of firearms, which combined all of the advantages of current guns and were more suitable to Ming conditions. In this sense, Zhao Shizhen might be characterized as having the spirit of a typical Renaissance scholar, excellent in both arts and practical science. Like his grandfather, he was good at calligraphy, but he was also concerned about state affairs and devoted most of his time to searching for practical solutions to the frontier crisis. His skill in art, as Ma Jianchun shows, contributed to the influence of his military book, *Shenqi pu*. Ma believes that one of the reasons the Wanli emperor accepted the

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[48] For gunpowder weapons in Vietnam, see Sun Laichen, "Chinese Gunpowder Technology and Dai Viet: ca. 1390-1497," in *Viet Nam: Borderless Histories*, ed. Nhung Tuyet Tran and Anthony J. S. Reid (Madison: University of Wisconsin Press, 2006).

[49] For the discussions on weapons in *Shenqi pu*, see also Kenneth Warren Chase, *Firearms: A Global History to 1700* (Cambridge: Cambridge University Press, 2003), 148.

[50] Zhao Shizhen, *Shenqi pu*, *juan* 5.

book and ordered the manufacturing of the weapon was Zhao's talent for clear illustration and his vivid drawings of the structure of the *lumi* firearm as well as shooting positions.[51]

Zhao Shizhen's *Shenqi pu* was one of many non-official military books produced in the late Ming period. Though serving as a court official, Zhao Shizhen began his book mainly because of his personal concern about Ming frontier issues. He later presented the book to the Wanli emperor in the hope for a wider application of more advanced gunpowder technology. According to Hu Xin's memorial, when he read *dibao* (邸報 imperial bulletins), he knew that the emperor had permitted the request of Zhao Shizhen, and had issued the production and practicing of the firearm weapons that Zhao Shizhen presented in the capital garrison. The purpose of Hu's memorial was to dispute the reinstatement of the dismissed official He Liangchen (何良臣) to supervise this affair. It is worth noting that He Liangchen, like Zhao a native of Zhejiang, also wrote a military book on firearms from his experiences serving as a mobile corps commander on the frontier. Hu Xin's disagreement with this appointment was mainly due to tens of thousands of silver taels that He Liangchen had used in the production of war chariots equipped with firearms that Hu believed was only a waste.[52] Despite this disagreement, a good number number of *lumi chong* were manufactured by Xu Guangqi (徐光啓). Xu wrote that he had received some Ottoman muskets, and after several months of practice only several had exploded and been damaged, but the rest all were possible to use.[53] However, there were still comments about the high cost of this type of gun in the Ming period, which may explain the reason why the Ottoman

[51] Ma Jianchun, *Ming Jiajing Wanli chao lumichong de chuanru zhizao ji shiyong*, 4.
[52] Hu Xin 胡忻, *Yu fen cao* 欲焚草 (reprint, Beijing: Beijing chuban she, 2000).
[53] See Xu Guangqi, *Xu Guangqi ji* 徐光啓集 (Collected works of Xu Guangqi), 4/170-172.

muskets did not often appear in battles in late Ming times.[54] The central bureaucracy's capacity to manage the farthest frontier garrisons such as Hami and other borderlands was limited in a new phase of the gunpowder age when new foreign technology came and shaped its frontiers and when its budget was tight. The Ming's ability to update its technology from the Ottomans as well as from the Westerners relied on its fiscal capacity, which will be further discussed in the following chapter.

Conclusion

As we see, in the early Jiajing period, court officials such as Yang Tinghe and his followers, who are generally regarded as representing the so-called conservative group of Confucian officials, advocated for a firmer bureaucratic control in managing Hami affairs. The failure of Yang's management of the Hami crisis revealed the limits of the central bureaucracy and its shortage of resources to manage the farthest borderlands. But these kinds of difficulties were also associated with new frontier challenges that the Ming state faced in the mid-sixteenth century, when it started to lose its technological advantage in gunpowder weaponry. It was probably due to these difficulties that, after the purges, Hu Shining and other court officials proposed that the Ming should no longer seek to rule Hami, following the example of Jiazhi (交趾 Annam).[55] Not every court official agreed with this approach. Huo Tao (霍韜), who also stood by the side of the emperor in the Great Rites Controversy, disagreed and insisted that Hami should be recovered. The Jiajing emperor at first favored Huo Tao's suggestion and planned to

[54] Li Huguang 李湖光，*Daming diguo zhanzheng shi: daming longquan xia de huoqi zhanzheng* 大明帝国战争史: 大明龙权下的火器战争 (Nanjing: Fenghuang chuban she, 2010, 10), 217-218. For the cost of making gunpowder weaponry, see He Shijin 何士晉, *Gongbu changku xuzhi* 工部廠庫須知 (reprint, Shanghai: Shanghai guji chuban she, 2002), 8/1a-15b/606-612.

[55] As Hu suggested, the strategy for dealing with the Turpanians should be as follows: instead of asking the Turpanians for the city seal (城印) but falling into their plot for more gains, the Ming court should allow them to offer tribute if they did not invade. If they continued to invade, the tribute would be cut off. Wang Qiong also supported this strategy. See *Ming Shizong shilu*, 86/6b-7a.

send an army to take Hami. Nevertheless, the emperor gave up the idea as soon as he realized the expenses for such a campaign. The suggestion of Hu Shining, Yang Yiqing, and Wang Qiong, who maintained that provisions should first be built-up, was adopted, but all of them claimed that this was only a temporary strategy.[56] The Ming court still hoped to recover Hami someday and accepted annual tribute missions from Hami even though it was now controlled by the Turpanians. The confusion that was brought about by this arrangement, however, forced the Ming to change its tribute relation with Hami in 1532.[57] While the farthest frontier garrisons such as Hami never recovered throughout the remainder of the dynasty, the Ming central bureaucracy nevertheless attempted to establish a firm control of its nine frontier garrisons and tried to cope with new challenges from the south coastal regions, as discussed in the following chapter.

[56] In contrast to the statement that Wang Qiong let Hami off allowed Hami to be detached from the empire, in fact, Wang Qiong also suggested recovering Hami and pacifying the dispersed peoples on the border. See Yan, *Shuyu zhouzi lu*, 12/427.
[57] Turpan were allowed to come to the court every five years. See *Ming Shizong shilu*, 239/2a.

Chapter 5
No Longer the Inner Court's Monopoly: New Gunpowder Technology, Frontiers, and State Finance

As previously discussed, in the early Ming period, large and powerful gunpowder weapons were kept under the tight control of the emperor and the inner court in the capital city. The cannons that had been occasionally distributed outside the capital city were also put under the supervision of eunuchs. This imperial monopoly of gunpowder weapons also shaped the early Ming state's approach to administering its frontiers. Since most powerful gunpowder weapons and the special gunpowder-equipped units were stationed in the capital city, whenever a major threat occurred on the frontiers, the imperial troops from the capital city were often sent to the borders.[1] This autocratic-centered military system that had been established in the early Ming period faced its first challenge after the Battle of Tumu in 1449. After this catastrophic military failure, the emperor no longer led imperial troops onto the battlefields. Facing no less frequent nomadic invasions due to the power vacuum in the border regions with the retreat of the Ming forces, the frontier officials—especially those *dufu* officials who took on additional military authority on the frontiers—began to request more powerful gunpowder weapons, deployingengaging them systematically in frontier defenses through the building of a series of barrier walls and forts that were equipped with cannons and other weapons. Civil officials'

[1] For a discussion of the retreating of the Ming frontier defense lines from the northern regions under the Yongle emperor's arrangement and its impact on the Ming military system, see Zhao Xianhai, *Mingdai jiubian changchen junzhen shi xia: Zhongguo bianjiang jiashuo shiyan xia de changcheng zhidushi yanjiu* (明代九边长城军镇史下, 中国边疆假说视野下的长城制度史研究), 409.

attempts to break the imperial monopoly of gunpowder weapons further changed the early Ming frontier strategy.

Unlike the situation in the early Ming when the emperor was responsible for funding the military, after 1449 the central bureaucaracy began to take on responsibilities for many of the military expenditures, which had increased dramatically, especially in the sixteenth century with the coming of Western gunpowder weapons in East Asia. As the previous chapter has shown, the inflow of Ottoman muskets in central Asia played a role in shaping the Ming's relation with the Turpanians. This chapter explores the impact of the spread of Western gunpowder cannons and muskets in Asia, which caused new frontier crises for the Ming, especially in the coastal regions.[2]

The present chapter will first provide a close observation of frontier officials' efforts to engage more gunpowder weapons on the frontiers and will pay special attention to the building of the Great Wall in association with the availability of various gunpowder weapons. It will then discuss the financial constraints that the central government faced in its efforts to cope with new crises and will explore the reasons why the Ming state failed to develop into a competent fiscal state, able to deal with new military challenges in the gunpowder age.

Building the Ming Great Wall on the Frontiers

After the Battle of Tumu, the Ming state faced constant nomadic invasions into the northern borderlands, which continued during the early Chenghua period (1465-1487). The leader of the eastern Mongolians, Beilai (孛來), who had replaced Esen's influence, crossed the Liao River with a reported 90,000 cavalry in the spring of 1465, dispersing and plundering Yansui in the

[2] As Li Kangying notes, the pirates were a powerful international joint force. See Kangying Li, *The Ming Maritime Trade Policy in Transition, 1368-1567* (Wiesbaden: Harrassowitz, 2010), 98-99.

autumn.[3] The Ming capital felt a direct threat, especially when Beilai attempted to establish permanent residence in Hetao (Ordos), the area within the large northern bend of the Yellow River.[4] After the death of Beilai, Maolihai (毛里孩) continued to occupy Hetao together with a large influx of nomads.[5] From the base of Hetao, he raided Datong in 1467, Yensui, Yulin, and other places in 1469, and the Guyuan and Ningxia areas in 1470.[6] When Maolihai's power faded, his residence in Hetao was replaced by that of Mandulu, who claimed himself as Khan. In 1473 they attacked Weizhou in Gansu.[7]

Facing these frequent invasions, as in earlier periods, the Ming sent imperial troops from the capital city to these regions under the combined leadership of military officials, eunuchs, and some high-ranking civil officials. For example, in 1466, Yang Xin (楊信), the regional commander, along with the eunuch Pei Dang (裴當), the military supervisor, led the imperial troops to Yansui.[8] In 1470, Wang Yue, who served as the Military consultant, joined the leadership of Zhu Yong (朱永), the military commander, and eunuchs to fight against Aluochu (阿罗出).[9] Wang and others took the chance of attacking the base of the nomads and defeated

[3] This was the first large-scale attack since Esen's campaign. *Mingshi*, 215/8472-8473.
[4] After Esen was killed by his subordinate Ala (阿剌) shortly after he proclaimed himself Khan, the leader of the eastern Mongolians, Beilai (孛來), again defeated Ala and maintained a powerful position among the Mongol tribes. For the situation of the Mongols after the death of Esen (1455), see also Louis Hambis, "The Mongols in the Ming Era (1368-1644)," *East and West* 7, no. 2 (1956), 123. Also see Dmitriĭ Dmitrievich Pokotilov, *History of the Eastern Mongols during the Ming Dynasty from 1368-1634* (Philadelphia: Porcupine Press, 1976), 71-72. For the strategic location of Hetao in the Ming defensive system, see also Zhao Xianhai 趙現海, *Ming changcheng shidai de kaiqi: changchen shehui shi shiyexia yulin changcheng xiuzhu yanjiu* 明長城時代的開啟：長城社會史視野下榆林長城修築研究 (Lanzhou: Lanzhou daxue chuban she, 2014), 119-131. For the early Ming approach in the Hetao region, see Zhou Song, *Mingchu hetao zhoubian bianzhen yanjiu* 明初河套周边边政研究 (Research on Hetao region in early Ming period) (Lanzhou: Gansu renmin chuban she, 2008), 155-164.
[5] Pokotilov, *History of the Eastern Mongols*, 74.
[6] Ibid., 73-74. See also Goodrich and Fang, eds., *Dictionary of Ming Biography, 1368-1644*, 1456.
[7] *Mingshi*, 215/8474.
[8] *Mingshi*, 12/163.
[9] Ibid., 13/166.

Mandulu and other Mongols in 1473.[10] Although the imperial campaigns dispelled these major occupants in Hetao and the border regions, they could not stop further nomadic invasions. There was almost no year without nomadic incursions during the last years of the Chenghua period.[11] Since the Mongols often adopted a hit-and-run strategy rather than engaging the imperial troops directly, the capital troops were dragged into constant and costly pursuit of the Mongols across the frontiers but with no obvious gains.[12]

Moreover, the imperial campaign faced other difficulties. As Pinglu General Zhao Fu (趙輔) and Wang Yue, who had led many frontier expeditions, stated in their memorials to the court, if they hoped to attack the nomads, they must search Hetao, which extended over 2,000 *li* in distance. The soldiers sent for this campaign, however, numbered only 20,000, nor were there enough troops from nearby garrisons to send as reinforcements.[13] Zhao and Wang required an additional 150,000 soldiers from both the capital camp and provinces including Shanxi and Shaanxi to march via separate routes in order to fight the Mongols. Grain and supplies needed to be managed as well.[14] The number of soldiers Zhao and Wang requested was not large compared to that of earlier campaigns led by the Zhengtong emperor. For example, when the Zhengtong emperor led the imperial troops to the frontiers in 1449, he had about 500,000 soldiers. The difficulty with dispatching 150,000 military men might have been directly related to the total

[10] Ibid., 13/168.
[11] Even at the time when the Mongols were not under unified leadership, the borders still faced frequent incursions from different tribes. As Pokotilov notes, "Both rivals endeavored to extend their influence as far as possible. Successful campaigns against China appeared naturally as a sure road to popularity." See Pokotilov, *History of the Eastern Mongols*, 79-80.
[12] Wei Huan 魏煥, *Huangming jiubian kao* 皇明九邊考 (Notes on the northern borders of the Ming imperium), 1/37b-38a. See also Morris Rossabi, "The Ming and Inner Asia," in *The Cambridge History of China*, Vol. 8, *The Ming Dynasty, 1368-1644, Part 2,* ed. Denis Twitchett and Frederick W. Mote (Cambridge: Cambridge University Press, 1998), 226.
[13] *Ming Xianzong shilu*, 108/12b-13b.
[14] Ibid.

devastation of the capital troops during the Battle of Tumu. According to *Mingshi*, the number of the capital troops slowly recovered in the Chenghua reign to only about 140,000 best military men plus others.[15] The fact that Zhao Fu and Wang Yue were able to lead only 20,000 capital troops to the borders might have been related to the absence of the emperor in the imperial campaign, as the majority of the capital troops were still stationed in the capital city for the protection of the emperor.

In addition to the shortage of soldiers, provisions posed another challenge for the imperial campaigns into the border regions.[16] In a memorial submitted to the court proposing building frontier fortifications in 1472, Yu Zijun (余子俊) stated:

> From the fifth year of the Chenghua reign (1469), the Mongols invaded frequently; supplies from Shaanxi, Shanxi, and Henan to support the battles and the defense thus were enormous… In addition, due to drought and hail in Shanxi and Shaanxi, the autumn harvest was thin. Each *tael* of silver could buy only 0.07-0.08 *shi* of rice or 0.1 *shi* of beans (7 or 8 *jin* of grass). Revenue was in short supply, and people thought of fleeing. If the nomads did not go northward, crossing the river, they must also prepare for the expenditure of the next year. If counted based on the number of this year, the campaigns of the next year would cost a total of 8,154,000 taels of silver, an amount that might be doubled if transportation fees are added.[17]

Here Yu maintained that the expeditions would cost a great amount of money, and tried to convince the court that building frontier fortifications would be a more effective and economical option.[18] As he states, the building of fortifications in peacetime would also serve as good preparation for future campaigns, as the project could be completed at the turn of spring and summer when the Mongol horses were still too weak to invade. Even if the work could not be

[15] *Mingshi*, 89/2179.
[16] Besides silver from the bureaucratic government, the money for rewarding military merit was often sent from the Palace Treasury. Under this new condition, providing provisions for the imperial frontier campaign was not a task for the bureaucratic government alone but required the necessary cooperation of the emperor and the central government. *Ming Xianzong shilu*, 103/6b; 104/7b-8a.
[17] *Ming Xianzong shilu*, 108/8a-b.
[18] Ibid.

finished within two months, as he notes, the routes that the Mongols could use to invade would be limited.[19]

Yu certainly was not the first frontier official who proposed building barrier walls on the frontiers.[20] Building walls and other fortifications had been managed mainly by military officials in the early Ming period; with the increased number of civil officials on the frontiers, the building and maintenance of frontier fortifications became the task of civil officials. But Yu Zijun was the first one who tried to build frontier fortifications in a systematic way, designing a new type of frontier tower that would take full advantage of gunpowder weapons.

Whereas the building of fortifications is often understood as a symbol of the defensive frontier approach, Yu, was not a so-called typical conservative civil official in relation to his building projects. Instead, Yu was an experienced frontier official who knew the landscape well, having served as a local official in Shaanxi for many years before he became the right-vice censor-in-chief and *xunfu* in Yansui.[21] In his new post, he participated actively in military affairs, joining several military campaigns, and his military merit was even praised by Wang Yue in a memorial to the emperor.[22] As Yu maintained, the building of fortifications was a preparation for future campaigns.

When Yu submitted his first request to build barrier walls and towers in Yanqing, his proposal was not favored by the Minister of War, Bai Gui (白圭), who preferred offensive campaigns on the frontiers.[23] Yu Zijun's proposal for new types of towers seemed to receive

[19] Ibid.
[20] Ibid., 77/6a-6b.
[21] See Tang Hezheng, *Huangming fushi bian*, 363-371.
[22] *Ming Xianzong shilu*, 97/6b.
[23] Ibid., 93/1a-b.

more support from military officials, such as Zhao Fu and Wang Yue.[24] As we see, conservative Confucian ideology is not sufficient to explain why civil officials disagreed with each other regarding a defensive or aggressive frontier approach. The frontier experiences and a common understanding of the frontier conditions seem to have drawn civil officials with experience on the frontiers closer in point of view to the military officials rather than to some of their fellow civil officials at court.

In May 1472, Yu again asked to hire commoners from Shanxi and Shaanxi to build barrier walls and towers.[25] His proposal was finally approved after the Ming drove Mandulu and others out of Hetao in 1473.[26] Yu started his new building projects in Yansui. According to a report that Yu submitted to the court in 1474, in total he built about 1,770 *li* of barrier walls, 819 cliff forts (*ya zhai* 崖砦) plus 78 small towers (*xiao dun* 小墩), and 15 frontier towers (*bian dun* 邊墩).[27] One of the new features of Yu Zijun's fortifications was the much shorter distance between towers and forts, about 2-3 *li* apart, a shorter distance than between earlier towers.[28] Even though Arthur Waldron regards them as watch towers or beacon-fire towers, the new towers built by Yu Zijun functioned quite differently as fighting towers, as stated more clearly in his design of additional towers in Datong and Xuanfu.[29]

[24] Ibid.,109/2a-3a; 111/4a-b.
[25] Ibid., 102/8b-10a.
[26] Ibid., 121/3a-4b.
[27] On the flat region in Dingbian, Ying established small towers (*dun*). The rest had towers 2-3 *li* apart from each other. He did not mention gunpowder weapons at the time. See *Ming Xianzong shilu*, 130/5a-5b.
[28] See Henry Serruys, "Towers in the Northern Frontier Defenses of the Ming," *Ming Studies 14* (Spring, 1982), 28-30. *Mingshi*, 178/4737.
[29] Arthur Waldron, *The Great Wall of China, from History to Myth* (Cambridge: Cambridge University Press, 1990), 105.

In 1484, when Yu was promoted to the position of minister of war,[30] he proposed that from Datong to Piantouguan (偏頭關), along about 600 *li* of flat terrain with no tenable defense position, towers should be built 2 *li* apart (about 720 *bu*), and each tower should be guarded by 10 people equipped with firearms and cannons.[31] As Yu further explained, since the range of firearms and cannon could reach more than 400 *bu* (步), firing from two towers could then cover the space between them. He further requested that sulphur be distributed at the frontiers.[32]

Yu's project in Datong and Xuanfu did not start until the next year because of natural disaster. After 40 days of personal inspections, along with other officials, in Datong, Shanxi, and Xuanfu, Yu Zijun again asked that 440 more towers be added to the east of Sihaizhi (四海冶) and extending west from the Yellow River for a total distance of about 1,320 *li* 233 *bu*, where there were already 170 old towers. The number of towers in Yu's proposal was based more on mathematical calculation rather than on an actual survey of the natural terrain. In total, Yu planned to build 610 towers, which was an average distance of 2.165 *li* apart.

Though barrier walls are often regarded as the main part of Ming frontier fortifications, this chapter suggests that the towers were actually Yu's primary focus.[33] His budget emphasized the costs of towers but did not mention the walls. As Yu stated, each tower would require the six-day work of 600 men. To finished the project, 40,000 men had to work for 25 days in Xuanfu; 40,000

[30] In 1477, Yu Zijun was promoted to Minister of War for his merit on the frontiers. In 1484, Yu Zijun was appointed the minister of revenue and supreme commander of military affairs of Datong and Xuanfu. See *Ming Xianzong shilu*, 168/10a; 249/4b-5a.
[31] 6 *chi* is 1 *bu*. Li Zhaoliang 李兆良, *Kunyu wanguo quantu jiemi: Mingdai cehui shijie* 坤輿萬國全圖解密: 明代測繪世界, 5.
[32] *Ming Xianzong shilu*, 250/ 6a-7b; 254/2b-3a. Wei Huan, *Huangming jiubian kao* (reprint. Taibei: Huawen shuju, 1968), 4/3a/199.
[33] Discussions of the Ming frontier fortifications have always focused on the barrier walls. See Wang Guoliang and Shou Pengfei, *Changcheng yanjiu ziliao liangzhong* 長城研究資料兩種 (Two sources on the Great Wall) (Xianggang: Long men shu dian, 1978).

men had to work 38 days in Datong, and 6,000 men had to work 28 days in Piantouguan. Approximately from August of one year to the next April the task could be done. For the total number of 86,000 workers, each worker would be paid 6 *dou* (斗) of grain and 3 *qian* (錢) of silver, and 1 *jin* (斤) of salt.[34] The total cost of building these towers, therefore, would be 154,000 *shi* of grain and 77,400 tales of silver plus 258,000 *jin* of salt.[35]

In addition, each tower would be equipped with 10 bronze handguns and 2 iron cannons. Yu further requested that the Ministries of Works and Revenue provide the supply of grain, silver, and bronze as well as iron and other expenses mentioned earlier.[36] Besides the proposal for weapons to be put on the towers, Yu also proposed the manufacture of war chariots equipped with firearms in order to establish a strong military force on the borders.[37] For the gunpowder weapons, the requests had to be approved by the emperor since at this time the use of cannons outside of the capital city was still controlled strictly by the Ming court.[38] When Yu Zijun asked for 1,000 miraculous guns (*shenqiang*) and sulfur for Datong and Xuanfu, he stressed that these weapons would be kept under close supervision of eunuchs at the frontiers.[39]

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[34] 1 *jin* 斤 is about 0.59 kg.
[35] *Ming Xianzong shilu*, 268/3b-4a; 266/1a-b.
[36] Ibid., 268/3b-4a.
[37] *Ming Xianzong shilu*, 8/2a-b. Ibid., 255/1b.
[38]For example, in 1453 Regional Commander of Ningxia Zhang Tai (張泰) reported that big guns (*dachong* 大銃) granted in the Yongle period weighed about 34 *jin,* in addition to the stone inside. It was too heavy to be used to chase enemies and was only good for city defense. He requested that small bronze cannons be produced, each weighing 8 *jin* and containing 13 bigger iron bullets or 12 smaller ones. The emperor ordered the Palace Armory (兵仗局) together with the regional commander to test them. See *Qinding xuwenxian tongkao*, 欽定續文獻通考, 134/26b-27a.
[39] Yu Zijun, "Yi junwu shi" (议军务事), in *Yu Sumin gong wenji* 余肅敏公文集 (*Huang Ming jingshi wenbian* 5).

We do not know how many of these weapons were sent to the borders at Yu's request.[40] According to the 1514 gazetteer of Xuanfu, among all the gunpowder weapons that were stationed in Xuanfu, besides 14 great general cannons, 479 miraculous cannons, 958 bronze cannons, 2,161 miraculous guns, 57 bowl-mouth cannons, 4,223 miraculous [fire] lances, 34 iron-round cannons, 870 iron cannons, and 153 small iron cannons, all of which were distributed in the Xuande reign, at least 5 tertiary- general cannons, 175 iron cannons, 280 big iron-round cannons, 50 small iron-round cannons, 91 iron guns, and 476 two-wheeled *huoche* (火車) were manufactured by Yu Zijun in the Chenghua period.[41] We do not know how many of Yu's projects in Datong and Xuanfu were completed since there was little mention about Yu's fortifications in the two regions. Yu planned to finish his project in April 1486, but in January of that year the court sent Du Qian (杜謙), the vice-minister of works, and others to Datong to inspect the expenses of Yu's fortifications.[42] After he returned, Du reported in March that in less than two years Yu Zijun had used more than 1,500,000 taels of silver plus 2,300,000 *shi* of grain. This total amount included the provisions for military men and horses, spending on building towers and manufacturing weapons, and pensions for the dependents of the decreased military men in battle. Du commented that this was a waste of money. The Ministries of Revenue, War, and Works agreed with his opinion. And the emperor ordered that Yu Zijun be dismissed.[43]

[40] When it was mentioned, only the function of the wall part was stressed. In 1484, the imperial troops were sent again to frontiers to prepare for fighting against invasions in Datong and Xuanfu, as the Mongols had started to invade and again occupied Hetao. See *Ming Xianzong shilu*, 228/1b-2b.
[41] *Xuanfu Zhenzhi*, 5/43b-44a.
[42] *Ming Xianzong shilu*, 275/5a-6b.
[43] In 1486, the Ministry of Revenue reported that the years' cost of Yu Zijun was no less than one million taels of silver plus 3,500,000 *shi* of grain, plus *kaizhong* salt from Huai (開中淮鹽), more than 655,000 *yin* 引.
Ming Xianzong shilu, 273/2a-b; 275/5a-6b.

Though Yu failed to realize his grand idea on the frontiers, he envisioned a new approach by building frontier fortifications that engaged gunpowder weapons in a systematic way. More towers started to be built in other regions. For example, in 1505, Wen Gui (文貴), the censor-in-chief and grand coordinator of Yansui, stated in a memorial that he had built 47 new-style towers.[44] In 1507, Supreme Commander of Shaanxi and Right-Censor-in-Chief Yang Yiqing, who had proposed taking full advantage of powerful gunpowder weapons in frontier defenses, reported having built over 300 *li* of barrier walls, plus ditches. Yang further requested that from Ningsai Brigade of Yansui to Dingbian Brigade, 142 towers should be added, with barrier walls and ditches extending about 37,260 *zhang* 5 *chi* (about 262 *zhang* apart or less than 2 *li*).[45] According to the 1514 *Xuanfu zhenzhi*, in Xuanfu east from Sihaizhi, to the west the total length of the borderline was about 1,865 *li* 59 *bu*, and along this border were 984 towers.[46] But a more systematic building of walls and towers equipped with gunpowder weapons did not begin until the early Jiajing period with the coming to China of new and powerful gunpowder weapons from the West, as discussed in the following section.

Western Cannons and the Building of New Frontier Fortifications in the Jiajing Period

As mentioned previously, gunpowder weaponry technology that spread outside China developed quickly in Western Europe and the Islamic world. As Carlo Cipolla notes, "After the first wave of expansion in the fifteenth century the European potential in armament production

[44] *Ming Wuzong shilu*, 8/9a-b.
[45] Ibid., 25: 6b-7b. 1 *li* (里)=150 *zhang* (丈). Jing Ai observes that the range of towers built by Yang Yiqing and Xu Tingzhang extended from Lingwu county of Ningxia to Dingbian in Shanxi, and the towers stood about 1 to 1.5 *li* apart. See Jing Ai 景爱, *Zhongguo changcheng shi* 中国长城史 (A history of the Great Wall in China) (Shanghai: Shanghai renmin chuban she, 2006), 311.
[46] *Xuanfu zhenzhi*, 3/56a.

increased dramatically from a quantitative as well as from a qualitative point of view."[47] With the coming of the Portuguese to East Asia in the early sixteenth century, Western guns and cannons were also brought to the region. In 1514 the Portuguese arrived, with giant ships equipped with large cannons, at Tunmen (屯門), a coastal island in the Pearl River estuary in the province of Guangdong. We do not know when these gunpowder weapons came to the attention of the Ming government. It seems that local officials in Guangdong province were among the first ones who became acquainted with the new weaponry technology. According to a statement by a provincial official, the Assistant Surveillance Commissioner, Gu Yingxiang (顧應詳), the iron-made cannons of the Portuguese became known to local officials and an interpreter clerk (通事) even presented one of the cannons, which were named "Frankish" cannons after the Westerners, and the technology of gunpowder for testing.[48]

The technology of Western weaponry must have spread beyond the coastal region. The prince of Ning, Zhu Chenhao (朱宸濠), who later rebelled against the court, was rumored to have reproduced Frankish cannons in 1517, as reported by some eunuchs in his princedom. But because of the lack of solid evidence, the prince of Ning was not judged guilty.[49] The prince of Ning was certainly not the only person who had access to Frankish cannons. Censor-in Chief

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[47] Carlo M. Cipolla, *Guns, Sails, and Empires: Technological Innovation and the Early Phases of European Expansion, 1400-1700* (New York: Minerva Press, 1965), *74*-75. For the Portuguese firing of their cannons, see Cipolla, 107.

[48] Gu Yingxiang 顧應詳, *Jingxu zhai xiyin lu* 敬虛齋惜陰錄 (reprint, Shanghai: Shanghai guji chuban she), 12/19a-b/511. The local government seems to have obtained the weaponry as early as 1510. When the pirates attacked Xianyou county, the magistrate Fan Gui used over a hundred cannons to defeat them. Liu Xu believes that the cannons might have been obtained by Chinese overseas merchants who had travelled to the South Sea. See Liuxu 劉旭, *Zhonguo gudai huopao shi* 中国古代火炮史 (Shanghai: Shanghai renmin chuban she, 1989), 227. See Zheng Zengruo 鄭若曾, *Chouhai tubian* 籌海圖編 (reprint, Taibei: Taiwan shangwu yinshu guan, 1983). Scholars debate the earliest date for the introduction of the Frankish cannons in China. See Wang Zhaochun 王兆春, *Zhongguo huoqi shi* 中国火器史 (Beijing: Junshi kexue chuban she, 1991), 121-122.

[49] *Xingbu wen ningwang an* 刑部问宁王案 (*Xuanlan tang congshu*), 84.

Wang Yangming, who successfully pacified the rebellion of the prince of Ning, also acquired Frankish cannons and gunpowder privately from a former official and friend named Lin Jun, who sent his servants traveling 3,000 *li*, day and night, to present the weapons to Wang. The weapons arrived six days after the battles. Though Wang did not have a chance to use Frankish cannons in the battles against the prince of Ning, he wrote a famous poem, "Shu folangji yishi," to commemorate this event. His friends, including former officials Fei Hong (費宏), Huang Wan (黃綰), the surveillance commissioner in Jiangxi, Tang Long (唐龍), and even the minister of war in Nanjing, Qiao Yu (喬宇), also wrote poems on this subject as a response.[50] The influence of Wang Yangming and his cultural circle certainly made Frankish cannons more widely known.

Although some Western cannons had been manufactured in private, the official production of Frankish cannons occurred later, after the encounters between the Portuguese and the Ming state. In 1520, when the Portuguese's building forts and intention for a permanent stay in Guangdong was rejected by the Ming court, they decided to use their military force to invade Guangdong.[51] Wang Hong (汪鋐), the Provincial Surveillance Commissioner of Guangdong, who had received the imperial order to fight against the Portuguese, learned of their technology. He was informed by a local official that two Chinese men, Yang Shan (楊山) and Dai Ming (戴明), had served the Portuguese for a long time and thus knew their technology of making cannons and gunpowder. Wang managed to persuade Yang Shan and others to teach him this

[50] Wang Yangming, 王阳明 "Shu folangji yishi" in Zou Shouyi 邹守益, *Wang Yangming xiansheng tupu* 王陽明先生圖譜 (Siku weishou shuji kan).
[51] For further descriptions of the Portuguese, see John E. Wills, Jr., "Relations with Maritime Europe, 1514–1662," in *The Cambridge History of China*, Vol. 8*, The Ming Dynasty, 1368–1644, Part 2*, ed. Denis Twitchett and Frederick W. Mote (Cambridge: Cambridge University Press, 1998), 333–375.

technology and successfully reproduced several of the weapons.[52] According to *Mingshi*, during the battle against the Portuguese, who had ten military ships with forts on land built at Tunmen, Wang Hong first ordered the attack against the Portuguese with the foreign cannons that he had reproduced earlier. When the Portuguese ships caught on fire, Wang then ordered light ships to approach and board the enemy's ships for direct combat. Together with land troops, Wang defeated the Portuguese totally and destroyed their bases at Tunmen. In 1522 when the Portuguese gathered at sea and plundered Shancao Wan (茜草灣) of Xinhui county, they were defeated again by Ming fleets.

After the battles, Wang Hong presented the Frankish cannons to the Ming court. In 1524 the Ming emperor ordered that the Frankish cannons be manufactured in Nanjing by craftsmen brought from Guangdong, and in 1532 the Ministry of Works started to produce Frankish cannons for the twelve capital camps for drill.[53] Believing that the Frankish cannons were powerful weapons fit for seagoing ships and city defense, Wang Hong later submitted several memorials advocating the application of Frankish cannons for frontier defense.[54] Like Yu Zijun, he proposed building new towers equipped with Frankish cannons on the frontiers, in the capital city, and at other strategic sites.[55] As Wang stated, the reason why the Ming military troops on the borders could not stop the nomads was because the towers did not have soldiers to stop the enemy but were merely used as watch places. Forts (*bao* 堡) did not have good equipment, and the weapons in them could not reach far.[56] Wang suggested that the solution was to take full

[52] *Mingshi*, 213/8431. See also Peng Quanmin 彭全民, *Ming kangpu mingchen Wanghong muzhi kaoshi* 明抗葡名臣汪鋐墓志考释, *Nanfang wenwu* 3 (2000), 115.
[53] *Ming Shizong shilu*, 38/13b; 135/7b.
[54] Those memorials were submitted in 1529, 1530, 1532. See Peng Quanmin, 117.
[55] *Mingshi*, 213/8431.
[56] *Ming Shizong shilu*, 117/1a-2a.

advantage of Frankish cannons that he had presented earlier on: small Frankish cannons less than 20 *jin* should be used in towers, each of which should be equipped with one cannon and guarded with three people; the big ones larger than 70 *jin* with the range of 5-6 *li* should be used in castles, each of which should be equipped with three cannons and ten soldiers. Unlike Yu's project where the towers were generally about 2 *li* apart from each other, Wang Hong proposed that the towers by should be 5 *li* apart while castles should be 10 *li* apart because of the longer ranges of the Frankish cannons.[57]

Minister of War Li Chengxun (李承勛) endorsed Wang Hong's proposal. As Li stated, since Frankish handguns (*folangji shouchong* 佛郎機手銃) were sharp weaponry for the army, each garrison should follow Wang's proposal of building towers, with soldiers allocated and the weapons offered for defense. The Jiajing emperor agreed to his idea and ordered frontier officials implement this plan.[58] The reason why Li Chengxun referred to Frankish cannons as handguns (*shouchong*) rather than cannons (*pao*) may not have been because of a misunderstanding, but he might have used the term on purpose. As mentioned before, handguns were widely used among the troops, but cannons were generally kept confidential under close supervision of the inner court. By referring to the Frankish cannons as handguns, Li Chenxun conveniently avoided restrictive rules on the use of these weapons on the frontiers.

With the availability of the Frankish cannons, a new building standard of frontier towers began to form. Though the actual distances between two neighboring towers might vary

[57] For the Ming innovations based on the Western cannons, see Huang Yinong 黃一農, "Ming Qing dute fuhe jinshu pao de xingshuai" 明清獨特複合金屬砲的盛衰, *Qinghua xuebao* 清華學報 41, no.1 (2011): 73–136, 74-86. He also observes that the state armory *junqiju* received orders to remodel hand-held guns and bowl-mouth guns into mid-size Frankish cannons. See Huang, 79.

[58] Ibid. See also Sun Xun 孙旬, *Huangming shuchao* 皇明疏钞 (Copies of memorials of the Ming dynasty) (reprint, Taibei: Taiwan xuesheng shuju, Min guo 75 [1986]), 1-12.

according to different natural terrains, 5 *li* apart became a new standard for building towers. For example, in 1539 when Minister of War Zhai Luan (翟鑾) requested the building of barrier walls and towers, he pointed out that these towers would be 5 *li* apart in Jiayuguan, which was approved by the emperor.[59] This standard also applied to Datong. For example, in 1557 Yang Bo (楊博), the supreme commander and minister, asked to repair towers and forts in Datong. He proposed that in addition to the regions from the right garrison to the left garrison where 2 towers should be added for every 4 *li,* from the left garrison to Nanshan, 1 tower should be added for each 5 *li*; and from Nanshan to Zhenchen, 1 tower should be added for each 5 *li.*[60] Likewise, in 1561, Wan Gong (萬恭), the grand coordinator of Shanxi and vice-minister, requested the building of one tower for every 5 *li*.[61] Since the earlier barrier walls that had been built by Yu Zijun were already in collapse, more towers and walls were beginning to be built to replace the old ones in Yansui as well.[62] Besides Yansui, new fortifications were being built in almost all nine northern frontiers (*jiubian*) including Liaodong.

Western Cannons on the Frontiers

In the Jiajing period, a growing number of Frankish cannons were being sent to the frontiers. For example, as early as the year 1531, the Jiajing emperor ordered the manufacture of 300 Frankish cannons for frontier usage.[63] In 1536, 2,500 Frankish cannons made of iron and

[59] *Ming Shizong shilu*, 229/1a.
[60] Ibid., 459/2a; in 1546, Weng Wangda built 138 barrier walls in Datong, plus 7 forts (*bao*) and 154 towers; and 64 *li* of barrier walls in Xuanfu xilu plus 10 fighting towers. The Jiajing emperor was pleased with Weng's work for it saved money. See *Ming Shizong shilu*, 313/8b-9b.
[61] *Ming Shizong shilu*, 546/1b-2b.
[62] In January 1547, Supreme Commander of Three Frontiers in Sha'an Zeng Xian (曾銑) and others reported that the barrier walls built by Yu Zijun in the Chenghua period from Huangfuchuan (黃甫川) to Dingbian Ying (定邊營), about 1,500 *li*, were aging and in collapse. In 1530, Wang Qiong (王瓊) had built barrier walls in Huamachi 花馬池. But from Dingbian Ying to Huangfuchuan still no walls could be relied on. See *Ming Shizong shilu*, 318/2b-4b.
[63] *Ibid.,* 108/10b.

bronze were distributed to three frontier garrisons of Shaanxi.[64] In the following year, the censor-in-chief and supreme commander of three frontiers, Liu Tianhe (劉天和), and others submitted a memorial requesting small Frankish cannons that could be used on horses.[65] The emperor granted permission and ordered that 3,800 small Frankish cannons made of wrought iron plus 3,000 *xuanfeng* cannons made of bronze be sent to three norther frontier garrisons (*sanbian* 三邊) in Shaanxi.[66] In 1543, because of the lack of gunpowder weapons in three frontier garrisons and the shortage of weapons in Datong, it was decided that the Ministry of Works should supervise and distribute this exact number.[67]

Frankish cannons were certainly not the only firearms that were used for frontier defense in the mid-sixteenth century. Frontier officials also tested other types of gunpowder weapons that were believed to be a better fit for specific frontier conditions. For example, in 1546, the supreme commander, Weng Wanda (翁萬達), stated that he had manufactured the firearms that had been used in earlier times, such as *san chu lianshu* (三出連珠), *baichu xianfeng* (百出先鋒) etc., and believed that these firearms were lighter and easier to use than the Frankish cannons. Weng then asked for permission to manufacture and distribute these weapons to places including Xuanfu, Datong, and frontier castles. After testing these weapons, the Ministry of War agreed to Weng's demand, and the emperor approved this.[68] The fact that civil officials presented varied kinds of firearms to the court at the time suggests that powerful gunpowder weapons were no longer the monopoly of the inner court but something open for discussion and tests.

[64] *Ibid.,* 191/13a.
[65] *Ibid.,* 200/3b.
[66] *Ibid.,* 196/4b; 463/3b.
[67] In 1553, the supreme commander of Xuanfu and Datong and vice minister, Su You (蘇佑), requested that the fighting towers in Datong be equipped with firearms. *Ming Shizong shilu*, 398/3a-4a.
[68] Ibid., 313/10b.

Besides their use in the frontier fortifications, a good number of gunpowder weapons were requested from frontier officials for use on the battlefield.[69] For example, Zeng Xian (曾銑), who advocated a large-scale military campaign in Hetao, requested that a great number of gunpowder weapons be used for this military campaign.[70] As Zeng stated in 1546:

> In order to recover Hetao, 6,000 bowl-mouth cannons made of wrought iron should be prepared, 15,000 long iron guns, 15,000 iron handguns, 20,000 small iron hand lances (*qiang*), 2,000 long lances, 100,000 explosive *zhapao* made of pig iron, 150,000 *jin* of saltpeter, 30,000 *jin* of sulfur, and 250,000 bullets plus bows, arrows, shields, etc. With these, the nomads could be defeated and the land could be recovered. But these are just for one-year usage. If for three or four years, flying firearms (*feipao*), sulfur, and bullets should be supplied if they are in shortage. And the gunpowder weapons made in the capital are for frontier defense. But some are fit for one condition but not another condition. And some are fit for defense but not for attack. Some are fit for attack but are too heavy to reach far. And the pig irons break after long periods. If saying that *shenji* should not be allowed to be manufactured outside of the capital, the rule concerning armor and *shenqiang*, however, would be against private possessions. In terms of the weapons such as bowl-mouth cannons and long and short iron guns (*chong*), the law does not say anything about them, which however are public weapons used for defending frontiers and defeating the nomads. Therefore, he (Zeng) requested a special order that 20,000 or 30,000 in silver from the state revenue be sent to the frontier officials in Shanxi, Shaanxi and other places to manufacture the weapons, which could be used for training and battles.[71]

The kind of gunpowder weapons that Zeng requested were mainly small cannons and guns, such as bowl-mouth cannons and iron guns, that were not restricted. He did not ask for large cannons like Frankish cannons that were available to the frontiers already. The huge demand for gunpowder weapons for such a large-scale imperial campaign proposed by Zeng was probably the main reason that he asked only for smaller gunpowder weapons. Large cannons were still not allowed to be produced outside the capital city. As Zeng maintained, since there was no rule against using smaller cannons such as bowl-mouth cannon and iron gun, these weapons should be allowed to be produced on the frontiers. Zeng's grand proposal for the campaign, however, was not approved by the court. He was later criticized by other officials for the impossibility of

[69] Zengxian 曾銑, "Fu tao yi 复套议," in *Huang Ming jingshi wenbian*, 237/445-452.
[70] Zeng also proposed building barrier walls from Dingbian Ying to Huangfuchuan. See *Ming Shizong shilu*, 318/2b-4b. Zeng was promoted to supreme commander of Three Frontiers in Shanxi in 1546.
[71] Ibid.

his mission and for the huge cost of this expedition, and was soon impeached for initiating wars and conflicts on the borders.[72]

Zeng's idea of producing and taking full advantage of gunpowder weapons on the frontiers was, however, realized when another type of Western gun, the musket, began to be used by regional commanders to fight against pirates along the southeastern coast of China. As more frontier fortifications were built and equipped with gunpowder weapons to fight against the nomads on the northern borders, the Ming also began to use muskets to fight the pirates who constantly raided the coastal regions in the late Jiajing period. Many explanations have been given for the frequent pirate invasions in the mid sixteenth century, such as the Ming's strict ban on overseas trade when international trade was flourishing and the conflicts between local people and foreign merchants.[73] It is also important to note that the coming of Western gunpowder weapons changed the power dynamics of the southeast coast of China. Though the Ming court still forbade private use of gunpowder weapons, the rule did not seem to be effective. Local people in coastal regions could get access to such weapons, as a report from the King of Korea on March 24, 1547 reveals: The King sent back 341 Ming people from Fujian, stating, "These

[72] *Ming Shizong shilu*, 332/1a-2a; 8b-9a.

[73] Xu Xueju 徐學聚, *Jiajing dongnan pingwo lu* 嘉靖東南平倭錄 (Campaigns against the pirates of the southeast during the Jiajing reign) (Taibei: Chengwen chuban she, 1968), 1. See also Zheng Liangsheng 鄭樑生, *Mingdai wokou shiliao* 明代倭寇史料 (Materials on the Ming period pirates) (Wenshizhe chuban she, 2008), 24. For further discussions of Japanese and Chinese pirates at the time, see Gao Yangwen 高揚文 et al., ed., *Mingdai wokou shilue* 明代倭寇史略 (A brief history of Ming period pirates) (Beijing: Zhonghua shuju, 2004), 163-183. For a general scholarly discussion about Ming pirates, see also Fan Shuzhi, *Wanming dabian ju* 晚明大變局 (Big changes in late Ming period) (Beijing: Zhonghua shuju, 2015), 38-59; Song Xuan 宋烜, *Mingdai Zhejiang haifang yanjiu* 明代浙江海防研究 (Coastal defense in Ming dynasty Zhejiang studies) (Beijing: Shehui kexue chuban she, 2013), 24-35. See also Kwan-wai So, *Japanese Piracy in Ming China during the 16th C*entury (East Lansing, MI: Michigan State University Press, 1975); Weizhong Zheng, *War, Trade and Piracy in the China Seas, 1622-1683* (Boston: Brill, 2013); Teddy Sim, *The Maritime Defense of China: Ming General Qi Jiguang and Beyond* (Singapore: Springer, 2017); Li Kangying, *The Ming Maritime Trade Policy in Transition, 1368 to 1567* (Wiesbaden: Harrassowitz, 2010). For the rise of piracy in the sixteenth century, see also Ray Huang, *1587, A Year of No Significance: The Ming Dynasty in Decline* (New Haven: Yale University Press, 1981), 162-166.

people were found with weapons and goods. Earlier on, Japanese pirates had no cannons but now they have a good number of these weapons because of them."[74] Powerful pirates started to appear at this time. Large pirate groups constituting both Japanese and Chinese established their bases in the coastal islands, with a large number of followers and hundreds of fleets equipped with powerful weapons.[75] They constantly raided and plundered the coastal provinces while no regional troops of the Ming state seemed able to stop them.

Facing the pirate invasions, the Ming central government sent a *xunfu* official to deal with this difficult situation.[76] In 1547, Zhu Wan (朱紈) was appointed the grand coordinator of both Zhejiang and Fujian provinces.[77] In addition to regular civil duties, Zhu was responsible for military affairs.[78] This was the first time that a *xunfu* position had ever been established in Zhejiang Province. Because some officials still questioned whether the post was proper, in the following year, Zhu's title was switched to that of Regional Inspector, but he handled a similar task. In order to stop the invasions, Zhu adopted harsh policies toward locals who presumably had connections with the pirates. However, his action aroused serious criticism from influential gentry families in the local province,[79] and Zhu was dismissed. Facing imperial inquiry, he chose

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[74] *Ming Shizong shilu*, 321/2a.
[75] The weapons that the Japanese pirate infantry used, as Ray Huang observes, were mostly traditional weapons like the sharp twin swords. Huang believes that the use of firearms by the Japanese pirates was limited. See Huang, *1587*, 165.
[76] For more information about the *xunfu* of Zhejiang province in the late Jiajing period, see Zheng Liangsheng, 205-208.
[77] Ibid, 315/7b; 325/2a.
[78] *Huang Ming jingshi wenbian* 皇明經世文編 (Collected writings about statecraft from the Ming dynasty), 205/131-133. There were some debates about whether the position was proper. According to the decree, Zhu should have been stationed at Hangzhou, but since he had to move back and forth between Fujian and Zhejiang wherever there was an emergency, some officials suggested that two *xunfu* officials be established instead of one. The Ministry of Revenue replied that Zhejiang had no Grand Coordinator in earlier periods. Whenever there was an emergency, high-ranking officials would be sent to Zhejiang but recalled after the matters were solved. This practice should be reinstalled, and the *xunfu* should be dismissed. The emperor agreed that a *xunfu* in Zhejiang was not in accord with the form of government in the province and decided that Zhu Wan should be appointed Regional Inspector. See *Ming Shizong shilu*, 338/1a-1b.
[79] *Mingshi*, 93/5405.

to take his own life. The death of Zhu indicates the vulnerability of frontier officials in this difficult situation.

In 1552, when pirates again invaded Taizhou, causing huge suffering, another official, Wang Yu (王忬), an experienced frontier official, was designated to replace Zhu and serve as the Military Superintendent in Zhejiang and some places in Fujian.[80] Upon receiving his new post in Zhejiang, Wang stressed in his memorial to the court the importance of using gunpowder weapons to fight the pirates.[81] Wang had become well acquainted with gunpowder weapons during his service on the northern frontiers, where he requested more gunpowder weapons to defend Tongzhou.[82] Under Wang's command, the Ming troops destroyed the base of the pirates, but the pirate leader Wang Zhi fled away.

After their base was destroyed, however, the pirates dispersed and attacked the coastal regions on an even larger scale. Ten counties in Guangdong and Fujian experienced harsh raids in the following months. Local troops were insufficient to meet this challenge, and requests for the transfer of more troops were submitted to the Ming court. The Ministry of War decided to transfer soldiers from nearby regions as well as to recruit more soldiers and supply warships, provisions, weapons, and gunpowder. All of these measures were approved by the emperor.

At this time the pirates approached the southern capital of Nanjing. In 1554, Zhang Jing (張經), the minister of war of the southern capital, was designated to hold the concurrent position of the supreme commander of Zhejiang, Fujian, and Jiangnan troops.[83] Zhang was chosen probably

[80] *Ming Shizong shilu*, 387/5b.
[81] Wang Yu 王忬, *Wangsima zoushu* 王司馬奏疏, in *Huang Ming jingshi wenbian*, 283/18-21. See also *Ming Shizong shilu*, 393/1a-1b.
[82] *Huang Ming jingshi wenbian*, 283/9b-10b/2987.
[83] *Ming Shizong shilu*, 410/4a-4b.

because of his earlier experiences in recruiting "wolf soldiers" in Guangdong and Guangxi.[84] In his new post, Zhang Jing transferred 5,000 wolf soldiers from Guangxi to Zhejiang, and requested more soldiers from local prefectures and counties.[85] As Zhang proposed, for counties and prefectures that were larger than 200 *li*, about 300 men should be enlisted. For those under 200 *li*, 200 men should be enlisted. An amount of 12 taels of silver would be paid for each man if no one volunteered.[86] However, because of his delays in fighting the pirates, Zhang was criticized at court, and was soon put in prison and publicly executed together with eight other officials.[87] *Mingshi* tells that Zhang Jing's fall was mainly due to power struggles at court and the unfavorable opinions from Yan Song (嚴嵩), the Senior Grand Secretary.[88] Power conflicts in the Ming court probably played a role, but the vulnerability of these civil officials was attributed to the difficult situation that the Ming faced in this gunpowder age when bureaucratic government did not have enough resources to deal with increasing wars.

When Suzhou, Hangzhou, and Nanjing were all under pirate attacks, probably realizing the shortage of military forces, another civil official, Hu Zongxian (胡宗憲), who had been promoted to the Vice-Minister of War for his military merit in fighting pirates, proposed a non-military approach.[89] Taking advantage of conflicts among the pirates, Hu successfully plotted to

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[84] Wolf troops (*lang bing* 狼兵) were a type of local troops, constituting non-Chinese fighters at provinces such as Guangxi and Guangdong. For the observation of wolf troops, see John W. Dardess, *Ming China, 1368-1644: A Concise History of a Resilient Empire* (Lanham, Md.: Rowman & Littlefield, 2012), 79. *Ming Shizong shilu*, 309/4a.
[85] Ibid., 412/4b.
[86] Ibid., 4b-5b.
[87] Ibid., 427/5a. See also *Mingshi*, 93/5408.
[88] *Mingshi* mentions Yan Song and Zhao Wenhua in a secret memorial to the emperor, and Yan Song agreed with Zhao on this matter. For a close observation of Yan Song's recommendation of Zhao Wenhua, and their efforts in dealing with the pirate issue, see Cao Guoqing, Zhao Shugui, and Liu Liangqun, *Yan Song pingzhuan* 严嵩评传 (A Critical Biographical Study of Yan Song) (Shanghai: Shanghai shehui kexue yuan chuban she), 57-61. Soon another civil official, Zhao Wenhua, was appointed Censor-in-Chief to manage the military affairs in Zhejiang and Nanzhili; see Xu Xueju, *Jiajing dongnan pingwolu*, 77.
[89] *Mingshi*, 93/5410.

capture their leaders Xu Hai (徐海) and then Wang Zhi (王直).[90] The death of the pirate leaders, however, did not prevent further invasions from pirates, who continued to harass the coastal regions. This serious pirate issue was not solved until Qi Jiguang, the regional commander, supported by his superior officials Hu Zongxian and others, established a local gunpowder unit in the coastal regions and began the effective use of another Western gun, the musket.[91] As early as 1556, Qi had proposed using military troops in the provinces and taking advantage of cannons more effectively in battles against the pirates.[92] In fact, he had also learned the technology of the Western musket (*niaochong* 鳥銃) from Japanese pirates.

Western muskets were quite different from the handguns that were used by the Ming troops, and the advent of Western muskets in the sixteenth century is regarded as a major invent in military history. With the invention of the mechanism of the matchlock, the Western handgun gained a more precise aim and better stability than earlier guns had.[93] The infantry used muskets frequently on the battlefield, and this innovation changed the way battles were conducted. As Tonio Andrade observes, "Arquebuiers became increasingly prominent in Europe, so that by the late 1500s they had become a core component of European armies, reaching proportions of 40 percent of infantry forces."[94] In the middle of the sixteenth century, when these arquebuisers

[90] Xu Xueju, *Jiajing dongnan pingwo lu*, 91.
[91] For more about Qi's military ideas, see also Qi Jiguang, "Qi Shaobao wenji," in *Huang Ming jingshi wenbian* 347/279-281. Qi in 1557 again requested the recruiting of soldiers from Zhejiang but received about 3,000 transferred from other generals. In 1559 he requested for the third time the recruiting of new soldiers. This time his request was approved by Hu Zongxian. Qi then had about 4,000 soldiers primarily from Qiwu. In the year 1560, he wrote his military book *Jixiao xin shu* 紀效新書 (New treatise on military efficiency). For discussions of the recruiting of soldiers, see *Qi Jiguang zhi* 戚继光志 (Shandong renmin chuban she), 25-27. See also Sim, *The Maritime Defense of China*, and Tonio Andrade, *The Gunpowder Age: China, Military Innovation, and the Rise of the West in World History*, 167. For the tactics and teamwork of Qi, see Huang, *1568*, 168. In terms of the weapons, Huang maintains that the most effective weapon that Qi adopted was the lance, but he also notes that Qi used firearms effectively in the engagements. See Huang, *1568*, 169.
[92] Qi, J*ixiao xinshu*, preface.
[93] Andrade, *The Gunpowder Age: China*, 167.
[94] Ibid.

came to East Asia, pirates certainly were among the first to use the weaponry. It was not a surprise that Qi Jiguang would obtain the technology from pirates. Though there were few records about the earliest date when pirates started to use muskets, as early as 1553-1554 there is a record that a Ming military man was killed by the fire of muskets in a battle against the pirates.[95]

Like Frankish cannons, muskets also received attention from many Ming officials. As early as 1553, a censor named Zhao Chen (趙宸) proposed using warships and muskets to fight against pirates.[96] With the support of high-ranking civil officials, Qi started to recruit soldiers from Zhejiang Province and to build a local troop equipped with both new and traditional weapons. Qi insisted that all warships, firearms, and other weapons be replaced with the best versions. Besides the use of efficient weapons, he also developed effective military strategies for training the soldiers. Most remarkably, in order to overcome the limitation of firearms that could fire only once at a time, Qi designed a new volley technique.[97] As Tonio Andrade observes, the volley technique used by Qi was at least several decades ahead that in Europe.[98] Qi's troops became the main force fighting against the pirates.[99] In 1561, when the pirates plundered places including Taozhu (桃渚) in Zhejiang, Qi and his troops defeated and killed almost all of the raiders. Qi won nine battles against the pirates and helped to clear Fujian of piracy.[100]

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[95] *Ming Shizong shilu*, 419/8a-9a.
[96] Ibid., 401/6a-6b.
[97] As he wrote in his book, when encountering the enemy, the soldiers should not fire the muskets too late. And they should not be fired all at once. Whenever the enemy was within a distance of 100 *bu*, the soldiers should form a line and fire according to a signal sound of the horn. The musketeers should be followed by crossbowmen and other soldiers with traditional weapons. Qi Jiguang 戚继光, *Jixiao xinshu*, 114.
[98] Andrade, 178. For cases of the deployment of the volley in Europe, see also Christer Jorgensen, et al., *Fighting Techniques of the Early Modern World, AD 1500-AD 1763: Equipment, Combat Skills and Tactic*s (New York: Thomas Dunne Books, 2006), 25.
[99] *Mingshi*, 100/5611-5613.
[100] Ibid.

Because of his remarkable achievements in the coastal regions, Qi was later transferred to the northern frontiers where he started to use both Frankish cannons and muskets in fighting against the nomads. In Jizhen, Qi proposed building new towers, each of which should be equipped with 8 Frankish cannons, 8 miraculous fast lances (*shen kuan qiang* 神快槍), 500 rockets (火箭), and 50 stone cannons.[101] Besides gunpowder weapons, Qi also put musketeers on his towers to fight the nomads when they approached. As he suggested, 5 musketeers plus 5 fighters (*shashou* 殺手) should be stationed on each tower.[102]

Besides the application of cannons and other weapons on the frontier fortifications, like Zeng Xian, Qi also proposed using these weapons to fight the nomads on the battlefield.[103] As Qi suggested, if the Ming had chariot camps (車營) that were equipped with firearms firing all day, there would be no necessity of digging trenches and relying on cities.[104] Qi further proposed that 10 chariot camps be established. Each camp would have about 265 Frankish cannons with 25,600 balls, 512 muskets with 15,360 bullets, and 15,360 rockets.[105] Besides chariots, Qi also proposed building a cavalry camp taking full advantage of musketeers and other gunners. As he suggested, each cavalry camp should have 50 *hudun* cannons, 432 muskets, 1,152 fast guns, 12,920 rockets, and 432 fast lances (*kuaiqiang*). Each team would consist of 12 men, including 2 musketeers and 2 gunners.[106] As we see, what Qi envisioned was to establish a combined troop of infantry camps, chariot camps, and cavalry on the frontiers, taking full advantage of new

[101] Ibid.
[102] Qi Jiguang, *Qi Shaobao zouyi buyi* 戚少保奏議補遺 (Beijing: Zhonghua shuju, 2001), 2/274.
[103] Qi, *Jixiao xinshu*.
[104] Ibid., 256.
[105] Qi Jiguang, *Lianbing shiji* 練兵實紀 (Taibei: Yiwen yinshu guan, 1970).
[106] Ibid. Qi, *juan* 6.

gunpowder weapons. In fact, Qi proposed to change the earlier Ming military approach that relied heavily on the capital forces.[107]

Qi's grand plan of taking full advantage of gunpowder weapons on the northern frontiers, however, did not become a reality during his time. His new towers generated much debate at court. Even his main supporter at court, Senior Secretary Zhang Juzheng (張居正), questioned the costs of guarding the towers. As Zhang stated, if each tower needed 50 people as guards, this would require 50,000 soldiers for 1,000 towers. But where would the soldiers come from?[108] Zhang again asked whether it would be better to save the money, which was about 10,000 taels, and instead hire 5,000 local strong men. Besides the shortage of soldiers, Qi's plan was also strained by a limited production of gunpowder weapons under the tight budget of the central government.

As mentioned previously, in the early Ming period the Palace Armory (Bingzhang ju), produced large and powerful cannons and guns. The two state armories, Junqi ju and Kuijia chang (also called Pei'an chang 鞍轡廠), managed by the Ministry of Works, manufactured only two types of smaller gunpowder weapons, the bronze bowl-mouth cannons and bronze handguns, with a fixed number of 3,000 each. During the Jiajing period with the spread of Western weapons, the state armories began to be allowed to produce Frankish cannons in different sizes—large, middle, and small sizes—plus other cannons, such as the seven-eyed bronze cannon and the ten-eyed bronze cannon iron gun.[109] But the annual production of the state armories was still limited. It was recorded that in the late Wanli period it became a convention

[107] Ibid. Qi, *juan* 6. His strategy resembled that of Yongle's troops, but the difference was that Qi's gunpowder camps were built at the frontiers rather than in the capital city.
[108] Zhang Juzheng, *Zhangtaiyue ji* 張太岳集 (Shanghai: Shanghai guji chuban she, 1984), 21/9b-10a.
[109] *Da Ming huidian*, 976.

that the two arsenals, Kuijia chang and its gunpowder factory Wanggong chang (王恭廠), produced about 17,000 pieces of armor and firearms every three years.[110] Both received silver directly from the Ministry of Works.[111] The gunpowder weapons produced in the capital city seemed to be hardly enough to meet demands. In 1528, for example, it was reported that the gunpowder units in the southern capital city were short of firearms for training; for 3,600 soldiers, they received only 500 miraculous lances.[112]

There was always a shortage in the production of gunpowder weapons. For example, in 1620 in a reply to the request of Xiong Tingbi (熊廷弼), the supreme commander, for more cannons in Liaodong, the Ministry of Works stated that 2,000 cannons from the Palace Armory had been loaded and sent, but Xiong mentioned that the bronze cannons mostly exploded (suddenly) and asked for iron cannons that did not collapse so easily. The Ministry of Works then sent from the state armories including Kuijia and Wanggong 2,000 *yongzhu* iron cannons and 500 *lianzhu* iron cannons, which were tested and ready to use. But the cannon restored in Kuijia were set aside for emergencies. It would have been unwise to send out all of them. The Ministry of Works asked for 400,000 *jin* of Jian iron (建鐵) for more production. But the money required for these items and transportation fees would be about 37,000 taels of silver. The reserve in the Ministry of Works was empty, and there was no means of future preparation.[113] The Ministry of War sometimes supplied the Ministry of Works with money. For example, in

[110] *Mingshi*, 68/226-2266. The Palace Armory and the Junqi 軍器, Zhenggong 針工, and Pei'an factories? belonged to the inner court managed by eunuchs, while Kuijia chang 盔甲廠 was under the Ministry of War, managed by civil officials. Kuijia chang was located in the southeastern corner of the capital city while Wanggong chang was located in southWestern corner of the city. See Liu Ruoyu, *Zhuozhong zhi*.
[111] *Mingshi*, 68: 2266. These state armories had eunuchs as managers but were supervised by a secretary from the Ministry of Works. *Da Ming huidian*, 976.
[112] *Ming Shenzong shilu* (Veritable records of emperor Shenzong), 140/9a.
[113] Ibid., 591/10a-b.

1637, it sent about 400,000 taels of silver to the Ministry of Works.[114] Many requests had been sent from the Ministry of War for more gunpowder weapons to be produced by the Ministry of Works.[115]

Only occasionally were gunpowder weapons for the frontiers sent from both the Palace Armory and the state armories. For example, in 1574 in response to the request of the supreme commander, Liu Yingjie (劉應節), the Ministry of Works first replied that from the reserves of Kuijia factory under its management the ministry would supply about 2,000 iron Frankish cannons, 400 muskets, and 2,000 *jiaba* guns, plus bullets and gunpowder.[116] In the following year, the Ming court decided that the gunpowder weapons for towers and chariots be sent from both the Palace Armory and the Kuijia factory that was managed by the Ministry of Works. Another 50,000 taels of silver would be sent from the Ministry of War and the Ministry of Works to the frontiers for local production.[117] This court decision was actually unusual since not only were gunpowder weapons sent from the Palace Armory, but they were also going to be produced on the frontiers. This policy was in large part attributed to the Grand Secretary, Zhang Juzheng. At this time, the newly-enthroned Wanli emperor was still in his youth, and the court was managed by his mother Dowager Li, who entrusted all the state affairs to Zhang Juzheng.[118] During this period, both the inner court and the bureaucratic government were under a unified leadership, which was quite a rare case throughout the Ming dynasty. Under Zhang's administration, the Ming state not only revived its military vigor and but also accumulated a

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[114] *Zhongguo Mingchao dangan zonghui* 中國明朝檔案總匯 (Imperial archives of the Ming Dynasty in China) (Guilin: Guangxi shifan daxue chuban she, 2001), 26/2001.
[115] Ibid., 21/1739; 21/1743; 22/1843; 26/2001.
[116] *Ming Shenzong shilu*, 23/8a-b. The weapons stored in arsenals in the capital city were mainly for the defense of the capital and the military officials in the capital city, and were not usually distributed to the frontiers, except after 1557 when they were distributed as an exception.
[117] Ibid., 40/3a.
[118] *Mingshi*, 101/5645.

good number of reserves in the central finance. It was also because of Zhang's support that Qi could conduct many of his new military policies on the frontiers as the frequent correspondence between the two indicate their close relation.[119] The brief period of a united central leadership in Ming politics ended after the death of Zhang in 1582. In the following year, accused as a partisan of Zhang, Qi was transferred to Guangdong and soon was retired.[120] The failure of Qi's reform on the frontiers might be directly related to the fall of his career after Zhang's death, but the difficulty of building gunpowder-equipped troops on the northern borders could also be attributed to the shortage of money for the Ministry of Works.[121] The financial deficit of the central government was accelerated in the late Ming period, especially under the tax reform led by the Wanli emperor, as discussed in the following section.

It is worth noting that Qi Jiguang, realizing the difficulty of receiving enough gunpowder weapons from the capital city, proposed that, rather than relying on production by the Ministry of Works in the capital city, the provinces should produce these weapons based on their native output.[122] In this way, Qi tried to overcome the constraints on the manufacture of the weapons by the central bureaucracy. Like Qi, other officials also submitted requests for permission to produce gunpowder weapons on the frontiers. For example, Weng Wanda, in order to deal with a shortage of weapons, asked that frontier officials gather craftsmen to produce weapons including armor, bows, and arrows, cannons and guns, and Frankish cannons.[123] He further requested that

[119] Qi was promoted above both civil and military officials. This was a unique case with the support of Zhang Juzheng. See Shen Defu 沈德符, *Wanli yehuo bian* 萬曆野獲編 (Unofficial information obtained during the Wanli period) (Beijing: Zhongghua shuju, 1982), 554.
[120] *Mingshi*, 100/5616.
[121] The annual official quota for the Ministry was about 500,000 taels of silver, as recorded in the thirty-fifth year of the Jiajing period. *Da Ming huidian*, 207/3a-b. In the sixteenth year of the Wanli reign (1588), it was reported that the annual income of the Ministry of Works was about one quarter of that of the *Taicang,* which was about 925,000 taels of silver. *Ming Shenzong shilu*, 194/7b.
[122] Qi, *Qi shaobao zouyi* 戚少保奏议 (Memorials of Qi Jiguang), 39.
[123] Weng Wanda 翁萬達, *Weng Wanda ji* 翁萬達集 (Shanghai: Shanghai guji chuban she), 136.

the frontier garrisons be allowed to use official silver or that people be ordered to prepare the materials to produce firearms.[124] But the requests for local production were only permitted occasionally while the majority of the weapons were still manufactured in the capital city. It seems that in the late Wanli period the rule that weapons must be produced by the Ministry of Works was gradually relaxed as a growing number of gunpowder weapons started to be manufactured on the frontiers. For example, in 1618 the Regional Inspector, Zhou Shidan(周師旦), reported that in Xuanfu and Datong 12,753 weapons including *dajiangjun* cannons, *mielu* cannons, muskets, and three-eyed guns were produced and distributed to every castle.[125]

Besides the frontier officials' requests, an anonymous author of the military book *Caolu jinglue*, which was produced in the early Wanli period, also stated that the gunpowder troops *shenji ying* should not preserve the monopoly and keep the technique of gunpowder weaponry production a secret but should make it widely known in counties and prefectures.[126] The book further notes that since firearms were easy to fire but difficult to load, they often were used up in the battles and should be widely produced.[127] In the late Ming period, a growing number of military books began to appear in print. It has been estimated that the Ming period, especially from the middle Ming onward, produced a greater number of military books than ever before.[128] The publishing of a large number of such books reflects a growing general interest in frontier affairs and an increasing demand for civil officials and even commoners to participate in state affairs in the late Ming period.[129]

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[124] Ibid., 135.
[125] *Ming Shenzong shilu*, 570/6a-b.
[126] *Caolu jinglue* 草廬經略 (Zhongguo Bingshu jicheng 26), 2.
[127] Ibid.
[128] *See Zhongguo bingshu jicheng* 中国兵书集成, preface.
[129] This general popular interest in military affairs seemed a new phenomenon in the Ming period.

The Division in the Central Finance in a New Phase of the Gunpowder Age

Unlike the early Ming period when the emperor took charge of military affairs while the bureaucratic state government performed a supportive role, from the mid-Ming period onward, the state treasuries began to take on many of the expenditures of the Palace Treasury. For example, in 1506, when the Palace Treasury was short of money to cover expenses, such as imperial funerals, the ceremony of inauguration, and rewards and salaries of military officials, the state treasuries were ordered to cover these expenses on an irregular basis.[130] The percentages in the sharing of varied expenses by the Palace Treasury and the state treasuries were constantly negotiated. In 1549 the Jiajing emperor ordered the Ministry of Revenue to offer the Palace Treasury 80,000 taels of silver each season, which was set as a rule.[131] This amount was intended to cover the Palace Treasury's shortage of about 300,000 taels of silver, for officials salaries, and manufacturing appliances, as well as money for rewards.

As imperial (Inner Court) coffers were now draining money form the bureaucratic (Outer Court) coffers, the Ministry of Revenue also had to face increasing expenditures on the frontiers. As mentioned earlier, when more fortifications began to be built systematically, not only in Ordos but in almost all of the nine garrisons at the frontiers, the cost of building the fortifications and maintaining them was enormous, which in the Jiajing period had become additional regular spending rather than ad hoc disbursements for the state treasuries. There were constant complaints about the huge costs of frontier projects. To solve this problem, in 1554 the Ministry of Revenue reported that previously the costs of building frontier fortifications had been provided by each garrison, but because the building projects were vast, the reserves and silver for

[130] The salaries of the civil/military officials were about 100,000 taels of silver total for all for each season at this time. *Ming Wuzong shilu*, 18/4b-6a. For the amounts of royal rewards upon enthronement, see also Wang Shizhen, *Yanshantang bieji* 弇山堂別集, 76/1461-1462.
[131] *Ming Shizong shilu*, 347/11a-b.

horses (馬價銀) had been sent from the ministry frequently. The ministry thus ordered that from a certain day onward, people who requested the building of frontier fortifications should not ask money from the state treasury as a matter of course. If the expense was absolutely necessary, the Ministry of Revenue would provide 35% and the Ministry of War would provide 25%, and the number should be recorded for future reference.[132] This policy was approved by the emperor and was set as a rule.[133] Since the budget of the central government was tight, the requests for central funding were not always granted. For example, in 1559 when Huo Ji (霍冀), the censor-in-chief of Ningxia, requested the building of 489 *li* of barrier walls and other fortifications following Yansui's example, the Ministry of War maintained that the money should be sent from the reserve money in the garrison.[134]

Besides the spending on building frontier fortifications, a growing amount of money was requested for hiring more soldiers and providing daily provisions on a regular basis on the frontiers. Since its establishment under the first emperor, the military service had been hereditary, and most of the military men came from registered military households. Facing a shortage of military forces on the frontiers in the sixteenth century, the central government had to use silver to hire more soldiers. As mentioned earlier, Qi Jiguang and others submitted several requests to recruit more soldiers on the frontiers to conduct campaigns and guard the frontier fortifications and garrisons.

[132] Ibid., 413/4b. The remaining was mostly covered by the local government.
[133] For example, in 1557, when Yang Fu requested 290,000 taels of silver for building more fortifications on the frontiers, half from the garrison and half from the state treasuries, the Ministry of War replied that 105,000 taels of silver would be sent from the state treasury *Taicang,* managed by the Ministry of Revenue, and another 35,000 taels from the treasury *Taipusi* (太僕寺), managed by the Ministry of War. Ibid., 467/4a-b.
[134] Ibid., 475/1a-b.

Because of these growing expenditures, there was a sharp increase in government spending in the late Ming period.[135] As Quan Hansheng calculates, the annual expenditure sent from the National Silver Vault in the middle of the Jiajing period was about 1 million taels of silver; from the mid-Jiajing to 1577 it was about 2 millions taels of silver; and from 1578 onward the number rose to about 3 to 4 million taels.[136] While the Ming state could hardly make its ends meet on a regular basis, it experienced extreme shortages, especially in times of war. The Ming experienced unprecedented frontier crises after the sixteenth century. After having dealt with pirate issues and nomadic invasions in the late sixteenth century, the Ming state was again engaged in three major wars on the frontiers during 1592-1600, which cost about 11,633,000 taels of silver in total, according to Quan.[137] Besides these frontier crises, the rise of the Manchu people on the northern borders posed a new frontier crisis for the Ming state in the seventeenth century.

The Commercial Tax and Further Divisions in Central Finance in the Wanli Period

In order to cope with the huge financial deficit, the central government tried to facilitate uniform administration of the commercial tax in addition to managing the manipulation of grain tax commutations. For example, in 1573, the first year of the Wanli period, in the name of the

[135] Wang Zunwang 王尊旺, *Mingdai jiubian junfei kaolun* 明代九边军费考论 (Investigation of Ming military expenditures of nine norther borders) (Tianjin: Tianjin guji chubanshe), 2015; Lai, Jiancheng 賴建誠, *Bianzhen liangxiang: Mingdai zhonghou qi de bianfang jingfei yu guojia caizheng weiji, 1531-1602* 邊鎮糧餉: 明代中後期的邊防經費與國家財政危機, 1531-1602. See also Liang Miaotai 梁淼泰, "Mingdai 'jiubian' de junshu" 明代九边的军数, *Zhongguo shi yanjiu*, no.1 (1997).

[136] Quan Hansheng, *Mingdai zhongye hou taicang suichu yinliang de yanjiu*, 192-193.

[137] As Quan observes, the first war, which dealt with the revolt of Bobai in Ningxia, cost about 1,808,000 taels of silver. The second one against Japanese invasions in Korea, which lasted for seven years, cost about 7,822,000 taels of silver. The third one, which dealt with the rebellion of the chieftain Yang Yinglong and others in Sichuan for 100 days, cost about 2,003,000 taels of silver.

new policies, the government ordered that all private illegal collection sites be reduced.[138] The Ministry of Revenue also tried to clarify the number of places for collecting taxes and the amounts of silver levied, as well as the specific use for the money collected in each province. In response, the Grand Coordinator of Fujian, for example, reported that he had checked all kinds of taxations, including the ones that had been adjusted recently.[139] The minister of revenue further asked to adjust the responsibilities for the collection of commercial taxes in local areas. He explained that if each of the tasks was managed by one administrative section, then the top administer would be able to check the tasks, and the local administrator would have nowhere to evade his responsibility. Besides clarifying the rules, the central government sometimes sent its officials directly to local areas to administer and levy taxes.[140]

The ministry also constantly forbade the setting up of illegal sites for the collection of commercial taxes.[141] As a result, local governments including Hanzhong Prefect, Xianyang County, and seventeen other areas reduced their illegal taxation sites, and local governments in Nanjing and Zhejiang also reduced various kinds of commercial taxes.[142] The commercial taxes administered by the central government provided an important source of revenue for the frontiers. For example, the supreme commander of the Three Frontiers and concurrent Grand Coordinator of Shanxi requested that the commercial taxes and other money for the Ministry of Revenue should be used to build frontier fortifications. The request was granted.[143]

[138] *Ming Shenzong shilu*, 3/30b-31a.
[139] Ibid., 32/9b-10a.
[140] For example, in 1576 the secretary from the Ministry of Works was sent to Jinzhou (荊州) to levy the taxes.
[141] *Ming Shenzong shilu*, 131/3b-4a;135/7b-8a.
[142] Ibid., 141/4b-5a; 169/4a; 170/8b.
[143] Ibid., 36/2a, 5b.

However, the central state's efforts to streamline the collection of commercial taxes were greatly disturbed in the Wanli period when the emperor sent eunuchs to collect commercial taxes and open mines in the provinces in the name of repairing the palaces, parts of which had been destroyed. It was under this order that a great number of collection sites was reopened and many new sites established, which operated beyond bureaucratic oversight.[144] Officials were constantly complaining about double taxes or redundant sites. For example, Grand Secretary Shen Yiguan (沈一貫) stated that there were some places in Jiangnan where two customs taxes were collected within a distance of one to two *li*.[145] Moreover, unlike previous practices in which officials who were sent to levy taxes served no more than a one-year office term to reduce possible abuses, the eunuch collectors often stayed for much longer periods, even sometimes more than twenty years without transferring terms or replacement.[146] The practice of sending eunuchs and their clerks to provinces further added to the redundancy of collectors.[147] The eunuchs, who represented the power of the emperor in the provinces, could easily abuse their power for personal gain, which greatly disturbed local society. When local magistrates complained about the great harm that these eunuchs had caused, however, it was often the officials who were punished by the emperor for obstructing tax collection.[148] The amounts of extractions from the provinces led to a huge increase in tax burdens. As one official complained, the quota for Henan Province in previous years was about 15,350 taels of silver annually, but the quota increased to about 71,650 taels of silver after eunuch collectors came in 1599.[149] A Chinese scholar, Yang Tao, observes that, from

[144] For example, see *Ming Shenzong shilu*, 331/1a, 4a, 7a-7b, 10a-12b.
[145] Ibid, 330/2b-3a.
[146] Ibid., 517/1a-2b.
[147] As one official complained, each one of the eunuch collectors had about 100 men who served him, including 10 men for his household and 20-30 clerks for his staff, plus 20-30 other servants. See *Ming chaoben Wanli qiju zhu*, 10/64-66.
[148] *Ming Shenzong shilu*, 323/1b-2a;
[149] Ibid., 486/2a-3a.

1597 to 1608, the total number of donations made by eunuchs to the emperor was 6,696,212 taels of silver plus 9,952 taels of gold.[150] This income is equivalent to 57.56% of the total costs of the three major campaigns (11,633,000 taels of silver) as mentioned previously.[151]

This revenue, however, was not used for state purposes but regarded as the emperor's personal income. These taxes collected by the eunuchs entered the Palace Treasury in the name of private donations rather than going to the state treasuries. There was no public account book showing the expenses for these collections.[152] There might have been some secret account books only managed by eunuchs and the emperor, which is indicated by the writing of eunuch Liu Ruoyu (劉若愚).[153] But since there was no official accounting, the bureaucratic government could not know the exact amount of the income and spending of the Palace Treasury and thus could not to put it under any bureaucratic oversight, despite the extraordinary amounts of commercial taxes that were collected by the eunuchs. When the state faced crises, it was the central government that had to collect an extra amount of local taxes to fund wars such as the Korean campaign.[154]

In times of emergencies, the state treasuries had to frequently borrow money from the Palace Treasury and pay it back later. These requests were not always approved.[155] For example, in 1618 the emperor stated that earlier when the Ministry of War had reported the lack of money

[150] Yang Tao, "Mingchao Wanli zhong kuangshui jian jinfeng neiku kao" 明朝万历中矿税监进奉内库考, *Yunnan shifan daxue xuebao 83*, no.6 (1986): 48-51.
[151] This percentage was slightly higher than that of Spain, where private donations during 1792-96 were equivalent to approximately 48.2% of the cost of the Spanish wars.
[152] Liu Jian, *Liu wenjing gong zoushu* 刘文靖公奏疏 (Memorials of Liu Jian).
[153] Liu Ruoyu, *Zhuozhong zhi*.
[154] *Ming chaoben Wanli qiju zhu*, 10/153. In a study of the costs of the Bozhou campaign, a Chinese scholar points out that the money mostly came from provinces and the Ministry of Revenue. Liu Liping 刘利平, "Mingdai Bozhou zhi yi junfei kao 明代播州之役军费考, *Zhongguo bianjiang shidi yanjiu 22*, no. 3 (2012): 102-114.
[155] *Ming Shenzong shilu*, 48/6b-7a; 78/1a-2a; 127/2 a-b.

to recruit soldiers, he had immediately ordered the Palace Treasury to send money. The ministry thus owed about 1,439,800 taels of Golden Floral Silver to the Palace Treasury. The reserve of the treasury was almost empty as the surplus from earlier years, about 100,000 taels of silver, had been sent to the Ministry of Revenue. Regarding the lack of money for military expenditures, as the emperor maintained, it was not that he was inconsiderate but that he had no way of obtaining the money. He ordered the Ministry of Revenue to borrow and collect money urgently so as not to delay military affairs.[156]

As we see, the collection of extraordinary commercial taxes in the late Wanli period served to enhance the emperor's control rather than to benefit the state. In the gunpowder age when many Western states were developing fiscally, shifting the composition of revenues more towards trade, the Ming state failed to benefit from its commercial prosperity.[157] Meanwhile, the collections of commercial and mining taxes in the provinces resulted in criticism from both commoners and officials.[158] There were numerous complaints that the taxes sent to the bureaucratic government now became the personal income of the emperor.[159] Only after 1606, because of severe criticism from bureaucratic officials, did the emperor agree to share half of the revenue from the commercial tax collected by the eunuchs with the central government.

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[156] Ibid., 569/9b-10a.
[157] Timothy Brook has observed that the growth of the economy stimulates the growth of cities as markets, as sites of manufacturing, and as the residential choice of elites. See Timothy Brook, *The Troubled Empire: China in the Yuan and Ming Dynasties* (Cambridge, MA: Belknap Press, 2010), 112. For a general observation of the prosperous commercial society in the Ming, see Brook, *The Confusion of Pleasure: Commerce and Culture in Ming China* (Berkeley: University of California Press, 1998).
[158] *Ming chaoben Wanli qiju zhu* 明抄本万历起居注 (reprint, Beijing: Quanguo tushuguan wenxian suowei fuzhi zhongxin, 2001), 10/2-6. The price of goods doubled in the capital city after the collection of shop taxes (*dianshui* 店税). *Ming chaoben Wanli qiju zhu*, 10/142.
[159] *Ming Shenzong shilu*, 387/1a; 543/4b-5a.

However, in spite of the criticism, the collection of these taxes was still put in the hand of the eunuchs.[160]

Facing a great fiscal deficit in times of increased warfare, the Ming government, unlike other states such as Britain and France, rarely resorted to the credit system except for a few cases when it borrowed from certain rich people in the capital city.[161] The Ming failure to use a credit system was likely related to the division in its central financial system, though more research needs to be done about the credit system and state finance. In the late Ming period, although the bureaucratic government began to take on more responsibility for military affairs, the fiscal system remained divided, and the Ming central government had to struggle financially until its final days. As R. Bin Wong notes, "The Ming state did not have any comprehensive accounting system for tracking its revenue and expenditures…the Ming state reduced the fiscal complexity of its operations by relying heavily on agricultural taxes."[162] Responsibility for the lack of a comprehensive accounting system for its revenue and expenditures lies in the fundamental division in the control of revenue between the monarch and the bureaucratic system in the Ming period.[163] In fact, state finance was often in better shape when the Palace Treasury and the state treasuries were under unified leadership, a very rare case during the early Wanli period when Zhang Juzheng managed all state affairs, as previously mentioned. But even in Zhang's time, the

[160] Ibid., 416/1a-2a.
[161] A. Gonzalez Enciso has observed how the need to supply wars drove states in Europe such as Britain and France to resort to seeking credit and other types of finance, thus turning from military-fiscal states to contract states. See A. Gonzalez Enciso, *War, Power and the Economy: Mercantilism and State Formation in 18th-century Europe* (New York, NY: Routledge), 2017.
[162] See R. Bin Wong, "Taxation and Good Governance in China, 1500-1914," in *The Rise of Fiscal States: A Global History, 1500–1914*, ed. Bartolomé Yun-Casalilla and Patrick K. O'Brien (New York: Cambridge University Press, 2012), 356.
[163] For a comparative evaluation with other fiscal states, see Bartolomé Yun-Casalilla, "Introduction: The Rise of the Fiscal State in Eurasia from a Global, Comparative and Transitional Perspective," in *The Rise of Fiscal States: A Global History, 1500-1914*, ed., Bartolomé Yun-Casalilla and Patrick K. O'Brien (New York: Cambridge University Press, 2012), 2.

central government could hardly make ends meet. In a reply to Grand Coordinator of Yingtian, Zhang Juzheng admitted that in terms of frontier expenses, there was a shortage of 1,400,000 taels of silver annually.[164] When Zhang Juzheng tried to reduce the spending of the imperial household and to use the money from the Palace Treasury for the state, this arrangement could not be sustained, especially after his death.[165] In this new phase of gunpowder age, while the bureaucratic government started to take on military affairs, the fiscal system, however, remained divided and the Ming central government had to struggle financially till the end of the dynasty.

Conclusion

Unlike the early Ming period when cannons and other powerful gunpowder weapons were mainly manufactured and kept in the capital city under the management of the inner court, from the mid-Ming period onward, a growing number of gunpowder weapons were requested by frontier officials to be distributed to the frontier fortifications. Whereas the building of frontier fortifications during the Ming period was often regarded as a passive policy pursued by civil officials because of their conservative anti-military ideology or a kind of policy statement developed because of power struggles in the Ming court, in fact frontier officials envisioned an active and even a bold strategy that engaged gunpowder weapons—once monopolized by the emperor—in frontier defenses. The specific forms of frontier fortifications that had been built in different periods were closely related to the types of gunpowder weapons that were available for frontier officials. In the sixteenth century, when foreign gunpowder weapons, such as Frankish cannons and muskets, came to East Asia and became available to many, the tight control of cannons and other weapons by the emperor became more relaxed. It was during this time that Frankish cannons and powerful cannons started to be manufactured by the state armories and

[164] Zhang Juzheng, *Zhang taiyue ji*, 21/15a-b.
[165] *Ming chaoben Wanli qiju zhu*, 9/174-175.

distributed to the frontiers. The main sections of the frontier fortifications, including new types of towers and walls, were built at this time in almost all nine frontier regions, and formed into what we call the Ming Great Wall, still visible today. The availability of these weapons on the frontiers also contributed to changes in frontier policy. With the spread of gunpowder weapons on the frontiers, a growing number of soldiers started to be recruited to guard the frontier fortifications and to fight against the nomads. The soldiers on the frontiers gradually replaced those from the capital city as the pillars of the imperial force.[166] The military system in the late Ming, therefore, no longer operated as it had in the early Ming period. Under this new condition, more resources were requested for the frontiers, and the central government faced an increase of expenditures on the frontiers at the same time the Ming emperor no longer took on such responsibilities as funding the imperial campaigns and providing rewards for military merits.

Whereas the Confucian government experienced tremendous changes in terms of its functions, its financial capacity did not support this growing role in managing the frontiers and military affairs in the provinces. The reform of the collection process for commercial and mining taxes in name of the emperor's personal use aroused great criticism and further divided the central financial system. The taxation reform initiated by the Wanli emperor in the late sixteenth century benefited the emperor's personal income more than the state treasury, creating chaos in the collection of commercial taxes in the provinces. The Ming state generally failed to establish a fiscal system to cope with the challenges in the sixteenth-century, during a new phase of the gunpowder age.

[166] For the increasing number of soldiers in the nine northern frontier garrisons, see Zhang Zunwang, *Mingdai jiubian junfei kaolun*, 81. In the campaign against the Japanese invasions into Korea in the Wanli period, instead of imperial troops from the capital city, major troops were sent from the frontiers to fight against the enemy. In addition, the Ming court provided gunpowder weapons for the Koreans. See *Ming chaoben Wanli qiju zhu*, 9/37.

Conclusion
Rethinking Ming Politics in the Gunpowder Age

The political transformation of Ming China appears in a new light when it is situated within the context of the gunpowder age. The rise of absolute power was closely associated with the imperial control of gunpowder weaponry from the early Ming period. The emperor's attempts to establish control over powerful weaponry through his personal agents generated serious political consequences, which fundamentally changed the trajectory of the political history of China. The placement both of a large portion of state revenue and of critical state functions in the inner court under eunuchs in order to control gunpowder weapons greatly compromised the power and responsibility of the outer court, the central bureaucracy. In the early Ming, the Confucian bureaucracy played only a secondary role in managing state affairs. Unlike its role in previous Chinese dynasties, its civil officials were generally excluded from participating in military and frontier matters. Confucian officials' lack of involvement in military affairs of the state during the early Ming period was not a result of their conservative Confucian ideology, but a consequence of the imperial monopoly of military affairs with the expansion of the inner court. Unlike Europe, where the age of gunpowder is generally regarded as critical for the growth of state bureaucracy that came along as a response to absolute power, Ming China witnessed the rise of an autocratic system separate from the already well-oiled Confucian bureaucratic organization.

However, the reach of imperial autocracy into the local was not as strong as it appeared. The need for managing local taxation as well as supervising military-agricultural lands associated with the garrisons forced the emperor to assign such tasks to civil officials from the

central government.[1] Initially, local assignments were temporary, but they gradually developed into regular positions. Long periods of service in the provinces and on the frontiers provided centrally appointed delegates not only rich experience in military affairs but also an awareness of critical gunpowder weapons that had once been monopolized by the inner court. The use of gunpowder weapons and the importance of military tactics provided civil officials new opportunities to participate in military leadership, especially after the Tumu crisis in 1449. Military dominance in the early Ming gave way to a civil dominance in the middle Ming period when the central bureaucratic government began to play a growing role in the management of state military affairs in the capital city, in the provinces, and on the frontiers.

The growing influence of civil officials in military affairs was accompanied by changes in the larger social-economic context. Whereas in early Ming times central finance was under a uniform control of the emperor while the civil bureaucracy did not have a say in financial decision making, starting from the Zhengtong period, through the variations made on tax commutations, the central bureaucratic government accumulated a large amount of revenue in the form of silver, which provided greater freedom for spending. Starting from the mid-fifeenth century, the Confucian bureaucracy showed its new vigor in governing state affairs.[2]

[1] It is worth noting that the kind of policy-centered governance featured the form of governance in Western Europe or in Qing China does not apply to the Ming state. The Ming government targeted on quite different things, focusing on problem-solving rather than policies towards various groups of peoples. Whereas Michel Foucault argues that an art of governing developed in the sixteenth and seventeenth centuries patterned on the Western European experience that "governing is power targeted at a society or population," Henrik Enroth calls for a new discourse of governance that is premised "on solving problems with no necessary reference to any kind of society or population." See Henrik Enroth, "Governance: The Art of Governing after Governmentality," *European Journal of Social Theory* 17, no.1 (2014): 61.

[2] As James Parson comments, "the Ming bureaucracy, presents a picture of enormous complexity and balance…it was one of the political marvels of the premodern world, and was not unworthy of the high esteem it elicited from certain of the Europeans who were privileged to witness its operation." See James B. Parsons, "The Ming Bureaucracy," in *Ming Government in Ming Times*, ed., Charles O. Hucker, 277.

Facing frequent incursions from the nomads along the borders of the empire, civil frontier officials proposed new frontier approaches, taking full advantage of powerful gunpowder weapons that had been mostly reserved for the capital city. They started to build long walls and new towers equipped with large and powerful gunpowder weapons along the borderlands. Whereas the building of frontier fortifications during the Ming period has often been regarded as a passive policy pursued by civil officials because of their conservative anti-military ideology or a policy statement due to power struggles in the Ming court, these frontier officials actually envisioned quite an active and even a bold strategy that engaged gunpowder weapons—once monopolized by the emperor—in frontier defense. Civil officials' attempts to break the imperial monopoly on powerful gunpowder weapons only succeeded during the sixteenth century when foreign cannons and guns started to flow into East Asia and became more widely available.

Whereas the Confucian government took on the main responsibility to fund the military and the wars along the borders of the empire, its ability to cope with these challenges was constrained by financial deficiencies. The contest for state revenues between the inner court and the bureaucratic government greatly affected the government's ability to produce an adequate supply of gunpowder weapons and to fund its hired troops. In the mid-sixteenth century, the Ming state faced growing frontier pressure as the state engaged in more frequent wars, especially with new gunpowder powers such as the coastal pirates or Japan. The Ming fiscal system faced unprecedented challenges while divisions in the central financial system continued into the dynasty's last decades. The conflict between the imperial system and Confucian bureaucracy also affected the management of remote borderlands such as Hami, which had been under direct imperial control, beyond the reach of the bureaucratic administration. In the late Ming period, the chaotic management of Jianzhou, on the northeastern borderlands where the Jurchen tribes lived,

led to the mistreatment they received and the revenge they took on the Ming. As the Qing quickly learnt the Ming weaponry technology, it continued to face similar problems in the adjustment of central governance in this gunpowder age, but went on a different trajectory by reinforcing its autocratic and Manchu ethnic control over the military as well as gunpowder weaponry.

Appendix

Appendix A: List of Ming Emperors

Table 2 The Ming Emperors

	Reign Name	Date	Personal Name	Temple name
1	Hongwu 洪武	1368-1398	Zhu Yuanzhang 朱元璋	Taizu 太祖
2	Jianwen 建文	1399-1420	Zhu Yunwen 朱允炆	Huidi 惠帝
3	Yongle 永樂	1403-1424	Zhu Di 朱棣	Chengzu 成祖
4	Hongxi 洪熙	1425	Zhu Gaozhi 朱高熾	Renzong 仁宗
5	Xuande 宣德	1426-1435	Zhu Zhanji 朱瞻基	Xuanzong 宣宗
6	Zhengtong 正統	1436-1449	Zhu Qizhen 朱祁鎮	Yingzong 英宗
7	Jingtai 景泰	1450-1456	Zhu Qiyu 朱祁鈺	Jingdi 景帝
	Tianshun 天順	1457-1464	Zhu Qizhen (again) 朱祁鎮	Yingzong 英宗
8	Chenghua 成化	1465-1487	Zhu Jianshen 朱見深	Xianzong 憲宗
9	Hongzhi 弘治	1488-1505	Zhu Youtang 朱祐樘	Xiaozong 孝宗
10	Zhengde 正德	1506-1521	Zhu Houzhao 朱厚照	Wuzong 武宗
11	Jiajing 嘉靖	1522-1566	Zhu Houcong 朱厚熜	Shizong 世宗
12	Longqing 隆慶	1567-1572	Zhu Zaihou 朱載垕	Muzong 穆宗
13	Wanli 萬曆	1573-1620	Zhu Yijun 朱翊鈞	Shenzong 神宗
14	Taichang 泰昌	1620	Zhu Changluo 朱常洛	Guangzong 光宗
15	Tianqi 天啓	1621-1627	Zhu Youjiao 朱由校	Xizong 熹宗
16	Chongzhen 崇禎	1628-1644	Zhu Youjian 朱由檢	Sizong 思宗

Appendix B: Weights and Measures

Table 3 Weights and Measures

Weights		Capacity		Length		Areas & distance	
shi 石	70.8kg	*shi* 石	98.7 l	*pi* 疋 or 匹 (bolt)	1.8x40 *chi*	*qing* 頃	64,000 m^2
jin 斤	0.59 kg (20.7 oz)	*dou* 斗	9.870 l	*zhang* 丈	10 *chi* 3.2 m	*mu* 畝	640 m^2
liang 兩	36.875 g	*sheng* 升	987 ml (33.6 oz)	*chi* 尺	34 cm (tailor) 32.7 cm (land) 32 cm construction (12.5 inch)	*li* 里	691.2 m
qian 錢	3.6875g	*he* 合	98.7 ml	*cun* 寸	3.3 cm	*bu* 步	1.92 m

Source: *Wilkinson, Chinese History: A Manual*, 237-238.

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